

**The impact of CSR decoupling on financial performance: The role of customer structure and operational slack**

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**The impact of corporate social responsibility decoupling on financial performance: The role of customer structure and operational slack**

**Abstract**

**Purpose** – Corporate social responsibility (CSR) decoupling indicates a misalignment between how firms report CSR and what firms actually practice with respect to CSR. The purpose of this paper is to examine the relationship between CSR decoupling and financial performance and the factors affecting this relationship.

**Design/ methodology /approach** – This paper collects and combines secondary panel data from multiple sources of Chinese listed firms from 2008 to 2020 to test the direct impact of CSR decoupling on firms' financial performance and the moderating role of customer structure and operational slack.

**Findings** – This paper finds that CSR decoupling is negatively associated with firms' financial performance. These findings further suggest that the negative relationship can be suppressed by customer stability and operational slack, but amplified by customer concentration. These

conclusions remain robust to alternate measures of independent and dependent variables and narrower samples.

**Originality/value** – In the literature, the effect of CSR on firms' financial performance is inconclusive. This is the first study to examine the impact of CSR decoupling on firms' financial performance and the factors affecting this relationship. This paper contributes to the CSR decoupling literature from an operations and supply chain management perspective.

**Keywords:** CSR decoupling, financial performance, customer structure, operational slack

**Paper type:** Research paper

## 1. Introduction

Governments promoted corporate social responsibility (CSR) among companies with the hope to achieve the 2030 Agenda Sustainable Development Goals, adopted by all United Nations member states in 2015 (Yanez-Araque *et al.*, 2021). CSR seeks to maximise the common good of the business, shareholders, other stakeholders and the public, and minimise or avoid subsequent potential adverse effects (Ho *et al.*, 2018). Thus, CSR not only pertains to achieving broader social objectives beyond the law (Hussain *et al.*), but considers the impact of society and stakeholders on operations, ensuring the survival of the business and its future development (Gull *et al.*, 2022).

CSR can make a difference to the long-term interests of a firm. The current literature focuses on the link between CSR and firm financial performance; however, the results of empirical studies are mixed. Most empirical findings suggest that CSR leads to improved financial performance (Flammer, 2015; Saeidi *et al.*, 2015; Zhou *et al.*, 2022), asserting that CSR can lead to firms achieving the objective of maximising shareholder wealth (Orlitzky *et al.*, 2003; Young-Min and Bong, 2015). However, some scholars hold the opposite opinion and claim that CSR leads to decreased financial performance, because it tends to invest precious resources in areas with a slow return on investment, damaging the collective interests of stakeholders (Prior *et al.*, 2008; Seifert *et al.*, 2004). This uncertain relationship has aroused researchers' interest. For example, scholars such as Orlitzky (2013) and Rehman *et al.* (2020) hold that part of the reason for this uncertainty is the distorted information provided to market participants about firms' CSR, representing a misalignment between CSR disclosure and CSR performance (i.e., CSR decoupling). Regular and active disclosure of social responsibility information by firms (i.e., CSR disclosure) allows stakeholders to be fully informed on the CSR operations and efforts of the firm. At the same time, firms need to ensure that they comply with CSR regulations and that the social responsibility set out therein is implemented (i.e., CSR performance), reflecting their integrity and commitment to stakeholders (Ho *et al.*, 2018).

As an important driver of sustainable performance, the impact of the misalignment or decoupling between CSR disclosure and CSR performance on other outcomes requires further analysis (Garcia-Sanchez *et al.*, 2021; Schons and Steinmeier, 2016; Zhong *et al.*, 2022). However, most of the existing research on CSR decoupling provides insights into the determinants of such decoupling (Li and Wu, 2020; Zhang, 2022), with less focusing on its consequences (Schons and Steinmeier, 2016; Zhong *et al.*, 2022). In fact, CSR decoupling reflects a misalignment between the status of information disclosure and the degree of policy implementation, which might influence financial performance (Marquis *et al.*, 2016). This has not been adequately explored by existing empirical studies (Garcia-Sanchez *et al.*, 2021), and our study attempts to address this important gap.

As researchers in the field of operations and supply chains management (OSCM) focus on CSR issues, the boundaries of CSR are not limited to within the company, but extend to the supply chain in which the company operates (Liu *et al.*, 2021; Mani *et al.*, 2016a). Supply chain structure reflects the relationship between the focal firm and stakeholders in the supply chain (Gualandris *et al.*, 2021; Svensson *et al.*, 2018). This is encompassed in two key aspects: the structural relationship between suppliers and customers (i.e., customer structure), reflecting the degree of interdependence between the two parties (Gu *et al.*, 2022), and operational slack as a buffer resource that can support firms in better matching variations between supply and demand, reflecting the extent to which companies rely on supply chain resources (Wiengarten *et al.*, 2017). Therefore, in addition to examining the role of CSR decoupling on firm financial performance, we further explore the moderating role of supply chain structure (i.e., customer structure) and operational slack. In summary, we address two related research questions:

RQ1. How does CSR decoupling affect firms' financial performance?

RQ2. How do OSCM-related factors such as customer structure and operational slack affect this relationship?

To fill these gaps, we investigate the relationship between CSR decoupling and firms' financial performance based on goal interdependence theory. We hypothesise that CSR decoupling has a negative impact on financial performance and use ordinary least squares (OLS) to test the validity of this hypothesis using firm-level data of listed firms in China. Our empirical results are consistent with our argument. Moreover, the stability of a firm's customers and its operational slack suppress the negative association between CSR decoupling and financial performance, while the concentration of a firm's customers amplify this negative relationship. These results are robust to alternative variable measurements and samples.

Our research makes the following contributions. First, we enrich the CSR decoupling literature by empirically examining the relationship between CSR decoupling and firms' financial performance. Given the uncertain nature of this relationship, we undertake a further in-depth exploration of this topic in the hope that revealing the consequences of CSR decoupling behaviour may inspire more researchers to explore CSR decoupling.

Moreover, our research not only provides insights into the direct role of CSR decoupling on firms' financial performance, but deepens our understanding of the relationships by identifying the moderating effect of supply chain structure and operational slack. As a result, our findings not only encourage companies to reduce CSR decoupling behaviour, but to maintain healthy and stable customer relationships in pursuit of long-term corporate sustainability.

Finally, we adopt goal interdependence theory to analyse the mechanism underlying the link between CSR decoupling and firm financial performance, and the moderating role of customer structure and operational slack. A successful supply chain requires long-term relation building of trust, loyalty, information sharing and rewards between firms (Yang *et al.*, 2008). We contribute to the OSCM field by examining the impact of goal interdependence in supply chain relationships and highlighting the importance of firms maintaining effective supply chain relationships.

The remainder of the paper is arranged as follows. Section 2 provides a review of the literature and the development of hypotheses. Section 3 describes the data sources and variable construction. Section 4 reports the results and Section 5 reports the robustness tests. Section 6 concludes the paper and discusses contributions and limitations.

## **2. Literature review and hypothesis development**

### *2.1. CSR in operations and its decoupling*

CSR involves the integration of social and environmental issues and interactions with stakeholders into a firm's business operations on a voluntary basis (Commission of the European Communities, 2001). Research in the field of OSCM considers CSR issues from the perspective of suppliers and manufacturers in relation to internal stakeholders (Mani *et al.*, 2016a). It is argued that the boundaries of CSR are not confined to the company, but rather, transcend intra- and inter-organisational boundaries (Mani *et al.*, 2016b). More specifically, companies should consider issues such as the safety, security and livelihood of their internal employees and those outside the organisation. The capabilities of focal firms to enhance their socially responsible operations performance is crucial (Asokan *et al.*, 2022). However, there is a decoupling between CSR promises and practice because managers do not necessarily behave in accordance with stakeholders' expectations in practice (Gull *et al.*, 2022).

The mainstream literature on the definition of CSR decoupling falls into two categories, as shown in Figure 1. Scholars represented by Hawn and Ioannou (2016) consider that a firm's CSR behaviours can be divided into external and internal activities, where external CSR focuses on commitment to external shareholders (such as consumers, the environment and communities), while internal CSR takes actions aimed at employees, board committees and other internal stakeholders. The first type suggests that CSR decoupling is the misalignment between external and internal CSR actions (Garcia-Sanchez *et al.*, 2022). The

second type distinguishes CSR decoupling into two categories; namely, policy–practice decoupling, which reflects the misalignment between policies and the implementation of programs, and means–ends decoupling, which reflects the misalignment between the implementation of programs and impacts (Bromley and Powell, 2012; Graafland and Smid, 2019). Policy–practice decoupling analyses the consistency of a firm’s CSR behaviour – that is, symbolic compliance vs. symbolic conformity (Durand *et al.*, 2019) – while means–ends decoupling analyses the efficiency of CSR behaviour. Policy–practice decoupling reflects the misalignment between the status of information disclosure and the degree of policy implementation. It reflects the degree of implementation of corporate policies rather than the effectiveness of implementation, and can reflect the effectiveness of the company’s internal management. For example, in 2000, British Petroleum (BP) announced that it would invest in the development of a new product called ‘Beyond Petroleum’. In reality, however, BP spent US\$7 million on research and development, but \$25 million on brand change. The company did not focus its efforts on the implementation of the firm’s energy efficient product development (Hawn and Ioannou, 2016). As in the case of the Wenchuan earthquake in China, there were also instances where companies promised to donate but failed to follow through. In line with Gull *et al.* (2022), we believe that the firm performance is strongly influenced by internal management mechanisms, and focus on policy–practice CSR decoupling in this study, arguing that firm financial performance is influenced by the inconsistency of its policy behaviour.

