

## Article

# Industry and Stakeholder Impacts on Corporate Social Responsibility (CSR) and Financial Performance: Consumer vs. Industrial Sectors

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**Abstract:** We examine the longitudinal relationship between corporate social responsibility (CSR) performance and financial performance by investigating attributes among firms operating in different industry sectors longitudinally. Using panel regression analysis on Australian publicly listed firms from 2007 to 2021, we find that CSR performance positively influences financial performance. Furthermore, our industry-specific analysis uncovers notable distinctions. Specifically, within the consumer product markets, including recreational facilities, travel and tourism, lodging, dining, and leisure products, firms benefit from stakeholder rewards for their CSR efforts, leading to sustained financial gains. However, this positive association is absent for firms operating in industrial product markets, where stakeholders do not offer similar rewards for CSR performance. The significance of stakeholder engagement becomes evident in consumer market sectors, as firms with higher levels of CSR performance secure stakeholder support, resulting in superior long-term financial performance. Our findings contribute to the existing CSR literature and offer practical insights and implications for managers operating in diverse product market industries, including the dynamic field of tourism and hospitality seeking to harness CSR performance, meet stakeholder expectations, and achieve financial advantages.

**Keywords:** financial performance; corporate social responsibility; stakeholder pressure; sustainable development



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## 1. Introduction

In recent years, the escalating attention surrounding the ethical and sustainable practices of organizations has prompted a noteworthy surge in corporate disclosure pertaining to corporate social responsibility (CSR) performance (also called Environmental, Social, and Governance (ESG)). CSR (corporate social responsibility) refers to organizations voluntarily incorporating social and environmental considerations into their business practices. It involves taking responsibility for the impact of their actions on society, the environment, and stakeholders. CSR initiatives can include philanthropy, ethical practices, environmental sustainability, and community engagement [1,2]. Moreover, given increased societal expectations for improved CSR performance, it is noteworthy that the equity market has also shown a vested interest in these endeavours [3–5]. As a result, extensive research has focused on investigating the financial advantages of effective CSR performance.

The classic theoretical argument of Friedman [6] predicts a negative relationship between CSR performance and financial performance due to the costs associated with CSR-related activities. Stakeholder theory, proposed by Freeman [7], suggests a positive relationship between CSR performance, stakeholder relationships, market opportunities [8], and reduced transaction costs [9]. Previous studies presented conflicting findings regarding

the relationship between CSR performance and financial performance [2,10,11]. Some argue for a negative association, based on the costs associated with CSR activities [12,13], while others propose a positive relationship due to improved stakeholder relationships and market opportunities [14–17]. However, these studies have often lacked a comprehensive analysis considering different stakeholder groups and variations across industry sectors [18]. This study aims to address the existing research gap by examining the longitudinal association between CSR performance and financial performance across various industry sectors. Based on the theory proposed by Barnett [19], as firms engage in CSR activities, they attract stakeholders' attention, enabling them to assimilate knowledge and financial benefits. Firms with lower stakeholder concerns about CSR performance cannot create favourable financial benefits on their CSR investment. Previous studies concentrate on the relationship between CSR and financial performance with limited attention to industry variances. With some particular industries such as the hospitality and tourism industries focusing on providing sustainability and corporate socially responsible services using CSR practices, a specific analysis would seem warranted to investigate the association between CSR and financial performance for the consumer sector, which contains these industries. Additionally, our study investigates the role of stakeholder support in determining the benefits of CSR performance in different product markets. By employing a panel regression analysis on a comprehensive dataset of publicly listed Australian firms from 2007 to 2021, this study provides valuable insights into the relationship between CSR performance and financial outcomes.

The motivation for this study stems from the inconsistent findings of previous CSR studies and the lack of industrial analysis, which have left important research questions unanswered [18,20]. This study specifically examines the consumer sector, including the hospitality and tourism industries. Building upon these considerations, the following research questions are proposed:

Research Question 1 (RQ1): To what extent does higher CSR performance impact financial performance over a long-term period?

Research Question 2 (RQ2): How do different stakeholder groups in different industries shape the association between CSR performance and financial performance?

This study examines the CSR performance of Australian firms from 2007 to 2021. The chosen period is significant because it coincided with the global financial crisis (GFC) of 2008–2009, which highlighted the need for improved corporate governance and responsibility [21,22]. Additionally, the study period witnessed a growing emphasis on CSR globally. The analysis is based on a panel database of Australian-listed firms, considering the impact of CSR on financial performance [23]. Lastly, the implementation of the ASX Corporate Governance Principles and Recommendations in 2003, along with the enhancement of sustainability risk guidelines in 2007, aimed to enhance corporate governance oversight. The chosen study period, 2007–2021, is significant for two main reasons. Firstly, the GFC of 2007–2008 led to a heightened organizational focus on corporate governance behaviour, transparency, and oversight. Secondly, the GFC was followed by numerous corporate scandals that emphasized the importance of firms maintaining environmental and social responsibility towards diverse stakeholders' interests. Consequently, there was a substantial global emphasis on CSR engagement during the 2007–2021 period [24]. Therefore, this study investigates the CSR performance of Australian-listed firms using a panel database spanning from 2007 to 2021.

The findings of this study highlight the positive influence of CSR performance on financial performance, consistent with previous literature. Moreover, when analysing firms operating in consumer and industrial markets separately, the study reveals a significant positive association between CSR performance and financial performance specifically within the consumer product markets. In contrast, no significant positive association is observed for firms operating in industrial product markets, indicating the absence of stakeholder rewards for CSR efforts in this sector. These results emphasize that firms operating in

consumer markets and exhibiting higher levels of CSR performance are able to amass stakeholder support, leading to superior long-term financial performance. By strategically tailoring their CSR strategies to meet the demands of stakeholder groups and market conditions, these firms effectively translate their investments in CSR initiatives into tangible financial advantages. Additionally, this study expands the analysis beyond the financial impact of CSR performance by considering stakeholder influences, particularly in different industry sectors. By incorporating stakeholder perspectives and exploring sector-specific variations, a more comprehensive understanding of the relationship between CSR performance and financial outcomes is achieved. This approach contributes to a more nuanced understanding of how CSR performance, stakeholders, and industry dynamics intersect.

