

Do firms adjust their payout policy to public perception of their social irresponsibility?

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ABSTRACT

Perception of social irresponsibility from negative media coverage may affect a firm's payout in two opposite ways. Firms may lower dividends in anticipation of greater financial constraints or pay higher dividends to signal that potential damage to their reputation and future cash flows is expected to be limited. Using data from RepRisk for a sample of US firms, we find compelling evidence supporting the second outcome, i.e., firms perceived as socially irresponsible pay higher dividends. This result remains valid for different payout measures and after controlling for endogeneity using instrumental variables, entropy balancing, and a difference-in-differences approach. Furthermore, the relationship is stronger for high-growth firms, consistent with their greater needs for external finance. The signaling motive is further supported by the stronger valuation effect of dividends for firms perceived as socially irresponsible, as well as the subsequent decrease in the perception of their irresponsibility and higher sales growth. Overall, the results suggest that firms use dividend policy to mitigate the potential damage due to the perception of their social irresponsibility.

1. Introduction

Just as corporate social responsibility (CSR) helps increase firm performance (Eccles, Ioannou, & Serafeim, 2014; Flammer, 2015) and protects firms in times of crisis (Lins, Servaes, & Tamayo, 2017), perception of corporate social irresponsibility (CSI) can have detrimental consequences (Valor, Antonetti, & Zasuwa, 2022). Kölbe, Busch, and Jancso (2017) show that investors require a higher risk premium on the firm's debt, mirrored by a higher cost of bank loans (Becchetti & Manfredonia, 2022). Becchetti et al. (2023) report a similar finding regarding the firm's cost of equity. Firms also achieve lower future sales growth and market longevity (Fafaliou et al., 2022). Furthermore, Stähler and Fischer (2020) show that the average loss in firm value associated with revelations of CSI incidents is more than \$300 million. Given these adverse outcomes, firms are often compelled to take forceful actions such as firing their CEO (Burke, 2022) or undertaking extensive audits (Asante-Appiah, 2020). They may also increase their cash reserves as a precaution against possible stakeholder sanctions (Hasan, Habib, & Zhao, 2022).

But do firms adjust their dividend policy, and if so, do they increase or decrease their dividends? The answer is far from obvious. Firms may

consider paying lower dividends to conserve cash as the risk of stakeholder backlash increases. Firms generally react this way when exposed to higher cash flow risk. This happens in the event of a financial crisis (Bliss, Cheng, & Denis, 2015) or when they are threatened by a competitor's entry (Hoberg, Phillips, & Prabhala, 2014) or facing the prospect of litigation (Arena & Julio, 2023). Firms characterized by higher fixed costs (Kulchania, 2016) or higher resource adjustment costs (He et al., 2020) and, in particular, higher labor adjustment costs (Nguyen & Qiu, 2022), and firms operating in high CO₂ emitting industries (Balachandran & Nguyen, 2018), also pay lower dividends given their higher cash flow risk. In contrast, firms with better corporate social performance tend to pay higher dividends (Benlemlih, 2019; Cheung, Hu, & Schwiebert, 2018; Dai, Lv, & Schultz, 2022) because of their lower level of risk (Albuquerque, Koskinen, & Zhang, 2019; Boubaker et al., 2020; Chollet & Sandwidi, 2018; Jo & Na, 2012).

However, paying lower dividends would send the message that the firm expects its future cash flows to be lower (Bhattacharya, 1979; Miller & Rock, 1985) and even persistently lower (Ham, Kaplan, & Leary, 2020) or subject to greater uncertainty (Michaely, Rossi, & Weber, 2021). It follows that the firm's share price could drop significantly while the risk premium on its debt could soar (Sun, Wang, & Zhang,

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2021). In contrast, paying higher dividends would signal that the CSI events at the root of the firm's poor image are unlikely to have a profound and lasting effect or that the firm can work them out. Signaling is highly relevant in this case because firms have greater knowledge of their inner workings and understand better how difficult it might be for them to improve their CSR performance. By signaling their virtue, firms would mitigate the aforementioned negative impacts. Importantly, paying dividends is costly since it depletes the firm's cash and capital reserves, and this means that the signal cannot be easily mimicked and should thus be credible.

To test these two competing (i.e., the "risk-management" vs. the "signaling") hypotheses and determine which one empirically dominates the other, we use a sample of US firms from 2007 to 2018. Perception of a firm's CSI is extracted from the RepRisk database, which tracks media reports of CSI incidents using various sources and evaluates their likely impact on the firm's image. In short, the more intense and negative media coverage is, the higher the perception of the firm's CSI. This indicator differs from other more popular CSR indicators in that it is not based on self-reported information and in the fact that it focuses on assessing the likely impact on the firm's reputation rather than the severity of the CSI incidents or the overall CSR performance of the firm. In line with prior studies (Arena & Julio, 2023; Hoberg et al., 2014), we use dividends scaled by the firm's market value of equity.

The regression results reveal a strong positive relationship between the perception of CSI and dividends, which supports the signaling hypothesis. This relationship depends neither on the CSI indicator nor on the dividend measure. In addition, we show that firms with high CSI indicators are more likely to pay and increase dividends. To mitigate endogeneity concerns, we use several approaches. First, we use the average CSI indicator of the firm's industry peers and the political orientation of the state where the firm is headquartered as instruments. Although these instruments may not be perfect, we believe they provide a useful robustness check. Second, we use entropy balancing to match firms with high and low CSI indicators and find qualitatively similar results. Third, we focus on firms that experience a plausibly exogenous shock to their CSI indicator and use a difference-in-differences design to confirm that the perception of greater CSI leads to higher dividends.

In further support of the signaling hypothesis, we show that the relationship between perception of CSI and dividends is stronger for firms characterized by higher growth opportunities, as indicated by their higher sales growth, CapEx to total asset ratios, and Tobin's Q. This makes sense since these firms have greater incentives to signal their virtue to access much needed external finance at a lower cost (Becchetti & Manfredonia, 2022; Becchetti et al., 2023). In addition, we show that firms with high CSI indicators achieve higher valuation by paying higher dividends than firms with low CSI indicators. This result can be explained by the fact that the former have more private information regarding the risk to their cash flows than the latter. It also suggests that the signal conveyed by dividends is valuable and helps investors identify firms less at risk of suffering from stakeholder sanctions. Finally, we show that firms with high CSI indicators experience a more rapid decline in their CSI indicators following a dividend increase, consistent with dividends being credible signals. They also exhibit a decreasing cost of debt as indicated by the amount of interest paid on outstanding debt, especially when their debt maturity is short, and experience higher future sales growth, thereby confirming the benefits achieved through signaling (e.g., easier and cheaper access to finance).

Overall, this study makes two important contributions to the literature. First, it extends the results regarding the effects of CSI perception on corporate policies. Existing studies show that firms are more likely to fire their CEOs (Burke, 2022), carry out extensive audits (Asante-Appiah, 2020) or seek additional non-audit services (Asante-Appiah &

Lambert, 2023), and increase their cash reserves (Hasan et al., 2022). We add that firms tend to pay higher dividends. However, this behavior is not uniform across all firms. Some firms may be less affected by the CSI incident reported in the media than other firms. They may also have a greater ability to resolve the issue. Given that firms have more information about their actual situation and capabilities, it would make sense for those that are better positioned to signal their favorable position and thus reap the associated benefit, such as a lower cost of equity (Becchetti et al., 2023) or cost of debt (Becchetti & Manfredonia, 2022; Kölbel et al., 2017). The average effects reported in previous studies (i.e., higher cost of equity or cost of debt, lower valuation, lower growth) should accordingly vary with the level of dividends firms choose to pay.

Second, we contribute to the literature on corporate payout and, more specifically, to the use of dividends as signaling devices (Bhattacharya, 1979; Miller & Rock, 1985). While earlier studies focus on the role of dividend changes in signaling changes in the level of future cash flows, recent studies emphasize their role in signaling changes in their riskiness, i.e., the second moment of the future cash flow distribution (Michaely et al., 2021). Our results are consistent with both signaling objectives. By paying higher dividends while being perceived as socially irresponsible, firms can signal that the CSI incident reported in the media is not so severe or that they expect to resolve the issue quickly. Doing so would suggest that the expected level (uncertainty) regarding their future cash flows is higher (lower) than what the market believes. This would, in turn, explain why their market values significantly outperform those of firms that pay lower dividends. It also explains why their CSI indicators improve quickly, and their sales growth is subsequently higher.

The rest of the paper is structured as follows. Section 2 presents the background literature on corporate social irresponsibility and dividend policy and formulates the hypotheses. Section 3 describes the methodology, Section 4 presents the results, and Section 5 discusses the findings. Finally, Section 6 concludes the paper.

2. Literature review and hypotheses

2.1. Corporate social irresponsibility (CSI)

Companies are increasingly held accountable for their irresponsible practices (Jain & Zaman, 2020; Price & Sun, 2017; Stähler & Fischer, 2020). Stakeholders, including investors, demand proactive social responsibility and are much less tolerant of unethical corporate behavior (Kang, Germann, & Grewal, 2016; Kölbel et al., 2017). This trend is concurrently reflected in the rapidly growing CSI literature (Antonetti & Maklan, 2016; Becchetti & Manfredonia, 2022; Lange & Washburn, 2012).

CSI refers to corporate activities that negatively affect the long-term interests of a wide range of stakeholders (Strike, Gao, & Bansal, 2006) that managers would be unwilling to undertake acting for themselves (Armstrong & Green, 2013). It inflicts costs on society and individual stakeholders and creates distributional conflicts (Kotchen & Moon, 2012). According to Jones, Bowd, and Tench (2009), CSI is positioned at the opposite end of CSR. Wu (2014) argues that CSI occurs when companies do not incorporate CSR into their business strategies. Lin-Hi and Müller (2013) suggest that CSI may not be deliberate but the consequence of negligent corporate decisions. For example, the Rana Plaza fire, which took place in Bangladesh's capital in 2013 and resulted in over a thousand deaths, was caused not because the owner intentionally put the lives of workers at risk but because the firm chose to ignore safety issues to put its interests before those of its workers.

Regardless of the reason, any indication of CSI will likely attract significant stakeholder attention (Campbell, 2007) and damage the

firm's reputation (Hadani, 2021; Haslem, Hutton, & Smith, 2017; Karpoff & Lott, 1993). By exposing a lack of care for others, CSI can trigger a desire to sanction the offending firm (Bechwati & Morrin, 2003; Grappi, Romani, & Bagozzi, 2013; Kim & Park, 2020) and boycott its products (Lim & Shim, 2019; Sweetin et al., 2013). Consumers may distrust the firm for good and even lobby for stricter regulation (Baron & Diermeier, 2007; Reid & Toffel, 2009).

According to the Global Talent Trend Report published in 2019, employees also care about the ethical conduct of organizations. As a consequence, CSI is likely to have a negative impact on recruitment outcomes to the extent that it decreases the firm's attractiveness in the eyes of job seekers (Antonetti, Crisafulli, & Tuncdogan, 2021). This may thus seriously hinder the firm's ability to recruit talent, which is one of the most critical resources for firms. More generally, CSI is susceptible to provoking a strong reaction from stakeholders, which should motivate firms to attach greater importance to CSI issues. Otherwise, CSI could harm their long-term competitive advantages, even posing a risk to their survival (Fafaliou et al., 2022).

A telling example is Enron's bankruptcy in 2001 following revelations of accounting fraud, which led to the demise of its auditor, Arthur Andersen, after clients and audit partners alike left in droves to join Andersen's competitors. Stähler and Fischer (2020) evaluate the average financial loss due to a typical CSI event at US\$321 million as a decrease in the firm's market capitalization. The effect on the firm's reputation can be even larger when the news is relayed in high-reach media. Media coverage is one of the most important factors that can precipitate and shape the depth and length of a crisis (Kölbel et al., 2017; Liu & Shankar, 2015).