[Insert Figure 1 here]

## *2.2 The antecedents and consequences of CSR decoupling*

CSR decoupling as a managerial practice has been widely studied in the literature; a summary of previous studies is presented in Table I. Most existing research focuses on the antecedents of CSR decoupling. From an external monitoring perspective, CSR decoupling is affected by the soundness of the institutional environment. Tashman *et al.* (2019) point out that an institutional void is positively related to CSR decoupling. CSR decoupling is also affected by the monitoring of financial analysts. Financial analysts are adept at spotting any misalignment between CSR performance and CSR disclosure and transmitting information to



external stakeholders (Min *et al.*, 2015). Thus, for firms with high financial analyst coverage, managers are more inclined to reduce CSR decoupling, with this negative correlation amplified for non-state firms and firms with high levels of information asymmetry (Zhang, 2022). From an internal governance perspective, the main reason for CSR decoupling is a conflict of interest — the degree of CSR decoupling is greater when the conflict between shareholders and stakeholders is greater (Li and Wu, 2020) — and the separation of ownership and control is also an important factor. Therefore, CSR decoupling is affected by firm and executive characteristics; for example, nonfamily-owned firms' CSR reports tend to present a higher decoupling than family-owned firms because family-owned firms' commitment to CSR is usually higher (Parra-Domínguez *et al.*, 2021), while firms under the monitoring of a CSR committee usually have a lower degree of CSR decoupling. Further analysis shows that the structure and composition of the committee, such as its size, its independence and the tenure of committee members, have varying impacts on CSR decoupling (Gull *et al.*, 2022). Additionally, CEO cognitive bias has an effect; CSR decoupling increases when the CEO is overly powerful or overconfident (Sauerwald and Su, 2019; Shahab *et al.*, 2021).

While antecedents have been extensively studied, few studies pay attention to the consequences of CSR decoupling. Garcia-Sanchez *et al.* (2021) reveal that CSR decoupling results in higher costs of capital, less access to finance and higher levels of analyst forecast errors. Zhong *et al.* (2022) take COVID-19 as an example and find that firms with different levels of CSR decoupling have different responses to crises. CSR decoupling has a negative impact on firm response to philanthropic donations, specifically regarding response range and response speed. Schons and Steinmeier (2016) argue that the impact of CSR decoupling on a firm's financial performance varies across different levels of stakeholder proximity (i.e., high/low engagement in the company's processes). For the case of high stakeholder proximity (such as employee support), CSR decoupling significantly harms firm financial performance. For the case of low stakeholder proximity (such as corporate citizenship activities), CSR decoupling significantly enhances firm financial performance.

[Insert Table I here]

### 2.3 A goal interdependence perspective on the CSR decoupling – financial performance relationship

Goal interdependence theory implies that the goal relevance between individual firms and their partners determines the way they interact with their partners, which in turn affects the performance of individual firms and their cohesiveness with other firms (Yang *et al.*, 2008). Information sharing, trust and loyalty between the two are key to a successful alliance relationship (Ellram and Cooper, 1990). This interdependence has been proven by scholars to exist not only between intra-firm relationships, but also in supply chain relationships (Gu *et al.*, 2022; Wu *et al.*, 2015; Yang *et al.*, 2008). For instance, Yang *et al.* (2008) draw on goal interdependence theory to show that the trust of partners in a supply chain has positive effects on alliance performance, while Gu *et al.* (2022) conduct further analysis that indicates that supply chain stability can improve the performance of focal firms. The mixed results for the relationship between CSR and firm's financial performance is partly due to the distorted information provided to market participants about CSR (i.e. CSR decoupling), while interdependencies between firms have an impact on information sharing, trust and loyalty. We therefore see merit in adopting a goal interdependence perspective to explain how firms' CSR decoupling behaviour affects financial performance.

The impact of CSR decoupling on firms' financial performance is complex, and we believe that a firm's CSR decoupling affects relationships with relevant stakeholders in the following ways, potentially affecting financial performance. First, CSR decoupling affects the relationship between focal firms and their customers which further affects firms' profit. Existing literature has shown that CSR can increase customer satisfaction, enhance customer loyalty and improve customer bonding (Chung *et al.*, 2015; Patricia and Ignacio, 2013). Customer satisfaction and loyalty are core drivers of a firm's financial performance and can enhance a firm's image (Szymanski and Henard, 2001) and the willingness of customers to pay premium prices (Homburg *et al.*, 2005; Zheng *et al.*, 2021), which in turn improves the firm's financial performance (Gruca and Rego, 2005). As Nardi (2022) point out, substantive CSR reduces the negative socio-environmental externalities associated with firms' products, and customers are increasingly sensitive to the gap between symbolic and substantive CSR actions (Walker and Wan, 2012). Firms' CSR decoupling actions can generate an unfavourable business environment, which negatively affects customer evaluations

and attitudes (Ioannou *et al.*, 2022). Not only do firms need to spend more time and efforts to maintain relationships with their customers, but they are more unlikely to lose loyal customers. As a result, CSR decoupling can lead to lower profit.

Second, CSR decoupling has an impact on employee attitudes and behaviours which further affects firms' profit. Prior studies show that there is a positive effect of perceived CSR on employee attitudes and behaviours, such as organisational commitment, organisational identification, organisational trust and job performance (De Roeck and Delobbe, 2012; Nazir *et al.*, 2021; Wang *et al.*, 2020), especially for firms that expense their profits for organisational reputation (Carmeli *et al.*, 2007). Positive employee performance also brings better-quality service and products and cost reductions attributable to employee innovation (Tomic *et al.*, 2018). Li *et al.* (2022) point out that employee performance is reduced when organisations sacrifice ethical principles for expediency. In one case, employee pay cuts at American Axle and Manufacturing Holdings led to a three-month collective strike and eventually forced the closure of forging operations in some areas (Associated Press, 2008). As a result, CSR decoupling can reduce employee productivity and performance and affect the normal production operations of the firm, which can eventually lead to increased costs.

Finally, CSR decoupling affects the relationship between the firm and investors. CSR reporting is one of the communication tools used by firms to reduce information asymmetry between firms and investors. Higher CSR disclosure helps firms decrease the cost of equity capital (Reverte, 2012) and attract more investment (Cheng *et al.*, 2014; El Ghouli *et al.*, 2011), while better CSR performance bestows credibility, enabling greater efficiency in accessing capital (Reverte, 2012; Shuili *et al.*, 2007) and attracting dedicated institutional investors (Dhaliwal *et al.*, 2011). The existing literature has reached a consensus that high-quality information reduces the cost of capital. However, a higher level of CSR decoupling increases information asymmetry and makes investors sceptical and less likely to trade, which results in market illiquidity (Garcia-Sanchez *et al.*, 2021). As a result, CSR decoupling can increase the cost of capital and decrease access to finances, leading to increased costs. Based on the above, we hypothesise as follows:

H1. CSR decoupling decreases firms' financial performance.

#### 2.4 *The moderating role of customer structure and operational slack*

The impact of firm interdependencies in supply chains on both focal firms and supply chains has been well documented in previous studies (Gu *et al.*, 2022; Wagner and Bode, 2006; Yang *et al.*, 2008). From the perspective of goal interdependence theory, a long-term efficient supply chain relationship is influenced by factors such as trust, loyalty, risk and information sharing (Ellram and Cooper, 1990; Zheng *et al.*, 2021). Thus, CSR decoupling can reduce a firm's financial performance, with the extent to which this is reduced influenced by supply chain relationships. In addition, supply chain characteristics reflect the relationship between the focal firm and stakeholders in the supply chain (Gualandris *et al.*, 2021; Svensson *et al.*, 2018). Healthy supply chain relationships can enable parties to collaborate to share risk and improve financial performance (Ahmed and Shafiq, 2022; Jääskeläinen, 2021). Therefore, based on goal interdependence theory, we consider how supply chain structure (e.g., customer structure and operational slack) affect the role of focal firm CSR decoupling on firm performance.

##### 2.4.1 Customer structure

As Letizia and Hendrikse (2016) point out, downstream firms are key in motivating suppliers to invest in CSR. Meanwhile, heterogeneous customer characteristics have crucial impacts on the operational efficiency of a firm, and customer stability and concentration imply different power shifts and resource dependence in supply chains (Liu *et al.*, 2022; Zhang *et al.*, 2021). Therefore, we analyse the impact of customer structure in terms of customer stability and customer concentration.

Customer stability represents the stable supply chain relationship that suppliers and buyers have formed through repeated transactions in the past (Liu *et al.*, 2022). We propose that customer stability affects CSR decoupling's impact on firm financial performance for the following reasons. First, based on goal interdependence theory, a stable customer–supplier relationship can promote the cooperative behaviour of both parties, such as deeper information sharing,

flexible arrangements and joint decision-making, which in turn improves supplier financial performance (Gu *et al.*, 2022; Kim and Zhu, 2018; Yoon and Moon, 2019). This cooperation brings and sustains profits for the supplier and is usually maintained throughout the customer's life cycle (Lemon *et al.*, 2002), which means a long and stable alliance between customers and suppliers brings consistent profit to suppliers.

Second, prior studies on relationship development show that customer stability implies that customers are more dependent on suppliers; that is, suppliers have greater power when the supply chain relationship tends to be stable (Lee and Johnsen, 2012; Schleper *et al.*, 2021). The power of suppliers arises from the high costs incurred by customers when switching suppliers (Li and Jain, 2016). Customers intend to build long-term relationships with suppliers to improve the quality of products and maintain lower costs (Chen *et al.*, 2019); that is, stable customers tend to avoid switching suppliers in the short term. As a result, compared with low stability customers, high stability customers are more inclined to maintain original suppliers even if there is a negative impact due to the decoupling of CSR. Thus, we propose the following hypothesis:

*H2.* The stability of a firm's customers suppresses the negative association between CSR decoupling and firms' financial performance.

Customer concentration represents the dependence of a focal firm's sales on its major customers (Liu *et al.*, 2022). First, customer concentration in previous OSCM research is also known as supplier dependence (Zhang *et al.*, 2021) because a higher customer concentration means that the supplier is more dependent on the main customer. According to resource dependency theory, suppliers need to make compromises in terms of resource acquisition and utilisation to maintain relationships with key customers. For example, firms usually have lower bargaining power with major customers (Giannetti *et al.*, 2011), and firms with higher customer concentration also have more concentrated accounts receivable, which affects the business environment (Kale and Shahrur, 2007).