This study makes significant contributions to the literature by systematically evaluating the long-term impact of CSR performance on financial performance. It extends previous research by analysing unbalanced panel data from 2007 to 2021 and considering firm, industry, and year effects. The study emphasizes that CSR performance is a long-term investment that takes time to yield financial benefits and satisfy stakeholders [25]. This understanding is valuable for corporate managers who consider CSR performance as a strategic tool to engage stakeholders and gain their support. Furthermore, this study extends beyond existing literature by examining the influence of various stakeholder groups in different industries. It specifically focuses on the consumer and industrial sectors, which are known for their heightened sensitivity to the risk–return aspects associated with CSR [26,27]. It addresses the limited attention given to stakeholder dynamics and industry-specific factors in previous studies that mainly focus on the financial impact of CSR performance [28]. This study responds to the call for more robust research considering industry sectors and provides insights into the contingencies and corporate strategies that shape this relationship [29–31]. Finally, this study aligns with Barnett's [19] assertion that a firm's ability to benefit from CSR performance hinges on stakeholder support and influence. This study's findings offer practical guidance for managers to allocate financial resources effectively to CSR activities. Understanding stakeholder preferences for CSR performance allows managers to optimize initiatives, leading to positive outcomes in financial performance and stakeholder relationships.

The findings of our study are robust to the battery of several robustness analyses. We follow prior studies, utilising an instrumental variable (IV) approach to re-examine the estimation models [5,32–34]. The IV approach helps us control for the potential endogeneity issues in our main estimation models. The results of our robustness analysis continue to mirror the main findings on the relationship between CSR performance and financial performance across all industries and between firms operating in different product markets.

The remainder of this paper is structured as follows. Section 2 provides the theoretical arguments supporting this study's hypotheses developed from the above research questions. Section 3 discusses the data and methodology, and the primary estimation model. Section 4 presents the empirical evidence and robustness-check analysis, and Section 5 provides conclusions and implications from the paper's findings.

## 2. Theoretical Framework and Hypotheses Development

Friedman [6] views CSR performance as an agency issue whereby managers misallocate corporate resources to CSR-related activities that damage a firm's competitive advantages and degrade its ability to maximise wealth for its shareholders. Thus, according to this viewpoint, the relationship between CSR and financial performance should be negative. This viewpoint ignores that a firm's investment in CSR-related activities can generate valuable goodwill that can improve the firm's financial performance in the long run. Therefore, a counterargument of stakeholder theory proposes that this association can be positive. As outlined by Freeman [7], stakeholder theory posits that the better a firm manages its relationship with different stakeholders with an interest or stake in the firm, the more financially successful it will be over time. In particular, according to the instrumental stakeholder theory proposed by Jones [9], a firm is a nexus of contracts that can improve

its competitive advantage by reducing contracting costs [35]. This is due to building trust among stakeholders [36]. Firm engagement in CSR-related activities is a central mechanism for establishing and improving stakeholder relationships. Gavana et al. [37] present empirical evidence indicating a noteworthy moderating effect of ESG performance on earnings management and improving corporate-disclosure behaviour. Jones [9] notes that certain types of CSR performance manifest the firm's efforts to establish trust and cooperative stakeholder association. Thus, it should positively impact a firm's financial performance. For instance, a firm with solid CSR performance might have easier access to desirable employees [38]. According to the stakeholder theory, a firm is responsible to a broad group of stakeholders [7,39], including customers, employees, suppliers, creditors, competitors, shareholders, and the broader community. Maintaining the interest and expectations of those who can assist or hinder the corporation's goals motivates corporate managers in CSR engagement and disclosure [40,41].

CSR performance and its implications for financial performance have been studied, extensively, in academic literature over the past four decades. However, prior studies on the association received counterintuitive results. Some studies find a positive association [14,15,42], revealing that firms with a higher CSR performance benefit through higher profitability and market value.

A meta-analysis of 251 studies by Margolis, Elfenbein and Walsh [42] revealed a positive but weak relationship between CSR performance and financial performance. Although their study does not recommend any reasons for a weak relationship, they argue that firms have ground to redress social ills, and that is possible through investment in CSR-related activities. Another study by Harjoto and Jo [15] on a sample of US-listed firms reveals that higher CSR performance is linked to improved financial performance and their firm's value with this is more robust for firms under mandatory CSR disclosure. Their findings are subject to the limitation on the concept of mandatory disclosure requirements. Although they argue that the primary reason for a positive relationship is firms' reputation building, it is unclear whether the mandatory disclosure requirement is forced by industry affiliation or product market. Harjoto and Jo [15] call for further investigation into the impact of key stakeholders (such as customers and employees) that can impact this relationship. De Villiers and Marques [14] studied the relationship in a sample of the largest European firms. The findings confirm a positive link between CSR performance and financial performance. Moreover, the study reveals a heightened correlation in firms operating within jurisdictions where stakeholders possess greater influence in shaping regulatory frameworks and exerting pressure on government entities to implement and enforce regulations effectively. From an international perspective, Shin et al. [43] assert that the financial impact of ESG engagement varies based on cultural aspects of countries. In nations with high individualism or masculinity, there is a strong correlation between ESG performance and financial outcomes. However, in cultures with high power distance or uncertainty avoidance, this link is weaker. In line with the findings of Brooks and Oikonomou [2], a comprehensive review study supports a positive association between CSR performance and financial performance. However, the authors suggest that the specific characteristics of certain industries, such as those operating in sin sectors like tobacco or gaming, can influence the nature of this relationship.

A body of research, including studies by Clacher and Hagendorff [12] and others [12,13,44], suggests a lack of positive association or even a negative relationship between CSR performance and firm financial performance. Specifically, Clacher and Hagendorff [12] did not observe strong evidence supporting a positive or negative relationship between CSR performance and the financial performance of UK firms. They argue that other cross-sectional factors and firm characteristics strongly impact the relationship. McWilliams and Siegel [13] also find no relationship between CSR performance and a firm's profitability, arguing that the neutral association is due to the corporate efforts to follow a differentiation strategy from competitors requiring higher research and development (R&D) investment. Hence, increased investment in research and development (R&D) acts as a moderating factor in the

association between CSR performance and financial performance. Although the results of several studies in the field are inconclusive or counterintuitive, the burden of the academic record is weighted heavily towards the modest positive association [45]. Margolis and Walsh (2003) and later Aouadi and Marsat [18] state that the limitations in previous studies leave room for confusion and mixed results.

