https://doi.org/10.56279/orseaj.v15i1.5

# The influence of the Social Dimension of Corporate Sustainability on Financial Performance in the petroleum Sector: The moderation effect of Board Diligence

Mustafa Mbiku[1], Lemayoni Melyoki[2], Shushu Liao[3] and Siasa I. Mzenzi[4]

**Abstract**

*This paper investigates the influence of the Social Dimension of corporate sustainability on the financial performance of global petroleum companies, with a particular emphasis on the moderating role of board diligence. Drawing upon the resource-based view and stakeholder theory, the research analyzes data from 88 petroleum companies across 27 countries over a five-year period from 2018 to 2022. Through the use of panel data analysis, we reveal that factors such as human rights, community engagement, and product responsibility have a positive effect on financial performance. In contrast, the workforce component shows a negative influence on financial outcomes. Additionally, the study finds that board diligence significantly moderates the effects of human rights, community engagement, product responsibility, and workforce on financial performance. These findings underscore that financial success in the petroleum industry is intricately linked to the proactive role of the board in shaping and implementing sustainability initiatives, highlighting the necessity for governance structures that align sustainability practices with financial goals.*

**Keywords:** Corporate Sustainability, Social Dimension, Financial Performance, Petroleum firms, Board Diligence

## Introduction

In the global economy, companies play a vital role in advancing sustainable development (Whiteman et al., 2013). Diesendorf (2000) defines this as achieving economic and social progress while protecting the environment and promoting equity. Firms must pursue economic goals without harming ecosystems or social welfare (Diesendorf, 2000; Garriga and Melé, 2004) and allocate resources to improve environmental and societal well-being (Frederiksen, 2010; Lantos, 2001). The petroleum sector faces distinct scrutiny due to its environmental impact and stakeholder pressures (Nyuur et al., 2016; Khan et al., 2021), along with volatile financial performance from market fluctuations (Ogundipe et al., 2018; Erhinyoja and Marcella, 2019; Nwanosike et al., 2018). This makes it a key setting for analyzing how sustainability and governance influence financial outcomes (Nyuur et al., 2016; Khan et al., 2021; Lopatta et al., 2017). Amid rising regulatory and stakeholder pressure, petroleum firms are embedding sustainability into core strategies (Khan et al., 2021). Investments in carbon capture, hydrogen energy (Wamba Taguimdje et al., 2020), and artificial intelligence for efficiency and reporting (Khan et al., 2021; Schaltegger and Burritt, 2018) are increasing. Although these firms remain

[1]University of Dar es Salaam
Email: mustafambiku@gmail.com
[2] University of Dar es Salaam
[3] Kuhn Logistic University
[4] University of Dar es Salaam

profitable (Khan et al., 2021), they face instability. For instance, BP moved from a 2.5 billion dollar loss in 2022 to a 15.2 billion dollar profit in 2023 (BP, 2023). Shell's profits doubled to 39.9 billion dollars in 2022 (Shell, 2023), and ExxonMobil showed earnings volatility in 2009 (ExxonMobil, 2009). Such fluctuations affect return on assets, return on equity, and Tobin's Q. Sustainability investments may reduce volatility and strengthen financial resilience (Ogundipe et al., 2018; Erhinyoja and Marcella, 2019; Nwanosike et al., 2018). Regulatory measures like the EU Corporate Sustainability Reporting Directive also encourage ESG transparency and accountability (Lopatta et al., 2017).

Corporate sustainability refers to embedding sustainable development into business operations (Baumgartner and Ebner, 2010), although interpretations vary. Diesendorf (2000) sees it as either corporate survival or broader social and environmental responsibility. Dunphy, Griffiths, and Benn (2003) stress values like human dignity, equity, and environmental protection. Russell, Haigh, and Griffiths (2007) propose four perspectives: economic performance, environmental benefits, social contributions, and an integrated view. Elkington (1997) calls for equal attention to financial, environmental, and social priorities. Research on the sustainability-financial performance link is mixed. Some studies show no clear direct relationship (Park, 2017; Saeidi et al., 2015; Wang and Sarkis, 2017), while others note omitted variable bias (Margolis et al., 2007) or the masking effect of aggregate metrics (Déniz Déniz and De Saá Pérez, 2003). To address these issues, this study includes Board Diligence, measured by the number of board meetings per year (Hsueh En Hsu, 2010), as a moderating variable. It reflects the level of board oversight and involvement in strategy (Hsueh En Hsu, 2010; Assenga et al., 2018; Ponnu and Karthigeyan, 2010). Greater diligence supports the alignment between sustainability efforts and financial goals. The model also controls for capital intensity, firm size, and temporal and geographic factors. To avoid aggregation bias, the study disaggregates the social dimension into four components: community engagement, human rights, workforce, and product responsibility, based on Asset4 Refinitiv data (Refinitiv, 2023).

## Literature Review

### CSR and CS: different but similar concepts

CS builds on the principles of sustainable development, notably the Brundtland Report of 1987, promoting long-term business viability across environmental, social, and economic dimensions. Unlike corporate social responsibility (CSR), which historically emphasized ethical and economic duties, CS integrates all three dimensions into a unified strategy for sustainable success. The Triple Bottom Line (TBL) framework by Elkington (1997) has been central in shaping this approach by emphasizing the need to balance profit, planet, and people. While CSR emerged in the early 20th century as a response to the growing influence of corporations and evolved through models like Carroll's (1979) to address broader ethical and environmental concerns, CS is seen as its more strategic evolution. This study adopts the TBL perspective but focuses specifically on the social dimension, aiming to explore how factors such as human rights, workforce practices, and community engagement influence financial performance. By narrowing the scope to these social components, the research offers a more detailed understanding of how they contribute to firm outcomes within the broader CS paradigm.

## The Concept of Financial Performance

Financial performance has been defined in various ways. Ilyas et al. (2020) describe it using ratios such as return on equity, return on assets, and gross profit margin. Elsayed and Elgindy (2021) emphasize achieving financial goals like profitability, liquidity, solvency, and growth, while Arvai and Pacurar (2020) focus on creating shareholder value through income generation. Mahmoud et al. (2021) stress adaptability and risk management. In the petroleum industry, where maximizing shareholder wealth is central (BP, 2020), this study defines financial performance as the ability to generate profit and increase share value. Tobin's Q, the ratio of market value to replacement cost, is adopted as a long-term financial indicator, unlike short-term metrics such as return on assets or return on equity (Pazienza et al., 2022). The goal-attainment approach, seen as the most practical by Steers (1976) and preferred over models like the system resource and process approaches (Hitt, 1988), guides this study. Venkatraman and Ramanujam (1986) outline financial, operational, and overall effectiveness as concentric layers of performance, recommending strategic focus on the first two. Combs et al. (2005) further divide performance into accounting returns (e.g., return on investment, return on sales), market returns (e.g., stock prices, Tobin's Q), and growth measures (e.g., sales and earnings growth). Integrating these perspectives, this study defines financial performance as the extent to which a firm meets economic objectives, measured through profitability and market value, using Tobin's Q as the primary indicator (Pazienza et al., 2022).

## Theoretical perspective

### Resource-Based View

This study adopts the Resource Based View (RBV) as articulated by Barney (1991), which argues that sustainable competitive advantage is derived from internal resources that are valuable, rare, inimitable, and non-substitutable. In the petroleum sector, characterized by market volatility and socio-environmental scrutiny (Khan et al., 2021), corporate sustainability initiatives can fulfill these VRIN conditions and function as strategic assets. Social components such as human rights, community engagement, workforce practices, and product responsibility contribute by mitigating risk, building stakeholder trust, and enhancing efficiency (Eccles et al., 2014; Slawinski and Bansal, 2015). For instance, community engagement reduces project delays (Henisz et al., 2014; Makamu, 2023), strong safety cultures lower turnover and attract skilled labor (Garcia Sanchez et al., 2020; Salman et al., 2024), and product responsibility through carbon-efficient innovations offers non-substitutable solutions aligned with environmental goals (Khan et al., 2021). Board diligence plays a critical role in unlocking this value, ensuring sustainability practices are strategically integrated rather than symbolic (Amis et al., 2020; Khan and Zahid, 2023). Through consistent oversight, boards help translate social initiatives into reputational capital, human capital, and risk mitigation tools (van Zanten and van Tulder, 2021; Lawton and Rogerson, 2025), allowing firms to convert social sustainability into performance-enhancing resources in a high-risk environment.