Second, as Lam (2018) points out, information transfer in supply chains is influenced by the complexity of the supply chain, and simple supply chain relationships can enhance information transfer and reduce information asymmetry between firms and stakeholders; that is, they enhance information sharing.

Meanwhile, concentrated customer relationships can reduce the complexity of supply chains (Wagner and Bode, 2006). When a focal firm exhibits CSR decoupling, its customers will quickly obtain information and react, such as negotiating lower prices or changing suppliers (Agyei *et al.*, 2021). When a firm's main customer chooses another supplier, it will face a huge hit to profits. As a result, we believe that the impact of customer behaviour on the financial performance of focal companies is likely to be direct and significant for companies with high customer concentration compared with those with low customer concentration. Therefore, we propose the following hypothesis:

*H3.* The concentration of a firm's customers amplifies the negative association between CSR decoupling and financial performance.

#### 2.4.2 Operational slack

In OSCM, operational slack is an indicator of the leanness and efficiency of the supply chain (Hendricks *et al.*, 2009). It is a management method based on physical entities, such as cash, people, nonobsolete inventory and machine capacity (Sharfman *et al.*, 1988).

Traditional OSCM scholars deemed operational slack unnecessary for current operations and maintenance, as it was considered an excess accumulated resource or a waste (an enemy of leanness) (Fan *et al.*, 2020). Recently, scholars have started to emphasise that operational slack is a buffer resource that can support firms in better matching variations in supply and demand (Wiengarten *et al.*, 2017). On the one hand, operational slack can cushion the impact of small and large supply chain disruptions on firm performance (Azadegan *et al.*, 2021; Manikas and Patel, 2016; Son *et al.*, 2021). It allows a firm to respond to environmental changes or shocks in a more flexible and effective way, which provides a positive interaction effect between the firm and external resource allocation (Azadegan *et al.*, 2013; Cheng and Kesner, 1997); for example, instantly hiring additional labour or shift work for suppliers to fulfil extra demand caused by minor or major supply chain surprises (Manikas and Patel, 2016; Wiengarten *et al.*, 2017). On the other hand, firms with higher operational slack can access additional resources to engage in a wider variety of projects and thus improve firm performance; for example, firms can invest redundant financial

resources in research and development (Guo *et al.*, 2020). As a result, we believe that, even if there is a negative impact due to CSR decoupling, for firms with higher operational slack, the impact on performance may be mitigated by the fact that a higher operational slack firm (i.e., higher cash-to-cash cycle) responds better to changes caused by CSR decoupling than a lower operational slack firm. Therefore, we propose the following hypothesis:

*H4.* The operational slack of firms suppresses the negative association between CSR decoupling and financial performance.

In summary, we synthesise our research design and hypotheses in Figure 2.

[Insert Figure 2 here]

### **3. Methodology**

#### *3.1 Sample selection and preparation*

As the China Securities Regulatory Commission began requiring firms to disclose information about their major customers and the proportion of sales to customers in 2008, the data we used for this study are from 2008 to 2020. We collected our data from the China Stock Market & Accounting Research Database (CSMAR; <http://www.csmar.com>), Chinese Research Data Services Platform Database (CNRDS; <https://www.cnrds.com>) and Hexun Database (<https://www.hexun.com>), the most common CSR and supply chain research databases used in China (Gu *et al.*, 2022). We processed and collected our data via the following steps. First, we retrieved CSR performance and CSR disclosure information from the CNRDS and Hexun databases, respectively, supply chain relationship data from the CNRDS database and other relevant information from the CSMAR. Second, we used the firm code and year as identifiers to merge CSR data, supply chain data and other relevant information. Third, we cleaned the observations by removing firms with missing information on CSR data and other relevant information. Fourth, we winsorised all continuous variables to the 1st and 99th percentiles to avoid the influence of outliers. The process and sources for calculating the variables are discussed below and summarised in Table II. Our final dataset consists of 7,888 observations, and Hypothesis 1

was tested using the full sample. Due to unavailability on customer stability, customer concentration and operational slack data, we used a subsample of 782 observations to test Hypothesis 2 and Hypothesis 3 and a subsample of 7,272 observations to test Hypothesis 4. STATA 15.0 was used for data processing and analysis.

[Insert Table II here]

### 3.2 Independent and dependent variables

Firm financial performance was measured as return on assets (*ROA*), expressed as net income divided by total assets.

According to prior research, we conceptualised CSR decoupling as the gap between a firm's CSR disclosure and CSR performance (Tashman *et al.*, 2019). To ensure that CSR disclosure and CSR performance had the same measurement units, we standardised both of these components (i.e., using standard deviations). Thus, CSR decoupling was measured using Eq. (1). A higher score on this indicator implies a higher level of CSR disclosure relative to CSR performance, and therefore a greater degree of misalignment between disclosure and performance. We refer to CSR decoupling as *DEC*. A detailed calculation process example can be found in Appendix A.

$$DEC = zscore(CSR\ disclosure) - zscore(CSR\ performance) \quad (1)$$

We measured CSR disclosure as 'the extent to which firms report on a full set of CSR issues', as in Tashman *et al.* (2019), who adapted the approach developed by Fortanier *et al.* (2011). This approach involves coding the annual and sustainability corporate reports provided by firms, looking for mentions of CSR issues relevant to their business and the practical approaches taken to address these issues. The KLD database, one of the most reliable databases, evaluates a category of qualitative measures (including community relations and diversity, among others) and rates each indicator on strengths and concerns, and this has been used by many studies published in leading journals (e.g., Dhaliwal *et al.* (2011)). The use of 'strengths' and 'concerns' in relation to CSR confirms whether firms



disclose social responsibility issues relevant to their business. As the KLD database does not contain data on Chinese companies, in this paper, we instead collected CSR disclosures from the CNRDS database, which is similar to the KLD database (Yang *et al.*, 2022). The CNRDS database measures firms' CSR disclosures from environmental, social and government dimensions. Among these, the environmental dimension contains 10 issues to describe a firm's environmental reporting, the social dimension contains 28 issues from three aspects (product, employment relationship and diversity) to describe a firm's social reporting, and the governance dimension contains 19 issues from two aspects (charity and corporate governance) to describe a firm's governance reporting. Each of the issues was measured using a binary item ('1' means the report indicated a specific CSR issue, '0' means not). All issues could be used to measure each dimension's strengths (positive initiatives) and concerns (negative initiatives). In line with other studies, such as Sauerwald and Su (2019), we subtracted concerns from strengths to measure CSR disclosure. A full description of the strengths and concerns provided by the CNRDS database are described in detail in Appendix B.

CSR performance is an overall rating of CSR activities, as portrayed in the report. We follow the Tashman *et al.* (2019) approach and use a third-party independent agency evaluation to measure the CSR performance of firms. Tashman *et al.* (2019) rely on the industry-adjusted CSR performance scores in the IVA database developed by MSCI. The IVA scores are composites of dozens of environmental, social and governance variables measured by MSCI analysts. In this paper, we follow Shou *et al.* (2020) and Zhang (2022) and use the Hexun database. The CSR performance score provided by the Hexun database measures the rating of CSR activities from 0 to 100, as composites of dozens of environmental, social and governance variables measured by analysts, falling into one of five themes: environmental responsibility, social responsibility, shareholder responsibility, employee responsibility and supplier, customer and consumer rights responsibility. Taking into account the different CSR focuses arising from industry differences, the Hexun database sets different weightings for scoring subjects for different industries. Full data descriptions of the five themes for the different industries provided by the Hexun database are detailed in Appendix C.

### 3.3 Moderating variables

In this paper, moderating variables contain two core aspects: the first encompasses the focal firm's buyer–supplier relationship in a supply chain in terms of downstream partners (i.e., customers), specifically including customer stability and customer concentration, and the second encompasses its operational slack. We followed Gu *et al.* (2022) to measure customer stability based on a dynamic perspective. The value of customer stability is shown in Eq. (2).

$$CSTA_{i,t} = \sum_{j=1}^5 a_{i,j,t} \times \min \left\{ \frac{\text{sales}_{i,j,t}}{\sum_{j=1}^5 \text{sales}_{i,j,t}}, \frac{\text{sales}_{i,j,t-1}}{\sum_{j=1}^5 \text{sales}_{i,j,t-1}} \right\} \quad (2)$$

In Eq. (2),  $i$  represents the focal firm,  $t$  represents time (year),  $j$  represents one of the focal firm's top five customers, the dummy variable  $a_{i,j,t} = 1$  when customer  $j$  of focal firm  $i$  in year  $t$  is also one of firm  $i$ 's top five customers in year  $t-1$ ; otherwise,  $a_{i,j,t} = 0$ . We took the minimum value of customer  $j$ 's transaction share of firm  $i$  in two continuous years (i.e.  $t-1, t$ ) to reflect whether the transaction share of customer  $j$  has changed. The results for customer stability vary from 0 to 1; the higher the stability value, the more stable the relationship between the focal firm and its top five customers. The value of stability is equal to 0 when the top five customers of the focus firm have all changed compared to the previous year, and equal to 1 when the top five customers of the focus firm have the same share of transactions compared to the previous year. We refer to customer stability as *CSTA*.