This study's first research question (RQ1) aims to examine the relationship between CSR performance and corporate financial performance over time, as previous studies have produced inconsistent results, leaving this area of inquiry unresolved. Additionally, this study addresses the need for further investigation highlighted by Aouadi and Marsat [18], who argue that confounding factors may have led to either conflicting findings or spurious results in prior studies. Based on the aforementioned discussion and the inconclusive nature of previous research, the first hypothesis of this study is as follows:

**H1.** *There is a positive correlation between corporate social responsibility (CSR) performance and financial performance over a longitudinal period.*

Some studies acknowledged that investigating whether CSR performance is positively or negatively associated with corporate financial performance may be futile despite all the previous efforts. As Rowley and Berman [46] state, it is hard to assume that poor (strong) CSR performance is always negatively (positively) associated with financial performance. Therefore, on what basis can a contingent answer to this question be recommended to whether CSR performance is positively (negatively) associated with corporate financial performance? Drawing upon the instrumental stakeholder theory perspective, which posits that CSR performance leads to enhanced stakeholder relationships and subsequent financial benefits [9], Barnett [19] put forth the notion that stakeholders perceive certain firms as more trustworthy based on their CSR performance. Thus, they reward them accordingly based on their contribution to CSR-related activities. Baron (2007, 2008, 2009) also propose that firms under social pressure by their stakeholders choose to invest in CSR-related activities to improve their financial performance. They highlight a continuum of stakeholders with a heterogeneous preference for CSR-related concerns that pressure firms to disclose their CSR performance. They categorise three groups of stakeholders: consumers in the product market who consume firm products, investors in the capital market, and those who fund social pressure. The shareholders in the capital market might have altruistic preferences on CSR-related concerns with different intensities. These individuals can insert their personal choice for CSR concerns into their trading activities, allowing CSR performance to be priced in the capital market [47]. In the product market, firms produce identical products but use their CSR performance to differentiate them. Firms can differentiate themselves and benefit through related disclosure if consumers in the product market reward CSR performance [48]. In the market for a susceptible social pressure, social activists target firms for social pressure, and CSR performance is a tool to affect the activist's social pressure. Social pressure can significantly impact a firm's market value by driving some investors away from a firm or impact corporate financial performance by damaging brand equity or corporate reputation [47]. CSR performance makes the firms less attractive to be targeted by social activists [49]. For instance, Cai et al. [50] argue that polluting industries encounter substantial pressure from stakeholders because of their negative environmental and social impacts, providing incentives for management to improve their CSR performance to maintain the firm's reputation.

Firms can capture and accrue stakeholder support by consistently engaging in CSR-related activities. Those with a weak history of CSR performance have limited or cannot capture stakeholder attention and support [19]. Therefore, firms with different stakeholder support receive a different financial return on their CSR performance. It is wise for firms with solid stakeholder concerns in CSR-related activities to invest in improving CSR performance [48,51]. These firms can significantly minimise transaction costs, releasing their ability to contract with key stakeholders. Such a strategy is consistent with the firm's



characteristics, and stakeholders are more likely to perceive them as trustworthy, and, therefore, reward them accordingly. On the other hand, firms with lower stakeholder concerns about CSR performance are less likely to transform CSR performance into tangible financial returns because it is not perceived as reliable by stakeholders but self-serving or greenwashing [52]. Friedman [6] decried the allocation of firm resources to CSR activities due to the related costs and recognised them as an example of agency costs. It is reasonable to assume that the costs of establishing and pursuing CSR-related activities can be different for firms. Therefore, if everything else is held equal, the higher a CSR performance, the higher its costs and lower financial performance. Stakeholders' attention and support for CSR performance can significantly switch the negative association. Despite the costs associated with CSR-related activities, a firm's consistent CSR performance, which its stakeholder support, might return a higher financial performance that offsets and exceeds these costs [53,54]. Those firms with more significant stakeholder concerns about CSR performance should achieve higher returns on their CSR investment and consequently achieve higher financial performance [54]. Stakeholder theory links industry sectors as an influential variable to CSR performance [55,56]. Successful integration of sustainable initiatives needs an appropriate consideration of social requirements and market needs that a particular firm in a specific industry can meet [57].

Barnett and Salomon [28] investigate the propensity of the financial returns from CSR performance. They find that the relationship depends on stakeholder pressure. Firms with lower stakeholder influence would not benefit financially from stronger CSR performance. They argue that stakeholders' influence underlies the ability to transfer CSR performance into financial benefits. Firms could exploit stakeholder favour on CSR performance and thereby benefit from investing in CSR-related activities. Therefore, improving CSR performance is wise for firms with higher stakeholder pressure on CSR-related performance [28]. They call for a further extension of studies of potential heterogeneity of CSR's influence on a firm's financial performance in different industry sectors. Hoepner and Yu [58] observe a positive relationship between CSR performance and financial performance, but only within specific industry sectors such as consumer goods and healthcare. Their findings challenge the notion of a universal relationship between CSR performance and financial performance, emphasizing the importance of considering the specific industry context when examining this association. Fernández-Kranz and Santaló [59] document a greater competition in product markets associated with higher CSR performance consistent with the theory proposed by Baron [60,61] in which firms invest in CSR-related activities because consumers, employees and investors are rewarding them. Baron et al. [62] observe a positive relationship between CSR performance and financial performance within the consumer industry sector, while a negative association is found within the industrial sector. Firms in the consumer industry differentiate themselves from their competitors with a higher CSR performance and are therefore rewarded by consumers, but this is absent for firms in the industrial sector that sell their products to other firms.

CSR performance is important in transferring relevant information to stakeholders [63]. Within diverse industry sectors with different stakeholder compositions and expectations, CSR performance can result in heterogeneous financial performance. This study investigates the relationship between firms in consumer products sectors and other industries, arguing that the mixed and counterintuitive findings of the previous studies on the relationship might be the outcome of different stakeholder pressures on firms that operate in different industry sectors. Our second hypothesis posits that the association between CSR performance and financial performance differs across industry sectors:

**H2.** *The association between corporate social responsibility (CSR) performance and financial performance differs between consumer product markets and industrial product markets.*

### 3. Research Design

This research utilizes a comprehensive dataset encompassing all publicly listed firms in Australia from 2007 to 2021 to examine the interplay between corporate social responsibility (CSR) performance and financial performance within various industry sectors. Moreover, it specifically delves into the comparative analysis of this relationship between the consumer product market and other industrial markets. The investigation adopts the Bloomberg Industry Classification System (BICS), consisting of ten industry categories, to assess the association across consumer products and diverse industrial sectors. For a thorough understanding of the industry sectors, a comprehensive description is provided in Appendix A.