### Stakeholder Theory

This study applies Stakeholder Theory (Freeman, 1984) to explain how firms create long-term value by actively managing relationships with various stakeholders. In the petroleum industry, where environmental and social risks are significant and public scrutiny is high (Khan et al., 2021), addressing stakeholder interests is both ethically and strategically important. The social dimension of corporate sustainability, including human rights, workforce relations, community

involvement, and product responsibility, is essential for building trust, minimizing resistance, and improving financial outcomes (Makau, 2024; El Ghoul et al., 2020; Fatemi et al., 2022). Community engagement helps prevent delays and fosters local support (Makamu, 2023), while prioritizing employee welfare and human rights enhances talent retention and protects against reputational damage (Salman et al., 2024; Cho and Choi, 2021). Product responsibility initiatives, such as developing cleaner fuels, address environmental expectations and turn regulatory demands into strategic advantages (Ochieng and Wafula, 2024). Board diligence ensures that these sustainability actions genuinely reflect stakeholder priorities through frequent and substantive oversight (Khan and Zahid, 2023; Nguyen et al., 2022), which promotes transparency, reduces social risks, and builds reputational capital needed for success in sensitive contexts (Lawton and Rogerson, 2025; Balarabe et al., 2025). Through this process, board diligence helps integrate stakeholder concerns into strategic decisions and contributes to improved firm performance.

**Agency Theory**

This study applies Agency Theory (Jensen and Meckling, 1976) to explore how conflicts between principals and agents influence corporate sustainability implementation in the petroleum sector, where information asymmetry and managerial discretion are significant (Khan et al., 2021). Managers may prioritize short-term gains over long-term value, making robust governance essential to align decisions with shareholder interests (Fama and Jensen, 1983). The social dimension of sustainability, including community engagement and human rights initiatives, is particularly vulnerable to misuse without strong oversight, potentially increasing agency costs through inefficient resource allocation or self-serving behavior (Wang and Li, 2023). Due to the long-term and opaque nature of such investments, effective governance is critical to ensure alignment with strategic and financial goals (Paul, 2025; Nkanga et al., 2023; Makau, 2024). Board diligence plays a key role by offering consistent oversight, ensuring that social spending supports performance objectives (Alkurdi et al., 2024; Voicu and Popa, 2023), discouraging opportunism, and converting sustainability efforts into shareholder value (El-Chaarani et al., 2023; Saeed et al., 2021). It also enhances reputation, mitigates regulatory risks, and supports financial performance in a complex industry environment (Amel-Zadeh and Serafeim, 2021; Tan and Yu, 2021).

**Empirical Literature Review**

**The influence of Workforce CS on a firm's FP**

The dimension of relations with employees focuses on how organizations treat their workforce, including employment quality, health and safety, training and development, and diversity and equal opportunities. Studies have consistently shown a positive effect of good employee relations on corporate FP. For example, a study by Salman, Anwar, Ganie, and Saleem (2024) found that strategic human resource management practices, including robust employee policies, lead to competitive advantages through increased workforce productivity, reduced turnover costs, and enhanced operational efficiency. Similarly, research by Cho and Choi (2021) highlighted that sustainable human resource management practices, such as fair HR policies, significantly enhance employee satisfaction and commitment, leading to reduced absenteeism and stress. Conversely, negative perceptions of employee treatment can lead to opportunistic employee behaviour, particularly during crises (Wang & Li, 2023). Studies also show a positive correlation between strong employee relations and improved financial metrics such as profit margins and return on

investment (Salman, Anwar, Ganie, & Saleem, 2024), and overall financial stability (Makau, 2024). A study by Makau (2024) specifically investigated the relationship between corporate social responsibility (CSR) disclosures related to employee welfare in corporate annual reports and the financial performance of companies. Their findings indicated that firms prioritizing employee relations tend to exhibit higher financial performance, as evidenced by metrics such as return on equity (ROE) and improved profitability. Based on the above empirical findings, this study hypothesizes that:

*H1: Workforce CS positively influences the FP*

**The influence of Community Engagement CS on a firm's FP**

Community engagement performance reflects a firm's impact on society through philanthropy, local investment, and ethical conduct, with scholars noting its role in building trust, reputation, and stakeholder cooperation (Ali, Danish, and Asrar-ul-Haq, 2020; Trevino and Nelson, 2021). Such reputation enhances financial performance by attracting institutional investors (El Ghoul, Guedhami, Kwok, and Mishra, 2020; Fatemi, Fooladi, and Tehranian, 2022), though excessive philanthropy may reduce profitability, suggesting an inverted U-shaped relationship between corporate social responsibility and firm performance (Zhang, Li, and Chen, 2022). Evidence from the banking sector also confirms that philanthropic activities improve financial performance by strengthening community well-being (Das, Rahman, and Hossan, 2025). Makamu (2023) found that strong community relations positively influence financial metrics like return on assets and market value added, while Jiraporn, Chintrakarn, and Kim (2024) reported that environmental, social, and governance strengths enhance firm value. However, they caution that over-disclosure or inconsistent ESG reporting may weaken investor perceptions. These insights underscore the need for balanced and strategic engagement in community initiatives, supporting the development of the hypothesis proposed in this study.

*H2: Community engagement CS positively influences the FP*.

**The influence of Product Responsibility CS on a firm's FP**

Effective product responsibility practices demonstrably boost operating cash flows and overall financial performance (Ochieng & Wafula, 2024). They also play a crucial role in significantly reducing firm risk, especially concerning product availability and supply chain disruptions (ICH, 2025). In sectors heavily reliant on trust, maintaining high standards of product responsibility is essential for long-term financial success, as customer trust directly influences financial stability in service-oriented industries (Kumar & Singh, 2024). Furthermore, research by Hussain, Rahman, and Khan (2024) and Wu, Wang, and Li (2025) emphasizes the importance of ESG (Environmental, Social, and Governance) factors, including product responsibility, in strengthening a firm's value. These studies indicate that while strong ESG performance can generally enhance firm value, the disclosure of these strengths needs careful management. In some cases, poorly managed disclosure can lead to mixed results or even lessen the positive impact. This highlights the critical need for strategic and thoughtful communication of product responsibility initiatives to maximize their beneficial effects on financial performance.Based on these empirical findings, this study hypothesizes that*:*

*H3: Product Responsibility CS has a positive influence on the FP.*

**The influence of Human Rights CS on firms**

The dimension of human rights within sustainable supply chains (SCS) encompasses the promotion of fair labour practices, the prevention of human rights abuses, and the ethical treatment of individuals throughout the supply chain (Paul, 2025). These practices are essential for cultivating a company's reputation and maintaining the trust of stakeholders (Carroll, 2016). Research indicates that companies committed to upholding human rights are more likely to attract top talent (Carroll, 2016) and foster stronger relationships with their communities and customers, ultimately enhancing their financial performance (Wang & Chen, 2023). In research on CS and FP, studies have revealed that the human rights aspect of CSR, which includes initiatives related to social issues, employee rights, and ethical practices within the supply chain, has a significant impact on financial performance (Paul, 2025; Nkanga, Okoro, & Eze, 2023). This study contended that while the direct correlation between CSR and FP may not always be clear, the importance of CSR in enhancing access to capital, fostering better stakeholder relationships, and mitigating risks is indisputable (Makau, 2024; El Ghoul, Guedhami, Kwok, & Mishra, 2020). Similarly, studies have explored the role of human rights in CSR, finding that companies with robust human rights practices tend to have better financial outcomes, enhancing company value and investor confidence (Wang & Chen, 2023). Based on the above empirical findings, this study hypothesizes that:

*H4: Human Rights CS has a positive influence on the FP*

**Board Diligence (Moderating Variable)**

Board diligence, defined by the frequency of board meetings focused on strategic oversight, plays a crucial role in shaping and monitoring CS and FP. Frequent meetings allow directors to integrate CS into strategy, respond to risks, and make informed decisions that enhance FP (Khan and Zahid, 2023; Nguyen, Tran, and Le, 2022; Lawton and Rogerson, 2025). While previous studies have explored board diligence as an independent driver of CS and FP, this study examines its moderating effect on their relationship (Khan and Zahid, 2023; Balarabe, Idris, and Muhammad, 2025; Adebayo and Okoro, 2022). The literature presents mixed evidence: some research links diligent boards to improved CS disclosure and FP (Khan and Zahid, 2023; Al-Haddad and Al-Rousan, 2024), while others find that excessive meetings may reduce efficiency and harm FP (Al-Saidi and Al-Shammari, 2022). Additionally, board diligence shows varying effects across industries, with some studies reporting no significant impact on FP (Omondi and Muturi, 2022; Bekiaris, 2021). These findings suggest that the influence of board diligence on FP is complex and context-specific. Based on this analysis, this paper hypothesizes that:

*H5: Board diligence moderates the influence of community engagement CS on the FP*
*H6: Board diligence moderates the influence of the workforce CS on the FP*
*H7: Board diligence moderates the influence of Product Responsibility CS*
*H8: Board diligence moderates the influence of Human Resource CS on the F*

**Methodology**

**Data and Sample**

This study analyzed 88 petroleum companies from 27 countries, selected from the Forbes 2000 list for 2018 to 2022. Firms were included based on consistent Forbes 2000 presence, complete

data availability in the Thomson Reuters Refinitiv Database, and balanced panel data. Larger firms were prioritized due to their extensive disclosures and higher engagement with environmental sustainability (Refinitiv, 2023). The Refinitiv Database, widely used in ESG research (Ghardallou, 2022; Vásquez-Ordóñez et al., 2023), covers over 85 percent of global market capitalization across more than 630 ESG metrics, with historical data from 2002 (Refinitiv, 2023). From an initial pool of 151 petroleum firms, 63 were excluded due to inconsistent listing, missing data, or lack of English-language reports. The final sample of 88 companies reflects consistently performing, data-transparent petroleum firms. Table 1 presents the country distribution of the sample.

**Table 1: Country Distribution of the Petroleum Company Sample (N=88, 2018-2022)**

| Country | Freq. | Percent | Cum. |
|---|---|---|---|
| Argentina | 5 | 1.14 | 1.14 |
| Australia | 5 | 1.14 | 2.27 |
| Austria | 5 | 1.14 | 3.41 |
| Brazil | 5 | 1.14 | 4.55 |
| Canada | 45 | 10.23 | 14.77 |
| China | 15 | 3.41 | 18.18 |
| Denmark | 5 | 1.14 | 19.32 |
| Finland | 5 | 1.14 | 20.45 |
| France | 10 | 2.27 | 22.73 |
| Hong Kong | 20 | 4.55 | 27.27 |
| Hungary | 5 | 1.14 | 28.41 |
| India | 20 | 4.55 | 32.95 |
| Israel | 5 | 1.14 | 34.09 |
| Italy | 20 | 4.55 | 38.64 |
| Japan | 30 | 6.82 | 45.45 |
| Luxembourg | 5 | 1.14 | 46.59 |
| Norway | 5 | 1.14 | 47.73 |
| Portugal | 5 | 1.14 | 48.86 |
| Russia | 5 | 1.14 | 50.00 |
| Saudi Arabia | 5 | 1.14 | 51.14 |
| Singapore | 5 | 1.14 | 52.27 |
| South Korea | 5 | 1.14 | 53.41 |
| Spain | 10 | 2.27 | 55.68 |
| Thailand | 5 | 1.14 | 56.82 |
| Turkey | 5 | 1.14 | 57.95 |
| United Kingdom | 20 | 4.55 | 62.50 |
| United States | 165 | 37.50 | 100.00 |
| Total | 440 | 100.00 | |

**Source: Secondary Panel Data, (2018-2022)**

**Variables and their Measure measurement**

Table 2 details the variables and their measurements. Since the companies in this study operate with different functional currencies, all monetary values were converted to USD using the current exchange rate method. This approach involves converting assets and liabilities to USD at the

prevailing exchange rate, ensuring a consistent and uniform basis for comparing companies from different countries and currency environments.

**Table 2 Variables and their Measure measurement**

| Variable | Type of Variable | Measurement | Source |
|---|---|---|---|
| **Board Diligence** | Moderating Variable | Number of board meetings per year | (Khan et al., 2022) |
| **Human Rights** | | The weighted average of human rights policy implementation and compliance benchmarked against industry standards (0-100 scale, where 0 = worst, 100 = best) | Refinitiv (2023) |
| **Community Engagement** | | The weighted average of corporate philanthropy and community investment efforts benchmarked against industry standards (0-100 scale, where 0 = worst, 100 = best) | Refinitiv (2023) |
| **Workforce Practices** | | The weighted average of diversity, training hours, working conditions, and health and safety metrics, benchmarked against industry standards (0-100 scale, where 0 = worst, 100 = best) | Refinitiv (2023) |
| **Product Responsibility** | | The weighted average of responsible marketing practices, product quality monitoring, and data privacy policies, benchmarked against industry standards (0-100 scale, where 0 = worst, 100 = best) | Refinitiv (2023) |
| **Financial Performance** | Dependent Variable | (Equity Market Value + Liabilities Market Value) / (Equity Book Value + Liabilities Book Value) | (Gao et al., 2022) |
| **Company Size** | Control Variable | Natural logarithm of total assets (converted to USD using the current exchange rate method) | (Al-Haddad & Al-Ameri, 2022) |
| **Capital Intensity** | | Total equity/Total sales | van Emous et al. (2021) |
| **Country and year-fixed effects** | | **1** if the observation belongs to that specific country or year, and **0** otherwise | (Wooldridge, 2020) |

Source: Literature

**Data analysis and Model Specification**

The analysis followed a structured approach. Social sustainability metrics were sourced from the Refinitiv ESG Database, organized in Excel, and imported into Stata, where the dataset was set as strongly balanced panel data with 440 firm-year observations. Large monetary variables such as assets, equity, book value, and revenue were log-transformed to normalize distributions and reduce heteroscedasticity. Firms with missing data were excluded. Robustness checks were conducted prior to statistical analysis. The study employed two models: the primary model examined the impact of social sustainability on financial performance (Tobin's Q), with Part A excluding and Part B including board diligence as a moderating factor. The second, a subsidiary model, used Return on Assets (ROA) for robustness testing.

**Model 1(A)**

$$Tobin'sQit=\beta0+\beta1HRit+\beta2COMMit+\beta3PREit+\beta4WFCit+\beta5BDit+\beta6INTit+\beta7SIZEit+\epsilon it$$

**Model 1(B)**

$$TOBIN'SQit=\beta0+\beta1HRit+\beta2COMMit+\beta3PREit+\beta4WFCit+\beta5BDit+\beta6INTit+\beta7SIZEit+\beta8(HR\times BD)\,it+\beta9(COMM\times BD)\,it+\beta10(PRE\times BD)\,it+\beta11(WFC\times BD)\,it+\epsilon it$$

**Model 2**

$$ROAit=\beta0+\beta1HRit+\beta2COMMit+\beta3PREit+\beta4WFCit+\beta5BDit+\beta6INTit+\beta7SIZEit+\epsilon it$$

In the models, Tobin's Q and ROA (Return on Assets) are used as key measures of a firm's financial performance. Each β symbol denotes a regression coefficient, showing the strength and direction of the relationship between the dependent variable and the independent variables. These independent variables include various social sustainability metrics: HR (Human Rights), COMM (Community Engagement), PRE (Product Responsibility), and WFC (Workforce Practices). BD (Board Diligence) is also included, alongside control variables such as INT (Capital Intensity) and SIZE (Company Size). Finally, ϵ represents the error term, accounting for unobserved factors, while the subscripts i and t refer to the specific firm and period, respectively.