In line with Gu *et al.* (2022) and Murillo and Janet (2017), we measure the customer concentration of the focal firm by the total share of the top five customers. The maximum result for stability is 1. A higher customer concentration value implies a more concentrated relationship between the focal firm and its top five customers. We refer to customer concentration as *CCON* in Eq. (3).

$$CCON_{i,t} = \frac{\sum_{j=1}^5 \text{sales}_{i,j,t}}{\text{sales}_{i,t}} \quad (3)$$

In line with Hendricks *et al.* (2009), we use the industry average adjusted cash-to-cash cycle to measure operational slack, as shown in Eq. (8). A higher operational slack value indicates a longer cash conversion cycle and therefore a higher slack value. The cash-to-cash cycle is a supply chain approach to assessing buffers in outstanding sales (customers) and outstanding payables (suppliers) (Kovach *et al.*, 2015; Lam, 2018). This variable is calculated as days of inventory outstanding plus days of sales outstanding minus days of payables outstanding, as shown in Eq. (7), where Eqs. (4) – (6) represent days of inventory outstanding, days of sales outstanding and days of payables outstanding, respectively. We refer to operational slack as *OS*.

$$\text{Days of Inventory Outstanding}_{i,t} = 365 * \frac{\text{Average in Ventry}_{i,t}}{\text{Cost of Good Sold}_{i,t}} \quad (4)$$

$$\text{Days of Sales Outstanding}_{i,t} = 365 * \frac{\text{Average Accounts Receivable}_{i,t}}{\text{Sales}_{i,t}} \quad (5)$$

$$\text{Days of Payables Outstanding}_{i,t} = 365 * \frac{\text{Average Accounts Payables}_{i,t}}{\text{Cost of Good Sold}_{i,t}} \quad (6)$$

$$\text{Cash-to-cash Cycles}_{i,t} = \text{Days of Inventory Outstanding}_{i,t} + \text{Days of Sales Outstanding}_{i,t} - \text{Days of Payables Outstanding}_{i,t} \quad (7)$$

$$OS_{i,t} = \frac{(\text{Cash - to - cash Cycles}_{i,t}) - \mu(\text{Cash - to - cash Cycles}_i)}{\sigma(\text{Cash - to - cash Cycles}_i)} \quad (8)$$

### 3.4 Control variables

We also control for other variables that might affect a firm's financial performance, considering board characteristics and firm characteristics separately. Board characteristics include board power (*POWER*), which we set to 1 when the chair and general manager are the same and 0 otherwise (Garcia-Sanchez *et al.*, 2022), and independent directors' ratio (*IDR*), which is expressed as the number of independent directors divided by total number of directors (Gu *et al.*, 2022). Firm characteristics include firm size (*SIZE*), which is expressed as the logarithm of the number of employees at the end of the period (Hu *et al.*, 2018); firm age (*AGE*), which is the difference between the data year and the establishment year of the firm; firm property (*SOE*), which we set to 1 for state-owned

enterprises and 0 for nonstate-owned enterprises; financial leverage (*LEV*), which refers to the ratio of the firm's total liabilities and total assets at the end of the period (Hou *et al.*, 2019); capital intensity (*CI*), which is expressed as total assets divided by total sales; growth of sales (*GROWTH*), which is expressed as operating income in the previous year divided by the growth of operating income in the current year; and fixed assets ratio (*FIX*), which is expressed as fixed assets divided by total assets.

### 3.5 Estimation method

To test the impact of *CSR* decoupling on a firm's financial performance, we formulate the following models:

$$ROA_{i,t} = \alpha_0 + \alpha_1 DEC_{i,t} + \alpha_2 POWER_{i,t} + \alpha_3 IDR_{i,t} + \alpha_4 SIZE_{i,t} + \alpha_5 AGE_{i,t} + \alpha_6 SOE_{i,t} + \alpha_7 LEV_{i,t} + \alpha_8 CI_{i,t} + \alpha_9 GROWTH_{i,t} + \alpha_{10} FIX_{i,t} + Fixed\ Effects + \varepsilon_{i,t} \quad (1)$$

where the variables are described in Sections 3.2–3.4,  $\alpha$  represents the estimating parameters, fixed effects includes both firm and year fixed effects and  $\varepsilon_{i,t}$  represents the classical error term.

To test the effect of moderating variables (i.e., customer stability, customer concertation and operational slack) on the relationship between *CSR* decoupling and firm financial performance, we formulate the following models to test:

$$ROA_{i,t} = \alpha_0 + \alpha_1 DEC_{i,t} + \alpha_2 CSTA_{i,t} + \alpha_3 DEC_{i,t} * CSTA_{i,t} + \alpha_4 POWER_{i,t} + \alpha_5 IDR_{i,t} + \alpha_6 SIZE_{i,t} + \alpha_7 AGE_{i,t} + \alpha_8 SOE_{i,t} + \alpha_9 LEV_{i,t} + \alpha_{10} CI_{i,t} + \alpha_{11} GROWTH_{i,t} + \alpha_{12} FIX_{i,t} + Fixed\ Effects + \varepsilon_{i,t} \quad (2)$$

$$ROA_{i,t} = \alpha_0 + \alpha_1 DEC_{i,t} + \alpha_2 CCON_{i,t} + \alpha_3 DEC_{i,t} * CCON_{i,t} + \alpha_4 POWER_{i,t} + \alpha_5 IDR_{i,t} + \alpha_6 SIZE_{i,t} + \alpha_7 AGE_{i,t} + \alpha_8 SOE_{i,t} + \alpha_9 LEV_{i,t} + \alpha_{10} CI_{i,t} + \alpha_{11} GROWTH_{i,t} + \alpha_{12} FIX_{i,t} + Fixed\ Effects + \varepsilon_{i,t} \quad (3)$$

$$\begin{aligned}
ROA_{i,t} = & \alpha_0 + \alpha_1 DEC_{i,t} + \alpha_2 OS_{i,t} + \alpha_3 DEC_{i,t} * OS_{i,t} + \alpha_4 POWER_{i,t} + \alpha_5 IDR_{i,t} \\
& + \alpha_6 SIZE_{i,t} + \alpha_7 AGE_{i,t} + \alpha_8 SOE_{i,t} + \alpha_9 LEV_{i,t} + \alpha_{10} CI_{i,t} + \alpha_{11} GROWTH_{i,t} \\
& + \alpha_{12} FLX_{i,t} + Fixed\ Effects + \varepsilon_{i,t}
\end{aligned}
\tag{4}$$

where  $\alpha$  represents the estimating parameters, fixed effects include both firm and year fixed effects and  $\varepsilon_{i,t}$  represents the classical error term.

## 4. Results

### 4.1 Descriptive statistics and correlation analysis

Table III shows the results of the descriptive statistics for all variables. The max and min values of *ROA* are 0.224 and -0.290, indicating great differences in the *ROA* of firms. The max and min values of *DEC* are 2.809 and -4.558, indicating great differences in the *DEC* of firms. The max and min values of *CSTA* are 0.972 and 0, and the mean value of *CSTA* is 0.323, indicating that some focal firms have stable customers, but there is still a great difference across focal firms. The max and min values of *CCON* are 0.998 and 0.0175, indicating that some focal firms contain their main customers in their top 5, while other focal firms have a more dispersed customer base.

[Insert Table III here]

Table IV shows the correlation analysis for all variables. Statistically, it is believed that serious multicollinearity occurs only when the correlation coefficient between variables generally exceeds 0.8. In this paper, the correlation coefficients of the variables are all below 0.5, indicating no severe multicollinearity problem, and the variable selection is appropriate. *DEC* is negatively correlated with *ROA* ( $r = -0.2036$ ,  $p < 0.01$ ); thus, Hypothesis 1 of this paper is preliminarily verified.

[Insert Table IV here]

#### *4.2 Main results*

We use OLS regression to test the hypotheses in this paper, with robust clustering by firm and year. The variance inflation factors for the regression factors ranged from 1.02 to 1.41 (mean VIF of 1.18), indicating the absence of spuriously high multicollinearity. We use Model 1 to estimate the impact of CSR decoupling on firm financial performance.

Table V presents the results of regressions for Hypothesis 1. Column (1) presents the results with only control variables, while column (2) presents the results supplemented with the main effects of the focal firm's CSR decoupling on ROA. The results in column (2) support a significant negative correlation between the focal firm's CSR decoupling and its financial performance ( $\alpha_1 = -0.0094$ ,  $p = 0.01$ ). Meanwhile, Columns (1) and (2) show that the fitted statistics R-squared improve (+0.04%) when CSR decoupling is included in the regression; therefore Hypothesis 1 is supported.

Due to the possibility of endogeneity between a focal firm's CSR decoupling and its financial performance, we followed Manikas and Patel (2016) and specified the autoregressive parameter AR(1) using the xtregar routine in Stata 15.0. Based on fixed effects estimates, H1 is supported, as shown in column (3) ( $\alpha_1 = -0.0055$ ,  $p = 0.01$ ).

[Insert Table V here]

#### *4.3 Moderating effects*

We use Model 2 to estimate the moderating role of customer stability on the impact of CSR decoupling on financial performance. We predicted that the interplay between focal firms' CSR decoupling and financial performance would be ameliorated by customer stability. The results in column (1) indicate strong support for the coefficient of this interaction ( $\alpha_3 = 0.0072$ ,  $p = 0.05$ ); thus Hypothesis 2 is supported.

Model 3 was used to estimate the moderating role of customer concentration on the impact of CSR decoupling on financial performance. We predicted that the interplay between focal firms' CSR decoupling and financial performance would be aggravated by customer concentration. The results in column (2) indicate strong support for the coefficient of this interaction ( $\alpha_3 = -0.0079$ ,  $p = 0.05$ ); thus, Hypothesis 3 is supported.

Model 4 was used to estimate the moderating role of operational slack on the impact of CSR decoupling on financial performance. We predicted that the interplay between focal firms' CSR decoupling and financial performance would be ameliorated by operational slack. The results in column (4) indicate strong support for the coefficient of this interaction ( $\alpha_3 = 0.0009$ ,  $p = 0.05$ ); thus, Hypothesis 4 is supported.

[Insert Table VI here]

Interaction plots of variables can enrich the interpretation of moderating effects. We therefore plot the predicted ROA against the changes in the corresponding variables. The X-axis indicates the level of the focal firm's CSR decoupling, showing one standard deviation below the mean, the mean and one standard deviation above the mean from left to right, respectively. The Y-axis presents the focal firm's financial performance (i.e., ROA). These figures help illustrate the association between CSR decoupling and financial performance and show a clear difference between firms with high and low levels of customer structure and operational slack.