By creating the conditions that amplify stakeholder sanctions, media coverage of CSI increases the firm's risk (Kölbel et al., 2017). Sanctions are intended to decrease sales through damage to the firm's reputation, thus ultimately hurting the firm's profits. It follows that the risk premium on the firm's debt (Kölbel et al., 2017) and equity (Becchetti et al., 2023) increases with the perception of the firm's CSI. Perception of CSI should also constrain equity issues and curb the firm's growth (Fafaliou et al., 2022).

2.2. Corporate reaction to perceived CSI

Various actions may be taken to mitigate public perception of CSI. Firms can use impression management to influence stakeholder perceptions (Bansal & Kistruck, 2006). This approach consists of selecting the information to disclose and presenting it in a way intended to convey the impression of a positive – or perhaps less negative – outcome (Godfrey, Mather, & Ramsay, 2003). In this regard, Coraiola and Derry (2020) describe how tobacco companies misrepresented the facts regarding the risk of smoking and tried to systematically discredit scientific studies unfavorable to their claims.

To deal with the difficulties posed by greater financial constraints and higher funding costs, firms can increase their cash reserves, consistent with a precautionary motive for holding cash (Hasan et al., 2022). Interestingly, this effect is more pronounced for firms with acute financial constraints and agency problems, which should be more affected by the perception of CSI. Firms can also directly tackle the underlying cause of their CSI behavior. Since CSI is often the result of poor management and insufficient board oversight (Jain & Zaman, 2020; Ormiston & Wong, 2013), the board of directors may resort to firing the CEO to protect its legitimacy. This decision cannot be taken lightly, as it is quite disruptive for the organization and involves a time-consuming and expensive process to identify a suitable replacement. In addition, the company may face negative reactions from various stakeholders (Burke, 2022). Nevertheless, the board may want to send a

strong signal that CSI is not tolerated and will be effectively tackled to prevent further damage to the firm's reputation. By embodying the cause of the firm's failings, the CEO may need to be removed regardless of the disruption to the firm's operations. Another way for firms to rectify CSR-related weaknesses would be to order more thorough audits (Asante-Appiah, 2020) or change auditors (Burke, Hoitash, & Hoitash, 2019). Asante-Appiah and Lambert (2023) report that firms involved in CSI-related incidents seek additional non-audit services from their external auditors to address their problems and soothe shareholder concerns.

Dividend policy can also signal that firms are less worried about CSI incidents because of the internal information they possess, as we argue in the following two sections.

2.3. Determinants of corporate payout

In perfect markets, i.e., with no transaction costs and informational asymmetries, payout policy is irrelevant since it does not affect firm value (Miller & Modigliani, 1961). The difference between the cash flows generated from the firm's operations and its investment needs can be paid out as dividends. Alternatively, the firm may retain the cash on its balance sheet since it would earn the opportunity cost of risk-free investments. The payout decision would represent a change in the cash location from the company to its shareholders' pockets without affecting the latter's wealth.

In practice, dividends vary with the firm's lifecycle (Chay & Suh, 2009). Mature firms with few valuable investment opportunities and significant cash flows may allocate a larger proportion of their earnings to dividends. In contrast, younger firms, which tend to have plenty of growth opportunities but few cash flows, should pay little to no dividends.

Market imperfections create the conditions for corporate payout to play an active role. These imperfections may include unobservable managerial actions or information asymmetries between insiders (managers) and outsiders (investors), creating agency conflicts. One view is that corporate payout is the *outcome* of agency conflicts. Because managers prefer to retain cash to extract private benefits, higher (lower) information asymmetry is expected to result in lower (higher) payouts. The alternative view is that payout can be used to *mitigate* agency conflicts. By paying higher dividends, firms are forced to raise external funds more often, which exposes them to the scrutiny of the capital markets (Easterbrook, 1984; Jensen, 1986). Which of these two effects dominates depends on the relative power of shareholders over managers.

Under information asymmetry, firms suffer from higher financing costs and financing constraints (Myers & Majluf, 1984) that reduce their value and restrict their growth. This specifically concerns firms with good investment opportunities that are unknown to outside investors. Dividend increases can thus signal favorable firm information to uninformed investors (Bhattacharya, 1979; Miller & Rock, 1985). Companies confident about their future prospects can afford to increase dividends since they expect to generate enough cash flows to meet higher payouts. In contrast, firms with unfavorable prospects will refrain from raising their dividends as they might not generate enough cash flows to pay higher dividends. Increasing dividends entails a cost that makes these firms unwilling to raise their dividends by pretending they have good prospects.

In a separating signaling equilibrium, only firms with good prospects increase their dividends and are rewarded with higher valuations and lower funding costs. In contrast, firms with poor prospects refrain from increasing their dividends. Healy and Palepu (1988) show that dividend initiations precede earnings increases, while dividend cuts are followed

by earnings falls. These earnings changes are anticipated at the dividend announcement date by stock price changes in the same direction. Nissim and Ziv (2001) also report a positive relationship between dividend changes and future profitability. However, other studies find no relation or even a negative relation (Benartzi, Michaely, & Thaler, 1997; DeAngelo, DeAngelo, & Skinner, 1996; Grullon et al., 2005).^{1, 2 and 3}

Sun et al. (2021) provide fresh evidence in support of the signaling role of dividends. Their results indicate that dividend increases are associated with a contemporaneous increase in equity values of about 1.6 % for a 1 % increase in the dividend-to-price ratio. In contrast, dividend cuts are associated with a contemporaneous increase in credit default swap (CDS) spreads of about 25 basis points. This differential effect is explained by the fact that debt value is a concave function of the firm's asset value, implying that debt reacts more strongly when the asset value is low, and equity value is a convex function of the firm's asset value, implying that equity reacts more strongly when the asset value is high. Besides, firms are more likely to cut dividends when their asset value is low and to increase dividends when their asset value is high.

Since dividend increases lower the firm's cash reserves and equity buffer, they should increase the probability of a default. In the absence of any signaling effect, CDS spreads would normally increase. However, dividend increases signal that the firm's prospects are improving or better than the market anticipates.² Dividend increases are thus credible signals since firms with poor prospects would not raise their dividends for fear of the higher distress costs they would incur.

2.4. Perception of CSI and corporate payout

Corporate payout may be affected by the perception of the firm's CSI in two opposite ways: Negatively, according to risk-management arguments, and positively, according to signaling arguments.

2.4.1. The risk-management hypothesis

It would make sense for firms perceived as irresponsible to lower their payout to preserve cash and reduce external finance (Hasan et al., 2022). This may be due to the liabilities arising from the CSI incidents and the need to mitigate their fallout. For instance, BP was hit with over \$18 billion in fines and ordered to pay \$28 billion in clean-up costs following a major oil spill in the Gulf of Mexico adjudged to result from gross negligence (Baksh, 2014). Firms would also need to cover their legal costs. In 1997, the U.S. House of Representatives Subcommittee on Courts and Intellectual Property referred to an article published in the Wall Street Journal that estimated the tobacco industry spends \$600 million per year on defense attorneys, with two law firms receiving no less than \$89.5 million for work on single cases.

To mitigate the fallout from CSI incidents, firms may additionally engage in lobbying efforts. Protecting their image would also require increasing public relations activities, which can be costly. A different approach that may help firms repair their tainted reputation is to invest in CSR initiatives, which explains why significant CSR and CSI activities

¹ An alternative explanation is that dividend increases signal a reduction of the firm's risk rather than an increase of its earnings (Grullon et al., 2005; Michaely et al., 2021).

² Another use of dividends would be for banks to signal the quality of their assets, especially in periods of turmoil when this information is critical (Forti & Schiozer, 2015).

³ Considering a regression coefficient of 0.014 and a standard deviation of 11.634, the log of the odds ratio increases by $0.014 \times 11.634 = 0.162876$, which implies that the odds ratio is multiplied by $\exp(0.162876) = 1.17689$. The odds ratio corresponding to a probability of paying dividends of 0.6045 (i. e., the proportion of dividend payers) is $0.6045 / (1 - 0.6045) = 1.528445$. It follows that the odds ratio increases to $1.528445 \times 1.17689 = 1.7988$, which implies that the probability of paying dividends increases to $1.7988 / (1 + 1.7988) = 0.6427$, which represents an increase of $0.6427 - 0.6045 = 3.82\%$.

are often found alongside one another (Price & Sun, 2017).

The need to retain rather than distribute cash may also be motivated by anticipations of more restrictive and costly access to finance. Kölbel et al. (2017) show that perception of irresponsible behavior leads to higher borrowing costs, as reflected in higher CDS spreads, which indicate the cost of insuring a firm's debt. A one standard deviation increase in adverse media coverage is associated with a 2.5 basis point increase in CDS spreads (and a 7.5 basis point increase if the coverage is in high-reach media). At the same time, the decrease in the firm's share price translates into a higher cost of equity capital (Becchetti et al., 2023). Stäbler and Fischer (2020) estimate that the average loss in shareholder value due to media reporting of CSI incidents amounts to \$321 million. Generally, firms perceived as irresponsible experience greater financial constraints (Fafaliou et al., 2022).

News of CSI-related incidents, such as an oil spill or revelation of tax evasion, can be viewed as the realization of a risk rooted in a firm's irresponsible behavior. More often than not, the increase in risk due to an external shock is associated with a lower payout, given the risk of financial distress and the motive for holding precautionary cash balances. For instance, the onset of the 2008 financial crisis led firms to cut dividends, suspend share repurchases, and use their cash savings as an alternative form of financing (Bliss et al., 2015). Likewise, dividend-paying firms are more likely to cut dividends during political crises due to higher perceived uncertainty and the cost of external financing (Huang et al., 2015).

Firms characterized by higher structural risk also tend to have lower payouts as they need to hold large precautionary cash balances to make up for any possible cash shortfall. Hoberg et al. (2014) show that firms exposed to greater competitive threats in the product markets have a lower propensity to pay dividends or to repurchase shares and correlatively hold more cash. Firms with higher resource adjustment costs similarly pay lower dividends due to their higher earnings risk (He et al., 2020). In particular, skilled labor-intensive firms, which are exposed to higher cash flow uncertainty because of their higher labor adjustment costs, tend to pay lower dividends (Nguyen & Qiu, 2022). On the other hand, firms with a higher corporate social performance tend to pay higher dividends (Benlemlih, 2019; Cheung et al., 2018; Dai et al., 2022) because of their lower level of risk (Chollet & Sandwidi, 2018; Jo & Na, 2012) and, in particular, their lower systematic risk (Albuquerque et al., 2019) and lower financial distress risk (Boubaker et al., 2020).

Based on the above arguments, we propose the following "risk-management" hypothesis:

H1. Perception of CSI is associated with a lower payout.

2.4.2. The signaling hypothesis

However, cutting dividends will likely heighten investor mistrust, leading to steeper stock price declines and rising external financing costs. Sun et al. (2021) show that cumulative abnormal return on a firm's equity can reach up to -1.1% over a 7-day window surrounding the dividend cut announcements. In addition, dividend cuts are associated with a 20 to 25 basis point increase in CDS spreads that can extend to 85 basis points for firms in more precarious financial positions. This finding is all the more remarkable in that by paying out lower dividends, firms strengthen their equity buffer and decrease their default risk. Hence, it appears that equity and bond investors take cues from dividend cuts to infer that the firm's financial position is worse than they thought.

In the specific context of a CSI incident, dividend cuts may signal that the cost of dealing with the incident is higher than expected. The decision to cut dividends may also reinforce the impression that the firm is only trying to shield itself from any fallout and has no solid plan to turn the situation around. As a result, investors may conclude that the risk is likely to persist, which could imply similar CSI incidents in the future. Hence, investors would need to reassess the firm's risk profile (Kölbel et al., 2017), leading to a significant drop in its share price (Stäbler & Fischer, 2020). This would exacerbate financial constraints, thus hindering the firm's future growth (Fafaliou et al., 2022).