**Data Analysis**

**Descriptive Statistics**

The descriptive statistics reveal significant diversity among the petroleum companies sampled in terms of their social corporate sustainability efforts and financial performance. Engagement levels in areas like Workforce Corporate Sustainability and Human Rights show moderate averages, yet with noticeable differences between high-performing and lagging firms. Similarly, Community Engagement and Product Responsibility display varied commitments across companies. The data on Capital Intensity and Company Size further illustrate the wide range of organisational scales, from smaller ventures to large multinationals, likely influencing their operational choices. While Tobin's Q generally indicates strong market valuations, considerable variation exists, and the observed differences in Board Diligence highlight varied governance practices. Collectively, these findings demonstrate the distinct approaches to sustainability and governance within the industry and their impact on financial outcomes. Table 3 below shows the descriptive statistics for this study.

**Table 3: Descriptive Statistics**

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| Wfc | 440 | 70.814 | 21.153 | 7.09 | 99.07 |
| Hr | 440 | 64.916 | 24.634 | 0 | 99 |
| Comm | 440 | 74.34 | 22.082 | 1.19 | 99.82 |
| Pre | 440 | 67.664 | 26.248 | 0 | 99.72 |
| int | 440 | .886 | .835 | -1.493 | 6.295 |
| Tobin'sQ | 440 | 7.059 | 2.136 | 1.10 | 13.45 |
| size | 440 | 11.042 | 2.193 | 3.17 | 16.792 |
| bd | 440 | 9.886 | 3.007 | 2 | 23 |

**Source: Secondary Panel Data, (2018-2022)**

**Diagnostic tests**

Several diagnostic tests were performed to validate the reliability of the regression results. The Breusch-Pagan/Cook-Weisberg test for heteroskedasticity revealed no evidence of such an issue **($p > 0.05$),** allowing the analysis to proceed without concerns regarding unequal variances, in accordance with White's (1980) recommendations. Multicollinearity was assessed using the Variance Inflation Factor (VIF), with all variables exhibiting VIF values significantly below the threshold of 10, thereby indicating the absence of substantial multicollinearity issues (Field, 2009; Hair et al., 1995). Pairwise correlation analysis further corroborated this conclusion, as none of the correlation coefficients approached the concerning levels of 0.8 or 0.9, as advised by Profillidis & Botzoris (2018) and Hair et al. (2010), confirming that the independent variables were sufficiently distinct. These diagnostic tests collectively affirmed the robustness of the regression model, allowing for confident interpretation of the results.

**Basic Results**

The initial Fixed Effects model (FE Model 2, Table 4) shows that Workforce Sustainability (wfc) has a significant negative effect on Tobin's Q ($\beta = -0.035$, $p < 0.001$), unlike its insignificant result in the OLS model, highlighting the importance of controlling for firm-level heterogeneity. In contrast, Human Rights Practices (hr) ($\beta = 0.012$, $p < 0.05$) and Community Sustainability (comm) ($\beta = 0.015$, $p < 0.05$) have positive effects, while Product Responsibility (pre) is marginally significant ($\beta = 0.012$, $p < 0.1$). Capital Intensity and Firm Size, significant in OLS, become insignificant, indicating potential confounding effects. Board Diligence (bd) shows a negative and significant direct effect ($\beta = -0.063$, $p < 0.05$). In the moderated model (Table 4.2), interaction terms reveal that the direct effects of wfc, hr, comm, and pre lose significance, suggesting their impact is contingent on board oversight. The wfc_bd interaction is positive and significant ($\beta = 0.005$, $p < 0.05$), indicating that board diligence can reverse the negative effect of workforce sustainability (Ioannou and Serafeim, 2017). Similarly, hr_bd ($\beta = 0.002$, $p < 0.1$) and comm_bd ($\beta = 0.002$, $p < 0.05$) are positive, showing that governance strengthens the financial value of human rights and community engagement. However, pre_bd is negative and not significant ($\beta = -0.001$), showing no clear moderating effect. These findings underscore the role of board diligence in enhancing the financial impact of corporate sustainability (Eccles and Serafeim, 2013).

**Table 4 Panel Regression Results**

| Variables | OLS Model (Without Moderation) | FE Model 2 (Without Moderation) | RE Model 2 (Without Moderation) | FE Model (With Moderation) | 2SLS Model |
|---|---|---|---|---|---|
| **wfc** | -0.014 | −.035*** | −.025** | 0.014 | 0.000147 |
| | (-0.01) | (-0.009) | (-0.009) | (-0.012) | (-0.0001) |
| **hr** | .046*** | .012** | .025*** | 0.005 | .0420263*** |
| | (-0.008) | (-0.004) | (-0.008) | -(0.004) | (-0.009) |
| **comm** | .018*** | .015** | .019*** | 0.008 | .0153399** |
| | (-0.005) | (-0.006) | (-0.006) | (-0.007) | (-0.005) |
| **pre** | .009** | .012* | .014** | 0.022 | .0146485*** |
| | (-0.004) | (-0.006) | (-0.005) | (-0.015) | (-0.003) |
| **int** | .192*** | 0.138 | 0.302 | 0.135 | .032* |
| | (-0.04) | (-0.09) | (-0.19) | (-0.08) | (-0.015) |
| **size** | .192*** | -0.114 | .169** | -0.222 | 0.137 |
| | (-0.035) | (-0.09) | (-0.06) | (-0.15) | (-0.1) |
| **bd** | −.048* | −.063** | −.058** | 0.051 | -0.144 |
| | (-0.025) | (-0.02) | (-0.02) | (-0.04) | (-0.12) |
| **wfc_bd** | | | | .005** | |
| | | | | (-0.002) | |
| **hr_bd** | | | | .002* | |
| | | | | (-0.001) | |
| **comm_bd** | | | | .002** | |
| | | | | (-0.0007) | |
| **pre_bd** | | | | -0.001 | |
| | | | | (-0.0008) | |
| **Country Dummy** | Yes | Yes | Yes | Yes | Yes |
| **Year Dummy** | Yes | Yes | Yes | Yes | Yes |
| **Constant** | 1.678*** | 8.848*** | 3.489*** | 8.89*** | 2.138905*** |
| | -0.4 | -1.5 | -0.8 | -1.5 | -0.5 |
| **Observations** | 440 | 440 | 440 | 440 | 352 |
| **R-squared** | 0.441 | 0.264 | 0.396 (Overall) | 0.313 | 0.3636 |
| **Prob > chi2** | 0.000 | 0.000 | 0.000 | 0.000 | 0.0000 |

**Source:** Secondary Panel Data, (2018-2022)

Dependent Variable**: Tobin'sQ**

**Note: a:** ***p<0.001, **<0.05, *p<0.1

**b:** The numbers in parentheses () below the coefficients represent the standard errors

**Visualization of the moderation effect**

To clarify our findings, we examined the moderating effect of board diligence on the relationship between workforce sustainability and firm value. The interaction term (wfc_bd) was significant in the Fixed Effects model, with a coefficient of 0.005, the largest among all interactions. Given the importance of workforce-related factors and the strength of this effect, a visual explanation was appropriate. We used a median split to classify board diligence into "Low" and "High" groups and re-estimated the model using this categorical variable interacted with continuous workforce (c.wfc). Predicted Tobin's Q values were then calculated using the margins command, and a simple-slopes plot was generated. Figure 1 presents the interaction effect between workforce and board diligence.