Figure 3(a) plots the interaction between a firm's customer stability and CSR decoupling. The 'CSTA' line is related to the moderating effect of customer stability and 'Low CSTA' / 'High CSTA' depicts the slope of the effect of CSR decoupling on financial performance when the value of customer stability is set one standard deviation below/above its (mean-centre) mean. Low levels of customer stability are shown to exaggerate the effect of a firm's CSR decoupling on financial performance.

[Insert Figure 3 here]

Figure 3(b) plots the interaction between a firm's customer concentration and CSR decoupling. The 'CCON' line is related to the moderating effect of customer concentration and 'Low CCON' / 'High CCON' depicts the slope of the effect of CSR decoupling on financial performance when the value of customer concentration is set one standard deviation below/above its (mean-centre) mean. Low levels of customer concentration are shown to ameliorate the effect of a firm's CSR decoupling on financial performance.

Figure 3(c) plots the interaction between a firm's operational slack and CSR decoupling. The 'OS' line is related to the moderating effect of operational slack and 'Low OS' / 'High OS' depicts the slope of the effect of CSR decoupling on financial performance when the value of customer stability is set one standard deviation below/above its (mean-centre) mean. Low levels of operational slack are shown to exaggerate the effect of a firm's CSR decoupling on financial performance.

## 5. Robustness checks

We then conducted three robustness tests to confirm our results using additional measures and methods, and report these results in Tables VII–IX.

### 5.1 Alternate measure of CSR decoupling

First, we used an alternative approach to measuring CSR decoupling. Many studies have measured a firm's CSR decoupling by CSR strengths (Erhemjamts *et al.*, 2013). We followed these studies and used this kind of CSR measure to re-estimate our models. Table VII shows support for Hypotheses 1–4. Column (1) shows the results of the analysis, supporting a negative and significant relationship between CSR decoupling and financial performance ( $\alpha^1 = -0.0096$ ,  $p = 0.001$ ), confirming the results of the main analysis. The interaction coefficient between CSR decoupling and customer stability in column (2) is positive and significant ( $\alpha^3 = 0.0073$ ,  $p = 0.05$ ), largely confirming Hypothesis 2. The interaction coefficient between CSR decoupling and customer concentration in column



(3) is negative and significant ( $\alpha_3 = -0.0082$ ,  $p = 0.05$ ), largely confirming Hypothesis 3. The interaction coefficient between CSR decoupling and operational slack in column (4) is positive and significant ( $\alpha_3 = 0.0009$ ,  $p = 0.05$ ), confirming Hypothesis 4.

[Insert Table VII here]

### *5.2 Alternate measure of firms' financial performance*

First, we used an alternative approach to measuring firms' financial performance. We used ROE to replace ROA in the re-estimation. Table VIII shows support for Hypotheses 1–4. Column (1) shows the results of the analysis, supporting a negative and significant relationship between CSR decoupling and financial performance ( $\alpha_1 = -0.0235$ ,  $p = 0.01$ ), largely confirming the results of the main analysis. The interaction coefficient between CSR decoupling and customer stability in column (2) is positive and significant ( $\alpha_3 = 0.0150$ ,  $p = 0.1$ ), largely confirming Hypothesis 2. The interaction coefficient between CSR decoupling and customer concentration in column (3) is negative and significant ( $\alpha_3 = -0.0221$ ,  $p = 0.05$ ), largely confirming Hypothesis 3. The interaction coefficient between CSR decoupling and operational slack in column (4) is positive and significant ( $\alpha_3 = 0.0010$ ,  $p = 0.05$ ), confirming Hypothesis 4.

[Insert Table VIII here]

### *5.3 Alternative samples*

Finally, we narrowed our test sample to the manufacturing industry.

Table IX shows support for Hypotheses 1–4. Column (1) shows the results of the analysis, supporting a negative and significant relationship between CSR decoupling and financial performance ( $\alpha_1 = -0.0099$ ,  $p = 0.01$ ), largely confirming the results of the main analysis. The interaction coefficient between CSR decoupling and customer stability in column (2) is positive and significant ( $\alpha_3 = 0.0112$ ,  $p = 0.01$ ), largely confirming Hypothesis 2. The interaction coefficient between CSR decoupling and customer concentration in column (3) is negative and significant ( $\alpha_3 = -0.0193$ ,  $p = 0.05$ ), largely confirming Hypothesis 3. The

interaction coefficient between CSR decoupling and operational slack in column (4) is positive and significant ( $\alpha_3 = 0.0028$ ,  $p = 0.05$ ), confirming Hypothesis 4.

[Insert Table IX here]

## **6. Discussion and conclusion**

We primarily explore the relationship between CSR decoupling and firm financial performance and OSCM factors affecting the relationship based on a goal interdependence theory. Our results have both theoretical and managerial implications.

### *6.1 Theoretical implications*

#### 6.1.1 CSR decoupling and firm financial performance

This study mainly explores the effect of CSR decoupling on firm financial performance, expanding the CSR literature by examining the consequences of CSR decoupling. Existing research finds mixed impacts of CSR on firm financial performance (Flammer, 2015; Zhou *et al.*, 2022). As Orlitzky (2013) points out, this inconclusive relationship is caused by distorted information provided to market participants about their firm's CSR. The understanding and endorsement of stakeholders are key element to the efficacy of a firm's CSR (Hawn and Ioannou, 2016). Therefore, we concentrate on examining how CSR decoupling affects corporate performance based on goal interdependence theory.

CSR decoupling is not conducive to sustainable business development. Garcia-Sanchez *et al.* (2021) find that CSR decoupling leads to a greater cost of capital and less access to financing. Zhong *et al.* (2022) conclude that CSR decoupling has a negative influence on the response of firms to philanthropic donations. Based on goal interdependence theory, we argue that CSR decoupling affects firms' relationships with customers, employees and investors, which are eventually reflected in its financial performance. Our results show that CSR decoupling negatively affects firm financial performance, empirically validating this

proposition and supporting Hypothesis H1. Our study is one of the first to explore the relationship between CSR decoupling and financial performance with objective secondary data.

We maintain that, with the development of supply chains, no company is operating independently and that it is more important to examine the impact of corporate behaviour on corporate sustainability from a supply chain perspective (Mani *et al.*, 2016b). Previous literature had empirically demonstrated that mutual commitment and trust between firms positively affects the performance of focal firms, based on the theory of goal interdependence (Gull *et al.*, 2022; Yang *et al.*, 2008). In contrast, we demonstrate that CSR decoupling negatively affects the performance of focal firms which supports the view of goal interdependence theory that trust, mutual benefit and lasting relationships with internal and external stakeholders are key to sustainable corporate growth. Taken together, our examination of CSR decoupling on firm financial performance based on goal interdependence theory extends the CSR literature in operational and supply chain management.

#### 6.1.2 The moderating role of OSCM factors

A firm's operations are inevitably influenced by its supply chain (Lam, 2018). Previous research has examined the relationship between firm behaviour and supply chain relationship outcomes (Bellamy *et al.*, 2014; Liu *et al.*, 2021; Lu and Shang, 2017). Based on goal independence theory, our study demonstrates that a firm's customer structure and operational slack may serve as mechanisms that moderate such linkage. Specifically, we find that the effect of CSR decoupling on firm's financial performance is moderated by three aspects of a firm's supply chain; namely, customer stability, customer concentration and operational slack.

This research extends the literature on the buyer–supplier relationship. An existing study shows that customer relationships have an important function in supply chains (Kim and Wemmerloev, 2015). Gu *et al.* (2022) verify that customer stability and customer concentration have an effect on focal firms' financial

performance. In this study, we focused on the effects of customer stability and customer concentration on the relationship between a firm's CSR decoupling and financial performance. Our study revealed that customer stability suppresses the negative association between CSR decoupling and financial performance, as reflected in Hypothesis 2. This result was robust when we used different measures for the dependent and independent variables. Meanwhile, customer concentration amplifies the negative association, as reflected in Hypothesis 3. This study thus provides new evidence on the benefits of healthy buyer–supplier relationships.

This research also contributes to OSCM literature by highlighting the role of operational slack. Unlike the belief held by traditional OSCM scholars, wherein operational slack is unnecessary for current operations and maintenance and is an excess of accumulated resources (Fan *et al.*, 2020), we echo Wiengarten *et al.* (2017) and find that operational slack is a buffer resource to help match variations in supply and demand. Operational slack is found to positively moderate the relationship between CSR decoupling and firms' financial performance. This conclusion is further confirmed by robustness tests, and the significance of the results are enhanced when the sample is reduced to the manufacturing industry.

### *6.2 Managerial implications*

This study also has several managerial implications. First, managers should be aware that stakeholders have greatly increased their scepticism towards deceptive corporate behaviour, and towards CSR in general. CSR decoupling can generate an unfavourable business environment, negative business ratings and a poorer financing environment for companies (Garcia-Sanchez *et al.*, 2021; Ioannou *et al.*, 2022; Schons and Steinmeier, 2016; Zhong *et al.*, 2022). Ultimately, this will affect the performance of the company and is detrimental to its sustainable performance (Zhu *et al.*, 2022). We therefore recommend that companies make every effort to implement CSR and prevent the occurrence of CSR decoupling.

Second, firms should be aware that customer structure plays an important role in moderating the relationship between CSR decoupling and firm financial performance. The stability of a firm's customers suppresses the negative association between CSR decoupling and financial performance, while customer concentration amplifies such negative association. Managing supply chains in a sustainable way can help firms ensure short- and long-term survival (Gu *et al.*, 2022; Lam, 2018). Therefore, we recommend that firms focus on building and maintaining healthy and stable customer relationships to help them reduce the damage caused by CSR decoupling (i.e., reduce the loss of financial performance). We also suggest that firms increase their promotional efforts to broaden their customer base and avoid too much concentration of customers.

