

## **Corporate responsibility and corporate misbehavior: are CSR reporting firms indeed responsible?**

**Christine Reitmaier, Wolfgang Schultze, Julia Vollmer**

### **Angaben zur Veröffentlichung / Publication details:**

Reitmaier, Christine, Wolfgang Schultze, and Julia Vollmer. 2025. "Corporate responsibility and corporate misbehavior: are CSR reporting firms indeed responsible?" *Review of Accounting Studies* 30: 1804-72.  
<https://doi.org/10.1007/s11142-024-09850-8>.



# Corporate responsibility and corporate misbehavior: are CSR reporting firms indeed responsible?

Christine Reitmaier<sup>1</sup> · Wolfgang Schultze<sup>1</sup>  · Julia Vollmer<sup>1</sup>

Accepted: 11 July 2024 / Published online: 28 October 2024  
© The Author(s) 2024

## Abstract

We investigate whether firms that proclaim a commitment to corporate social responsibility (CSR) by CSR reporting indeed internalize such a commitment and behave more responsibly. We analyze the association of the issuance and quality of voluntary CSR reports with the occurrence, number, and severity of corporate misbehaviors, both preceding and subsequent to CSR reporting. We find a significantly positive association of CSR reporting with our measures of prior and future misbehavior. The results are corroborated by a quasi-natural experiment around the Rana Plaza disaster where we find that the signatories of an accord for better working conditions have significantly higher prior and future misbehavior relative to non-signatories and firms unaffected by the exogenous shock. Our results are in line with legitimacy theory implying that, on average, the firms' proclaiming commitment to CSR is not a signal of internalized commitment but more likely serves greenwashing and impression management purposes.

**Keywords** Corporate social responsibility (CSR) · Corporate misbehavior · CSR reporting · Real effects · Signaling theory · Legitimacy theory

**JEL Classification** G18 · G32 · K38 · K42 · M41 · M48 · Q01

---

✉ Wolfgang Schultze  
Wolfgang.schultze@wiwi.uni-augsburg.de

<sup>1</sup> Department of Accounting and Control, University of Augsburg, Universitaetsstr. 16, 86135 Augsburg, Germany

## 1 Introduction

Whether firms that publicly proclaim commitment to corporate social responsibility (CSR) indeed internalize such commitments and act responsibly is an unresolved research question.<sup>1</sup> Recent initiatives to regulate CSR reporting, such as the European Non-Financial Reporting Directive 2014/95/EU, consider CSR reporting a means to better align managerial decision-making with stakeholders' interests, that is, to alter firm behavior toward more responsibility (e.g., GRI 2011; Dechow 2023). However, prior empirical evidence on whether CSR reporting is indeed associated with more responsible behavior is inconclusive (see, e.g., Christensen et al. (2021) for a review).

While more and more firms voluntarily disclose CSR information, there is no indication that the number of cases of corporate irresponsibility is decreasing. Media reports reveal misbehavior such as human rights abuse or environmental damage daily. Disclosure theory suggests that firms that signal commitment to CSR should “walk their talk” and reduce misbehavior (Hermalin 2013; Hoi et al. 2013), in line with stewardship theory and the related principle of “what gets measured gets done” (Donaldson and Davis 1991; Davis et al. 1997). Socio-political legitimacy theory (Dowling and Pfeffer 1975), in contrast, argues that firms primarily proclaim a commitment to CSR to legitimize misbehavior and enhance their public reputation (Moneva et al. 2006). Which theory more accurately explains firm behavior is largely an empirical question, which we revisit from a novel perspective.

Prior studies commonly measure CSR-related activities as an aggregate measure of CSR performance. These measures aggregate responsible and irresponsible behavior and thus capture whether one of the two predominates (Hughes et al. 2001; Cormier et al. 2004). This measurement and aggregation issue has been found to be one of the main reasons why prior studies find contradictory evidence about the relation between CSR reporting and corporate (mis)behavior (e.g., Patten 2002; Mattingly and Berman 2006; Strike et al. 2006; Semenova and Hassel 2015; Christensen et al. 2021).