It follows that firms should hesitate to cut dividends because of adverse signaling effects (Sun et al., 2021). By increasing dividends, firms can instead convey that the CSI incident is less severe than what it appears or what the media seems to depict. They may have the knowledge or technology to constrain the damage or to remedy the long-term impacts, such as unintentional wastewater discharges or accidental oil spills, which would involve cleaning up the affected sites and restoring natural ecosystems.

Firms can also use dividends to signal that they can mitigate the damage to their reputation through various ploys. In this regard, a common neutralization technique for countering allegations of CSI consists of denying responsibility and twisting the arguments to justify ethically questionable behaviors (Boiral, 2016; Sykes & Matza, 1957). For more severe CSI incidents, this type of response would not be sufficient. Firms may have no choice but to tackle the underlying issues head-on by implementing sweeping changes in how they conduct their business. They may, for instance, stop purchasing goods produced under poor working conditions or grown in deforested areas in favor of goods that are more respectful of the environment and employee welfare.

Dividends can be useful in complementing the firm's disclosures concerning its strategy for resolving the issue and improving its CSR performance. Disclosures alone may not convince stakeholders of the firm's real intentions, as irresponsible firms may try to pass for responsible ones (Clarkson et al., 2008). Dividends add credibility to the firm's communications as a high payout decreases the firm's equity buffer, thus increasing the likelihood of financial distress (Sun et al., 2021). Without improvement of its CSR performance, the firm may find itself in a difficult financial situation with less cash in hand and greater financing constraints (Becchetti et al., 2023; Fafaliou et al., 2022; Kölbl et al., 2017).

As a result, dividend increases would make stakeholders more inclined to believe that the risk of further CSI incidents will decrease. Firms would then benefit from improved stakeholder relations and be able to access external funding at a lower cost, which would facilitate their development. In other words, costly dividend signaling can be motivated by the prospect of future gains. The same mechanism is at work when dividend increases result in lower CDS spreads, indicating that the information (or signaling) effect of dividend increases dominates their wealth-transfer effect (Sun et al., 2021).

This interpretation is also consistent with the higher audit expenses (Burke et al., 2019), higher audit quality, and auditor effort (Asante-Appiah, 2020) that firms implement following increased perception of CSI. The higher likelihood of CEO turnover (Burke, 2022) suggests that firms are willing to pay the expensive search costs of finding a new CEO and the costs created by the related organizational disruption. The readiness to bear these costs can only be explained by the benefits that firms expect to achieve in terms of improved CSR performance and the positive effects that flow from the perception that they are acting responsibly (Eccles et al., 2014; Flammer, 2015).

Based on the above arguments, we propose the following "signaling" hypothesis:

H2. Perception of CSI is associated with a higher payout.

3. Data and methodology

3.1. Sample and data sources

These two competing hypotheses are tested using a sample of publicly listed US firms from 2007 to 2018. We exclude financial firms (SIC codes 6000–6999) and utility firms (SIC codes 4900–4999) since industry-specific regulations may constrain their payout decisions. For instance, the US Federal Reserve recently imposed restrictions on bank dividends after it found some may become stressed due to the COVID-19 pandemic (Son, 2020).

Our sample aggregates several databases. We use the RepRisk database to measure public perception of a firm's CSI. Financial data are

sourced from the Compustat annual data file. The CRSP database provides stock price data to compute firm value. The MSCI (formerly KLD) database provides an indicator of a firm's CSR performance. Consistent with other studies, firm-year observations with missing data are dropped, resulting in a final sample of 10,886 observations concerning 1,206 firms.

3.2. The dependent variable: Corporate payout

Our main dependent variable is the dividend yield (DIV/MV), defined as the ratio of cash dividends to the market value of equity. This ratio is critical to investors as it predicts future stock returns (e.g., Campbell & Shiller, 1988; Fama & French, 1988; Lewellen, 2004). Desai and Jin (2011) use it as their primary variable to analyze the effect of institutional shareholder tax characteristics on corporate payout. Closer to our case, Arena and Julio (2023) show that firms exposed to significant litigation risk have lower dividend yields. Similarly, Hoberg et al. (2014) report that firms facing greater product market threats pay lower dividends relative to their market value of equity.

To ensure the robustness of our results, we use several alternative payout measures such as dividends scaled by book equity (DIV/EQ), dividends scaled by total assets (DIV/TA), and stock repurchases scaled by market value of equity (REP/MV). We also use total payout, i.e., dividends plus stock repurchases, scaled by either market value of equity (PAY/MV), book value of equity (PAY/EQ), or total assets (PAY/TA). In addition to these measures, we examine the propensity to pay dividends (using the dividend dummy, DDIV) and the propensity to increase dividends (using dividend per share, DPS).

3.3. Explanatory variable: Perception of a firm's CSI

In our analysis, the key explanatory variable is the perception of a firm's CSI. We use data from RepRisk to measure this perception. RepRisk is a Swiss company specializing in risk management solutions. Banks, asset managers, and insurance companies use their reputational risk data to assess the societal performance of public and private firms worldwide. The data are also used to construct various sustainability stock indices, such as the Dow Jones Sustainability Index and the FTSE4Good Index.

The objective of RepRisk is to evaluate the general public's perception regarding a firm's irresponsible behavior. Their innovative approach is to screen traditional and online media using artificial intelligence to search for negative coverage of a firm concerning 28 ESG issues. Once an incident is identified, a specialized team of analysts performs manual verifications. Their primary task is not so much to assess the reliability of the news but to identify the perception that the public might have of the incident.

Each incident receives a score for severity, reflecting the gravity of the perceived impact, and a score for reach, according to the influence or readership of the source. For instance, an incident will be regarded as more severe if it affects people's health or if it is caused by deliberate actions instead of being the result of an accident. Using a proprietary formula, a reputation risk index (RRI) is then attributed for each firm based on media counts and the attributed scores.

The RRI may increase if the same news is picked up by a more important media source or if the scope of the incident is expanded. Otherwise, it steadily decreases to zero, indicating that the incident has lost relevance. To take these changes into account, RepRisk updates its indices daily. Current RRI (RRI CRNT) reflects the level of a firm's negative media exposure to ESG-related issues in the past month, while Peak RRI (RRI PEAK) is the highest level reached in the last 24 months. These two measures vary from zero (lowest) to 100 (highest). In addition, RepRisk provides a reputational risk rating (RRI RATING) to facilitate benchmarking against a peer group or within the firm's sector. The ratings range from AAA (low exposure) to D (highly negative media exposure). We translate these letter ratings into numerical values from 1

(for AAA) to 9 (for D).

Compared to traditional CSR/CSI indicators, the RRI has a few major advantages. First, it aggregates information from various independent media sources instead of only using the firm’s self-reported data. As a result, it is much less subject to manipulation and misleading information from the firm’s management. Second, the RRI focuses on the perceived impact of the incident due to its severity and the extent of its reach in the media instead of gauging the incident using technical indicators, such as the number of injured workers in a factory fire. Examples of similar incidents that received starkly different treatments in the media are given by Stähler and Fischer (2020).

Fig. 1 illustrates the current and peak RRI behavior for Apple Inc. over the sample period. The most notable event is the sudden jump of both indicators in 2010 as a spate of suicides at a factory operated by Apple’s main contractor in China drew attention to the firm’s CSR record (Branigan, 2010). Although Apple was not directly responsible for the welfare of these employees and did not breach any regulations, the company was accused of condoning poor working conditions and ignoring employee health and safety. These accusations led to a high and persistent perception of CSI throughout the rest of the period.

This case highlights the distinctive nature of the RRI in that it may not reflect the actual extent of a firm’s CSI. As it happens, negligent practices that go unnoticed or receive little attention in the media would result in the firm not being categorized as irresponsible. In contrast, negative news coverage for mostly inconsequential issues can severely damage a firm’s reputation even though it may have acted responsibly. Apple’s case demonstrates that a single negative CSI incident (considering the suicides at Apple’s contractor as a single event) can put a firm’s reputation in jeopardy. Consumers may then disregard the fact that the firm is well-rated for its efforts, such as trying to preserve the environment and protect the health of its workers. Instead, their emotional reaction to the news, especially if casualties are involved, and the salience given to the event would be what matters the most.

3.4. Control variables

The finance literature has identified several firm characteristics as potential determinants of payout policy. We include firm size (LNTA) measured by the natural log of total assets; the log of Tobin’s Q (LNQ),

which is measured by total assets plus market value of equity less book value of equity, the whole divided by total assets; sales growth (SALESGR) measured by the percentage change in sales over the previous year; the ratio of total debt to total assets (DEBT/TA); the return on assets (ROA) computed as earnings before interest, taxes, depreciation, and amortization divided by total assets; and its 5-year standard deviation (EARNVOL). Consistent with previous studies, all these variables are winsorized at the 1st and 99th percentiles to limit the influence of outliers.

In addition, we include a measure of the firm’s social responsibility (CSR) computed by taking the difference between the firm’s CSR strengths and its CSR concerns as defined by MSCI (KLD). Finally, year- and industry-fixed effects are included, similar to other corporate payout studies (e.g., Arena & Julio, 2023; Desai & Jin, 2011; Hoberg et al., 2014).

3.5. Empirical model

The effect of CSI perception on corporate payout is evaluated using the following regression model:

$$\begin{aligned}
 \text{DIV}/\text{MV}_{t+1} = & \beta_0 + \beta_1 \text{RRI}_t + \beta_2 \text{LNTA}_t + \beta_3 \text{LNQ}_t + \beta_4 \text{SALESGR}_t \\
 & + \beta_5 \text{DEBT}/\text{TA}_t + \beta_6 \text{ROA}_t + \beta_7 \text{EARNVOL}_t + \beta_8 \text{CSR}_t \quad (1) \\
 & + \eta \text{YEAR} + \xi \text{IND} + \varepsilon
 \end{aligned}$$

The dividend yield (DIV/MV) is the main payout measure. The subscript underlines the lag between the explanatory variables and the dividend decision. RRI represents either current RRI, peak RRI, or RRI rating. These indicators, which are provided daily, are averaged over the year. The presence of a CSR score (CSR) is intended to isolate the effect of CSI perception from that of actual CSR performance. The fixed effects consist of year and industry effects. The model is estimated using Tobit regressions since the sample includes a significant proportion of dividend non-payers. The significance of the coefficients is based on standard errors clustered by firm. For convenience, the definition of each variable is provided in Appendix A.

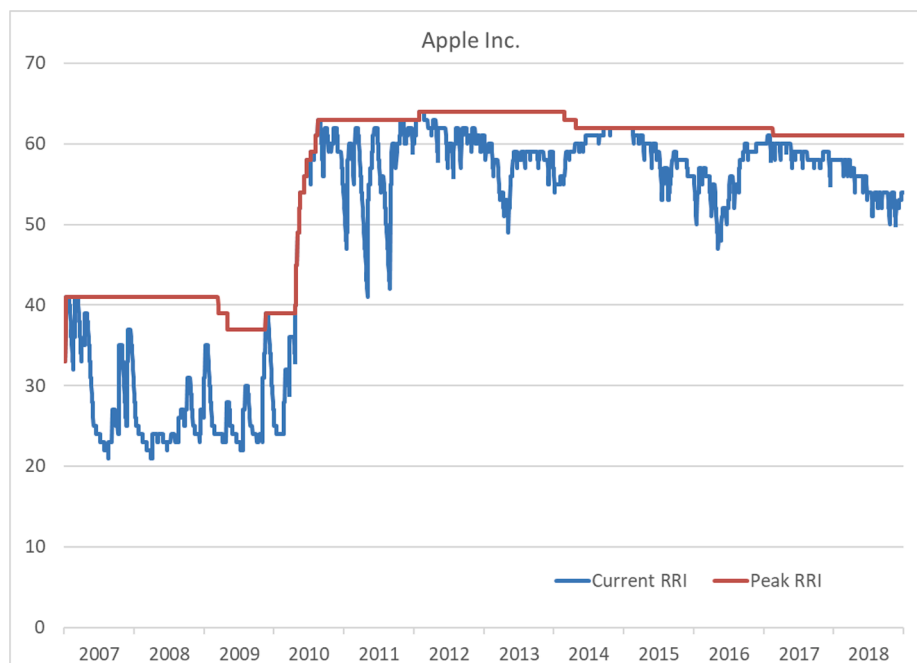


Fig. 1. Evolution of current and peak RRI for Apple Inc.