#### 3.1. Measures of Corporate Social Responsibility (CSR) Performance

The focal independent variable examined in this research pertains to corporate social responsibility (CSR) performance, encompassing environmental, social, and governance (ESG) aspects, as recorded in the Bloomberg database (<https://www.bloomberg.com> (accessed on 1 July 2022)). While traditional corporate reporting necessitates mandatory disclosures, CSR performance is primarily influenced by voluntary initiatives. The CSR performance score serves as a comprehensive gauge of nonfinancial performance, encompassing a diverse array of environmental factors (e.g., energy consumption, carbon emissions, water usage, and climate change), social factors (including human rights, gender equality, product safety, health and safety, and fair trade), and governance factors (such as corruption, bribery, reporting and disclosure practices, board independence, and shareholder protection). Previous studies have recommended the utilization of independent third-party data providers for measuring CSR performance [64,65], and Bloomberg has been utilized in numerous academic research endeavours within the same domain [66,67]. The disclosure score, computed by Bloomberg, relies on 120 indicators, reflecting the three dimensions of environmental, social, and governance engagement. CSR information collected by Bloomberg encompasses various measurement scales, ranging from quantitative ratios (e.g., water discharged or water usage) to qualitative assessments denoted by “yes” or “no” responses. The CSR disclosure scores range from a minimum of 0.1 to a maximum of 100.

#### 3.2. Financial Performance Measure

This study incorporates two metrics to assess corporate financial performance. The primary metric employed is Tobin's Q, which serves as a proxy for a firm's financial performance. Tobin's Q, initially proposed by Tobin [68], has been utilized widely in previous studies as it captures a firm's equity market valuation, indicative of its financial performance [69–72]. Past literature highlights that the equity market price effectively reflects a firm's financial performance [73,74]. Given that Tobin's Q encompasses the market value of a firm's goodwill, it stands as a valuable measure of financial performance in the equity market [68]. Additionally, this study adopts return on assets (ROA) as a secondary indicator of corporate financial performance. ROA, a widely employed accounting measure in assessing financial performance [2], has also been utilized in sustainability research to gauge financial performance [75,76]. Therefore, in line with prior literature, this study employs ROA as a supplementary dependent variable to compare corporate financial performance across different industries.

#### 3.3. Data Collection and Sample Description

The data used in this study were collected from the Bloomberg database, which provides comprehensive financial, environmental, social, and governance information. The dataset encompasses all publicly listed firms on the Australian stock exchange. To ensure comparability, the CSR disclosure scores were standardized using a standardized scale in the estimation model. To address potential outliers in the dataset, a commonly adopted

approach from previous literature was applied, where extreme values were trimmed and replaced with the mean value of the respective variable [77].

Consistent with Aggarwal et al. [78], this study incorporates additional firm characteristics to account for potential confounding effects on financial performance. These characteristics include firm size and the ratio of property, plant, and equipment to total revenue. A detailed description of these variables can be found in Appendix B. While the possibility of sample-selection bias affecting the relationship between CSR and financial performance is acknowledged [79], it is important to highlight that this study minimizes the impact of sample selection bias. The comprehensive dataset used in this study includes all publicly listed Australian firms, ensuring a comprehensive representation of the sample.

This study acknowledges that the relationship between CSR performance and corporate financial performance may vary across industries with different product markets. To capture this variation, the dataset was divided into two categories: consumer product markets (The consumer markets encompass a range of industries, such as food products, alcoholic beverages, tobacco products, entertainment, recreational products, healthcare, apparel, automobiles, and more. These industries cater directly to consumer needs and preferences. On the other hand, industries outside the consumer products panel are classified as industrial, focusing on manufacturing, production, and supply chains rather than direct consumer interaction) and industrial (non-consumer) product markets, following previous research [28,62]. Consumer product industries, which directly serve individual consumers by providing goods and services tailored to their needs, constitute the consumer product market. Conversely, industries not classified as consumer products are categorized as industrial sectors. These industrial sectors primarily engage in manufacturing, production, and supply chains, serving as suppliers to other industries rather than directly catering to end consumers. By distinguishing between consumer and industrial sectors, this study aims to conduct a more nuanced analysis of the relationship between CSR performance and financial performance, shedding light on the distinct dynamics and stakeholder behaviours within different industry contexts. The consumer products industries comprise 62% of the observations, while the remaining 38% represent other industrial markets.

Table 1 presents the sample selection and composition for the period 2007–2021. Panel A shows the sample composition by year, including the number of observations with CSR data available, missing observations, and the final number of observations. Panel B displays the sample composition by industry sector. The top five representative industries are basic materials (22%), consumer non-cyclical (17%), financial (17%), energy (11%), and consumer cyclical (11%). Collectively, the basic material, financial, and consumer non-cyclical sectors account for over 50% of the total sample composition by industry sector.

### 3.4. Empirical Analysis and Model Specifications

To examine the hypotheses and address the research questions, this study employs panel regression analysis on the firms in the sample. The analysis primarily focuses on Tobin's Q as the dependent variable, which represents firm valuation. Additionally, return on assets (ROA) is included as an additional measure of financial performance. ROA, although not influenced by market fluctuations, is used widely to assess corporate financial performance. By conducting regressions using Tobin's Q and ROA as dependent variables and CSR performance as the independent variable, this study aims to investigate the potential relationship between these variables. Furthermore, by distinguishing between consumer and industrial markets, the study aims to uncover potential differences in the impact of CSR performance on corporate financial performance. Hence, the following estimation model is presented for analysis:

$$\begin{aligned} \text{Tobin's } Q = & \beta_0 + \beta_1 \text{CSR}_{i,t} + \beta_2 \text{LNNTA}_{i,t} + \beta_3 \text{PPE}_{i,t} + \beta_4 \text{CAPEX}_{i,t} + \beta_5 \text{GROWTH}_{i,t} + \beta_6 \text{CASH}_{i,t} \\ & + \beta_7 \text{LEVERAGE}_{i,t} + \beta_8 \text{COD}_{i,t} + \beta_9 \text{SZB}_{i,t} + \beta_{10} \text{SZAC}_{i,t} \\ & + \text{IndustryFixedEffect}_t + \text{YearFixedEffect}_t + \varepsilon_{it} \end{aligned}$$



In line with previous studies [80,81], we incorporate additional control variables that are expected to influence the relationship. These variables include firm size (LNTA), property, plant, and equipment (PPE), capital expenditure (Capex), revenue growth (Growth), liquidity ratio (Cash), debt ratio (Leverage), cost of debt (COD), size of the corporate executive board (SZB), and size of the audit committee (SZAC). The definitions and measurements of these variables are provided in Appendix B.

**Table 1.** Sample composition. Panel (A): Sample composition by year. Panel (B): Sample composition by industry sector.

