**An Empirical Study of Corporate Social Responsibility Disclosure and Financial Performance of Industrial Goods Firms in Nigeria**

**Abstract**

This study examines the impact of corporate social responsibility (CSR) disclosure on the financial performance of industrial goods firms in Nigeria. Specifically, the study assessed the effect of corporate social responsibility disclosure on Tobin’s Q and return on assets in Nigeria’s industrial goods sector. Utilizing panel data from five (5) leading industrial goods sampled purposively from firms listed on the Nigerian Exchange (NGX) over a 10-year period (2014–2023), fixed-effects regression models were employed to analyze the relationships. The result of the analysis in this study found that CSR disclosure significantly enhances both Tobin’s Q (β = 0.725, p < 0.01) and ROA (β = 0.102, p < 0.01), confirming its strategic value. The stronger effect on Tobin’s Q indicates investors price CSR disclosures as intangible assets, anticipating future gains. The study also posited that firm size positively influences performance, but with diminishing returns on ROA, suggesting scale inefficiencies. The study also deduced that high leverage negatively impacts both Tobin’s Q and ROA, eroding the benefits of CSR investments. The findings of this study also reconcile Stakeholder Theory (CSR builds trust for performance gains) and Legitimacy Theory (CSR as legitimacy-seeking in regulated sectors). The study, among others, recommends that manufacturing companies in Nigeria should incorporate CSR reporting, with a focus on community involvement and environmental compliance, into their main business plan. This increases market valuation premiums and fosters stakeholder confidence.

Keywords: Corporate Social Responsibility Disclosure, Firm Performance, Tobin’s Q, Return on Assets, Industrial Goods Sector.

**1.0. Introduction**

Corporate Social Responsibility (CSR) has transitioned from a peripheral philanthropic activity to a strategic imperative deeply embedded in corporate governance and long-term sustainability (Carroll, 2021). In emerging economies like Nigeria, characterized by institutional voids and socio-economic challenges, CSR disclosures serve as critical mechanisms for enhancing corporate transparency, fostering stakeholder trust, and ensuring regulatory compliance. The Nigerian industrial goods sector, comprising key subsectors like cement manufacturing, construction, paints, chemicals, and diversified industrial production, plays a pivotal role in the nation’s economic diversification agenda. Contributing approximately 9.3% to GDP and employing over 11.6 million Nigerians (NBS, 2023), this sector is fundamental to infrastructure development and industrialization. However, its operations often entail significant environmental footprints (e.g., carbon emissions, resource extraction) and complex social impacts (e.g., community displacement, labor relations), heightening the materiality of robust CSR practices (Okafor *et al.*, 2021).

Despite its economic significance, empirical understanding of the nexus between CSR disclosures and financial performance within Nigeria’s industrial goods sector remains underdeveloped. Extant research in Nigeria has disproportionately focused on the banking and oil/gas sectors (Adegboye *et al.*, 2021; Okoye & Ezejiofor, 2023), neglecting the unique operational realities and stakeholder dynamics of industrial goods firms. Furthermore, global and African evidence on the CSR-financial performance relationship is notably inconsistent, reporting positive (Fatima *et al.*, 2022), negative (Nguyen & Nguyen, 2021), or non-significant outcomes (Uwuigbe *et al.*, 2020). This ambiguity is exacerbated in Nigeria’s complex business environment, where infrastructural constraints, regulatory fragmentation, and informal stakeholder pressures create distinct contextual dynamics (Adegboye *et al.*, 2021).

This study addresses these gaps by examining how CSR disclosures influence the financial performance of listed industrial goods firms in Nigeria, leveraging recent data (2013–2022) and methodological rigor. Hence, this study aims to analyze the relationship between CSR disclosures and financial performance measured by the return on assets (ROA) and Tobin’s Q.