Third, firms should be aware that, in contrast to the arguments of traditional OSCM scholars, operational slack should not be considered an excess accumulated resource. Rather, it is a buffer resource that helps firms respond to changes in the environment in a flexible and effective way (Azadegan *et al.*, 2013; Cheng and Kesner, 1997), helps firms decrease the harm brought about by CSR decoupling and represents an effective strategy to help firms effectively and efficiently avoid risk. Therefore, we recommend that firms learn how to use operational slack in a highly efficient manner.

### *6.3 Limitations and future developments*

Although our study makes significant contributions to the literature, it still suffers from several limitations that need to be addressed through future research. First, we acknowledge that the sample size for this study is small because of limitations in measuring customer stability; further research could expand by adopting more accurate and efficient measurements of supplier instability. Second, we acknowledge that, while revenue gains and cost reductions are the main reasons CSR decoupling affects financial performance, we did not confirm this via a mechanism test because of limitations in the data. Future research may empirically examine the underlying mechanism. Third, our study only focuses on the effect on policy–practice decoupling; however, means–ends decoupling also affects firms, which could be further analysed.

Our research offers important implications for future research on CSR and OSCM in general. First, the direct effects of CSR disclosure and CSR performance on firm performance may have different affection. Furthermore, decoupling of a high-disclosure (-performance) / low-disclosure (-performance) firm may have a different effect on financial performance, which could be further analysed. Second, this paper used cash-to-cash cycle to measured operational slack; however, there are other dimensions of internal operational slack, such as capacity slack, which could be studied further in future.

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## **Appendix A: The example for the calculation of CSR decoupling (DEC)**

SZEN (pseudonym1) Co., Ltd.

CNRDS database to measure CSR disclosure:

CSR disclosure = “strength” – “concerns” = 30

Converted CSR score disclosure to z-score:  $(30 - 18.00053) / 5.983653 = 2.0053756$

Hexun database to measure CSR performance

CSR performance = 26.13

Converted CSR performance to z-score:  $(26.13 - 23.23514) / 14.81383 = 0.19541574$

CSR decoupling (DEC) = z-score (CSR disclosure) – z-score (CSR performance)

$$= 2.0053756 - 0.19541574 = 1.8099599$$

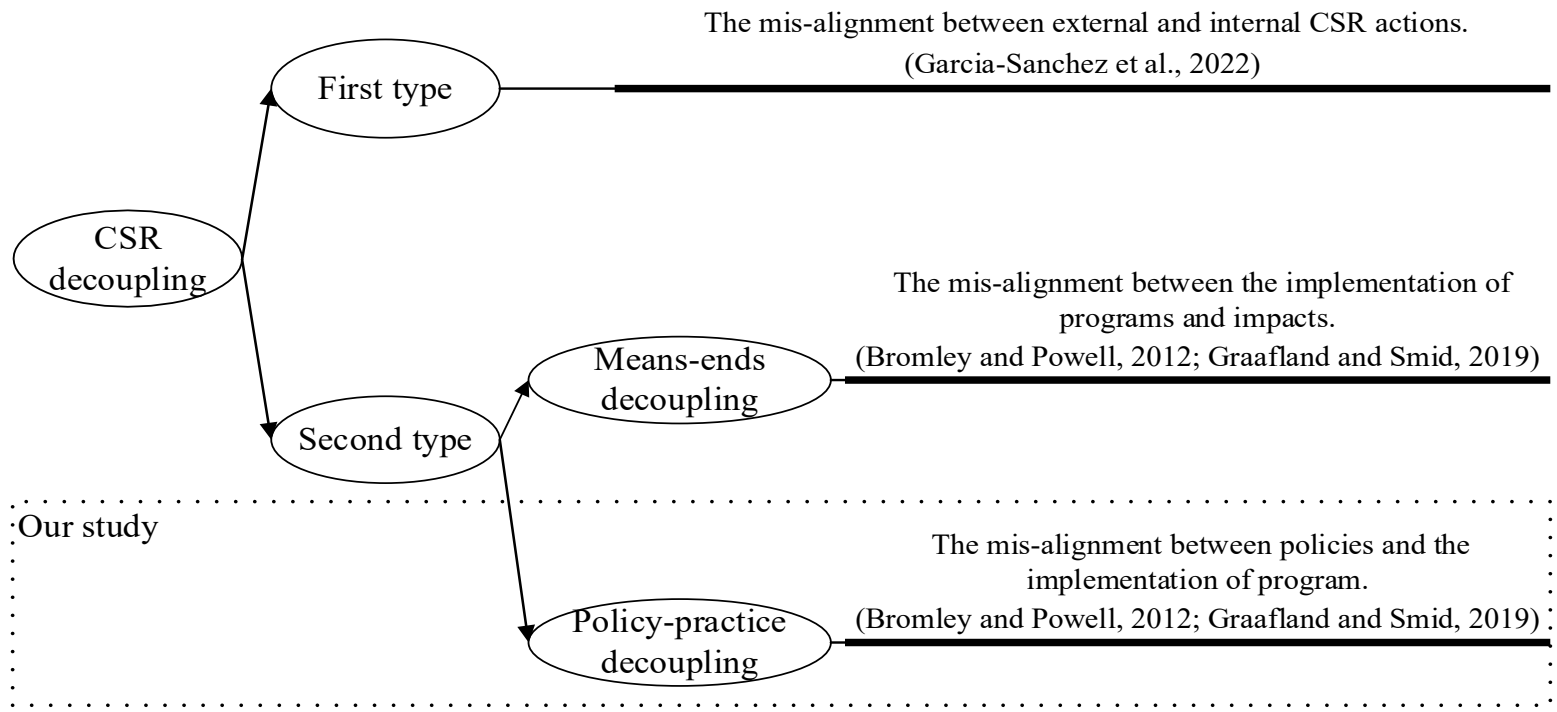


Figure 1. Definitions of CSR decoupling



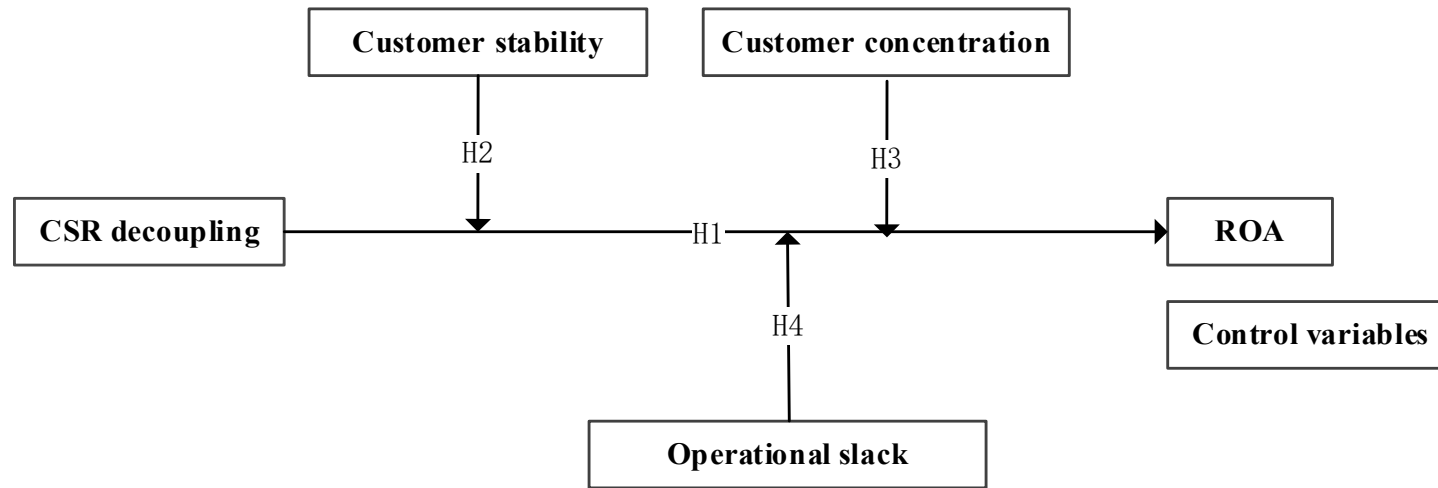
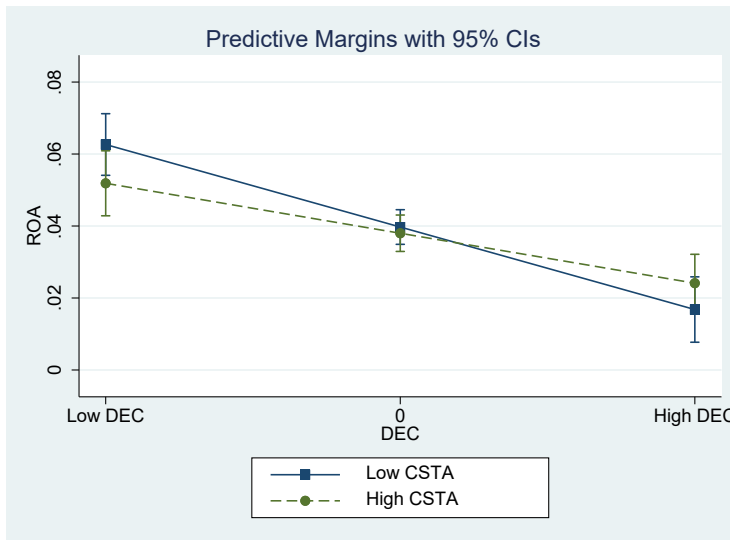
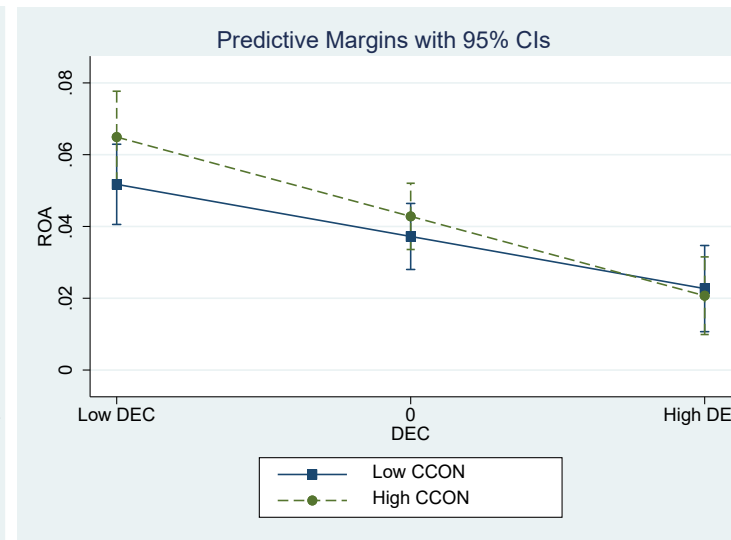