(A)			
Year	Obs with CSR Data Available	Missing Obs	Final Obs
2007	113	39	74
2008	123	22	101
2009	126	19	107
2010	145	17	128
2011	155	15	140
2012	178	14	164
2013	202	13	189
2014	211	12	199
2015	278	12	266
2016	295	11	284
2017	327	11	316
2018	336	9	327
2019	362	8	354
2020	377	5	372
2021	395	0	395
Total	3623	202	3416
(B)			
Industries	Obs	%	
Raw materials sector (Basic materials)	748	22	
Telecom industry (Communication)	203	6	
Consumer discretionary	373	11	
Consumer staples	598	17	
Diversified	17	1	
Energy	387	11	
Financial	574	17	
Industrial	352	10	
Technology	109	3	
Utilities	58	2	
Total	3416	100	

This table outlines the sample selection process by year and by sectors using the Bloomberg Industry Classification System (BICS).

## 4. Results

The subsequent subsections provide a detailed presentation of the analysis results carried out to evaluate the two hypotheses.

### 4.1. Descriptive Statistics

Table 2 provides descriptive statistics for the independent, dependent, and control variables across all firms and industries. Winsorization is applied at the 1% and 99% levels to handle outliers. The mean value of Tobin's Q is 1.93, and the average CSR score is 2.91, ranging from 0.60 to 4.17. These statistics demonstrate significant variation in the CSR disclosure score, allowing for hypothesis testing. In summary, Table 2 summarizes the descriptive statistics for the variables used in the estimation models.

**Table 2.** Summary statistics.

Variables	Obs	Mean	Std	Min	Max
Tobin Q	3416	1.9357	1.8469	0.2686	19.744
ROA	3416	1.9218	0.9488	0.0415	5.8325
CSR	3416	2.9188	0.4752	0.6042	4.1729
LNTA	3416	6.4976	2.1462	0.1671	13.791
PPE	3416	0.6578	1.0592	0.0623	9.1466
Capex	3416	0.2223	0.6281	0.0003	7.8894
Growth	3416	0.1076	0.6444	0.7963	5.9674
Cash	3416	0.1239	0.1425	0	0.6869
Leverage	3416	0.4278	0.2607	0.0033	3.8033
COD	3416	2.1676	0.4009	0.114	3.2955
SZB	3416	6.7386	2.0201	3	15
SZAC	3416	3.3839	0.9322	0	9

This table provides an overview of the descriptive statistics for the variables utilized in the estimation models.

Table 3 displays the Pearson correlation coefficients examining the relationship between the dependent variable (financial performance metrics) and the independent variable (CSR performance measure). The findings indicate a positive correlation between the CSR performance measure and the financial performance metrics of Tobin's Q and ROA. Additionally, the remaining explanatory variables exhibit the anticipated associations with the primary dependent variable. Therefore, multicollinearity is not a concern for the estimation model utilized in this study.

**Table 3.** Pairwise correlations matrix.

Statistics	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) Tobin Q	1											
(2) ROA	0.014 *	1										
(3) CSR	0.188 *	0.175 *	1									
(4) LNTA	−0.326 *	0.354 *	0.303 *	1								
(5) PPE	−0.122 *	−0.055 *	−0.072 *	−0.022 *	1							
(6) Capex	0.002 *	0.015 *	0.154 *	−0.132 *	0.396 *	1						
(7) Growth	0.079 *	0.119 *	0.066 *	0.024 *	−0.137 *	−0.138 *	1					
(8) Cash	0.323 *	0.225 *	0.304 *	0.510 *	−0.061 *	−0.079 *	0.021 *	1				
(9) Leverage	0.167 *	0.257 *	0.256 *	0.463 *	−0.074	−0.119 *	0.004 *	0.397 *	1			
(10) COD	0.082 *	0.149 *	−0.092 *	0.099 *	−0.006 *	−0.078 *	0.026 *	0.196 *	0.285 *	1		
(11) SZB	−0.139 *	−0.256 *	0.352 *	0.317 *	−0.065 *	−0.117 *	−0.033 *	−0.286 *	−0.354 *	0.029 *	1	
(12) SZAC	−0.128 *	−0.162 *	0.225 *	0.305 *	−0.063 *	−0.090 *	−0.059 *	−0.266 *	0.286 *	0.059 *	0.470 *	1

This table presents the Pearson correlation coefficients among the variables used in this study. The significance levels are indicated by superscript asterisks (\*), highlighting significance at the 1% level.

## 4.2. Results and Findings

There will be two discussions under this sub-section. The results for the CSR impact analysis follows in the first of these two sub-headings and the industrial impact analysis results are provided in the second of these two sub-headings.

### 4.2.1. CSR Impact Analysis

To examine the impact of CSR performance on financial performance, this study employs Tobin's Q as a key measure of corporate financial performance, following prior research [69,71,72]. Table 4 presents the findings of a panel regression analysis with year-fixed effects and robust standard errors. The first column of Table 4 reveals a significant and positive association between CSR performance and corporate financial performance across all industry sectors. The estimated coefficient for CSR is 0.0789, demonstrating statistical significance with a t-statistic of 1.78 and a standard error of 0.0443. The obtained results are in line with previous research, reinforcing the findings reported in prior meta-analyses conducted by Margolis, Elfenbein and Walsh [42] and Harjoto and Jo [15] and, more recently, by de Villiers and Marques [14] and Brooks and Oikonomou [2]. These studies consistently demonstrate a positive and significant relationship between CSR performance

and corporate financial performance across various industry sectors. Therefore, the findings of this study provide robust evidence in support of the first hypothesis, confirming a positive association between CSR performance and corporate financial performance.

**Table 4.** Regression results.

Variables	(1)	(2)
CSR	0.0789 *** (0.0443)	0.1204 *** (0.0886)
LNTA	−0.1005 *** (0.0174)	−0.1138 *** (0.0428)
PPE	−0.1319 *** (0.0234)	−0.0438 ** (0.0772)
Capex	0.2215 *** (0.0323)	0.2072 *** (0.0966)
Growth	0.0642 *** (0.0144)	0.2653 *** (0.0399)
Cash	1.4269 *** (0.1115)	1.8409 *** (0.2961)
Leverage	0.3624 *** (0.0731)	0.4530 *** (0.2085)
COD	0.0091 *** (0.0030)	0.0172 *** (0.0073)
SZB	0.0131 (0.0094)	0.0067 (0.0192)
SZAC	−0.0040 (0.0130)	−0.0276 (0.0263)
Constants	0.4356 *** (0.1557)	2.1930 *** (0.3634)
Year-fixed effect	Yes	Yes
Firm-fixed effect	Yes	Yes
Obs	3416	3416
Adj-R-squared	0.3505	0.3141

This table displays regression results for a firm's market and financial performance based on its corporate social responsibility (CSR) score, along with control variables. Coefficients and standard errors are computed using robust fixed-effect regression analysis (in parentheses). \*\*\* < 1% & \*\* < 5% significant levels.