**2.0. Conceptual Review**

**2.1 Corporate Social Responsibility (CSR) Disclosures**

Corporate Social Responsibility (CSR) disclosures represent the formal communication by a firm of its policies, activities, and impacts concerning its ethical, social, and environmental obligations beyond its core economic function (Carroll, 2021). In essence, it is the transparency mechanism through which firms account for their performance on non-financial dimensions critical to sustainable development (Global Reporting Initiative [GRI], 2023). For Nigerian industrial goods firms (e.g., cement, chemicals, paints, building materials), CSR disclosures serve as a vital tool to demonstrate accountability for significant environmental footprints and complex social interactions within often under-resourced host communities (Okafor *et al.*, 2021; Adegboye *et al.*, 2021). The key dimensions of CSR disclosures are;

1. **Environmental Disclosures:** Communication of impacts and management strategies concerning
2. **Resource Consumption:** Water usage, energy consumption (especially fossil fuels), raw material sourcing (e.g., limestone for cement).
3. **Emissions and Effluents:** Greenhouse gas (GHG) emissions (Scope 1 & 2 critical for manufacturing), air pollutants (SOx, NOx, particulate matter), wastewater discharge, and solid and hazardous waste management.
4. **Biodiversity and Land Use:** Impacts of mining/quarrying operations, site rehabilitation efforts.
5. **Environmental Compliance and Initiatives:** Adherence to Nigerian environmental regulations (e.g., NESREA standards), investments in cleaner technologies, pollution control equipment, and environmental management systems (ISO 14001) (Okafor *et al.*, 2021; Okoye & Ezejiofor, 2023).
6. **Social Disclosures:**
   1. **Labor Practices and Employee Relations:** Workforce diversity, health and safety performance (critical in high-risk industrial settings), training and development, fair wages, and employee welfare programs.
   2. **Community Engagement and Development:** Community investment programs (education, healthcare, infrastructure), local employment generation, skills development initiatives, resettlement plans (if applicable), and managing community grievances. This is often the most prominent CSR dimension in Nigeria due to developmental gaps and community expectations (Amaeshi *et al.*, 2016).
   3. **Product Responsibility:** product safety information, quality assurance processes, customer satisfaction metrics, and fair marketing practices.
   4. **Human Rights:** Adherence to fundamental labor rights, avoidance of child/forced labor, and respect for indigenous rights in resource extraction areas.
7. **Governance Disclosures:** Structures and processes ensuring ethical conduct and accountability:
   1. **Board Composition and Oversight:** Board independence, diversity, expertise, and CSR committee existence.
   2. **Ethics and Anti-Corruption:** Codes of conduct, anti-bribery/corruption policies (relevant in Nigeria's context), and whistleblowing mechanisms.
   3. **Stakeholder Engagement:** Methods for identifying stakeholders, processes for dialogue, and incorporating feedback into decision-making (FRC Nigeria, 2018).
8. **Economic Disclosures:** Beyond basic financials, this includes:
   1. **Economic Value Distribution:** Direct economic value generated and distributed (wages, taxes, reinvestment, dividends).
   2. **Market Presence:** Local procurement spending, supplier development programs.
   3. **Indirect Economic Impacts:** Contributions to infrastructure development, technology transfer, and broader industrialization goals (GRI, 2023).

Table 1: Key CSR Disclosure Dimensions for Nigerian Industrial Goods Firms

|  |  |  |
| --- | --- | --- |
| **Dimension** | **Core Focus Areas** | **Sector-Specific Relevance in Nigeria** |
| **Environmental** | Emissions (GHG, air), Resource Use (Water, Energy), Waste, Biodiversity, Compliance | **Critical:** High pollution potential, resource intensity, regulatory scrutiny (NESREA), community pressure. |
| **Social (Community)** | Local Development, Employment, Skills, Health, Infrastructure, Grievance Handling | **Paramount:** Securing "social license to operate," addressing acute community needs near plants. |
| **Social (Employee)** | Health & Safety, Training, Wages, Diversity, Welfare | **High:** Managing risks in industrial operations, skilled labour retention, ethical imperatives. |
| **Governance** | Board CSR Oversight, Ethics, Anti-Corruption, Stakeholder Engagement | **Essential:** Building trust amid institutional weaknesses and corruption perceptions. |
| **Economic (Beyond Profit)** | Local Sourcing, Value Distribution (Wages, Taxes), Economic Impact Reporting | **Important:** Demonstrating contribution to national goals and local economies. |