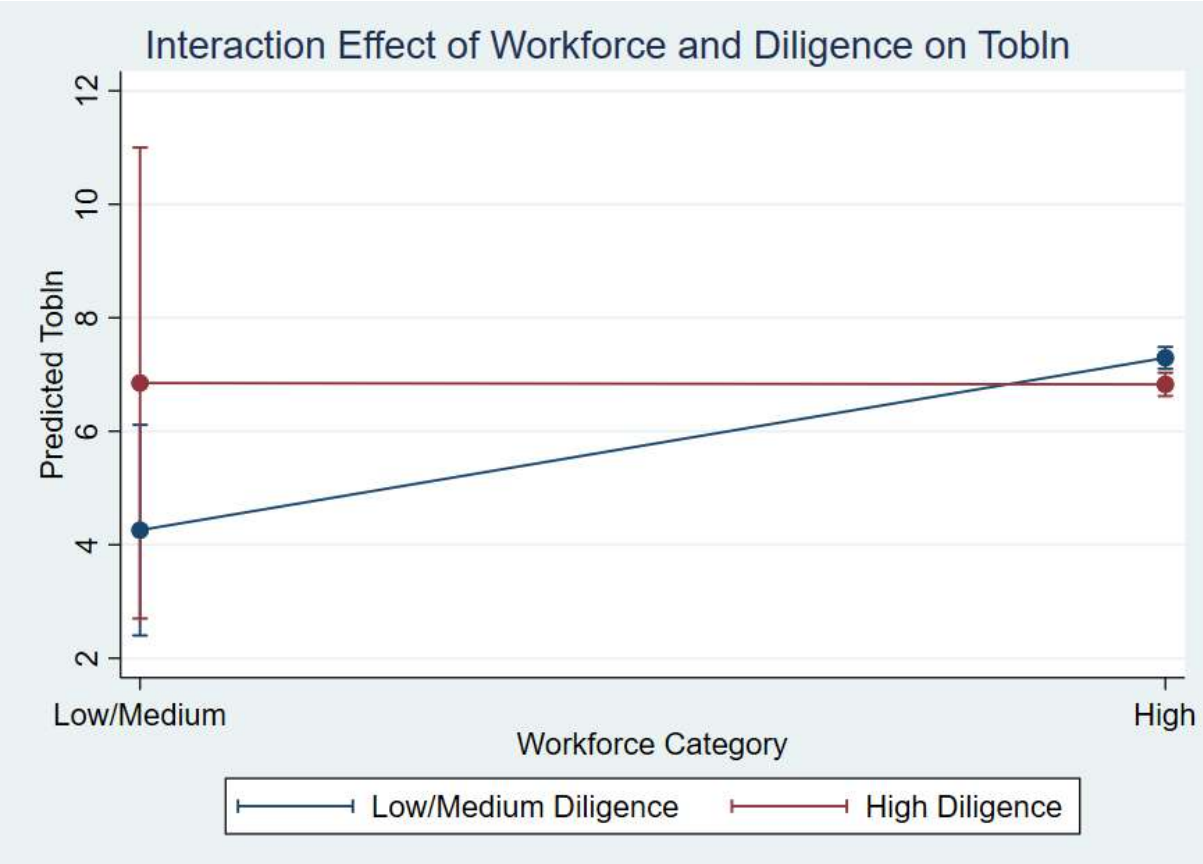


**Fig 1: Interaction effect of Workforce and Diligence**
**Source: Secondary Panel Data (2018-2022)**

The plot illustrates that the relationship between workforce size and Tobin's Q varies notably based on levels of board diligence. For firms categorized as Low Diligence (represented by the blue line), an increase in workforce correlates with a distinct positive rise in Tobin's Q. In contrast, for firms with High Diligence (indicated by the red line), the workforce has minimal effect on Tobin's Q. This highlights the significant impact of board diligence on the returns generated from workforce investments.

**Robustness check tests**

To address potential endogeneity in Workforce Sustainability (wfc), which may result from time-varying factors or reverse causality, a robustness test using the Two Stage Least Squares (2SLS) method was conducted. The lagged value of wfc (L.wfc) was used as an instrument alongside control variables including human rights (hr), community engagement (comm), product responsibility (pre), capital intensity (int), firm size (size), and country and year dummies. The first-stage F-statistic for L.wfc was 202.49 ($p < 0.05$), well above the Staiger and Stock (1997) threshold, confirming it as a strong instrument. In the second stage (Table 4), instrumented wfc was insignificant (coefficient = 0.000147, $p > 0.10$), aligning with the moderated model and differing from the significant negative effect in the unmoderated model. Other variables remained significant and positive: hr ($\beta = 0.042$, $p < 0.01$), comm ($\beta = 0.015$, $p < 0.01$), and pre ($\beta = 0.014$, $p < 0.01$), while int ($\beta = 0.032$) was marginally significant ($0.05 < p < 0.10$), and size ($\beta = 0.137$) and board diligence ($\beta = –0.144$) were not significant ($p > 0.10$). The Durbin Wu Hausman test produced p-values between 0.05 and 0.10, indicating failure to reject the null hypothesis of exogeneity. Based on Roberts and Whited (2011) and Wooldridge (2010), the findings suggest no strong evidence of endogeneity, confirming the validity of the original Fixed Effects estimates for wfc.

**Alternative Dependent Variable (Return on Assets)**

To further assess the robustness of our primary findings, particularly regarding the long-term capture of sustainability's impact, we performed an additional analysis by switching the dependent variable from Tobin's Q to ROA, a commonly used short-term financial performance metric. The results of this analysis are detailed in Table 5 The influence of SCS on FP (Measured by ROA).

**Table 5 The influence of SCS on FP (Measured by ROA)**

| Variables | Coefficient |
|---|---|
| **wfc** | -16.208 |
| | (-21.608) |
| **hr** | 24.873 |
| | (-19.087) |
| **comm** | 3.516 |
| | (-19.576) |
| **pre** | -9.536 |
| | -17.899 |
| **int** | -410.602 |
| | (-514.526) |
| **size** | 1336.333*** |
| | (-194.21) |
| **bd** | -81.098 |
| | (-137.021) |
| **Country Dummy** | Yes |
| **Year Dummy** | Yes |
| **Constant** | −11753.431*** |
| | -2899.87 |

| | |
|---|---|
| **Mean dependent var** | 1923.396 |
| **R-squared** | 0.114 |
| **F-test** | 7.904 |
| **Akaike crit. (AIC)** | 9208.573 |

**Dependent Variable: ROA**
**Note: a.** ***p<0.001
**b**. The numbers in parentheses () below the coefficients represent the standard errors
**Source: Secondary Panel Data (2018-2022)**

The findings indicate that ROA, as a short-term financial performance metric, falls short of capturing the true impact of corporate sustainability practices within the petroleum industry. While Tobin's Q demonstrated positive and significant correlations between sustainability practices such as human rights (0.012), community engagement (0.015), and product responsibility (0.012)and financial performance, these relationships were not reflected in the ROA analysis. The ROA results showed for the same variables, highlighting ROA's limitations in reflecting the long-term financial benefits of corporate sustainability. This emphasizes the need for long-term measures like Tobin's Q when evaluating the financial effects of sustainability efforts.

**Effect of Workforce-CS on Tobin's Q by Firm Size**
Researchers conducted a firm size analysis to assess how the negative effect of workforce-related corporate sustainability (WFC) on firm value (Tobin's Q) varies with scale. Given the wide size range in the dataset (log of total assets from 3.17 to 16.79), firms were grouped as small (<10), medium (10 to 13), and large (>13). Results showed that the negative impact of WFC increases with firm size, from −0.021 in small firms to −0.052 in large ones. Meanwhile, the positive moderating effect of board diligence (wfc × bd) weakens in larger firms, suggesting governance is more effective in smaller organizations. These findings indicate that while WFC may involve financial trade-offs, especially in large firms, active board oversight can reduce such costs, though its influence declines as complexity grows. This analysis underscores the conditional value of sustainability investments and the importance of firm-specific governance. Table 6 presents the detailed effects by firm size.