When firms do positive things in some areas to compensate for irresponsible behavior in others, aggregate measures of CSR performance may indicate improvements despite increases in misbehavior (Kotchen and Moon 2012; Adams and Abhayawansa 2022). Such aggregation is highly problematic because irresponsible activities such as corruption, fraud, and child labor are associated with high economic and social costs, whereas responsible activities such as CO<sub>2</sub> reduction and development aid do not have benefits on the same scale and cannot compensate for the irresponsible behavior (Hail et al. 2018). Responsible and irresponsible activities are in fact considered distinct concepts that do not simply describe opposite reflections of CSR but are largely independent of each other and follow different purposes (e.g., McGuire et al. 2003; Strike et al. 2006). We

---

<sup>1</sup> Practitioners and academics interchangeably refer to “corporate responsibility,” “corporate social responsibility (CSR),” “environmental, social, and governance (ESG) issues,” and “sustainability” to describe commitment to sustainable economic development and ethical standards (e.g., VanMarrewijk 2003; Christensen, Hail, and Leuz 2021).

therefore do not examine an aggregate measure of CSR performance, but focus on irresponsible behavior to analyze if firms that proclaim commitment to CSR subsequently avoid misbehavior, in line with Friedman's (1970, 126) demand on firms to stay "within the rules of the game" as well as the EU Taxonomy principle to "do no significant harm" (EU 2019, 4).<sup>2</sup>

To date, to the best of our knowledge, only one study (Christensen 2016) has analyzed the relation of voluntary CSR reporting and a non-aggregated measure of misbehavior. It finds a decline in CSR-related lawsuits subsequent to issuing a CSR report. These results may imply that firms improve their CSR performance subsequent to CSR reporting as they internalize the proclaimed commitments, consistent with the intentions of those who emphasize the stewardship role of disclosure, like the Global Reporting Initiative (GRI) (Christensen 2016). An alternative explanation, however, is that CSR reporting provides a mechanism for successful image improvement, such that legal prosecution decreases while corporate behavior is not improved.

Moreover, prosecuted cases of corporate misbehavior are rare (Mark-Ungericht and Weiskopf 2007), so many cases of misbehavior go unnoticed when using such measures, particularly those that occur in subsidiaries under foreign jurisdiction. In fact, legal prosecution is not the only form of sanctions for corporate irresponsibility, as firms face repercussions from customers and other stakeholders when their public image is harmed. The public media plays a vital role in revealing misbehavior and shaping stakeholders' perceptions (Einwiller et al. 2010; Dube and Zhu 2021). We thus study a broader measure of misbehavior that captures the firms' accountability to the public, based on critical media reports. Moreover, prior literature has only studied the dichotomous decision whether to voluntarily issue a CSR report. We extend this by also considering CSR disclosure quality based on Bloomberg's ESG disclosure score to provide a deeper understanding of the relation between CSR reporting and misbehavior.

We use the independent Corporate Critic Research Database (CCRD), which includes a broad range of summaries of public information on (responsible and irresponsible) corporate behavior (CCRD 2020a). The CCRD is part of the British Ethical Consumer Initiative, which provides ethical ratings based on its research database. It collects firm-specific CSR-related news from all over the world. The database covers all firms that sell products or services in Europe. We identify cases and evaluate the severity of misbehavior based on this information. We define misbehavior as violations of the principles of the United Nations Global Compact (UNGC), which may be considered a consensus on global ethical standards (e.g., Rasche and Waddock 2014).<sup>3</sup> Our measures of corporate irresponsibility thus do not

<sup>2</sup> "There is one and only one social responsibility of business—to use its resources and engage in activities designed to increase its profits so long as it stays within the rules of the game, which is to say, engages in open and free competition without deception or fraud" (Friedman 1970, 126). "Responsible businesses enact the same values and principles wherever they have a presence, and know that good practices in one area do not offset harm in another" (UNGC 2020a).

<sup>3</sup> The UNGC is a worldwide voluntary compact between the United Nations, firms, and other parties (e.g., NGOs and business associations) (UNGC 2020b). The ten UNGC principles encompass human rights, labor, environment, and anti-corruption that reflect responsibility to people, the planet, and long-term corporate success (UNGC 2020a).

focus on only one dimension of CSR, but comprehensively include environmental, social, and governance (ESG) issues. For robustness, we also use the ESG controversy score from Refinitiv as an alternative measure of corporate irresponsibility.

Another feature that distinguishes our study from prior research is that we consider lead-lag relations (Granger 1969), i.e., corporate irresponsibility *before* and *after* CSR reporting. One might expect that firms with (more severe) prior misbehavior continue to engage in (more severe) misbehavior in the future (Treviño 2005; Wu 2014). However, if CSR reporting is indeed a credible signal of increased commitment to CSR, it should foster change and break a direct relation between past and future misbehavior (e.g., Linnenluecke and Griffiths 2010).

Our main sample comprises the firms listed in the Fortune Global 500 between 2003 and 2013. For robustness, we also analyze the period until 2018. We focus on voluntary stand-alone CSR reports based on the GRI guidelines, which have become the de facto standard of CSR reporting (DeVilliers and Alexander 2014). We also consider CSR reports that do not apply the GRI guidelines in robustness analyses. The year 2003 represents the onset of a period of intense CSR reporting (Freundlieb and Teuteberg 2013). Our main sample period ends in 2013 to avoid potential biases due to (1) early adoption of the EU directive 2014/95/EU, which was issued in 2014 and renders CSR reporting mandatory for large European firms as of January 2017; and (2) adoption of the International Integrated Reporting Council's framework, published in December 2013, which commonly leads to CSR reports being combined with annual reports and other reports in a single integrated report that is not captured by the GRI measure. We collect data on misbehavior for the time before and after CSR reporting, covering the period 1999–2018. Compared to prior CSR studies, we use a larger dataset that allows for broader conclusions.