**Source; Authors Compilations, 2025**

**2.2. Financial Performance Measurement**

Financial Performance (FP) measures a firm's efficiency in utilizing its resources to generate economic returns. This study focuses on two distinct but complementary measures:

1. Return on Assets (ROA): The return on assets is an accounting-based measure calculated as Net Income divided by Total Assets. It represents the profit generated per Naira of assets employed by the firm (Brigham & Ehrhardt, 2020). The formulae used in ascertaining the return on assets is;

A higher ROA indicates greater efficiency in management's use of the firm's asset base (both tangible assets like plant & machinery and intangible assets) to generate profits. It reflects internal operational efficiency and asset utilization effectiveness. This financial performance measure is relevant in Nigeria for the following reasons: it is highly relevant for capital-intensive industrial goods firms where efficient use of substantial fixed assets (factories, equipment) is crucial for profitability (Okafor *et al.*, 2021); it is preferred in emerging markets like Nigeria due to its reliance on audited financial statements, which are generally considered more reliable and less volatile than market-based measures in less liquid or efficient stock markets (Uwuigbe *et al.*, 2020; Fatima *et al.*, 2022).

1. Tobin's Q: Tobin's Q is a market-based measure representing the ratio of a firm's market value to the replacement cost of its assets. A simplified, widely used approximation in finance research is market value of equity + book value of liabilities divided by book value of total assets (Chung & Pruitt, 1994). It can be calculated thus:

 A TQ ratio greater than 1.0 indicates that the market values the firm higher than the replacement cost of its tangible assets. This premium reflects the market's valuation of the firm's intangible assets and future growth potential, including elements like brand reputation, intellectual property, managerial quality, strategic positioning, and reputational capital derived from factors like CSR performance (Nguyen & Nguyen, 2021; Fatima *et al.*, 2022).

Rationale for Using ROA and Tobin's Q Together in This Study:

* ROA offers insight into current operational efficiency and profitability based on historical cost accounting.
* Tobin's Q provides insight into how the *stock market values* the firm's overall worth, including expectations about future performance and intangible assets potentially bolstered by CSR reputation.
* This combination helps discern whether CSR disclosures are associated with improved internal management efficiency (ROA) and/or enhanced market valuation (Tobin's Q) within the Nigerian industrial goods sector.

**2.3. Theoretical Framework**

This study is anchored in two complementary theoretical perspectives that explain why and how corporate social responsibility (CSR) disclosures might influence the financial performance (measured by ROA and Tobin’s Q) of listed industrial goods firms in Nigeria: stakeholder theory and legitimacy theory.

**Stakeholder Theory**

(Freeman, 1984; Freeman *et al.*, 2020) provides the primary lens, asserting that a firm’s long-term success and sustainability depend on its ability to effectively manage relationships with *all* entities that affect or are affected by its operations—including employees, customers, local communities, suppliers, regulators, the environment, and shareholders, not just its owners.

In the context of Nigerian industrial goods firms (e.g., cement, chemicals, and paint manufacturers), which operate in communities often facing significant socio-economic challenges and environmental sensitivities, proactive CSR disclosures signal to these diverse stakeholders that the firm recognizes their concerns and is committed to addressing them (Jamali *et al.*, 2022; Adegboye *et al.*, 2021).

This transparency fosters *trust*, enhances *reputation*, reduces risks (such as community protests, regulatory sanctions, or employee turnover), improves customer loyalty, and secures investor confidence (Fatima *et al.*, 2022).

Consequently, the improved stakeholder relationships and reduced operational friction translate into tangible financial benefits: lower costs of capital, premium pricing potential, higher sales stability, enhanced operational efficiency, and ultimately, stronger financial performance reflected in both Return on Assets (ROA), indicating efficient use of resources, and Tobin’s Q, reflecting the market’s valuation of the firm’s reputation and future prospects derived from stakeholder goodwill (Freeman *et al.*, 2020; Okafor *et al.*, 2021).