4. Results

4.1. Sample description

Table 1 displays the sample summary statistics. The mean dividend yield (DIV/MV) is about 0.73 % (median = 0.37 %), with dividend payers (DDIV) forming 60.4 % of the sample. Firms appear to use share repurchases to a greater extent for returning cash to shareholders (average REP/MV=1.41 %), resulting in an average payout yield of 2.23 % (median = 1.37 %). These figures are not exactly similar to those reported by Hoberg et al. (2014) or Arena and Julio (2021) due to differences in sampling criteria. For instance, Hoberg et al. (2014) are biased towards young entrepreneurial firms, which tend to be non-dividend payers.

The perception of CSI is relatively low as a large proportion of firms did not receive negative media coverage over the past 12 months (median RRI CRNT=2.3333). The corresponding average is just above 9.05 out of a maximum of 100. Measured over two years, the perception of CSI is about twice as high (average RRI PEAK=20.08).

The control variables appear to be well-behaved. Mean and median sales growth are close to 4.7 %. The average ROA is about 4.1 % (median 4.3 %), and the average debt-to-total assets is around 24 % (median DEBT/TA=22 %). Interestingly, the median of the difference between CSR strengths and CSR concerns is exactly zero, while the mean is slightly positive (0.038).

Table 2 presents the correlation between the explanatory variables. All three measures of CSI perception are positively correlated but far from being perfectly correlated. Interestingly, their correlation with the popular KLD's CSR measure is positive, consistent with the argument that firms can be both socially responsible and irresponsible (Carroll, 1979). In our specific case, the CSI and CSR indicators do not need to be opposed since the former tends to reflect singular events while the latter typically evaluates the overall performance of a firm. Both indicators exhibit a positive correlation with firm size and, consequently, a negative correlation with earnings volatility.

The remaining variables tend to display the usual pairwise correlations. Large firms are associated with higher leverage (correlation = 0.1255), whereas growth firms are associated with lower leverage (correlation = -0.394). Higher sales growth is associated with higher

Table 1
Descriptive statistics.

	Mean	Std Dev	p25	Median	p75
Main payout measure					
DIV/MV (%)	0.7258	0.8951	0	0.3662	1.2514
Other payout measures					
DIV/EQ (%)	3.6341	5.3715	0	1.5301	5.1396
DIV/TA (%)	1.4565	2.4471	0	0.4287	1.9789
REP/MV (%)	1.4114	2.2172	0	0.2350	2.0093
PAY/MV (%)	2.2329	2.7141	0.1836	1.3684	3.2023
PAY/EQ (%)	4.4159	6.6306	0.2441	1.8254	5.8064
PAY/TA (%)	1.8485	2.8934	0.0457	0.6170	2.3459
DDIV (DPS>0)	0.6045	0.4890	0	1	1
DPSUP (ΔDPS>0)	0.3880	0.4873	0	0	1
Perception of CSI					
RRI CRNT	9.0547	11.634	0	2.3333	17
RRI PEAK	20.083	18.916	0	25	33
RRI RATING	2.5078	1.2744	1.9167	2	3
Control and other variables					
CSR	0.0380	0.1650	-0.0597	0	0.0917
LNTA	8.2455	1.6808	7.0972	8.1370	9.3027
LNQ	0.2415	0.3127	0.0160	0.1305	0.3682
SALESGR	0.0468	0.1936	-0.0272	0.0467	0.1259
ROA (%)	4.0898	8.8493	1.2408	4.3736	8.3161
DEBT/TA	0.2436	0.1913	0.0948	0.2195	0.3533
EARNVOL (%)	2.8344	3.7250	0.7705	1.6075	3.2568

Note: Variable definitions are provided in Appendix A.

ROA and Tobin's Q (correlation around 0.21 in both cases). Finally, earnings volatility (EARNVOL) can be seen to be negatively correlated with firm size (correlation = -0.292) but positively correlated with firm growth (correlation = 0.14).

4.2. Perception of CSI and corporate payout

We start by examining the relationship between the perception of CSI and dividend payout. In line with Hoberg et al. (2014) and Arena and Julio (2023), payout is measured by dividend yield (DIV/MV). Table 3 reports the Tobit regression results without KLD's CSR measure (columns 1–3) and with that measure (columns 4–6) for each of the three CSI indicators sourced from RepRisk. The results in columns 1–3 indicate that the perception of CSI is a positive and statistically significant determinant of a firm's payout policy. This effect is also economically significant. For example, one standard deviation increase in current RRI (peak RRI) is associated with an increase in the dividend yield of 12.7 bp (15.7 bp). This means the average dividend yield would increase from 0.73 % to 0.85 % using current RRI (or 0.88 % using peak RRI).

Hence, while the change in the dividend yield seems relatively modest, the impact on shareholders is quite consequential, as it represents an increase of 17.5 % in the dividend yield, making the firm's shares much more attractive to hold. The other variables have broadly the effect predicted in the dividend literature. In particular, larger and more profitable firms are associated with higher payout rates. In contrast, firms with rapidly growing revenue tend to pay lower dividends to conserve cash to finance their larger investment needs.

The results in columns 4–6 include KLD's CSR measure. The latter has a significant positive effect on the firm's dividend payout, consistent with Benlemlih (2019). Including this additional control appears to reduce the effect of firm size, which nonetheless remains significant. However, it only marginally affects the coefficients on the three CSI measures, confirming the distinct nature of CSR and CSI (Lin-Hi & Müller, 2013) and their specific measurement.

Overall, the results are consistent with the signaling hypothesis that firms use dividends to convey favorable information, such as the fact that their cash flows are not at risk (Michaely et al., 2021). It follows that the results refute the risk-management hypothesis that firms perceived to be more irresponsible strive to save cash by paying lower dividends. The difference between our results and those from the risk-based literature (e.g., Arena & Julio, 2023; Hoberg et al., 2014) could be that the risk they deal with is largely exogenous. In contrast, the risk arising from a perception of CSI can be mitigated by firms through a variety of strategies, including greenwashing and targeted donations (Zhon, Chen, & Ren, 2022). Besides, firms know more about a CSI incident's potential impact on their cash flows. There is, thus, an opportunity to convey favorable private information that does not exist in the case of an exogenous risk.

4.3. Alternative payout measures

To confirm the positive relationship between public perception of CSI and corporate payout, we re-estimate the model using alternative payout measures. The results are reported in Table 4 without displaying the coefficients of the control variables.

In Panel A, dividends are scaled by book equity (DIV/EQ) and total assets (DIV/TA). The results show that the coefficients of all three CSI variables are positive and statistically significant (p -value < 0.1 %). Overall, the results indicate that scaling dividends by market value of equity is not the reason why dividend payout is positively related to the firm's perceived irresponsibility since using alternative scaling variables provides qualitatively similar results.

In Panel B, we replace cash dividends with share repurchases (REP/MV) and total payout (PAY/MV), which are both scaled by the market value of equity. Some studies suggest that firms substitute share repurchases for cash dividends without changing their total payout

Table 2
Correlation matrix.

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	
RRI CRNT	[1]	1								
RRI PEAK	[2]	0.8450*	1							
RRI RATING	[3]	0.8293*	0.8073*	1						
CSR	[4]	0.3182*	0.2915*	0.2500*	1					
LNTA	[5]	0.5667*	0.5045*	0.4807*	0.3481*	1				
LNQ	[6]	-0.0530*	-0.0563*	-0.0227	0.0266*	-0.2814*	1			
SALESGR	[7]	-0.0849*	-0.1019*	-0.0746*	-0.0573*	-0.0785*	0.2073*	1		
ROA	[8]	0.0677*	0.0633*	0.0664*	0.0768*	0.0348*	0.3625*	0.2105*	1	
DEBT/TA	[9]	0.0945*	0.1064*	0.0673*	0.0142	0.1255*	-0.3940*	-0.0568*	-0.1678*	1
EARNVOL	[10]	-0.0885*	-0.0880*	-0.0519*	-0.1076*	-0.2922*	0.1425*	-0.0305*	-0.2457*	-0.0028

Note: Variable definitions are provided in Appendix A. * indicates significance at the 1% level.

Table 3
Perception of CSI and dividend payout.

	Dependent variable: DIV/MV					
	(1)	(2)	(3)	(4)	(5)	(6)
RRI CRNT	0.0109*** (0.000)			0.0105*** (0.000)		
RRI PEAK		0.0083*** (0.000)			0.0083*** (0.000)	
RRI RATING			0.1106*** (0.000)			0.1093*** (0.000)
CSR				0.6423*** (0.000)	0.6682*** (0.000)	0.6585*** (0.000)
LNTA	0.1099*** (0.000)	0.1077*** (0.000)	0.1108*** (0.000)	0.0880*** (0.001)	0.0826*** (0.001)	0.0866*** (0.001)
LNQ	0.1259 (0.359)	0.1299 (0.346)	0.1232 (0.369)	0.1080 (0.430)	0.1096 (0.424)	0.1037 (0.447)
SALESGR	-0.0152*** (0.000)	-0.0150*** (0.000)	-0.0151*** (0.000)	-0.0148*** (0.000)	-0.0146*** (0.000)	-0.0147*** (0.000)
DEBT/TA	-0.0312 (0.883)	-0.0378 (0.858)	-0.0274 (0.897)	-0.0291 (0.891)	-0.0362 (0.864)	-0.0258 (0.903)
ROA	0.0526*** (0.000)	0.0524*** (0.000)	0.0524*** (0.000)	0.0517*** (0.000)	0.0514*** (0.000)	0.0514*** (0.000)
EARNVOL	-0.0086 (0.289)	-0.0090 (0.261)	-0.0090 (0.263)	-0.0093 (0.249)	-0.0099 (0.216)	-0.0098 (0.219)
Constant	-0.4807* (0.057)	-0.4999** (0.040)	-0.7036*** (0.003)	-0.2900 (0.247)	-0.2860 (0.237)	-0.4938*** (0.035)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
F value	33.88***	33.75***	34.38***	33.55***	33.59***	34.04***
Pseudo R ²	0.0932	0.0943	0.0942	0.0951	0.0965	0.0963
N observations	10,886	10,886	10,886	10,886	10,886	10,886

This table reports the results of Tobit regressions of corporate payout on CSI perception. The dependent variable is the dividend yield, measured by cash dividends scaled by the market value of equity. All variables are defined in Appendix A. Standard errors are clustered by firm. P-values are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

when faced with external risks (e.g., Arena & Julio, 2021). This does not appear to be the case with greater public perception of CSI, as firms are found to complement dividend payments with share repurchases (columns 1–2). It follows that the positive effect of CSI perception on total payout is also highly significant (columns 4–6).

Finally, we use total payout scaled by book equity (PAY/EQ) and total assets (PAY/TA). The results in Panel C show that the coefficients of the CSI variables are positive and statistically significant (p -value < 0.1 %) except for the current RRI (in column 4), which is only significant at the 2 % level. Overall, the results in Table 4 show that the positive relationship between public perception of CSI and corporate payout does not depend on the payout measure and, more specifically, on the fact that we use cash dividends scaled by the market value of equity.