To corroborate our findings, we analyze a second sample that comprises the firms affected by an exogenous shock to textile-related industries. In a quasi-natural experiment, we investigate a different form of proclaiming commitment to CSR. After the Rana Plaza disaster in Bangladesh in 2013, many firms voluntarily signed an accord for better working conditions. We compare the signatories to non-signatories within textile-related industries and to a control group of firms that were not affected by the disaster for the period 2000–2018.

Signaling theory implies that firms that proclaim commitment to CSR are committed to reducing misbehavior. In contrast, legitimacy theory suggests that prior misbehavior increases the likelihood of firms subsequently proclaiming CSR commitment on the surface but not reducing misbehavior. In both samples, we find evidence consistent with legitimacy theory. We find a significantly positive relation between all measures of CSR reporting and prior as well as future misbehavior. Both the number and severity of prior misbehaviors are positively associated with the decision to disclose a CSR report as well as its quality as captured by Bloomberg's ESG disclosure score. On the other hand, the number and severity of future misbehaviors increase subsequent to CSR reporting. This indicates that firms expend higher effort on CSR reporting when they have a history of past misbehavior and expect future misbehavior. These findings are robust to different methods of addressing endogeneity and to alternative variable measurements, model specifications, and sample compositions. Likewise, the quasi-natural experiment

indicates that the signatories have significantly higher misbehavior pre and post 2013, compared to both peer groups. Signatories show an increase in misbehavior after signing the accord, compared to non-signatories of the same industry and a control group of non-textile firms.

Our contribution is twofold: First, we contribute to the literature on the consequences of CSR reporting and greenwashing (e.g., Clarkson et al. 2008; Heflin and Wallace 2017) by focusing on irresponsible behavior identified by critical media reports to resolve measurement issues in prior research. Our results are consistent with the explanation that the firms' proclaiming their commitment to CSR by voluntary CSR reporting or signing an accord for better working conditions is not a signal of internalized responsibility but more likely serves greenwashing purposes. These results are important because in many parts of the world there is an ongoing controversial debate about mandating CSR reporting (e.g., Christensen et al. 2021). Our analyses show that voluntary CSR reporting is not sufficient to alter firm behavior towards more responsibility and is linked to an *increase* in the number and severity of future misbehaviors. However, whether mandatory CSR reporting does better and achieves the goal of indirectly regulating firm behavior through public pressure is up to future research. First supportive evidence is limited to specific contexts like hydraulic fracturing (Bonetti et al. 2023b), greenhouse gas emissions (e.g., Downar et al. 2021; Grewal et al. 2023; Tomar 2023), and climate change risk disclosures under the SEC 2010 rule (Kim et al. 2023), or to positive CSR activities (Fiechter et al. 2022).

Second, we contribute to the literature on the determinants of CSR reporting (e.g., Cormier et al. 2005; Thorne et al. 2014) by identifying prior misbehavior across the broad range of CSR dimensions as an additional determinant of CSR reporting. Knowledge about what motivates voluntary CSR reporting is increasing but still limited (e.g., Hahn and Luelfs 2014; Huang and Watson 2015). Evidence on prior misbehavior as a precedent to CSR reporting is limited to a few case studies (e.g., Bonetti et al. 2023a). Other related studies either restrict misbehavior measurement to the environmental dimension or measure performance and reporting at the same point in time (e.g., Neu et al. 1998; Haddock 2005).

## 2 Related research and hypotheses development

There is a large literature on the consequences of voluntary CSR reporting, including capital market effects and real effects on firm behavior (e.g., Dhaliwal et al. 2011; Matsumura et al. 2014; see Christensen et al. 2021 for a review). These prior studies largely rely on signaling theory or legitimacy theory.<sup>4</sup> According to signaling theory, responsible firms will signal their quality to the market to differentiate themselves from competitors (Akerlof 1970; Spence 1973; Morris 1987). By providing additional information that is hard to mimic, firms with superior CSR performance can signal their concern about and compliance with stakeholders' expectations (Clarkson

<sup>4</sup> Frynas and Yamahaki (2016) provide an overview of theories used in prior studies to explain CSR.

et al. 2008; Plumlee et al. 2015). In line with the stewardship theory of disclosure, additional information improves stakeholders' monitoring and hence the alignment of managerial decisions with stakeholders' interests (Lambert et al. 2007). The use of measurement and control systems for CSR reporting increases firms' awareness of misbehavior and promotes internal self-regulation and responsible corporate governance (Topping 2012; Wu 2014; Adams and Abhayawansa 2022).