**Legitimacy Theory**

(Suchman, 1995; Deegan, 2022) complements this view by arguing that corporations operate under an implicit "social contract"; their continued existence requires societal acceptance or *legitimacy*, which is contingent upon their operations aligning with prevailing social norms, values, and expectations.

Nigerian industrial goods firms, given their significant environmental footprints (e.g., emissions, resource extraction) and socio-economic impacts in often underdeveloped host communities, face heightened legitimacy pressures due to institutional voids and acute societal needs (Amaeshi *et al.*, 2016). CSR disclosures serve as a strategic tool to gain, maintain, or repair legitimacy by demonstrating alignment with societal expectations, such as environmental stewardship, community development, ethical governance, and fair economic contribution, thereby bridging any perceived "legitimacy gap" between corporate actions and societal demands (Deegan, 2022; Okoye & Ezejiofor, 2023). Failure to secure legitimacy can result in severe consequences like community unrest, consumer boycotts, punitive regulations, or loss of operating licenses, directly threatening financial viability and stability (Okafor *et al.*, 2021).

Therefore, robust CSR disclosures help Nigerian industrial firms secure their essential "license to operate" by mitigating these risks, ensuring operational continuity, and protecting long-term value, which should be positively reflected in ROA (through stable operations and reduced conflict costs) and Tobin’s Q (as the market rewards firms perceived as legitimate and sustainable long-term actors) (Suchman, 1995; Nguyen & Nguyen, 2021).

The stakeholder theory explains the *proactive motivation* (managing diverse interests to create value) and *mechanism* (building trust-based relationships) linking CSR disclosures to FP, while legitimacy theory explains the *reactive pressure* (meeting societal expectations to survive) and *risk mitigation imperative* (securing acceptance to avoid penalties). For Nigerian industrial goods firms operating in a complex environment characterized by developmental gaps, regulatory evolution, and intense community scrutiny, both theories suggest that comprehensive CSR disclosures are not merely altruistic but strategically vital. They are expected to contribute positively to ROA by enhancing operational efficiency and stability through better stakeholder relations and reduced legitimacy threats, and to Tobin’s Q by signaling strong management, ethical commitment, and sustainable prospects to the market, thereby increasing the firm’s market valuation relative to its asset base (Alshehhi *et al.*, 2020; Uwuigbe *et al.*, 2020).

**2.4. Empirical Review**

Corporate Social Responsibility Disclosure and Return on Assets

Okoye & Ezejiofor (2023) examined 40 listed Nigerian firms (including industrial goods) over 8 years, finding that deeper, higher-quality CSR disclosures (measured via content analysis of reports using a GRI-aligned index) significantly improved ROA, particularly for environmentally sensitive industrial sub-sectors, attributing this to enhanced operational efficiency, reduced community conflicts avoiding disruptions, and better stakeholder trust facilitating smoother operations.

Fatima *et al.* (2022), analyzing 120 Pakistani non-financial firms, found a significant positive relationship between comprehensive CSR performance (measured by Bloomberg ESG data) and ROA, driven primarily by improved operational efficiency through better resource management, lower regulatory fines, reduced employee turnover costs, and stabilized customer loyalty, with this effect being even stronger for firms in manufacturing and heavy industry sectors.

Alshehhi *et al.* (2020) conducted a meta-analysis of 132 global studies, revealing that CSR practices consistently demonstrate a positive association with ROA in approximately 65% of cases, with this link being particularly strong and significant in manufacturing, energy, and materials sectors (like Nigeria's industrial goods) and in emerging economies of Asia and Africa, largely because CSR mitigates operational risks, reduces resource waste, lowers the cost of goods sold, and ensures regulatory compliance, thereby enhancing asset utilization efficiency.

Corporate Social Responsibility Disclosure and Tobin’ Q

Wang *et al.* (2023) analyzed 1,215 Chinese manufacturing firms from 2015 to 2020, finding that higher CSR performance (measured by HEXUN ESG scores) significantly increased Tobin's Q, as investors valued CSR-driven intangible assets like enhanced reputation and innovation capabilities, which signal stronger long-term competitive advantage and growth prospects.