**Table 6: Effect of Workforce-CS on Tobin's Q by Firm Size**

| Firm Size (Log Assets) | Small (<10) | Medium (10–13) | Large (>13) |
|---|---|---|---|
| Direct Effect (wfc) | −0.021* | −0.038*** | −0.052*** |
| | (0.011) | (0.009) | (0.008) |
| Moderated Effect (wfc × bd) | 0.007* | 0.005** | 0.003 |
| | (0.004) | (0.002) | (0.003) |

**Dependent Variable: Tobin'sQ**
**Note: a.** ***p<0.001, **<0.05, *p<0.1
**b**. The numbers in parentheses () below the coefficients represent the standard errors
**Source: Secondary Panel Data (2018-2022)**

## Discussion of Findings

The initial fixed effects analysis revealed a negative association between Workforce Sustainability and Tobin's Q, contrasting with prior findings that link human resource practices to positive outcomes (Berman et al., 1999; Becker and Gerhart, 1996). In capital-intensive sectors like petroleum, such investments may impose high operational costs. Agency Theory suggests these reflect short-term managerial trade-offs, but the introduction of board diligence reversed the effect, supporting the idea that strong governance aligns workforce initiatives with long-term value. This aligns with the resource-based view, where internal practices become strategic assets under effective governance (Barney, 1991), and with Stakeholder Theory, which emphasizes risk mitigation and legitimacy through stakeholder alignment (Freeman, 1984; Eccles et al., 2014). Human Rights Practices consistently improved financial performance, even without board oversight, confirming prior studies (Paul, 2025; Nkanga, Okoro, and Eze, 2023; Wang and Chen, 2023). Board diligence amplified this effect, reinforcing its role in promoting human rights as strategic investments (Barney, 1991; Freeman, 1984). Similarly, Community Engagement showed positive financial outcomes, in line with earlier research (Makamu, 2023; Jiraporn, Chintrakarn, and Kim, 2024), with board oversight further enhancing this impact. Agency Theory and the resource-based view frame community trust as a valuable asset, while Stakeholder Theory highlights alignment with local expectations (Freeman, 1984; Eccles et al., 2014). Product Responsibility also had a positive effect on performance (Ochieng and Wafula, 2024; Kumar and Singh, 2024), but board diligence did not significantly moderate this relationship, possibly due to regulatory compliance already ensuring performance. Even so, product responsibility contributes to brand value (Barney, 1991), and fulfilling stakeholder expectations remains central (Freeman, 1984).

## Conclusion

This study explores the link between the social dimension of corporate sustainability and financial performance in global petroleum firms, highlighting the moderating role of board diligence. Based on data from 88 companies in 27 countries (2018–2022) and guided by the Resource-Based View, Stakeholder Theory, and Agency Theory, results show that human rights, community engagement, and product responsibility improve financial performance, while workforce-related practices reduce it. Board diligence strengthens positive effects, helping align sustainability with firm value. The disaggregated approach clarifies how specific social factors influence outcomes. A key limitation is measuring board diligence only by meeting frequency, omitting qualitative aspects like attendance or oversight depth. Future research should adopt broader governance metrics and cross-sector analysis to deepen understanding of sustainability governance.

## References

Adams, R. B., & Ferreira, D. (2009). Women in the boardroom and their impact on governance and performance. *Journal of Financial Economics, 94*(2), 291–309. https://doi.org/10.1016/j.jfineco.2008.10.007

Adebayo, S., & Okoro, C. (2022). Corporate governance mechanisms and financial performance of listed deposit money banks in Nigeria. *Acta Commercii, 22*(1), 1-13. https://doi.org/10.4102/ac.v22i1.1294

Akpan, E. O. (2015). Corporate board meetings and company performance: Evidence from Nigerian quoted companies. *Global Journal of Commerce & Management Perspective, 4*(1), 75–82. https://doi.org/10.12691/gjcmp-4-1-7

Al-Haddad, W. M., & Al-Ameri, S. (2022). Board independence and firm performance: Evidence from emerging markets. *Journal of Accounting & Organizational Change*, *18*(4), 579-598. https://doi.org/10.1108/JAOC-01-2021-0014

Ali, H. Y., Danish, R. Q., & Asrar-ul-Haq, M. (2020). How corporate social responsibility boosts firm financial performance. *Corporate Social Responsibility and Environmental Management, 27*(1), 166–177. https://doi.org/10.1002/csr.1781

Alkurdi, H., Al-Mugami, D. N., & Al-Hadrawi, B. A. (2024). The impact of corporate governance mechanisms on sustainable development goals achievement: Evidence from developing countries. *Corporate Governance: The International Journal of Business in Society*, *24*(1), 143-162. https://doi.org/10.1108/CGIJ-02-2023-0062

Al-Saidi, M., & Al-Shammari, M. (2022). Board diligence, independence, size, and firm performance. *Accounting, 8*(3), 269-276. https://doi.org/10.5267/j.ac.2022.1.001

Amel-Zadeh, A., & Serafeim, G. (2021). Why and how investors use ESG information: Evidence from a global survey. *Financial Analysts Journal*, *77*(1), 87-103. https://doi.org/10.1080/0015198X.2020.1868307

An, Z., Zhang, Y., & Wang, Q. (2024). The effect of ESG disclosure on firm value in the European context. *Management Decision, 63*(1), 2480-2495. https://doi.org/10.1108/MD-05-2023-0768

Anderson, R. C., & Mansi, S. A. (2009). Corporate governance and firm performance. *Journal of Finance, 64*(4), 1849–1884. https://doi.org/10.1111/j.1540-6261.2009.01491.x

Araoye, F. A., & Olatunji, B. R. (2019). Corporate governance mechanisms and firm performance. *Journal of Business and Economic Development, 4*(1), 45–53. https://doi.org/10.11648/j.jbed.20190401.15

Assenga, M. P., Aly, D., & Hussainey, K. (2018). The impact of board characteristics on financial performance. Corporate Governance: *The International Journal of Business in Society, 18*(6), 1089–1106. https://doi.org/10.1108/CG-09-2016-0174

Balarabe, B., Idris, A. A., & Muhammad, M. M. (2025). Moderating Role of Financial Performance on Board Attributes and CSR Disclosure. *Kashere Journal of Management Sciences, 8*(1), 91-103. https://doi.org/10.57281/kjms.v8i1.729

Barney, J. B. (1991). Firm resources and sustained competitive advantage. *Journal of Management, 17*(1), 99–120. https://doi.org/10.1177/014920639101700108

Baumgartner, R. J., & Ebner, D. (2010). Corporate sustainability strategies. *Sustainable Development, 18*(2), 76–89. https://doi.org/10.1002/sd.447

Becker, B. E., & Gerhart, B. (1996). The impact of human resource management on performance. *Academy of Management Journal, 39*(4), 779–801. https://doi.org/10.2307/256942

Bekiaris, M. (2021). Corporate board structures, financial performance and stability. *Journal of Management & Governance, 25*(1), 1-28. https://doi.org/10.1007/s10997-020-09559-0

Benn, S., Dunphy, D., & Griffiths, A. (2014). *Organizational change for corporate sustainability*. (3rd ed.) Routledge, Taylor and Francis Group. https://doi.org/10.4324/978131581918

Berman, S. L., Wicks, A. C., Kotha, S., & Jones, T. M. (1999). Does stakeholder orientation matter? *Academy of Management Journal, 42*(5), 488–506. https://doi.org/10.2307/257047

BP. (2023). BP Annual Report and Form 20-F 2023. https://www.bp.com/content/dam/bp/businesssites/en/global/corporate/pdfs/investors/bp-annual-report-and-form-20f-2023.pdf

Brammer, S., & Millington, A. (2005). Corporate reputation and philanthropy. *Journal of Business Ethics, 6*1(1), 29–44. https://doi.org/10.1007/s10551-005-7489-4

Carroll, A. B. (1979). A three-dimensional model of corporate performance. *Academy of Management Review, 4*(4), 497–505. https://doi.org/10.5465/amr.1979.4498296

Carroll, A. B. (2016). Carroll's pyramid of CSR. J*ournal of Business Ethics, 10*(1), 87-95. https://doi.org/10.1007/s10551-016-3240-0

Cho, Y. J., & Choi, S. (2021). Sustainable human resource management. *Sustainability, 13*(12), 6789. https://doi.org/10.3390/su13126789

Coles, J. L., Daniel, N. D., & Naveen, L. (2008). Boards: Does one size fit all? *Journal of Financial Economics, 87*(2), 329–356. https://doi.org/10.1016/j.jfineco.2006.08.003

Combs, J. G., Crook, T. R., & Shook, C. L. (2005). The dimensionality of organizational performance. *In Research methodology in strategy and management* (Vol. 2, pp. 259–286). https://doi:10.1016/S1479-8387(05)02011-4

Das, S. K., Rahman, M. M., & Hossan, M. (2025). Corporate Philanthropic Expenditure Before and During COVID-19. *International Journal of Accounting Research, 13*(1), 809-824. https://doi.org/10.33312/ijar.809

Déniz-Déniz, M. L., & De Saá-Pérez, P. (2003). A resource-based view of responsiveness toward employees. *Organization Studies, 24*(2), 299–319. https://doi.org/10.1177/0170840603024002004

Diesendorf, M. (2000). Sustainability and sustainable development. In Sustainability: The corporate challenge (pp. 19–37).