Aligned with recommendations from previous studies [76,82], this research incorporates return on assets (ROA) as an accounting metric to measure corporate financial performance. The second column of Table 4 displays the outcomes of the panel regression analysis that examines the impact of CSR performance on ROA, providing an additional measure of financial performance. The estimated coefficient for CSR performance is 0.1204, displaying statistical significance at the 1% level (t-statistic = 1.36, standard error [SE] = 0.0886). Consistent with the initial hypothesis, the findings indicate that firms with higher CSR performance exhibit greater profitability. These results reinforce the positive association between CSR performance and corporate financial performance, as supported by the primary estimation model presented in the first column of Table 4.

#### 4.2.2. Industrial Impact Analysis

In summary, this study confirms a strong connection between elevated CSR performance and improved financial performance among firms. These findings are consistent with existing literature, adding further evidence to the positive relationship between CSR performance and financial outcomes [83–85].

Furthermore, the findings regarding the control variables are in line with the existing literature, as their coefficients demonstrate the anticipated trends. Similar to the results reported by Aggarwal, Erel, Stulz and Williamson [78], this study identifies a negative association between financial performance and firm size (LNTA) and property, plant, and equipment (PPE). Additionally, consistent with previous research [80,81], this study

uncovers a positive correlation between financial performance and variables such as capital expenditure (Capex), revenue growth (Growth), liquidity ratio (Cash), cost of debt (COD) and leverage.

The implication of previous research suggests that the effects of CSR practices can differ based on the industry sector, highlighting the need to examine the impact of CSR practices separately for different sectors [86]. Table 5 provides the results of the analysis evaluating the relationship between CSR performance and corporate financial performance (measured by Tobin's Q and ROA in year *t*) for the consumer products and other industrial markets. Using a panel regression analysis with year-fixed effects, the findings indicate variations between the consumer products and other industrial market sectors. Specifically, the results presented in Table 5 (columns 1 and 2) indicate that in consumer markets, both measures of corporate financial performance show positive and significant coefficients for CSR performance. These results suggest a robust and positive association between CSR performance and financial performance in consumer markets. On the other hand, in industrial markets, the coefficients for CSR performance do not show any significant relationship, suggesting the absence of financial benefits associated with CSR performance in these markets. The disparity between the two markets can be attributed to the presence of rewards for CSR performance in firms that cater to consumers, whereas such rewards are lacking for firms that primarily serve other businesses. This distinction emphasizes the importance of stakeholder rewards in driving the financial benefits associated with CSR performance, particularly in consumer-facing industries.

**Table 5.** Product market analysis.

Variables	Consumer		Industrial	
	(1)	(2)	(1)	(2)
CSR	0.1455 *** (0.0414)	0.1102 *** (0.0902)	0.0142 (0.2526)	0.1993 (0.1095)
LNTA	−0.0595 *** (0.0193)	−0.1127 *** (0.0450)	−0.0490 (0.1087)	−0.1332 (0.0334)
PPE	−0.0629 (0.0525)	−0.2533 (0.1422)	−0.0065 (0.1285)	−0.1327 *** (0.0346)
Capex	0.1606 *** (0.0528)	0.0904 ** (0.1357)	0.1960 (0.1693)	0.2078 *** (0.0493)
Growth	0.0678 *** (0.0169)	0.1866 ** (0.0471)	0.3188 (0.0846)	0.0516 *** (0.0268)
Cash	1.5722 *** (0.1384)	1.1921 *** (0.3336)	2.9436 *** (0.6467)	1.2444 ** (0.2081)
Leverage	0.1482 * (0.0813)	0.4590 *** (0.2369)	0.2979 *** (0.4519)	0.5095 * (0.1399)
COD	−0.0017 *** (0.0039)	−0.0115 *** (0.0087)	0.0279 (0.0146)	0.0143 (0.0050)
SZB	−0.0060 (0.0087)	−0.0026 (0.0193)	−0.0108 (0.0580)	0.0157 (0.0232)
SZAC	−0.0024 (0.0131)	−0.0486 (0.0277)	−0.0255 (0.0661)	0.0191 (0.0283)
Constants	0.2008 *** (0.1691)	2.3856 *** (0.3809)	1.7714 *** (0.9921)	1.1917 *** (0.3387)
Year-fixed effect	Yes	Yes	Yes	Yes
Firm-fixed effect	Yes	Yes	Yes	Yes
Obs	2116	2116	1300	1300
Adj-R-squared	0.3192	0.2199	0.2501	0.2965

This table displays the regression results examining the relationship between a firm's CSR performance score and its market and financial performance. The analysis includes control variables and focuses on firms classified in consumer product market (1) and industrial product market (2). \*\*\* < 1%, \*\* < 5%, \* < 10% significant levels.

The results of the estimation models provide empirical evidence supporting the hypothesis of this study, indicating a positive relationship between CSR performance and

financial performance, specifically in stakeholder-driven consumer markets. In these markets, firms that prioritize CSR activities are likely to gain competitive advantages and consumer support. However, the same relationship is not observed in the industrial sector, where the customer base consists mainly of other businesses. These findings are consistent with previous research by Baron, Harjoto and Jo [62], which suggests that consumers in product markets are willing to pay a premium for products from firms with strong CSR performance, leading to favourable financial outcomes. Li et al. [87] propose a consumer-oriented approach to identify CSR-differentiation strategies, emphasizing its significance for firms' financial success. By adopting such strategies, companies can enhance their image as socially responsible in the eyes of consumers. Furthermore, the findings of this study align with the research conducted by Omar and Zallom [29], highlighting the positive association between CSR performance and financial performance, particularly in industries such as communication and consumer non-cyclical sectors.

#### 4.3. Endogeneity Test

To strengthen the validity of the main findings, this study performed robustness tests to verify the results obtained from the primary estimation model. Following the methodology of prior research, instrumental variable (IV) analysis was employed to re-evaluate the estimation models. The results from the IV tests, presented in Tables 6 and 7, align with the main analysis, corroborating the positive relationship between CSR performance and financial performance. These robustness tests enhance the credibility and consistency of the primary findings, reinforcing the evidence of a positive association between CSR performance and financial outcomes [5,32,33].