4.4. Propensity to pay or increase dividends

Since the sample contains a significant proportion of dividend non-payers (about 40 %), it is interesting to examine whether the decision to pay dividends is also related to the perception of the firm’s CSI. We

thus run logit regressions using the binary variable DDIV, indicating that the firm pays dividends.

Table 5 indicates in columns 1–3 that the more a firm is perceived to be irresponsible, the more likely it is to pay dividends. The marginal effects show that one standard deviation increase in the current RRI is associated with an increase of about 3.82 % in the probability of paying dividends.³ For one standard deviation increase in peak RRI, the increase in the probability of paying dividends is about 3.69 %. The effect of CSI perception on the likelihood of paying dividends is thus quite significant.

For similar increases in current or peak RRI, the increase in the probability of increasing dividends is more modest, in line with expectations. For one standard deviation increase in the current RRI, the increase in the probability of increasing dividends is only about 1.6 %. Nonetheless, the results in columns 4–6 show that this effect is statistically significant.

Overall, our examination of the propensity to pay and to increase dividends confirms the significant impact of public perception of a firm’s CSI on the firm’s payout policy.

Table 4
Regressions using alternative payout measures.

Panel A: Dividends scaled by book equity (DIV/EQ) or total assets (DIV/TA)						
	(1)	DIV/EQ (2)	(3)	DIV/TA (4)	(5)	(6)
RRI CRNT	0.0553*** (0.000)			0.0306*** (0.000)		
RRI PEAK		0.0389*** (0.000)			0.0214*** (0.000)	
RRI RATING			0.6219*** (0.000)			0.3144*** (0.000)
Other controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
F value	25.56***	25.53***	25.80***	20.06***	20.31***	20.43***
Pseudo R ²	0.0608	0.0611	0.0615	0.0736	0.0742	0.0746
Panel B: Stock repurchases (REP/MV) or total payout (PAY/MV) scaled by market capitalization						
	(1)	REP/MV (2)	(3)	PAY/MV (4)	(5)	(6)
RRI CRNT	0.0089** (0.044)			0.0178*** (0.000)		
RRI PEAK		0.0066** (0.016)			0.0141*** (0.000)	
RRI RATING			0.0105 (0.778)			0.1042*** (0.005)
Other controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
F value	33.99***	34.17***	33.84***	33.99***	34.17***	33.84***
Pseudo R ²	0.0601	0.0602	0.0599	0.0601	0.0602	0.0599
Panel C: Total payout scaled by book equity (PAY/EQ) or total assets (PAY/TA)						
	(1)	PAY/EQ (2)	(3)	PAY/TA (4)	(5)	(6)
RRI CRNT	0.0470*** (0.000)			0.1283** (0.020)		
RRI PEAK		0.0336*** (0.000)			0.1125*** (0.001)	
RRI RATING			0.3202*** (0.000)			1.6255*** (0.000)
Other controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
F value	40.21***	40.79***	40.23***	34.24***	34.17***	34.31***
Pseudo R ²	0.0659	0.0662	0.0657	0.0457	0.0459	0.046

This table reports the results of Tobit regressions of corporate payout on CSI perception. The dependent variable is either cash dividends scaled by book equity (DIV/EQ) or total assets (DIV/TA), stock repurchases (REP/MV) or total payout (PAY/MV) scaled by market value of equity, or total payout scaled by book equity (PAY/EQ) or total assets (PAY/TA). The control variables are the same as those reported in Table 3. All variables are defined in Appendix A. Standard errors are clustered by firm. P-values are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

4.5. Control for endogeneity

While the results indicate a significant positive relationship between the perception of CSI and corporate payout, one could argue that this relationship is endogenous. Some firms may be attracted to controversial activities that generate higher profits, allowing them to pay higher dividends but correlatively drawing more negative media attention to their irresponsible behavior. To address this concern, we use a variety of approaches.

4.5.1. Instrumental variable approach

This approach requires the identification of suitable instruments. Consistent with existing studies (e.g., Fafaliou et al., 2022; Hasan et al., 2022), our first instrument is the average perception of CSI within the firm’s industry in a given year that we apply to each of the three RRI variables. Comyns and Franklin-Johnson (2018) argue that firms in the same industry receive similar criticism and negative media coverage due to common industry-level practices, such as the reliance on overseas sweatshops in the clothing industry. At the same time, there is little reason to expect dividend policy to be similarly correlated within the

industry, making this instrument seemingly valid.

In line with Albuquerque et al. (2019) and Becchetti and Manfredonia (2022), our second instrument is the political inclination of the state where the firm’s headquarters is located, which is measured by the proportion of Republican (“red”) votes during the last presidential election. Fatemi et al. (2024) note that environmental or employee rights regulation can vary significantly across states. Republicans tend to be against strict environmental regulation (Hall, Erfanian, & Stair, 2016). Jasinenko et al. (2020) argue that conservative voters care less about CSI because of their staunch belief in the free market. It follows that firms headquartered in “red” states are typically less attentive to social and environmental issues, meaning they are more likely to be involved in CSI incidents. This instrument should also exhibit a low correlation with the unexplained variation in dividend payout.

Table 6 reports the results of instrumental variable Tobit (ivtobit) regressions for two of the RRI variables. RRI RATING needs to be left out since the ivtobit estimator is not appropriate for use with discrete endogenous covariates. The first-stage results (first two columns) indicate that the two instruments are jointly significant with the predicted positive effect on the endogenous regressor. The second-stage results

Table 5
Propensity to pay or increase dividends.

	Dividend payer (DPS>0)			-	Dividend increase (ΔDPS>0)		
	(1)	(2)	(3)		(4)	(5)	(6)
RRI CRNT	0.0140*** (0.006)				0.0057** (0.020)		
RRI PEAK		0.0084*** (0.003)				0.0027* (0.089)	
RRI RATING			0.1633*** (0.000)				0.0457** (0.029)
CSR	1.1255*** (0.000)	1.1567*** (0.000)	1.1630*** (0.000)		0.6689*** (0.000)	0.6837*** (0.000)	0.6798*** (0.000)
LNTA	0.4130*** (0.000)	0.4167*** (0.000)	0.4077*** (0.000)		0.0955*** (0.000)	0.1044*** (0.000)	0.1012*** (0.000)
LNQ	-0.1036 (0.638)	-0.0974 (0.659)	-0.0997 (0.650)		-0.4830*** (0.000)	-0.4749*** (0.000)	-0.4804*** (0.000)
SALESGR	-2.0506*** (0.000)	-2.0345*** (0.000)	-2.0400*** (0.000)		-0.9832*** (0.000)	-0.9837*** (0.000)	-0.9833*** (0.000)
DEBT/TA	-1.1970*** (0.000)	-1.2034*** (0.000)	-1.1852*** (0.000)		-0.7148*** (0.000)	-0.7143*** (0.000)	-0.7123*** (0.000)
ROA	0.0624*** (0.000)	0.0625*** (0.000)	0.0622*** (0.000)		0.0218*** (0.000)	0.0219*** (0.000)	0.0218*** (0.000)
EARNVOL	-0.0378*** (0.006)	-0.0378*** (0.006)	-0.0388*** (0.005)		-0.0184** (0.014)	-0.0179** (0.017)	-0.0182** (0.015)
Constant	-2.8653*** (0.000)	-2.9711*** (0.000)	-3.0821*** (0.000)		-1.0157*** (0.000)	-1.0993*** (0.000)	-1.1161*** (0.000)
Industry FE	Yes	Yes	Yes		Yes	Yes	Yes
Year FE	Yes	Yes	Yes		Yes	Yes	Yes
Wald χ^2	626.33***	620.82***	640.14***		709.34***	712.34***	712.06***
Pseudo R ²	0.2300	0.2303	0.2315		0.0537	0.0535	0.0536
N observations	10,886	10,886	10,886		10,886	10,886	10,886

ΔDPS>0) in columns 4–6. All variables are defined in Appendix A. Standard errors are clustered by firm. P-values are reported in parentheses. ***, **, and * indicate statistical significance at the 1 %, 5 %, and 10 % level, respectively.

Table 6
Instrumental variable Tobit regressions.

	First stage		-	Second stage	
	RRI CRNT	RRI PEAK		DIV/MV	DIV/MV
	(1.1)	(2.1)		(1.2)	(2.2)
RRI CRNT				0.2168*** (0.009)	
RRI PEAK					0.1530*** (0.000)
STATE VOTE	4.7327** (0.025)	7.8249*** (0.006)			
IND RRI CRNT	0.3990*** (0.005)				
IND RRI PEAK		0.4302*** (0.000)			
CSR	4.0970*** (0.001)	2.3326 (0.179)		-0.2366 (0.603)	0.3039 (0.309)
LNTA	3.9180*** (0.000)	5.5711*** (0.000)		-0.7228** (0.027)	-0.7231*** (0.001)
LNQ	4.3414*** (0.000)	5.7838*** (0.000)		-0.9809*** (0.009)	-0.9113*** (0.001)
SALESGR	-2.9731*** (0.000)	-6.5765*** (0.000)		-0.9963*** (0.001)	-0.6261** (0.043)
DEBT/TA	2.7680*** (0.008)	4.8382*** (0.004)		-0.4941 (0.186)	-0.6829* (0.061)
ROA	0.0515*** (0.003)	0.0920*** (0.001)		0.0433*** (0.000)	0.0398*** (0.000)
EARNVOL	0.2878*** (0.000)	0.4124*** (0.000)		-0.0831*** (0.002)	-0.0829*** (0.000)
Constant	-34.1452*** (0.000)	-47.0027*** (0.000)		5.9159** (0.024)	5.3515*** (0.001)
Year FE	Yes	Yes		Yes	Yes
Exogeneity test				6.26** (0.0124)	13.06*** (0.0003)
N observations	10,886	10,886		10,886	10,886

the dividend yield, measured by cash dividends scaled by the market value of equity. The endogenous regressors (RRI CRNT and RRI PEAK) are instrumented by the percentage of Republican votes in the State where the firm is headquartered (STATE VOTE) and the average CSI perception of the firm’s industry excluding the firm (IND RRI CRNT, IND RRI PEAK). All variables are defined in Appendix A. Standard errors are clustered by firm. P-values are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

(last two columns) confirm that the perception of CSI has a significant positive effect on dividend payout.

Using the same set of instruments, we run two-stage least squares (2SLS) regressions since they provide useful diagnostic tests regarding the instruments but pay no attention to the estimated coefficients, which could be biased given that dividend payments are bounded below 0. The Cragg-Donald test (equivalent to an F-test) confirms that the instruments are not weak, as its value is well above the critical level suggested by Stock and Yogo (2005). The Hansen J-test also shows that the over-identification restrictions are satisfied, confirming that the instruments are effectively exogenous (uncorrelated with the error term).

Overall, the results indicate that higher dividend payout is likely induced by a greater perception of CSI. The use of instruments boils down to retaining the exogenous variation in the perception of CSI that is not correlated with dividend payout. This idea is illustrated with the use of industry-level perception of CSI as an instrument when negative media coverage of a competitor's CSI reminds the public about past incidents involving the firm, thus raising public awareness of the firm's CSI record that is obviously independent of the firm's payout policy.

4.5.2. Entropy balancing approach

Another concern is that the relationship between the perception of CSI and corporate payout arises because of inherent differences in characteristics between responsible and irresponsible firms. A typical solution is to match each irresponsible (called treated) firm with a responsible (called control) firm according to a propensity score constructed using a set of observable firm characteristics (or covariates). The limitation of propensity score matching (PSM) is that balance may not be achieved for each covariate across treatment and control firms although the two groups may be perfectly balanced along the propensity score. In some cases, a covariate may even be less balanced following matching. Furthermore, finding an adequate match for some treated firms may not always be possible, resulting in the loss of these observations. Unmatched firms from the control group would also be dropped, which can lead to a sharp decrease in the matched sample size when there are few treated firms (e.g., firms charged for fraud or involved in other forms of misconduct).