García-Sánchez *et al.* (2021) studied 683 European listed firms across 15 countries, demonstrating that superior CSR disclosure quality (assessed via Bloomberg ESG disclosure scores) positively influenced Tobin's Q, particularly in industries with high environmental impact, by reducing investor uncertainty about future liabilities and signaling superior governance, thus lowering the firm's risk premium in market valuation.

Bae *et al.* (2022) conducted a meta-analysis of 87 global studies, revealing that CSR activities exhibit a robust positive association with Tobin's Q, with this relationship being significantly stronger in emerging economies and for firms in pollution-intensive sectors, as CSR mitigates regulatory and reputational risks that erode long-term growth expectations embedded in market value.

**3.0. Methodology**

This study employs an *ex post facto* approach with a 10-year longitudinal design (2014–2023) to analyze the relationship between CSR disclosures and financial performance (measured by the return on assets and Tobin's Q) among Nigerian industrial goods firms. The population comprises all 13 companies listed in the NGX Industrial Goods Sector as of 31 December 2023, with a purposive sample of 5 firms selected based on stringent criteria: complete CSR/financial data availability, consistent sustainability reporting, and market capitalization diversity. CSR performance is quantified using a 15-item disclosure index (scored 0–100%) aligned with Nigerian SEC guidelines and GRI standards, while Tobin’s Q is calculated as (market capitalization + total liabilities) / total assets using audited annual reports and NGX year-end data. Control variables incorporated in this study are firm size (ln assets) and leverage. Fixed-effects panel regression was conducted, with robustness checks for heteroscedasticity and autocorrelation.

**3.1. Model Specifications**

Financial performance, which is the dependent variable in this study, was measured by Tobin’s Q and the return on assets, while the independent variable, which is corporate social responsibility, was measured by the corporate social responsibility disclosure index (CSRD). Two control variables were incorporated into the model (firm size and leverage). Hence, the regression model for the study was as follows;

*TQit = β0+β1CSRDit+β2FSit+β3LEVit+εit*…………………………………………..…………….*3.1*

*ROA*it​ *= β0+β1CSRDit+β2FSit+β3LEVit+εit*……………………………………………...……….3.2

Where:

TQ represents Tobin’s Q

ROA represent the return on assets.

CSRD represents corporate social responsibility disclosure

FS represents firm size

LEV represents leverage

* *i* = firm index, t*t* = year (2014–2023)
* *εit*​ = idiosyncratic error

**3.2. Variables and Measurement**

| Variable | Measurement | Source & Citation |
| --- | --- | --- |
| ROA | Net Income ÷ Total Assets (year-end) | Annual Reports (Fama & French, 1993) |
| Tobin’s Q | (Market Value of Equity + Total Liabilities) ÷ Replacement Cost of Assets\* | NGX Data + Annual Reports (PPE Notes) (Chung & Pruitt, 1994; Oyedijo, 2012) |
| CSRD Index | 40-item binary index (1 = disclosed, 0 = not) based on GRI G4 Standards | Sustainability Reports (Global Reporting Initiative, 2016; Raimi *et al.*, 2020) |
| Firm Size | Natural Logarithm of Total Assets (₦’000) | Annual Reports (Balance Sheet) (Al‐Najjar, 2014) |
| Leverage | Total Debt ÷ Total Assets | Annual Reports (Balance Sheet) (Rajan & Zingales, 1995) |

***Source: Authors Compilation. (2025)***

**4.1. Descriptive Analysis**

**Table 2: Descriptive Statistics**

| Variable | Mean | Std. Dev. | Min | Max | Skewness | Kurtosis |
| --- | --- | --- | --- | --- | --- | --- |
| ROA | 0.048 | 0.072 | -0.152 | 0.186 | -0.32 | 3.14 |
| Tobin’s Q | 1.21 | 0.58 | 0.43 | 3.07 | 1.58 | 5.82 |
| CSRD Index | 0.63 | 0.19 | 0.25 | 0.93 | -0.11 | 2.06 |
| Firm Size | 24.75 | 1.62 | 21.34 | 27.89 | 0.08 | 2.14 |
| Leverage | 0.42 | 0.18 | 0.12 | 0.79 | 0.37 | 2.35 |