Eccles, R. G., & Serafeim, G. (2013). The performance and disclosure of ESG issues (Harvard Business School Working Paper No. 14-010).

Eccles, R. G., Ioannou, I., & Serafeim, G. (2014). The impact of corporate sustainability. *Management Science, 60*(11), 2835–2857. https://doi.org/10.1287/mnsc.2014.1981

El Ghoul, S., Guedhami, O., Kwok, C. C. Y., & Mishra, D. R. (2020). CSR and cost of capital. *Journal of Banking & Finance*, 110, 105691. https://doi.org/10.1016/j.jbankfin.2019.105691

El-Chaarani, H., Kanj, H., & Al-Hajj, M. H. (2023). The effect of corporate governance on environmental, social, and governance (ESG) performance: Evidence from the banking sector. *Corporate Governance: The International Journal of Business in Society*, *23*(3), 570-588. https://doi.org/10.1108/CGIJ-09-2022-0056

Elsayed, M. A., & Elgindy, N. M. (2021). Financial performance and market performance. *International Journal of Economics and Finance*, 13(7), 59–69. https://doi.org/10.5539/ijef.v13n7p59

Erhinyoja, F., & Marcella, E. C. (2019). CSR and financial performance in Nigeria. *International Journal of Accounting, Finance and Risk Management, 4*(2), 44-60. https://doi.org/10.11648/j.ijafrm.20190402.12

ExxonMobil. (2009). Annual Report. https://corporate.exxonmobil.com/-/media/Global/Files/annual-report/2009-Annual-Report.pdf

Fama, E. F., & Jensen, M. C. (1983). Separation of ownership and control. *Journal of Law and Economics, 26*(2), 301–325. https://doi.org/10.1086/467037

Fatemi, A., Fooladi, I., & Tehranian, H. (2022). ESG performance and firm value. *Journal of Corporate Finance,* 72, 101896. https://doi.org/10.1016/j.jcorpfin.2022.101896

Field, A. (2009). Discovering statistics using SPSS (3rd ed.). Sage.

Frederiksen, C. S. (2010). CSR and philosophical moral theories. *Journal of Business Ethics, 93*(3), 357–371. https://doi.org/10.1007/s10551-009-0224-6

Freeman, R. E. (1984). Strategic management: A stakeholder approach. Pitman.

Gao, S., Fu, R., & Tan, J. (2022). Does corporate social responsibility improve firm value? The moderating role of environmental uncertainty. *Journal of Cleaner Production*, *348*, 131343. https://doi.org/10.1016/j.jclepro.2022.131343

Garcia-Sanchez, I.-M., Aibar-Guzmán, B., & Vásquez-Ordóñez, L. (2020). *CSR and employee safety. Sustainability, 12*(20), 8684. https://doi.org/10.3390/su12208684

Garriga, E., & Melé, D. (2004). CSR theories. *Journal of Business Ethics, 53*(1–2), 51–71. https://doi.org/10.1023/B:BUSI.0000039399.90587.34

Ghardallou, W. (2022). Corporate sustainability and financial performance. *Sustainability, 14*(2), 653. https://doi.org/10.3390/su14020653

Green, T., & Peloza, J. (2011). CSR value for consumers. *Journal of Consumer Marketing, 28*(1), 48–56. https://doi.org/10.1108/07363761111101968

Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1995). Multivariate data analysis (4th ed.). Prentice Hall.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). Multivariate data analysis (7th ed.). Pearson.

Hart, S. L. (1995). A natural-resource-based view. *Academy of Management Review, 20*(4), 986–1014. https://doi.org/10.5465/amr.1995.9512280033

Henisz, W. J., Dorobantu, R., & Nartey, L. J. (2014). Spinning gold. *Strategic Management Journal, 35*(12), 1727-1748. https://doi.org/10.1002/smj.2270

Hitt, M. A. (1988). Measuring organizational performance. *Research in Organizational Behavior*, 10, 263–308.

Hsueh-En-Hsu, C. (2010). Board characteristics and financial performance. *Journal of International Business and Economics,* 10(1), 139–150.

Hussain, S., Rahman, M. M., & Khan, S. (2024). ESG disclosure, firm internationalization, and performance. Journal of International Studies, 17(2), 242-260. https://doi.org/10.14254/2071-8330.2024/17-2/13

ICH. (2025). ICH guideline Q9 (R1). EMA. https://www.ema.europa.eu/en/ich-q9-quality-risk-management

Ilyas, M., Khan, M. M., & Iqbal, Z. (2020). Corporate governance in Pakistan. *International Journal of Financial Studies, 8*(2), 25. https://doi.org/10.3390/ijfs8020025

Ioannou, I., & Serafeim, G. (2017). Mandatory corporate sustainability reporting (HBS Working Paper No. 11-100).

Jensen, M. C. (2001). Value maximization and stakeholder theory. *Journal of Applied Corporate Finance, 14*(3), 8-21. https://doi.org/10.1111/j.1745-6622.2001.tb00434.x

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm. *Journal of Financial Economics, 3*(4), 305–360. https://doi.org/10.1016/0304-405X(76)90026-X

Jeurissen, R. John Elkington, Cannibals With Forks: The Triple Bottom Line of 21st Century Business. *Journal of Business Ethics* 23, 229–231 (2000). https://doi.org/10.1023/A:100612960397

Khan, H. U. R., Zhang, Q., & Khan, M. I. (2022). Board characteristics and corporate social responsibility performance: Evidence from an emerging economy. *Corporate Governance: The International Journal of Business in Society*, *22*(4), 808-828. https://doi.org/10.1108/CGIJ-02-2022-0008

Khan, M. A., & Zahid, M. (2023). Board characteristics and CSR. *Corporate Governance, 23*(1), 143-160. https://doi.org/10.1108/CG-06-2022-0240

Khan, S. A. R., Yu, Z., & Umar, M. (2021). Environmental awareness and CSR. *Management of Environmental Quality, 32*(5), 863–885. https://doi.org/10.1108/MEQ-06-2020-0137

Kitsabunnarat-Chatjuthamard, P., Jiraporn, P., Uyar, A., & Kilic, M. (2024). Corporate culture and independent directors. *Society and Business Review, 19*(2), 249-268. https://doi.org/10.1108/SBR-01-2023-0027

Kumar, S., & Singh, V. (2024). Ethical practices and financial performance. *International Journal of Economics and Management Sciences, 13*(2), 1-15. https://doi.org/10.37745/ijems/vol13n2p1

Lantos, G. P. (2001). Strategic CSR. *Journal of Consumer Marketing, 18*(7), 595–630. https://doi.org/10.1108/07363760110410281

Lawton, T., & Rogerson, J. (2025). Board Risk Oversight. Harvard Law School Forum. https://corpgov.law.harvard.edu/2025/01/09/board-risk-oversight

Lopatta, K., Buchholz, F., & Kaspereit, T. (2017). Asymmetric information and CSR. *Business & Society,* 56(3), 458–488. https://doi.org/10.1177/0007650315575512

Mahmoud, M. A., Hinson, R. E., & Anim, P. A. (2021). Service innovation and customer satisfaction. *European Journal of Innovation Management, 24*(3), 655–677. https://doi.org/10.1108/EJIM-09-2019-0260

Makamu, M. (2023). Community Social Responsibility. *Journal of Business Ethics, 18*(5), 278-295. https://doi.org/10.1007/s10551-023-05409-w

Makau, S. (2024). Impact of CSR Reporting. *African Journal of Accounting and Financial Research, 6*(1), 13-24. https://doi.org/10.47672/ajacc.1784

Margolis, J. D., Elfenbein, H. A., & Walsh, J. P. (2007). Does it pay to be good? *Annals of the Academy of Management, 9*(1), 451–483.