To circumvent this problem, we use entropy balancing, a generalized multivariate propensity score weighting approach. This approach is also used by Burke (2022), Fadaliou et al. (2022), and Hasan et al. (2022). In essence, entropy balancing weights the observations of the control group

Table 7
Regressions using entropy-balanced sample.

Panel A: Moments of unmatched sample						
	Treatment group: High RRI CRNT			Control group: Low RRI CRNT		
	Mean (1)	Variance (2)	Skewness (3)	Mean (4)	Variance (5)	Skewness (6)
CSR	0.0826	0.0399	0.919	0.0043	0.0150	1.768
LNTA	9.1160	2.7550	0.079	7.5880	1.8740	0.185
LNQ	0.2146	0.0782	1.735	0.2618	0.1117	1.444
SALESGR	0.0300	0.0315	-0.325	0.0594	0.0416	-0.041
DEBT/TA	0.2619	0.0325	0.820	0.2298	0.0393	0.966
ROA	4.6720	61.080	-1.542	3.6500	90.890	-1.884
EARNVOL	2.5260	10.830	3.382	3.0670	16.050	2.965

Panel B: Moments of matched sample						
	Treatment group: High RRI CRNT			Control group: Low RRI CRNT		
	Mean (1)	Variance (2)	Skewness (3)	Mean (4)	Variance (5)	Skewness (6)
CSR	0.0826	0.0399	0.919	0.0825	0.0330	1.055
LNTA	9.1160	2.7550	0.079	9.1140	2.7580	0.087
LNQ	0.2146	0.0782	1.735	0.2147	0.0751	1.775
SALESGR	0.0300	0.0315	-0.325	0.0300	0.0323	-0.360
DEBT/TA	0.2619	0.0325	0.820	0.2618	0.0342	0.794
ROA	4.6720	61.080	-1.542	4.6650	61.530	-1.619
EARNVOL	2.5260	10.830	3.382	2.5290	10.910	3.245

Panel C: Regression results using entropy-balanced sample						
	Dependent variable: DIV/MV			Dependent variable: PAY/MV		
	(1)	(2)	(3)	(4)	(5)	(6)
RRI CRNT	0.0115*** (0.000)			0.0170*** (0.000)		
RRI PEAK		0.0082*** (0.000)			0.0113*** (0.000)	
RRI RATING			0.1103*** (0.000)			0.1185*** (0.000)
Other controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R ²	0.290	0.279	0.274	0.269	0.280	0.256
N observations	10,886	10,886	10,886	10,886	10,886	10,886

This table reports the results of Tobit regressions of corporate payout on CSI perception using an entropy-balanced sample. Panel A compares the moments of the covariates across the treated and control groups. Panel B compares the moments of the treated and entropy-balanced control groups. High RRI CRNT (Low RRI CRNT) is a dummy variable indicating that RRI CRNT is above (below) the sample median. Panel C reports the results of Tobit regressions using the entropy-balanced sample. The dependent variable is dividend yield (DIV/MV) or total payout yield (PAY/MV). All variables are defined in Appendix A. P-values are reported in parentheses. ***, **, * indicate significance at the 1%, 5% and 10% level, respectively.

so that the mean, variance, and skewness of all covariates are balanced across the treatment and control groups. This weighting scheme allows observations that would have been dropped to remain in the sample, albeit with a small weight. At the same time, entropy balancing strives to maintain the weights as equal as possible (Hainmueller, 2012). The observations of the treated group and the adequately weighted observations of the control group can then be used in place of the original sample.

Table 7 compares the unbalanced (original) and entropy-balanced samples in Panels A and B. The treatment group consists of firms with a current RRI above the median, while the control group consists of firms with a current RRI below the median in the same year. It can be seen from Panel A that control firms are, on average, smaller, less profitable, and less responsible (lower CSR) than treated firms. In addition, control firms exhibit higher growth rates and investment opportunities (higher Tobin's Q) and higher earnings volatility. Differences in variance and skewness are also sizeable. Panel B shows that after balancing, the means of the treatment and control groups are indistinguishable. Only small differences in variance and skewness persist.

Panel C shows the results of weighted Tobit regressions using the entropy-balanced sample. All three measures of CSI perception have a positive and highly significant effect on dividend and total payout yields, consistent with the signaling hypothesis. These findings confirm our previous results and suggest that they are not driven by inherent differences in characteristics between irresponsible (high current RRI) and responsible (low current RRI) firms. As a further robustness check, we replicate the analysis using the median of peak RRI to form the treatment and control groups and find essentially the same results. More substantially, we require balance over additional governance-related characteristics, given that any difference in governance quality may prompt firms to react differently to public perception of CSI. These characteristics include the G-index, the size, independence, and share ownership of the board, the share ownership of blockholders, and the CEO's age and gender. Comparison of treated and control firms reveals that treated firms have significantly larger boards than control firms (with 15.13 directors against 11.95 directors) and a larger number of anti-takeover provisions (about 6.5 against 4.5), which is likely due to their larger size (as already noted). The regression results using this more finely balanced sample are similar and thus left out to conserve space.

4.5.3. Difference-in-differences approach

Our third approach uses a difference-in-differences design on a matched sample of firms to estimate how an unexpected jump in the perception of a firm's CSI might affect its payout. The first step involves identifying a sample of "treated" firms whose CSI indicators increase from zero to a positive (non-zero) value during the current year, indicating that CSI incidents involving these firms have been reported in the media, whereas no such incidents have been reported in the previous years. This would indicate that the change in the CSI indicators of these firms is essentially exogenous in the sense that there is news suddenly attracting the public's attention to the fact these firms could be irresponsible. In parallel, we collect a group of firms whose CSI indicators remain at zero throughout the period and use these firms as the "control" group.

The second step involves running a logit model using both groups to estimate the propensity score of belonging to the "treated" group based on their pre-treatment characteristics. We then pair each treated firm with its nearest control firm based on the propensity score. This procedure returns 3,904 observations for the treated group and a smaller number of 3,050 observations for the control group as we allow the same match to be used for different treated firms. The total sample size is thus 6,954 observations. Lastly, we ensure that the common trend assumption is satisfied by checking that there are no significant differences in firm characteristics between treated and control firms after matching.

Table 8 reports the difference-in-differences regression results using

Table 8
Difference-in-differences regressions using PSM-matched sample.

	Dependent variable: DIV/MV			
	(1)	(2)	(3)	(4)
TREATED×POST	0.0211*** (0.001)			
RRI CRNT		0.0951*** (0.000)		
RRI PEAK			0.0803*** (0.000)	
RRI RATING				0.0744*** (0.001)
CSR	-0.1965 (0.295)	0.5379 (0.756)	0.3567 (0.836)	0.3086 (0.858)
LNTA	0.1804*** (0.000)	0.1585*** (0.000)	0.1436*** (0.000)	0.1648*** (0.000)
LNQ	-0.0087 (0.274)	0.0148** (0.026)	0.0141** (0.045)	0.0149** (0.034)
SALESGR	-0.0012*** (0.000)	-0.0014*** (0.000)	-0.0014*** (0.000)	-0.0014*** (0.000)
DEBT/TA	-0.0033* (0.073)	-0.0025 (0.114)	-0.0026 (0.104)	-0.0026 (0.108)
ROA	0.0677*** (0.000)	0.0501*** (0.000)	0.0498*** (0.000)	0.0500*** (0.000)
EARNVOL	-0.0009 (0.262)	-0.0015** (0.018)	-0.0015** (0.017)	-0.0015** (0.018)
Constant	-0.2084** (0.030)	-0.9046*** (0.002)	-0.9019*** (0.000)	-0.9248*** (0.000)
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
F value	40.09***	35.25***	35.91***	34.82***
Pseudo R ²	0.5556	0.8660	0.8753	0.8652
N observations	6,954	6,954	6,954	6,954

This table presents the results of Tobit regressions using a propensity-score matched sample where treated firms are paired with control firms using a propensity score based on pre-treatment firm characteristics. The dependent variable is the dividend yield, measured by cash dividends scaled by the market value of equity. All variables are defined in Appendix A. Standard errors are clustered by firm. P-values are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

the matched sample. Compared to the general case, there is no dummy variable for the "treated" group since both treated and control firms are selected based on having CSI indicators equal to zero before the treatment. There is no dummy variable for the "post" period, as we impose the CSI indicators to remain at zero for the control firms. Hence, the only relevant dummy is the interaction between the dummy for "treated" and the dummy for "post" treatment.

Column 1 shows that the coefficient of this term is positive and highly significant. Specifically, it indicates that the dividend yield is, on average, 2.11 % higher compared to the case where these firms had not received negative media reports (using the matched control firms to represent this counterfactual). In columns 2–4, we replace the above interaction term with the three CSI indicators. Since these indicators are equal to zero in the pre-treatment period and remain at zero in the post-treatment period for the control group, they play the same role as the interaction term (POST×TREAT). The only difference is that they involve the magnitude of the perceived CSI regarding the treated firms. The results for each CSI indicator confirm that when firms experience an increase in their perceived CSI, their dividend payout will tend to increase.

4.6. Further support for the signaling hypothesis

4.6.1. The moderating effect of growth opportunities

The positive relationship between the perception of CSI and corporate payout that we have confirmed so far is grounded on the premise that firms perceived as irresponsible need to signal, using higher dividends, that their future cash flows are safer than what investors believe or that they intend to take steps to avert the future occurrence of a

similar CSI incident, thus also decreasing the risk to their future cash flows.

In this section, we further propose that firms with more growth opportunities have *stronger incentives to signal* using higher dividends and empirically test this prediction. At first sight, this might seem counter-intuitive, as growth firms may prefer to retain rather than distribute their cash to fund their more numerous projects. However, doing so would lower their share price, implying that they are unsure about their ability to overcome their current problems. External funding would thus become more expensive, potentially wiping out the profitability of their future projects. Accordingly, firms may prefer to bear the cost of signaling using higher dividends if this can convince investors that their risk is controlled and that their cash flows are safe (Michaely et al., 2021). Given the obvious cost of dividend signaling, investors appear to be satisfied that the signal is truthful as they push up share prices and reduce CDS spreads (Sun et al., 2021).

Firms with more growth opportunities would benefit more from lower external funding costs, which is critical because they need greater external funds for their investments. It follows that dividend signaling would be entirely justified because its immediate cost would be offset by the lower expected cost of capital that firms would achieve. In fact, the more growth opportunities firms have, the higher the cost of signaling they can afford, which suggests a higher dividend payout relative to firms with fewer growth opportunities.

To test this proposition, we add to our basic specification interaction terms between the RRI variable(s) and three indicators of high growth opportunities commonly used in the literature: 1) High Tobin's Q (Hi LNQ), 2) High capital expenditures over total assets (Hi CAPEX), and 3) High sales growth (Hi SGR). The results are presented in Table 9. Columns 1–3 involve current RRI, while columns 4–6 involve peak RRI. It can be seen that the coefficients on the interaction terms are all positive and significant. However, the more significant results are achieved using Tobin's Q regardless of the proxy for the firm's CSI perception (columns 1 and 4).

Overall, we find that the relationship between perception of CSI and corporate payout is more pronounced for firms with high external funding needs as indicated by higher levels of capital expenditures and sales growth, and, more importantly, higher Tobin's Q. This can easily be explained by the requirement for them to reassure their shareholders that the risk involved in the reported CSI incidents is under control as

these firms are likely to require large amounts of external funds in the future.