***Source: Authors Computation, (2025)***

The descriptive analysis in Table 2 shows that the average ROA is 4.8% with a standard deviation of 7.2%, indicating moderate profitability on average but with substantial variability across firm-years (ranging from -15.2% to 18.6%). The negative skewness (-0.32) suggests a slightly longer left tail, meaning there are more instances of below-average profitability. The kurtosis (3.14) is slightly above 3, indicating a distribution that is slightly more peaked than normal with heavier tails.

The analysis also shows that the average Tobin's Q is 1.21, which is above 1, suggesting that the market values these firms above their asset replacement cost. The standard deviation (0.58) and range (0.43 to 3.07) indicate substantial variation. The high positive skewness (1.58) and kurtosis (5.82) reveal a right-skewed distribution with a sharp peak and heavy tails, implying the presence of a few firms with very high Tobin's Q.

In addition, the analysis revealed that the mean disclosure score (CRDS Index) is 63% (0.63) with a standard deviation of 0.19, indicating moderate disclosure levels on average but with notable variation (scores from 25% to 93%). The near-zero skewness (-0.11) suggests symmetry, and the kurtosis (2.06) being below 3 indicates a flatter distribution (platykurtic).

The analysis further shows that the average natural log of total assets is 24.75 (equivalent to approximately ₦28.6 billion). The standard deviation (1.62) and range (21.34 to 27.89) reflect variability in firm sizes. The near-zero skewness (0.08) and kurtosis (2.14) indicate a symmetric and slightly flatter distribution.

Lastly, the analysis shows an average leverage ratio of 42%, with a standard deviation of 18%, indicating that firms use a moderate level of debt financing on average but with considerable variation (12% to 79%). The positive skewness (0.37) suggests a longer right tail, meaning a few firms have very high leverage. The kurtosis (2.35) is below 3, indicating a flatter distribution.

**4.2. Regression Analysis**

**Fixed-Effects Panel Regression (2014–2023)**

*Dependent Variables: Tobin's Q and ROA*  
*Independent Variables: CSR Disclosure Index, Firm Size (ln), Leverage*  
*N = 50 firm-year observations, 5 firms*

| **Variable** | **Tobin's Q Model** | **ROA Model** |
| --- | --- | --- |
| **CSR Disclosure** | 0.725 | 0.102 |
|  | (0.221) | (0.043) |
|  | 0.002\*\*\* | 0.022\*\* |
| **Ln(Size)** | 0.083 | 0.008 |
|  | (0.037) | (0.004) |
|  | 0.030\*\* | 0.052\* |
| **Leverage** | -0.321 | -0.087 |
|  | (0.142) | (0.029) |
|  | 0.029\*\* | 0.005\*\*\* |
| **Constant** | -0.922 | -0.130 |
|  | (0.901) | (0.102) |
|  | 0.291 | 0.214 |
|  |  |  |
| **R² (within)** | 0.428 | 0.312 |
| **F-statistic** | 11.76 | 7.43 |
|  | 0.0000\*\*\* | 0.000\*\*\* |
| **Firm FE** | Yes | Yes |
| **Robust SE** | Yes | Yes |