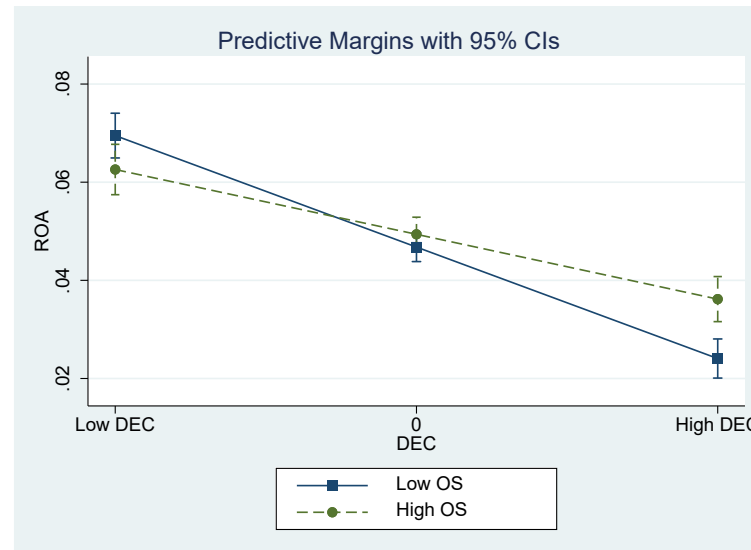
Figure 2. Research design and hypotheses



(a) Moderation effects of customer stability



(b) Moderation effects of customer concentration



(c) Moderation effects of operational slack

Figure 3. Moderation effects

Table I. A summary of CSR decoupling research

Article	Measure of decoupling	Sample	Key findings
Antecedents of CSR decoupling			
Li and Wu (2020) - MNSC	The rate of change in ESG incidents after firm participation in United Nations Global Compact.	All public and private firms globally from January 2007 to July 2015.	The results reveal that the main cause of CSR decoupling is the conflict of interest between shareholders and stakeholders. The greater the conflict between shareholders and stakeholders, the more CSR decoupling behaviour companies exhibit.
Tashman <i>et al.</i> (2019) - JIBS	The degree of misalignment between a firm's CSR reporting and CSR performance.	The top 100 firms in UNCTAD's list of non-financial emerging market multinational enterprises by foreign assets from 2005 to 2012.	Firm intends CSR decoupling when there are pervasive emerging market multinational enterprises' home country institutional voids. Firm do not intend to decouple given higher levels of emerging market multinational enterprises' internationalization.
Zhang (2022) - CSREM	The degree of misalignment between optimistic tone of CSR report and CSR performance as measured on the common z-score scale.	Listed firms in China from 2010 to 2019.	The results reveal that when a firm is covered by analysts, the ratio of CSR decoupling is decreased, and this negative association is strengthened by non-state-owned firms and firms with high information asymmetry.
Parra-Domínguez <i>et al.</i> (2021) - ADMSCI	The gap between social responsibility disclosures and performance.	All family-owned and nonfamily-owned firms globally from 2011 to 2019.	The results reveal that family-owned firms present lower CSR decoupling than nonfamily-owned firms.
Gull <i>et al.</i> (2022) - JBE	The degree of misalignment between a firm's CSR reporting and CSR performance.	A sample of listed firms drawn from 41 countries.	The results reveal that the presence of a CSR committee on the corporate board decreases CSR decoupling. Further analysis reveals that different structure and composition of committees can have a differential impact on decoupling, such as CSR committee size, independence of committee members and tenure of committee members.

Shahab <i>et al.</i> (2021) - AEL	The gap between social responsibility disclosures and performance.	US firms from 2002 to 2017.	The results reveal that CEO power increases CSR decoupling.
Sauerwald and Su (2019) - CGAIR	The degree of misalignment between optimistic tone of CSR report and CSR performance as measured on the common z-score scale.	S&P (Standard & Poor's indices) 500 firms from 2006–2014.	The results reveal that overconfident CEOs increase CSR decoupling.
Consequences of CSR decoupling			
Garcia-Sanchez <i>et al.</i> (2021) - BS	The degree of misalignment between a firm's CSR reporting and CSR performance.	US firms from 2006 to 2015.	The results reveal that firms' CSR decoupling results in higher costs of capital, less access to finance and higher levels of analysts' forecast errors. Meanwhile, forecast errors enhance the effect of CSR decoupling on cost of capital and access to financial resources.
Zhong <i>et al.</i> (2022) - CSREM	The gap between social responsibility disclosures and performance.	A-share listed firms in the Shanghai and Shenzhen stock exchanges in 2020.	This article uses the COVID-19 crisis as an example to analyse the different responses of firms in crises due to CSR decoupling. The results indicate that CSR decoupling results in a lower possibility and the level of crisis donation, especially in the early stages of the crisis and among private firms. The paper further analyses whether CSR decoupling affects capital market outcomes; the results show that crisis giving by firms using the two strategies receives little different response from capital markets.
Schons and Steinmeier (2016) - CSREM	The gap between symbolic and substantive CSR actions.	The study relies on an international, cross-industry dataset from Thomson Reuters Asset4 ESG and Datastream from 2002 to 2011.	The results show CSR decoupling harms firms' financial performance, significantly for the case of high stakeholder proximity. Meanwhile, CSR decoupling rewards firms' financial performance, significantly for the case of low stakeholder proximity.

Notes: MNSC - Management Science; JIBS - Journal of international business studies; CSREM - Corporate Social Responsibility and Environmental Management; ADMSCI - Administrative Sciences; AEL - Applied Economics Letters; CGAIR - Corporate Governance: An International Review; JBE - Journal of Business Ethics; BS - Business & Society.

Table II. Variables defined

	Variable	Variable name	Calculation	Source
Dependent variable	ROA	Return on assets	Net income divided by total assets.	CSMAR
Independent variable	DEC	CSR decoupling	CSR disclosure intensity minus CSR performance score, shown in Eq (1).	CNRDS and Hexun database
Moderator variables	CSTA	Customer stability	The summation of minimum transaction shares for year t and t-1 year for the top 5 customers who have traded for two consecutive years, shown in Eq (2).	CSMAR
	CCON	Customer concentrated	The summation of the sales to the top 5 customers of the focal firm over the total sales in RMB in a year, shown in Eq (3).	CSMAR
	OS	Operational slack	Days of inventory outstanding plus days of sales outstanding minus days of payables outstanding, shown in Eq (8).	CSMAR
Control variables	POWER	Board power	When the chair and general manager are the same = 1, otherwise 0.	CSMAR
	IDR	Independent director ratio	The number of independent directors divided by total number of directors.	CSMAR
	SIZE	Firm size	Ln (number of workers)	CSMAR
	AGE	Firm age	Ln (data year – establishment year)	CSMAR

	SOE	Firm property	State-owned enterprises = 1, non-state-owned enterprises = 0.	CSMAR
	LEV	Financial leverage	Liability divided by total assets.	CSMAR
	CI	Capital intensity	Total assets divided by total sales.	CSMAR
	GROWTH	Growth of sales	Growth of operating income in current year / operating income in previous year.	CSMAR
	FIX	Fixed assets ratio	Fixed assets divided by total assets.	CSMAR



Table III. Descriptive statistics

Variable	Obs	Mean	Std.Dev.	Min	Max
ROA	7,888	0.0435	0.0593	-0.290	0.224
DEC	7,888	-0.890	1.889	-4.558	2.809
CSTA	782	0.323	0.329	0	0.972
CCON	781	0.318	0.253	0.0175	0.998
OS	7,272	0.210	2.002	-11.04	6.375
POWER	7,888	0.181	0.385	0	1
IDR	7,888	37.55	5.471	33.33	57.14
SIZE	7,888	8.458	1.377	4.159	11.30
AGE	7,888	2.841	0.373	1.386	3.466
SOE	7,888	0.572	0.495	0	1
LEV	7,888	0.507	0.213	0.0495	0.958
CI	7,888	4.269	7.126	0.410	36.74
GROWTH	7,888	0.161	0.395	-0.637	3.157
FIX	7,888	0.215	0.183	0.00149	0.698



Table IV. Correlation analysis

	ROA	DEC	CSTA	CCON	OS	POWER	IDR	SIZE	AGE	SOE	LEV	CI	GROWT H	FI X
ROA	1													
DEC	-0.2036** *	1												
CSTA	-0.0300	0.2046** *	1											
CCON	-0.0525	0.0521	0.1859** *	1										
OS	0.0223* *	0.0447** *	0.0320	-0.0930** *	1									
POWER	0.0975** *	0.00750	-0.0179	-0.1278** *	-0.0605** *	1								
IDR	-0.00860	0.0287**	-0.0479	-0.0723**	-0.00830	0.0978** *	1							