4.6.2. Market valuation effects

To further validate the signaling hypothesis that firms viewed as irresponsible can benefit from paying higher dividends, we examine the market valuation effect of dividend payments and, more specifically, the difference in valuation between irresponsible (high RRI) firms and responsible (low RRI) firms. This analysis is performed by fitting the Pinkowitz, Stulz, & Williamson (2006) valuation model adapted from Fama and French (1988), which explains the cross-sectional variation in firm values well. The model can be written as follows:

$$\begin{aligned} \text{Tobin's } Q = & \beta_0 + \beta_1 \frac{NI}{TA} + \beta_2 \frac{\Delta^B NI}{TA} + \beta_3 \frac{\Delta^F NI}{TA} + \beta_4 \frac{\Delta^B TA}{TA} + \beta_5 \frac{\Delta^F TA}{TA} + \beta_6 \frac{\Delta^F MV}{TA} \\ & + \beta_7 \frac{R\&D}{TA} + \beta_8 \frac{\Delta^B R\&D}{TA} + \beta_9 \frac{\Delta^F R\&D}{TA} + \beta_{10} \frac{INT}{TA} \\ & + \beta_{11} \frac{\Delta^B INT}{TA} + \beta_{12} \frac{\Delta^F INT}{TA} + \beta_{13} \frac{CASH}{TA} + \beta_{14} \frac{\Delta^B CASH}{TA} \\ & + \beta_{15} \frac{\Delta^F CASH}{TA} + \beta_{16} \frac{DIV}{TA} + \beta_{17} \frac{\Delta^B DIV}{TA} + \beta_{18} \frac{\Delta^F DIV}{TA} + \varepsilon \end{aligned}$$

Tobin's Q is measured by the market value of assets (i.e., total assets plus market value of equity less book value of equity) scaled by total assets. NI is net income, TA is total assets, MV is the market value of equity, R&D is research and development expenses, INT is interest payments, CASH is cash and equivalents, and DIV is either cash dividends or total payout. For any variable X, $\Delta^B X$ denotes the change in X between year t-1 and year t, while $\Delta^F X$ denotes the change in X between year t and year t + 1. All the right-hand side variables are scaled by total assets in year t.

Consistent with Pinkowitz et al. (2006), we split the sample between high RRI and low RRI firms, using the median of current or peak RRI, and focus on the difference in the coefficient of DIV/TA across the two groups. Note that we are required to substitute DIV/TA for DIV/MV to avoid a multicollinearity issue with Tobin's Q. Panel A in Table 10 shows that dividends have a positive valuation effect regardless of the perception of the firm's CSI.

However, the dividend payments of firms perceived as more irresponsible (columns 1 and 4) have a *larger* positive effect on firm value

Table 9
Moderating effect of firm growth.

	Hi GRTH measured by					
	Hi LNQ (1)	Hi CAPEX (2)	Hi SLGR (3)	Hi LNQ (4)	Hi CAPEX (5)	Hi SLGR (6)
RRI CRNT	0.0035 (0.217)	0.0062** (0.037)	0.0074*** (0.007)			
RRI CRNT×Hi GRTH	0.0127*** (0.000)	0.0078** (0.013)	0.0063** (0.010)			
RRI PEAK				0.0039** (0.037)	0.0056*** (0.002)	0.0067*** (0.000)
RRI PEAK×Hi GRTH				0.0081*** (0.000)	0.0055*** (0.007)	0.0027* (0.088)
Hi GRTH	0.2639*** (0.001)	-0.1644** (0.016)	-0.3378*** (0.000)	0.2140** (0.011)	-0.2074*** (0.006)	-0.3281*** (0.000)
Other controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
F value	33.13***	31.27***	32.42***	33.04***	31.29***	32.46***
Pseudo R ²	0.1005	0.096	0.0978	0.1019	0.0975	0.0989
N observations	10,886	10,886	10,886	10,886	10,886	10,886

This table reports the results of Tobit regressions of corporate payout on CSI perception. The dependent variable is dividend yield (DIV/MV). CSI perception is measured by RRI CRNT or RRI PEAK. The moderating variable is a dummy (Hi GRTH), indicating that the proxy for firm growth (LNQ, CAPEX, SALESGR) is above the sample median. LNQ is the log of Tobin's Q, measured by the market value of assets over the book value of assets. CAPEX is capital expenditures scaled by total assets. SALESGR is the percentage change in sales over the previous year. All variables are defined in Appendix A. Standard errors are clustered by firm. P-values are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Table 10
Valuation effects of corporate payout.

	High RRI CRNT (1)	Low RRI CRNT (2)	(3)	High RRI PEAK (4)	Low RRI PEAK (5)	(6)
Panel A: Payout measured by DIV/TA						
DIV/TA	0.3154*** (0.000)	0.2244*** (0.000)	0.0911** (0.022)	0.3134*** (0.000)	0.2249*** (0.000)	0.0885** (0.027)
Δ^B DIV/TA	0.04808 (0.226)	-0.0345 (0.307)		0.0355 (0.361)	-0.0290 (0.399)	
Δ^F DIV/TA	0.0095 (0.730)	-0.0014 (0.947)		0.0204 (0.456)	-0.0057 (0.787)	
Other controls	Yes	Yes		Yes	Yes	
Industry FE	Yes	Yes		Yes	Yes	
Year FE	Yes	Yes		Yes	Yes	
Adj. R-squared	0.208	0.195		0.211	0.194	
Observations	5.432	5.454		5.438	5.448	
Panel B: Payout measured by PAY/TA						
PAY/TA	0.1231*** (0.000)	0.0690*** (0.000)	0.0541*** (0.005)	0.1202*** (0.000)	0.0770*** (0.000)	0.0432** (0.028)
Δ^B PAY/TA	-0.0099** (0.020)	0.0003 (0.911)		-0.0114*** (0.008)	0.0014 (0.649)	
Δ^F PAY/TA	0.0114** (0.014)	0.0077** (0.012)		0.0134*** (0.004)	0.0075** (0.013)	
Other controls	Yes	Yes		Yes	Yes	
Industry FE	Yes	Yes		Yes	Yes	
Year FE	Yes	Yes		Yes	Yes	
Adj. R-squared	0.207	0.197		0.207	0.200	
Observations	5.432	5.454		5.438	5.448	

This table reports the results of firm value regressions following Pinkowitz et al. (2006). The dependent variable is Tobin's Q, measured by the market value over the book value of assets. In Panel A, the main explanatory variables are dividends to total assets (DIV/TA), and their change over the previous year (Δ^B DIV/TA) and over the following year (Δ^F DIV/TA). In Panel B, the main explanatory variables are total payout to total assets (PAY/TA), and their change over the previous year (Δ^B PAY/TA) and over the following year (Δ^F PAY/TA). The sample is split into two groups using the median of RRI CRNT in columns 1–2 and the median of RRI PEAK in columns 4–5. Columns 3 and 6 highlight the differential effect of corporate payout according to CSI perception of the firm (high versus low). All variables are defined in Appendix A. Standard errors are clustered by firm. P-values are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

than those of firms perceived as less irresponsible (columns 2 and 5). The difference (in columns 3 and 6) is significant at the 5% level. In Panel B, we use total payout instead of cash dividends and find qualitatively similar results. Interestingly, future changes in total payout appear to translate into changes in Tobin's Q in the same direction.

Overall, the results indicate that firms benefit from paying higher dividends in the form of higher market values, particularly if they are perceived as irresponsible (high RRI). This can be explained by the fact that the CSI incidents causing some firms to be viewed as irresponsible induce greater uncertainty regarding the future cash flows of the firms in

Table 11
Effect of signaling on subsequent change in CSI indicator and sales growth.

	Δ RRI (t + 1)			Sales growth (t + 1)		
	(1)	(2)	(3)	(4)	(5)	(6)
RRI CRNT	-0.9537** (0.000)			-0.0258*** (0.000)		
..... × DIVUP	-0.1540*** (0.000)			0.0199** (0.030)		
RRI PEAK		-0.1760*** (0.000)			-0.0206*** (0.001)	
..... × DIVUP		-0.1826*** (0.000)			0.0222** (0.013)	
RRI RATING			-0.8417*** (0.000)			-0.0171*** (0.009)
..... × DIVUP			-0.1752*** (0.000)			0.0203** (0.022)
DIVUP	0.1656*** (0.000)	0.3123*** (0.000)	0.4636*** (0.000)	-0.0274*** (0.000)	-0.0277*** (0.000)	-0.0276*** (0.000)
Other controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
F value	220.92***	154.34***	159.66***	18.45***	17.82***	17.89***
Adj. R-squared	0.3151	0.3146	0.2386	0.0427	0.0421	0.0418
N observations	9,691	9,691	9,691	9,691	9,691	9,691

This table reports the results of panel regressions of change in the RRI values (columns 1–3) and sales growth (columns 4–6) on the RRI level and its interaction with a dummy indicating an increase in the firm's dividend yield (DIVUP). All variables are defined in Appendix A. Standard errors are clustered by firm. P-values are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

that group. Therefore, the latter’s incentives to signal their low risk are stronger. However, only those firms paying higher dividends can distinguish themselves as having less risk to their future cash flows (and achieve higher valuations).

4.6.3. Are dividends credible signals?

While the difference in market valuation for firms that pay or do not pay higher dividends provides a strong endorsement for the signaling hypothesis, it remains to be seen whether firms that pay higher dividends are effectively more socially responsible and, therefore, less risky, as their signaling behavior suggests. To do so, we examine the change in the perception of the firm’s CSI as well as the firm’s sales growth and cost of debt in the subsequent (t + 1) period. If firms paying higher dividends are truly more responsible, their RRI value should decrease more rapidly compared to the RRI value of firms that pay lower dividends. Their sales should also suffer less after the reported CSI incident, meaning their sales growth should be higher. Likewise, their cost of debt is expected to be lower relative to firms that did not signal their better quality by paying higher dividends.

The results in Table 11 show the effect of paying higher dividends according to the firm’s CSI indicators. Columns 1–3 show that firms with high RRI values are more likely to experience a decrease in their CSI indicators. However, firms paying higher dividends are associated with a more significant decrease in their CSI indicators. Columns 4–6 show that sales growth is negatively impacted by the perception of the firm’s CSI. However, when firms use higher dividends to signal their more favorable situation, their sales fall less.

Overall, the results confirm that higher dividends carry credible information. They signal that the negative news reported in the media is unlikely to significantly affect the signaling firms’ cash flows or that these firms are well-positioned to address the issues involved in the reported CSI incidents. In fact, their CSI indicators are found to revert more quickly towards zero while their sales suffer much less. These outcomes validate the more favorable valuations that investors attach to firms that pay higher dividends relative to firms that pay lower dividends.

In Table 12, we examine the effect of dividend signaling on the cost of debt. Since we do not have data on bank loan contracts (Becchetti & Manfredonia, 2022) or CDS spreads (Köbel et al., 2017), we use the

ratio of interest payments to total outstanding debt. This indicator can only be a crude approximation of the current cost of debt for the reason that it mostly reflects past contractual terms. To increase its accuracy, we divide the sample by distinguishing firms according to their debt maturity. The idea is that firms with a lower debt maturity (i.e., more short-term debt maturing in less than a year) will need to renew a larger proportion of their debt in the next period. It follows that their interest payments (in the next period) are more likely to reflect their new borrowing conditions.

Columns 1–2 show that firms with high current RRI values benefit from a lower cost of debt following dividend increases. Moreover, the effect is significantly stronger for firms with a lower debt maturity as the latter can more quickly benefit from more favorable terms on their new loans. In contrast, firms with a higher debt maturity will have to wait longer (for instance, until their current long-term debt is renewed after it has reached maturity). Columns 3–6 confirm this finding using the two alternative RRI measures. Overall, the results appear to validate the signaling hypothesis and, more specifically, the credibility of dividends as signals that firms can use to communicate favorable private information to their capital providers.

5. Discussion

Our analysis provides robust evidence that firms are likely to pay higher dividends following negative media coverage about their involvement in CSI incidents. This result is intriguing in light of what is commonly known regarding the determinants of corporate payout policy.

5.1. Regarding the effect of CSR on dividend policy

Existing research shows that socially responsible firms tend to pay higher dividends (Benlemlih, 2019; Cheung et al., 2018; Dai et al., 2022), which we also incidentally find. Assuming CSI to be the opposite of CSR, one would thus expect CSI to be associated with lower dividends. The fact that we find the opposite result implies that CSI cannot be construed as simply the opposite of CSR.