Nguyen, T. T., Tran, T. T., & Le, T. H. (2022). Board characteristics and performance. *Journal of Risk and Financial Management, 15*(2), 53. https://doi.org/10.3390/jrfm15020053

Nwanosike, D. U., Okocha, A. C., & Nzekwe, J. N. (2018). CSR and firm performance in Nigeria. *Journal of Business and Management, 20*(1), 1–9.

Nyuur, R. B., Ofori, D. F., & Debrah, Y. A. (2016). CSR and competitive advantage. *Thunderbird International Business Review, 58*(6), 557–572. https://doi.org/10.1002/tie.21736

Ochieng, P., & Wafula, M. (2024). Cash Flow Management. *International Journal of Finance, 10*(4), 1-22.

Ogundipe, A. A., Olaoye, C. O., & Ekiti, A. (2018). CSR in oil and gas. *International Journal of Finance and Management, 10*(2), 34–49.

Omondi, D., & Muturi, W. (2022). Board characteristics in Kenya. *International Journal of Economics, Commerce and Management, 10*(1), 1-15.

Park, K. (2017). CSR and financial performance. *Journal of Applied Business Research, 33*(4), 753–764.

Paul, A. (2025). Ethical supply chain management. *Clean Technologies and Recycling, 5*(1), 64-86. https://doi.org/10.3934/ctr.2025005

Pazienza, P., Orizio, G., Nastasi, A., & Piccardi, C. (2022). Imbalanced panel data. *European Management Journal, 40*(1), 94–109. https://doi.org/10.1016/j.emj.2021.10.004

Penrose, E. T. (1959). The theory of the growth of the firm. Wiley.

Ponnu, C. H., & Karthigeyan, R. M. (2010). Board independence and performance. *African Journal of Business Management, 4*(6), 858–868. https://doi.org/10.5897/AJBM.9000045

Profillidis, V. A., & Botzoris, G. N. (2018). Econometric and fuzzy models. Elsevier.

Refinitiv. (2023). ESG Methodology Guide. https://www.refinitiv.com/content/dam/marketing/en_us/documents/methodology/esg-scores-methodology.pdf

Roberts, M. R., & Whited, T. M. (2011). Endogeneity in corporate finance. In Handbook of the economics of finance (Vol. 2A, pp. 493-572). https://doi.org/10.1016/B978-0-44-453594-8.00008-2

Russell, S. V., Haigh, N., & Griffiths, A. (2007). Understanding corporate sustainability. In Corporate governance and sustainability (pp. 255–277).

Saeed, A., Gull, A. A., & Hussain, Z. (2021). Board characteristics and corporate social responsibility in an emerging economy: The moderating role of ownership structure. *Corporate Social Responsibility and Environmental Management*, *28*(4), 1276-1290. https://doi.org/10.1002/csr.2104

Salman, M., Anwar, I., Ganie, S. A., & Saleem, I. (2024). HRM practices in banking. *Management and Labour Studies, 49*(1), 97-118. https://doi.org/10.1177/0258042X231187224

Schaltegger, S., & Burritt, R. (2018). Contemporary environmental accounting. Routledge.

Sharma, S., & Vredenburg, H. (1998). Proactive environmental strategy. *Strategic Management Journal, 19*(8), 729–753. https://doi.org/10.1002/(SICI)1097-0266(199808)19:8<729::AID-SMJ967>3.0.CO;2-4

Shell. (2023). Shell Annual Report 2022. https://reports.shell.com/annual-report/2022/

Shleifer, A., & Vishny, R. W. (1997). A survey of corporate governance. *Journal of Finance, 52*(2), 737–783. https://doi.org/10.1111/j.1540-6261.1997.tb04820.x

Slawinski, N., & Bansal, P. (2015). A place for time. *Academy of Management Review, 40*(1), 108-129. https://doi.org/10.5465/amr.2012.0292

Staiger, D., & Stock, J. H. (1997). Instrumental variables regression. *Econometrica, 65*(3), 557–586. https://doi.org/10.2307/1912934

Steers, R. M. (1976). Organizational effectiveness. *Academy of Management Review, 1*(3), 80-92. https://doi.org/10.2307/257121

Tan, Q., & Yu, Z. (2021). The impact of corporate social responsibility on firm performance in the oil and gas industry: A stakeholder perspective. *Journal of Cleaner Production*, *312*, 127786. https://doi.org/10.1016/j.jclepro.2021.127786

Trevino, L. K., & Nelson, K. (2021). Managing Business Ethics (8th ed.). Wiley.

Vafeas, N. (1999). Board meeting frequency and performance. *Journal of Financial Economics, 53*(1), 113–142. https://doi.org/10.1016/S0304-405X(99)00032-X

van Emous, B., Buijs, J., & de Jong, E. (2021). The impact of capital intensity on firms' environmental performance. *Journal of Cleaner Production*, *300*, 126938. https://doi.org/10.1016/j.jclepro.2021.126938

van Zanten, J. A., & van Tulder, R. (2021). The board's role in CSR. *Journal of Business Ethics, 170*(1), 1-25. https://doi.org/10.1007/s10551-019-04374-2

Vásquez-Ordóñez, L., García-Sánchez, I. M., & Aibar-Guzmán, B. (2023). ESG disclosure and firm risk. *Journal of Cleaner Production*, 382, 135170. https://doi.org/10.1016/j.jclepro.2022.135170

Venkatraman, N., & Ramanujam, V. (1986). Measurement of business performance. *Academy of Management Review, 11*(4), 801–814. https://doi.org/10.5465/amr.1986.4283976

Voicu, I., & Popa, R. A. (2023). Board of directors' characteristics and their influence on ESG performance: A literature review. *Sustainability*, *15*(18), 13860. https://doi.org/10.3390/su151813860

Wamba-Taguimdje, S. L., Fosso Wamba, S., & Kamdjoug, J. R. K. (2020). AI and corporate sustainability. *Journal of Global Information Management, 28*(4), 1–23. https://doi.org/10.4018/JGIM.20200701.oa1

Wang, J., & Chen, Y. (2023). Human Rights and Financial Performance. *Sustainability, 15*(10), 8089. https://doi.org/10.3390/su15108089

Wang, J., & Sarkis, J. (2017). CSR governance and outcomes. *Journal of Cleaner Production*, 162, 1607–1616. https://doi.org/10.1016/j.jclepro.2016.03.114

Wang, L., & Li, J. (2023). Employee Opportunistic Behavior During Crises. *Journal of Organizational Behavior, 44*(6), 901-915. https://doi.org/10.1002/job.2709

White, H. (1980). A heteroskedasticity-consistent estimator. *Econometrica, 48*(4), 817–838. https://doi.org/10.2307/1912934

Whiteman, G., Walker, B., & Perego, P. (2013). Planetary boundaries. *Journal of Management Studies, 50*(2), 307–336. https://doi.org/10.1111/j.1467-6486.2012.01073.x

Wooldridge, J. M. (2010). Econometric analysis of cross section and panel data (2nd ed.). MIT Press.

Wooldridge, J. M. (2020). *Introductory econometrics: A modern approach* (7th ed.). Cengage Learning.

Wu, Z., Wang, Y., & Li, Q. (2025). ESG Performance in ASX-Listed Companies. *Sustainability, 18*(5), 247. https://doi.org/10.3390/su18050247

Zhang, J., Li, Y., & Chen, M. (2022). The inverted U-shaped relationship. *Journal of Cleaner Production,* 333, 130132. https://doi.org/10.1016/j.jclepro.2021.130132

Zhang, J., Zhu, H., & Ding, H. (2019). CSR, green supply chain, and performance. *Business Strategy and the Environment, 28*(8), 1652–1663. https://doi.org/10.1002/bse.2312