SIZE	-0.0117	0.1829**	0.1135**	-	0.1577**	-	0.0609**	1						
		*	*	0.0926**	*	0.0893**	*							
				*		*								
AGE	-	0.2997**	0.1992**	0.0793**	-	-	-	-	1					
	0.1189**	*	*		0.00030	0.0426**	0.0719**	0.00840						
	*				0	*	*							
SOE	-	-	0.1022**	0.2339**	0.0847**	-	-0.0141	0.1903**	0.0692**	1				
	0.1528**	0.0223**	*	*	*	0.2902**		*	*					
	*					*								
LEV	-	0.0693**	0.0316	0.0413	0.0765**	-	0.0295**	0.3740**	0.1417**	0.1941**	1			
	0.4188**	*			*	0.1235**	*	*	*	*				
	*					*								
CI	-	-	-0.0320	0.1578**	-	-	-	0.0335**	0.1274**	-	0.3553**	1		
	0.1663**	0.00690		*	0.1279**	0.0620**	0.0192*	*	*	0.00190	*			
	*				*	*								
GROWTH	0.2086**	-	-	0.0809**	0.0438**	0.0275**	-	-0.0111	-	-	0.0437**	-	1	
H	*	0.1000**	0.0809**		*		0.00450		0.0584**	0.0598**	*	0.0373**		
		*							*	*		*		
FIX	-	0.0219*	0.1790**	0.2221**	0.1824**	-	-	0.1349**	-	0.1639**	-	-	-	1
	0.0714**		*	*	*	0.0762**	0.0457**	*	0.0537**	*	0.0915**	0.2947**	0.0652**	
	*					*	*	*	*	*	*	*	*	

Notes: \* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01.



Table V. Results of hypothesis of core independent variable

	(1) ROA	(2) ROA	(3) ROA
DEC [H1]		-0.0094***	-0.0055***
		(0.0005)	(0.0004)
POWER	0.0048**	0.0037**	0.0021
	(0.0019)	(0.0019)	(0.0022)
IDR	-0.0001	-0.0001	0.0001
	(0.0001)	(0.0001)	(0.0002)
SIZE	0.0031**	0.0033***	0.0063***
	(0.0013)	(0.0012)	(0.0015)
AGE	-0.0028	-0.0006	0.0290***
	(0.0072)	(0.0070)	(0.0044)
SOE	0.0024	0.0024	0.0089*
	(0.0040)	(0.0039)	(0.0048)
LEV	-0.1708***	-0.1618***	-0.1979***
	(0.0057)	(0.0056)	(0.0075)
CI	-0.0007***	-0.0006***	-0.0002
	(0.0002)	(0.0002)	(0.0003)
GROWTH	0.0288***	0.0266***	0.0242***
	(0.0013)	(0.0013)	(0.0014)
FIX	-0.0782***	-0.0727***	-0.0858***
	(0.0079)	(0.0077)	(0.0098)
Year fixed effects	Y	Y	
Firm fixed effects	Y	Y	
Cons	0.1446***	0.1077***	0.0035
	(0.0212)	(0.0207)	(0.0061)
R2	0.243	0.283	

N	7888	7888	6661
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Notes: Standard errors in parentheses, \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table VI. Results of hypothesis of moderator effects

	(1) ROA	(2) ROA	(3) ROA	(4) ROA
DEC	-0.0121*** (0.0020)	-0.0072*** (0.0020)	-0.0098*** (0.0005)	-0.0073*** (0.0021)
CSTA	0.0060 (0.0068)			0.0101 (0.0067)
DEC*CSTA [H2]	0.0072** (0.0029)			0.0089*** (0.0028)
CCON		0.0016 (0.0178)		0.0016 (0.0182)
DEC*CCON [H3]		-0.0079** (0.0039)		-0.0084** (0.0040)
OS			0.0009** (0.0003)	-0.0005 (0.0009)
DEC*OS [H4]			0.0005*** (0.0001)	0.0003 (0.0004)
POWER	0.0002 (0.0076)	-0.0015 (0.0077)	0.0029 (0.0020)	0.0042 (0.0078)
IDR	0.0004 (0.0005)	0.0005 (0.0006)	-0.0001 (0.0001)	0.0005 (0.0006)
SIZE	0.0012 (0.0051)	0.0021 (0.0052)	0.0036*** (0.0013)	0.0005 (0.0053)
AGE	0.0562 (0.0440)	0.0468 (0.0442)	0.0018 (0.0075)	0.0010 (0.0177)
SOE	0.0148 (0.0144)	0.0155 (0.0145)	0.0028 (0.0046)	0.0118 (0.0146)
LEV	-0.1900***	-0.1893***	-0.1676***	-0.1943***



	(0.0234)	(0.0236)	(0.0058)	(0.0229)
CI	-0.0031**	-0.0033**	-0.0015***	-0.0035**
	(0.0014)	(0.0015)	(0.0004)	(0.0015)
GROWTH	0.0112**	0.0114**	0.0255***	0.0161***
	(0.0050)	(0.0050)	(0.0014)	(0.0049)
FIX	0.0039	0.0030	-0.0694***	-0.0003
	(0.0297)	(0.0298)	(0.0079)	(0.0301)
Year fixed effects	Y	Y	Y	Y
Firm fixed effects	Y	Y	Y	Y
Cons	-0.0431	-0.0278	0.1020***	0.0960
	(0.1183)	(0.1209)	(0.0221)	(0.0702)
R2	0.303	0.300	0.293	0.267
N	782	781	7272	781

Notes: Standard errors in parentheses, \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table VII. Robustness check (1)

	(1) ROA	(2) ROA	(3) ROA	(4) ROA
DEC [H1]	-0.0096*** (0.0005)	-0.0124*** (0.0020)	-0.0073*** (0.0020)	-0.0101*** (0.0005)
CSTA		0.0059 (0.0068)		
DEC*CSTA [H2]		0.0073** (0.0029)		
CCON			0.0017 (0.0178)	
DEC*CCON [H3]			-0.0082** (0.0039)	
OS				0.0009** (0.0003)
DEC*OS [H4]				0.0005*** (0.0001)
Controls	Y	Y	Y	Y
Year fixed effects	Y	Y	Y	Y
Firm fixed effects	Y	Y	Y	Y
Cons	0.1068*** (0.0207)	-0.0451 (0.1181)	-0.0290 (0.1207)	0.1012*** (0.0221)
R2	0.284	0.305	0.302	0.294
N	7888	782	781	7272

Notes: Standard errors in parentheses, \* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01

Table VIII. Robustness check (2)

	(1) ROE	(2) ROE	(3) ROE	(4) ROE
DEC [H1]	-0.0235*** (0.0013)	-0.0254*** (0.0056)	-0.0136** (0.0057)	-0.0245*** (0.0014)
CSTA		0.0322* (0.0190)		
DEC*CSTA [H2]		0.0150* (0.0081)		
CCON			0.0179 (0.0495)	
DEC*CCON [H3]			-0.0221** (0.0108)	
OS				0.0011 (0.0010)
DEC*OS [H4]				0.0010** (0.0004)
Controls	Y	Y	Y	Y
Year fixed effects	Y	Y	Y	Y
Firm fixed effects	Y	Y	Y	Y
Cons	0.0425 (0.0568)	-0.2109 (0.3298)	-0.1920 (0.3363)	0.0262 (0.0613)
R2	0.190	0.186	0.186	0.196
N	7874	779	778	7258

Notes: Standard errors in parentheses, \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table IX. Robustness check (3)

	(1) ROA	(2) ROA	(3) ROA	(4) ROA
DEC [H1]	-0.0099*** (0.0023)	-0.0150*** (0.0030)	-0.0057** (0.0029)	-0.0118*** (0.0024)
CSTA		0.0191* (0.0103)		
DEC*CSTA [H2]		0.0112*** (0.0041)		
CCON			0.0292 (0.0321)	
DEC*CCON [H3]			-0.0193** (0.0076)	
OS				0.0018 (0.0039)
DEC*OS [H4]				0.0028** (0.0012)
Controls		Y	Y	Y
Year fixed effects		Y	Y	Y
Firm fixed effects		Y	Y	Y
Cons	0.2320 (0.1665)	0.2156 (0.1648)	0.1999 (0.1665)	0.1806 (0.1694)
R2	0.326	0.345	0.348	0.345
N	434	434	434	434

Notes: Standard errors in parentheses, \* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01

Appendix B

Table X. CNRDS indicators

CNRDS indicator	Category	Criteria	Description
Society	Diversity	Strengths	Member of the Communist Party of China
			Female board seats
			Innovative human resources projects
		Other strengths	
	Employee relations	Concerns	No female executives
			Strengths
		Employee benefits	
		Safety management system	
		Safety training	
		Occupational safety certification	
		Professional training	
		Employee communication channels	
Other strengths			
Product quality	Concerns	Employee safety disputes	
		Layoffs	
		Strengths	Quality system
	After-sales service		
	Customer satisfaction survey		
	Quality awards		
Governance	Charity, volunteer activities and	Concerns	Anti-corruption measures
			Strategy shared
		Strengths	Integrity in business philosophy
			Other strengths
			Product dispute
			Supporting education
Supporting charity			
Volunteer activities			

	social controversies		International assistance Employment generation Boost the local economy Other strengths
	Governance	Concerns	Financing disputes
		Strengths	CSR column CSR leader agency CSR vision CSR training Reliability guarantee Other strengths
		Concerns	Accounting irregularities
Environment	Environmental performance	Strengths	Environmentally beneficial products Measures to reduce the three wastes Circular economy Energy saving Green office Environmental certification Environmental recognition
		Concerns	Environmental penalties Pollutant emissions

## Appendix C

Table XI. Hexun indicators

Hexun indicator	Industry type		
	Consumer	Manufacturing	Service
Environmental responsibility	20%	30%	10%
Social responsibility	20%	10%	30%
Shareholder responsibility	30%	30%	30%
Employee responsibility	10%	15%	15%

Supplier, customer and consumer rights responsibility	20%	15%	15%
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