Earlier analyses define CSR as engaging in voluntary corporate actions that positively impact stakeholders, while CSI is depicted as

Table 12
Effect of signaling on subsequent cost of debt.

	INT/DEBT (t + 1)					
	Low DM (1)	High DM (2)	Low DM (3)	High DM (4)	Low DM (5)	High DM (6)
RRI CRNT	0.0032 (0.605)	-0.0031 (0.637)				
..... × DIVUP	-0.0079*** (0.000)	-0.0061* (0.073)				
RRI PEAK			0.0068 (0.289)	-0.0075 (0.257)		
..... × DIVUP			-0.0042*** (0.001)	-0.0007 (0.717)		
RRI RATING					-0.0029 (0.633)	-0.0011* (0.071)
..... × DIVUP					-0.0044*** (0.000)	-0.0021 (0.257)
DIVUP	-0.0064 (0.127)	-0.0049 (0.923)	-0.0063 (0.134)	-0.0018 (0.710)	-0.0054 (0.195)	-0.0028 (0.956)
Other controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
F value	12.07***	8.73***	11.30***	8.49***	11.53***	8.82***
Adj. R-squared	0.251	0.261	0.250	0.260	0.251	0.261
N observations	4,249	4,706	4,249	4,706	4,249	4,706

This table reports the results of panel regressions of interest payments over total debt (INT/DEBT) in the next period on the RRI level and its interaction with a dummy indicating an increase in the firm’s dividend yield (DIVUP). The sample is split according to the firm’s debt maturity (DM). All variables are defined in Appendix A. Standard errors are clustered by firm. P-values are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

engaging in actions that cause harm to stakeholders (Campbell, 2007; Lin-Hi & Müller, 2013; Strike et al., 2006). This prompts Jones et al. (2009) to position CSR and CSI at opposite ends on a continuous scale. As a result, a firm's social performance can be measured by the difference between its CSR and CSI scores. A typical example is MSCI's (formerly KLD's) net CSR score applicable to US firms, calculated by subtracting CSR concerns from CSR strengths. In this setting, a firm can offset its irresponsible practices by undertaking activities associated with positive social impacts. In particular, firms producing negative externalities (e.g., harmful emissions) can improve their social performance by contributing to the welfare of affected communities (e.g., by providing employment opportunities or making charitable donations).

However, CSR and CSI are increasingly considered distinct concepts with their own dynamics (Kang et al., 2016). It follows that conclusions derived from the study of CSR cannot be used to infer that the opposite is true using CSI. In some cases, CSR and CSI may have the same directional effect, as we find with dividend payments. But even when CSR and CSI have opposite effects, the intensity of these effects may be quite different. For instance, Price and Sun (2017) show that CSI has a stronger and longer-lasting negative effect on firm value compared to CSR. Likewise, Kölbel et al. (2017) observe that CSI increases financial risk much more than CSR is able to decrease that risk. As a rule, CSI and CSR should both be included to capture their specific effects. A useful extension may also be to add an interaction term between CSR and CSI to investigate whether the negative effects of CSI allegations can be mitigated by a positive CSR performance or vice-versa (Price & Sun, 2017).

5.2. Regarding the effect of risk on dividend policy

Consistent with a precautionary motive, studies show that firms pay lower dividends when they anticipate a risk to their future cash flows. This is the case following the outbreak of a financial crisis (Bliss et al., 2015), a competitor's entry into their product markets (Hoberg et al., 2014), or impending litigation (Arena & Julio, 2023). Firms also pay lower dividends when they have higher fixed costs (Kulchania, 2016) or higher resource adjustment costs (He et al., 2020) and, in particular, higher labor adjustment costs (Nguyen & Qiu, 2022). The reason is that any reduction of their revenue stream would translate into a bigger drop in their cash flow that may put them under financial pressure.

CSI incidents reported in the media also involve significant cash flow risk. Firms can expect their sales to fall as consumers boycott their products (Lim & Shim, 2019; Sweetin et al., 2013; Valor et al., 2022) or clamor for stricter regulation (Baron & Diermeier, 2007; Reid & Toffel, 2009). Nevertheless, we find that CSI incidents are associated with higher dividends. This means that the case we analyze is clearly different from the cases described above, where the firm's future cash flows are also at risk. In these cases, firms pay lower dividends with the sole aim of mitigating a looming cash shortfall. There is little or no need for them to worry about revealing unfavorable information that investors would not already have. The latter can similarly observe the entry of a competitor or the escalation of commercial disputes leading to a lawsuit. They would also be aware of the outbreak of a financial crisis. Accordingly, there are no opportunities for firms to convey any useful private information regarding the distribution of their future cash flows.

With a CSI incident, firms tend to have more information regarding the severity of the incident and the cost of mitigating its consequences. For instance, firms that genuinely care about the environment and take the proper steps to avoid environmental damages would be more willing to pay higher dividends following an accidental release of waste materials to back up their claims that this was an accident unlikely to be repeated. Because they would know more about their intentions and actual efforts, which are not readily observable, firms have private information that is unknown to market participants. CSI incidents provide the incentive to reveal that information using dividend policy. Given that paying dividends is costly, as it depletes the firm's cash reserves and thus increases the risk of financial distress, only responsible firms

embroiled in a CSI incident would find it worthwhile to pay higher dividends to signal themselves as socially responsible. The fact that they subsequently achieve higher valuation ratios and can borrow funds at a lower cost supports this argument.

Hence, firms choose to incur the cost of decreasing their cash buffer to preserve their ability to access financial markets for future funding needs. This is emphatically illustrated by the case of rapidly growing firms and those with more investment opportunities. While they should normally retain as much cash as possible to fund their many promising projects, these firms are most likely to increase their dividends because continued access to external financing is much more critical to their future growth and development.

5.3. Regarding the signaling role of dividends

After an initial burst of interest, research regarding the signaling theory of dividends (Bhattacharya, 1979; John & Williams, 1985; Miller & Rock, 1985) gradually faded as it appeared that dividend changes could not reliably predict changes in earnings as the theory suggests (Benartzi et al., 1997; DeAngelo et al., 1996; Grullon et al., 2005). However, recent studies indicate that dividend changes may, after all, contain some useful information.

Sun et al. (2021) show that increases in the dividend-to-price ratio are associated with increases in the firm's share price and decreases in its credit spread. This is all the more remarkable given that the firm's cash reserves are drained, which should logically result in a higher probability of default, all else equal. The explanation of this apparent paradox is that dividend changes convey favorable information regarding the firm's future prospects that were hitherto unknown to investors, hence, their positive reassessment of the firm's value and their lower perception of the firm's default risk. Michaely et al. (2021) focus directly on the second moment of the future cash flow distribution. Their key finding is that dividend increases signal a reduction in the volatility of the cash flows rather than an increase in their level.

Our results resonate with these insights and contribute to enlarging the applications of dividend signaling theory. In our case, firms reported in the media in connection to a CSI incident pay higher dividends to signal that they are more responsible and more willing to take actions compared to other firms involved in similar incidents. This means the risk to their future cash flows is not as high as investors might fear. One reason is that such incidents are less likely to occur if firms are truly responsible. By showing greater concern for the core interests of their stakeholders, these firms have also accumulated significant goodwill. As a result, they are less prone to suffer from stakeholder retaliations (Bechwati & Morrin, 2003; Grappi et al., 2013; Kim & Park, 2020) or boycotts (Lim & Shim, 2019; Sweetin et al., 2013). It follows that their future cash flow is not in serious danger. Consistent with Michaely et al. (2021), investors seem to adopt the same view as they assign higher valuations to firms that signal themselves as socially responsible. Besides, the perception of CSI decreases rapidly in the following year, thus confirming the truthfulness of the dividend-related signal.

6. Conclusion

In this paper, we investigate the effect of CSI perception on corporate payout. While it can make sense for firms perceived as irresponsible to pay lower dividends as they face higher external financing costs (Kölbel et al., 2017) and constraints (Fafaliou et al., 2022), we find the opposite result, i.e., a positive relationship between CSI perception and corporate payout. We show that this result remains valid for various payout measures and indicators of CSI perception. This result is also robust to controls for endogeneity using instrumental variables to isolate the exogenous variation in CSI perception, entropy balancing to closely match the characteristics of responsible and irresponsible firms, and a difference-in-differences approach on a subsample of firms whose CSI perception undergoes a plausibly exogenous shock.

The causal interpretation of the above relationship is reinforced by the finding that firms perceived as irresponsible are more likely to increase their dividends in addition to being dividend payers. Furthermore, firms pay higher dividends when they are more likely to require external financing, as their higher growth rates and investment opportunities suggest. The motivation for paying higher dividends hinges on their signaling benefits. Because dividends tend to deplete cash reserves, they are intrinsically costly, making them credible signals that firms have the situation under control or are in a better position to mitigate the fallout from the CSI incidents reported in the media.

These signaling benefits explain why the value of dividends is higher for firms perceived as irresponsible, hence motivating them to pay higher dividends but also encouraging them to improve their CSR performance. We find that the CSI indicators of these firms revert more quickly toward zero. Overall, this paper provides evidence that corporate payout is positively affected by CSI perception. It thus contributes to the literature regarding the determinants of dividend policy. It also underlines the usefulness of dividend policy as a signaling tool to convey favorable private information and improve public perception, as recent studies have found (e.g., [Michaely et al., 2021](#); [Sun et al., 2021](#)).

CRedit authorship contribution statement

Pascal Nguyen: Writing – review & editing, Supervision. **Nahid**

Appendix A. Variable definitions

Variable	Definition	Source
DIV/MV	Cash dividend / market capitalization	Compustat/CSRP
DIV/EQ	Cash dividend / book value of equity	Compustat
DIV/TA	Cash dividend / total assets	Compustat
REP/MV	Stock repurchase / market capitalization	Compustat/CSRP
PAY/MV	Cash dividend plus stock repurchase / market capitalization	Compustat/CSRP
PAY/EQ	Cash dividend plus stock repurchase / book value of equity	Compustat
PAY/TA	Cash dividend plus stock repurchase / total assets	Compustat
DDIV	Indicator that the firm pays dividends	Compustat
DPSUP	Indicator that the firm increased its dividend per share	Compustat
DIVUP	Indicator that dividend / market capitalization increased	Compustat/CSRP
RRI CRNT	Current reputation risks index averaged over the year	RepRisk
RRI PEAK	Highest level of reputation risks over the last two years	RepRisk
RRI RATING	Peer and sector adjusted letter-based rating of reputation risk converted into numerical values	RepRisk
CSR	CSR strengths minus CSR concerns over 6 KLD indicators: community relations, diversity, employee relations, environment, human rights, and product safety	MSCI (KLD)
LNTA	Natural log of total assets	Compustat
LNQ	Natural log of (total assets + market value of equity – book value of equity) /total assets	Compustat/CSRP
ROA	Operating income before depreciation and amortization / total assets	Compustat
DEBT/TA	Total debt / total assets	Compustat
SALESGR	Sales(t) / Sales(t-1) – 1	Compustat
EARNVOL	Standard deviation of ROA over last 5 years	Compustat
STATE VOTE	Proportion of Republican votes during the last presidential election	Becchetti and Manfredonia (2022)
IND RRI CRNT	Average of RRI CRNT within the firm’s industry in the same year	RepRisk
IND RRI PEAK	Average of RRI PEAK within the firm’s industry in the same year	RepRisk
IND RRI RATING	Average of RRI RATING within the firm’s industry in the same year	RepRisk
CAPEX	Capital expenditures / total assets	Compustat
INT/DEBT	Interest payments / total debt	Compustat
DM	Long term debt / total debt	Compustat

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Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

The authors do not have permission to share data.

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