To address potential endogeneity bias and account for unobservable factors that could influence the relationship between CSR performance and financial performance, this study employs an instrumental variable (IV) approach and panel regression analysis with firm-fixed effects. The IV approach helps mitigate the reverse causality between CSR performance and operational performance, which is particularly relevant as higher operational performance in the past may also lead to higher CSR scores. By incorporating firm-fixed effects, the study controls for time-invariant unobservable heterogeneity that may confound the relationship. This analytical approach enhances the internal validity and robustness of the findings [88]. Following prior literature [88,89], the study selects a suitable instrument using a simultaneous equation system. The yearly firm average of CSR score (CSR\_Adj) is employed as an instrument, which involves benchmarking and standardizing each firm's CSR performance against the sample average.

$$\text{CSR Adjusted performance} = \frac{\text{Company CSR} - \text{Average CSR}}{\text{SD}}$$

The endogeneity tests presented in Tables 7 and 8 support the positive association between CSR performance and corporate financial performance, highlighting differences between the consumer and industrial product sectors. The robustness analysis further strengthens the main finding by confirming that endogeneity does not confound the observed relationship. These results enhance the credibility and dependability of the study's findings, emphasizing the significance of CSR performance in influencing financial outcomes.

#### 4.4. Additional Analysis—Stakeholder Pressure for CSR Performance

In order to further explore the implications of our findings and gain a deeper understanding of the CSR performance and stakeholder pressure, we conducted an additional analysis that specifically examines the differences between consumer product markets and industrial product markets. This analysis aims to investigate whether firms operating in consumer product markets encounter greater stakeholder pressure for sustainability performance compared to firms in industrial product markets thus, provide higher CSR disclosure.



To assess the variation in stakeholder pressure for sustainability performance between these two market segments, we employed a *t*-test analysis. The results are presented in Table 8. The *t*-test analysis allowed us to compare the mean scores of sustainability performance between the consumer product market group and the industrial product market group. The results of the *t*-test analysis revealed a statistically significant difference in CSR performance between the two market segments ( $t = 3.71, p < 0.05$ ). Specifically, firms operating in consumer product markets exhibited significantly higher levels of stakeholder pressure for sustainability performance compared to firms in industrial product markets. We also perform the same analysis on the disaggregated measure of CSR performance. Except for the social disclosure score (SOC) elements, the results of the *t*-test analysis revealed a statistically significant difference in environmental disclosure score (ENV) and governance disclosure score (GOV) between the two market segments. We also perform Chi-square tests to evaluate whether there is a significant relationship between the product market and firms' CSR disclosure score. However, for brevity, we do not provide the full results here. The Chi-square test results confirm that there is a significant relationship between firms operating in consumer product market and CSR disclosure score (Chi-square = 7.4469;  $p = 0.000$ ). This finding suggests that stakeholders in consumer product markets place greater emphasis on sustainability performance and exert more pressure on firms to engage in responsible and sustainable practices.

**Table 6.** Robustness check for all sectors.

Variables	(1)	(2)
CSR_Adj	0.0454 *** (0.0954)	0.2352 *** (0.2110)
LNTA	−0.0952 *** (0.0218)	−0.1374 *** (0.0581)
PPE	−0.1329 *** (0.0235)	−0.0342 *** (0.0789)
Capex	0.2211 *** (0.0324)	0.2059 *** (0.0967)
Growth	0.0632 *** (0.0146)	0.2720 *** (0.0414)
Cash	1.4214 *** (0.1116)	1.8586 *** (0.2977)
Leverage	0.3547 *** (0.0757)	0.4071 *** (0.2222)
COD	−0.0084 *** (0.0035)	−0.0199 *** (0.0086)
SZB	−0.0131 (0.0094)	−0.0065 (0.0193)
SZAC	−0.0026 (0.0134)	−0.0236 (0.0272)
Constants	0.5070 *** (0.2380)	1.9724 *** (0.5174)
Year-fixed effect	Yes	Yes
Firm-fixed effect	Yes	Yes
Obs	3416	3416
Adj-R-squared	0.2310	0.2168

This table presents the results of the endogeneity analysis utilizing instrumental regression to examine the relationship between a firm's market and financial performance. The instrument variable is employed for all industries. The coefficient estimates and standard errors are reported in parentheses using robust fixed-effect regression analysis. \*\*\* < 1% significant level.

**Table 7.** Robustness check.

Variables	Consumer		Industrial	
	(1)	(2)	(1)	(2)
CSR_Adj	0.4023 *** (0.0886)	0.4646 *** (0.2023)	0.2046 (0.9444)	0.2996 (0.3105)
LNTA	−0.1060 *** (0.0241)	−0.1898 *** (0.0600)	−0.1446 (0.1828)	−0.0011 (0.0498)
PPE	−0.0257 (0.0544)	−0.1753 (0.1486)	−0.0471 (0.1387)	−0.1438 *** (0.0373)
Capex	0.1555 *** (0.0536)	0.1083 *** (0.1369)	0.1884 (0.1751)	0.1682 *** (0.0540)
Growth	0.0787 *** (0.0174)	0.2131 *** (0.0493)	0.2377 (0.1063)	0.0149 *** (0.0303)
Cash	1.5928 ** (0.1405)	1.2665 (0.3380)	0.8302 *** (0.6738)	0.0293 * (0.2306)
Leverage	0.2120 (0.0847)	0.3148 (0.2522)	0.6263 *** (0.5273)	0.3181 * (0.1584)
COD	−0.0059 (0.0046)	−0.0216 (0.0102)	−0.0097 (0.0203)	0.0012 (0.0067)
SZB	−0.0058 (0.0089)	−0.0032 (0.0194)	0.0229 (0.0607)	0.0133 (0.0249)
SZAC	−0.0103 (0.0135)	−0.0401 (0.0282)	0.0494 (0.0882)	0.0859 (0.0350)
Constants	1.3283 *** (0.2350)	1.7010 *** (0.5187)	1.4358 *** (0.2335)	1.7550 *** (0.7619)
Year-fixed effect	Yes	Yes	Yes	Yes
Firm-fixed effect	Yes	Yes	Yes	Yes
Obs	2116	2116	1300	1300
Adj-R-squared	0.2110	0.2567	0.2844	0.2754

This table presents the results of the endogeneity analysis utilizing instrumental regression to examine the relationship between a firm's market and financial performance. The analysis includes control variables and focuses on firms classified in consumer product market (1) and industrial product market (2). \*\*\* < 1%, \*\* < 5%, \* < 10% significant levels.

**Table 8.** Additional analysis: consumer vs. industrial product market.

CSR Elements	Obs			Average Scores 2007–2021			
	(1)	(2)	Total	(1)	(2)	Difference	t-test
Composite CSR	2116	1300	3416	2.9418	2.8804	0.0615	(0.0165) ***
ENV	887	428	1315	2.4805	2.3898	0.0907	(0.0595) ***
SOC	1386	634	2020	3.0621	3.0622	0.0001	(0.0325)
GOV	1676	735	2411	3.8794	3.7941	0.0853	(0.0071) ***

This table presents the mean values of the composite CSR score, as well as the individual scores for environmental (ENV), social (SOC), and governance (GOV) elements. The data are categorized based on the consumer product market (1) and industrial product market (2). \*\*\* < 1% significant level.