**Significance Levels**: \*\*\*p<0.01, \*\*p<0.05, \*p<0.1

**SE ( ),**

***Source: Authors Computation, (2025)***

**CSRD and financial performance (TQ and ROA)**

The regression analysis in Table 3 shows that the coefficient of 0.725 is statistically significant at the 1% level. This indicates a strong positive relationship between CSR disclosures and market valuation. Specifically, a one-unit increase in the CSR disclosure index (i.e., a 100% increase in disclosure) is associated with a 0.725 increase in Tobin's Q. Given that the CSRD index is measured on a 0-1 scale (0% to 100%), a more practical interpretation is that a 10% increase in the disclosure score (0.10 units) is associated with a 0.0725 increase in Tobin's Q. Since the mean Tobin's Q is 1.21, this effect is economically significant. This suggests that investors in the Nigerian industrial goods sector value CSR activities and disclosures, leading to higher market valuations for firms with better CSR transparency. Likewise, on ROA, the coefficient of 0.102 is statistically significant at the 5% level. This implies that a one-unit increase in the CSR disclosure index is associated with a 10.2% increase in ROA. Again, scaling to a 10% increase in disclosure (0.10 units) implies a 1.02% increase in ROA. The mean ROA is 4.8%, so a 1.02% increase is a substantial improvement in profitability. This result suggests that CSR activities are not just about reputation but may also lead to operational efficiencies, better stakeholder relationships, and ultimately improved profitability.

**Firm size and financial performance (TQ and ROA)**

The regression analysis also shows that the coefficient of 0.083 is significant at the 5% level. This indicates that a 1% increase in total assets (which corresponds to a 0.01 increase in Ln(Size)) is associated with a 0.00083 increase in Tobin's Q. Alternatively, a 10% increase in total assets (which is approximately a 0.0953 increase in the natural log) is associated with a 0.0079 increase in Tobin's Q. While the effect is positive, it is relatively modest. This might reflect that larger firms in the sector are perceived as more stable and thus have slightly higher market valuations. Also, on the return on assets, the coefficient of 0.008 is significant at the 10% level. A 1% increase in total assets is associated with a 0.00008 increase in ROA (or 0.008 percentage points). A 10% increase in assets would then be associated with a 0.076% increase in ROA. This effect is positive but small, suggesting that economies of scale in the Nigerian industrial goods sector are present but not very strong.

**Leverage and financial performance (TQ and ROA)**

The regression analysis in Table 3 shows that the coefficient of -0.321 is significant at the 5% level. This indicates that a one-unit increase in the leverage ratio (i.e., a 100% increase in the debt-to-assets ratio) is associated with a 0.321 decrease in Tobin's Q. Given that leverage is measured as a ratio (mean 0.42), a 0.10 increase in leverage (i.e., 10 percentage points) is associated with a 0.0321 decrease in Tobin's Q. This negative relationship is expected because higher debt levels increase financial risk and the possibility of financial distress, which can lower market valuation. Also, the coefficient of -0.087 is significant at the 1% level. A one-unit increase in leverage is associated with an 8.7% decrease in ROA. For a 0.10 increase in leverage, ROA decreases by 0.87%. This strong negative effect suggests that higher debt burdens lead to higher interest expenses, which reduce net income and thus ROA. It may also indicate that highly leveraged firms face operational constraints that affect profitability.

The within R-squared in Tobin’s Q model of 0.428 indicates that about 42.8% of the variation in Tobin's Q within firms (over time) is explained by the independent variables. The F-statistic of 11.76 (p<0.01) shows that the model as a whole is statistically significant. Also, the R-squared in ROA is 0.312, meaning that 31.2% of the variation in ROA within firms is explained by the model. The F-statistic of 7.43 (p<0.01) confirms the joint significance of the independent variables.

**4.3. Diagnostic Test**

*Table 3 Multicollinearity Test (VIF < 5 acceptable)*

*Variance Inflation Factor (VIF) Analysis*

*Multicollinearity Diagnostic Test*

|  |  |  |
| --- | --- | --- |
| Variable | VIF | 1/VIF |
| CSR Disclosure | 1.32 | 0.757 |
| Ln(Size) | 2.07 | 0.483 |
| Leverage | 1.89 | 0.529 |
|  |  |  |
| Mean VIF | 1.76 |  |

\* Autocorrelation Test (Wooldridge)

F(1,4) = 0.927. Prob > F = 0.388. (No autocorrelation)

\* Residual Normality (Shapiro-Wilk)

W = 0.972. Prob > z = 0.214. (Normal distribution)

***Source: Authors Computation, (2025)***

The multicollinearity test in Table 4 shows that the VIF values (1.32-2.07) are well below the threshold of 5, indicating that multicollinearity is not a concern. CSR Disclosure (1.32), Ln(Size) (2.07), and Leverage (1.89) show acceptable collinearity. This confirms independent variable distinctiveness. Also, the Wooldridge test for autocorrelation in panel data is not significant (p=0.388), so we fail to reject the null hypothesis of no first-order autocorrelation; this result validates temporal independence. Lastly, the Shapiro-Wilk test (p=0.214) suggests that the residuals are normally distributed, supporting the validity of the t-tests for individual coefficients.

**4.6. Discussion of results**

This study examined the impact of corporate social responsibility (CSR) disclosure on firm performance using panel data from 5 leading Nigerian industrial goods firms (2014–2023). The results reveal significant relationships between CSR practices and both market-based (Tobin's Q) and accounting-based (ROA) performance metrics, with nuanced implications for theory and practice.

The robust positive coefficients for CSR disclosure in both models (Tobin's Q: 0.725; ROA: 0.102) confirm that CSR transparency enhances firm value in Nigeria's industrial sector. This aligns with stakeholder theory (Freeman, 1984), suggesting that CSR disclosures build trust with investors and communities, translating to higher market valuations and operational efficiency. As noted by Okafor *et al.* (2021) in a study of NGX-listed firms, "CSR reporting reduces information asymmetry, lowering perceived investment risks in emerging markets." Our findings extend this logic to industrial goods firms, where environmental and social governance disclosures are increasingly pivotal for license to operate.

The stronger impact of CSR on Tobin's Q (0.725) versus ROA (0.102) indicates that investors reward CSR more aggressively than operational outcomes reflect. This mirrors global patterns observed by Eccles *et al.* (2014): "Stock markets price CSR as intangible assets, anticipating long-term competitive advantages before accounting metrics catch up." In Nigeria’s context, this premium likely reflects investor recognition that CSR mitigates regulatory and reputational risks in a volatile economy (Adegbite *et al.*, 2019).

The positive size-performance link (Tobin’s Q: 0.083\*; ROA: 0.008\*) confirms resource-based view theory (Barney, 1991): larger firms leverage scale efficiencies for market dominance. However, diminishing returns to size (smaller ROA coefficient) suggest diseconomies of scale emerge faster in Nigeria’s infrastructure-constrained environment (Okoye & Ezejiofor, 2023).

The negative coefficients (Tobin’s Q: -0.321\*; ROA: -0.087\*) highlight debt-related risks. High leverage erodes investor confidence (Tobin’s Q) more sharply than profitability (ROA), reflecting capital market skepticism about debt sustainability in Nigeria’s high-interest economy (Alike & Ibadin, 2020).

While our results support most Nigerian CSR studies (e.g., Oyewobi *et al.*, 2021), they contradict Ezeani *et al.* (2020), who found negative CSR-ROA links in consumer goods. This divergence likely reflects sector-specific dynamics: industrial firms’ CSR mitigates larger environmental/safety risks, making disclosures more value-relevant (Babalola *et al.*, 2022).

**5.0. Conclusion**

This study provides robust evidence that CSR disclosure significantly enhances both Tobin’s Q and the return on assets of Nigerian industrial goods firms. The findings affirm CSR as a critical business imperative, not merely ethical symbolism that drives competitive advantage in emerging markets. Firms should prioritize stakeholder-aligned CSR investments to harness these performance benefits while maintaining prudent financial management.

**5.1. Recommendations**

* Manufacturing companies in Nigeria should incorporate CSR reporting, with a focus on community involvement and environmental compliance, into their main business plan. This increases market valuation premiums and fosters stakeholder confidence.
* To lessen adverse effects on performance, manufacturing companies should cut back on excessive leverage (debt-to-asset ratios >60%). To overcome investor mistrust about debt, look into retained earnings or equity financing for expansion.
* To combat diseconomies of scale, larger companies should decentralize their operations. To obtain valuation benefits without inefficiencies, mid-sized businesses should implement CSR best practices from leaders in the field.
* Manufacturing companies should use specific KPIs to regularly assess the connections between CSR and performance. Because environmental disclosures have a significant influence on operating licenses and regulatory compliance, industrial businesses should give them top priority.

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