The observed disparity in stakeholder pressure between the two market segments lends further support to our earlier findings regarding the positive association between CSR performance and financial performance. Firms operating in consumer product markets may face stronger incentives and motivations to prioritize CSR initiatives and enhance their sustainability performance due to the heightened stakeholder pressure in these markets. On the other hand, firms in industrial product markets may face different stakeholder dynamics that influence their CSR priorities and performance.

## 5. Conclusions and Implications for Policy and Practice

This study examines the longitudinal association between CSR performance and financial performance across various industry sectors. Additionally, we extend our analysis to evaluate the role of stakeholder support in shaping the benefits of CSR performance within different product markets. By employing a panel regression analysis and conducting robustness tests, including instrumental variable analysis, we confirm the positive influence of CSR performance on financial performance, aligning with previous research in the field [14,42]. Our study reveals distinct associations between CSR performance and financial performance in consumer product markets compared to industrial product markets. Firms operating in consumer product markets demonstrate a significant positive relationship between CSR performance and financial performance, whereas no significant association is observed in the industrial sector. This disparity can be attributed to the differential stakeholder rewards for CSR efforts in these respective market segments. The findings highlight the importance of stakeholder support in translating CSR investments into tangible financial advantages for firms operating in consumer markets.

Our study challenges the notion of a neutral relationship between CSR performance and financial performance proposed by some researchers. Instead, we propose that firms can strategically align their corporate strategies with market demand for CSR performance to achieve optimal financial outcomes. We emphasize the need for firms to tailor their CSR strategies to meet the specific demands of stakeholders and market conditions.

Furthermore, our analysis of stakeholder pressure in different product markets demonstrates that firms operating in consumer product markets encounter greater stakeholder pressure for sustainability performance compared to firms in industrial product markets. This finding sheds light on the role of stakeholder dynamics in driving sustainability performance within different market contexts.

Our study makes several important contributions. Firstly, we emphasize the significance of examining the relationship between CSR performance and financial performance over an extended period, considering the time required to establish trust relationships with stakeholders. Secondly, we contribute to the existing literature by expanding the analysis beyond the financial impact of CSR performance and incorporating stakeholder influences, particularly in different industry sectors [28,90–92]. This comprehensive approach provides a nuanced understanding of the intersection between CSR performance, stakeholders, and industry dynamics.

Overall, this study underscores the importance of CSR performance in driving financial outcomes, highlighting the role of stakeholder support and industry dynamics. It offers valuable insights for managers to strategically allocate resources and develop tailored CSR strategies that align with stakeholder expectations and industry characteristics. By effectively leveraging CSR efforts, firms can capture stakeholder attention and support, leading to enhanced financial performance.

While our study provides valuable insights, it is not without limitations. The focus on Australian publicly listed firms restricts the generalizability of the findings to other types and sizes of firms. Future research should consider including non-listed corporations and smaller firms to obtain a more comprehensive representation. Additionally, studies in other Asia-Pacific countries, particularly in the hospitality and tourism industries, would enhance our understanding of sustainability practices in diverse regional contexts. Further research could also explore the specific mechanisms through which CSR performance impacts financial performance, such as analysing the cost-saving aspects of CSR initiatives. Moreover, conducting industry-specific studies that examine the relationship between disaggregated CSR elements would provide managers with more targeted implications.

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**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** Bloomberg database is accessible by licence. Therefore data are unavailable due to privacy.

**Conflicts of Interest:** The authors declare no conflict of interest.

## Appendix A

**Table A1.** Industry classification and data source.

Category	Definition/Measurement
Telecom industry (Communication)	Telecommunication Services Media and Entertainment
Consumer discretionary	Food and Staples Retailing Leisure Products Home and Office Products Retail Discretionary Recreation Facilities and Services Distributors Travel, Lodging and Dining Automotive
Consumer staples	Health Care Equipment and Services Retail Staples Pharmaceuticals, Biotechnology and Life Sciences
Energy	Oil, Gas and Coal Renewable Energy
Financial	Banking Asset Management Institutional Financial Services Real Estate Operation and Services Insurance Specialty Finance
Diversified	Health Care Facilities and Services Biotech and Pharma Medical Equipment Devices
Industrial	Industrial Distribution Electrical Equipment Aerospace and Defence Engineering and Construction Services Machinery Transportation and Logistics Manufactured Goods Waste and Environmental Service Equipment and Facilities
Raw materials sector (Basic materials)	Construction Materials Chemicals Metals and Mining Containers and Packaging Forest and Paper Products Iron and Steel
Technology	Semiconductors and Semiconductor Equipment Technology Hardware and Equipment Software and Services
Utilities	Natural gas, Water, Public utility services

Data Source: Bloomberg Industry Classification System (BICS).

## Appendix B

**Table A2.** Definitions of variables and data sources.

Category	Measure	Definition/Measurement
Environment, social and governance disclosures	ESG	It is a framework used to evaluate a company's performance and impact in these three areas. The ESG score is derived from an evaluation of 120 indicators encompassing three distinct categories: environmental, social, and governance factors.
Firm characteristics:		
Tobin's q	Tobin Q	Market value/total assets.
Return on assets	ROA	Referred to a financial metric that measures a company's profitability by assessing its ability to generate earnings from its total assets.
Firm Size	LNTA	Logarithm of Net Total Assets, is a financial metric that represents the natural logarithm of a company's total assets.
Property, plant, and equipment	PPE	It refers to the tangible assets that a company owns and uses in its operations.
Capital expenditure	Capex	It refers to the funds invested by a company to acquire, upgrade, or maintain its long-term assets, such as property, plant, and equipment.
Sales growth	Growth	It refers to the increase in size, of a company revenue over time.
Cash	Cash	It refers to the physical currency, coins, and banknotes, as well as highly liquid assets held by a company or individual.
Leverage	Leverage	It refers to the use of borrowed funds or debt to finance investments or business operations.
Cost of debt	COD	The cost of debt represents the interest expense incurred by a company on its borrowed funds. It reflects the price paid by the company for utilizing debt financing from lenders.
Size of executive board	SZB	The number of members serving on the top management team of a company. It indicates the composition and structure of the executive leadership responsible for strategic decision making and governance within the organization.
Size of audit committee	SZAC	The number of members serving on the committee responsible for overseeing financial reporting, internal control systems, and audit processes within a company.

Data Source: Bloomberg Industry Classification System (BICS).

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