Standard setters consider disciplining mechanisms the main reason for mandating CSR reporting (e.g., EC 2021). Yet, it is unclear whether reporting can indeed achieve the aspired real effects. First supportive evidence on mandatory reporting is limited to specific cases of CSR. However, it is unclear whether voluntary CSR reporting would not also be sufficient to achieve the desired real effects (Christensen et al. 2021; Fiechter et al. 2022).

Legitimacy theory, in contrast, argues that firms use voluntary disclosures to legitimize corporate activities (Patten 1991; Cho and Patten 2007). In particular, firms with poor prior CSR performance might face strong public pressure and, hence, report on CSR efforts to prevent or reduce reputational and legitimacy damages (Lindblom 1994). Managers may use CSR reporting opportunistically for impression management and greenwashing purposes despite the potential costs of getting caught (Merkl-Davies and Brennan 2007; Mishina et al. 2010). Numerous studies have shown that CSR reporting is often unbalanced and self-laudatory and neglects negative incidents (Wiseman 1982; Holder-Webb et al. 2009).

Prior empirical studies are inconclusive about the relation between voluntary CSR reporting and CSR performance (Christensen et al. 2021). To measure CSR performance, prior studies focus on environmental aspects (e.g., Neu et al. 1998; Kim and Lyon 2011), aggregate responsible and irresponsible behavior (e.g., Schultze and Trommer 2012; Mahoney et al. 2013; Lee and Maxfield 2015), and measure variables of interest at the same point in time without considering lead-lag relations. The literature on the consequences of CSR reporting on misbehavior has focused on the issuance of a CSR report to capture CSR reporting, without considering the quality of the reporting (e.g., Christensen 2016). Other studies, however, have shown that the quality of CSR disclosures is informative in establishing a relation between CSR reporting and, for instance, firm value (Plumlee et al. 2015). To signal their CSR commitment or, alternatively, to legitimize their behavior, firms may not only decide to issue a voluntary CSR report but also expend higher effort for better CSR disclosure quality. We hence also consider CSR disclosure quality in our analyses.

Some studies find support for signaling theory (e.g., Al-Tuwaijri et al. 2004; Mahoney et al. 2013); others support legitimacy theory (e.g., Kim and Lyon 2011; Cho et al. 2012). Even within single studies, the results are not conclusive. For instance, Clarkson et al. (2008) find a positive relation between CSR disclosures and CSR performance, which supports signaling theory, but they also find that legitimacy theory explains patterns in these disclosures. Explanations for the inconclusive results include inadequate sample selection, omitted or confounding variables measuring CSR performance (Patten 2002; Christensen et al. 2021), and, in particular, aggregating responsible and irresponsible behaviors (Mattingly and Berman 2006; Strike et al. 2006; Semenova and Hassel 2015). To measure responsibility in

the sense of avoiding misbehavior, it is important to distinguish irresponsible from responsible behavior (McGuire et al. 2003; Strike et al. 2006; Krüger 2015).

To the best of our knowledge, only Christensen (2016) does not use an aggregate measure of CSR performance; he instead uses CSR-related lawsuits to capture misbehavior. He finds that voluntarily issuing a CSR report reduces the likelihood of CSR-related lawsuits in the following year, and concludes that after CSR reporting, firms improve their CSR performance due to an internalization of proclaimed commitments. However, the negative association of CSR reporting and CSR-related lawsuits is not an unambiguous indication that CSR reporting indeed improves the firms' behavior. An alternative explanation, which is not ruled out in his study, is that the voluntary issuance of a CSR report provides a mechanism of successful image improvement, such that legal prosecution decreases without real improvements in corporate behavior.

In a similar vein, Raghunandan and Rajgopal (2023) study the relation between firms' signing the Business Roundtable's "Statement on the Purpose of a Corporation" and violations of US federal laws. As in Christensen (2016), their dependent variable requires a legal investigation, but such investigations are rare (Mark-Ungericht and Weiskopf 2007) and may be biased by the firms' political connections (McCarten et al. 2022). Most cases of corporate misbehavior will not result in a federally reported violation. In particular, cases of misbehavior that occur in foreign subsidiaries that are not subject to US laws will go unnoticed.

In contrast, the public media plays a vital role in revealing corporate misbehavior and shaping stakeholders' perceptions (Einwiller et al. 2010; Dube and Zhu 2021). In its desire to publish attention-provoking pieces, the media has the incentives, resources, and scrutiny to reveal misbehavior. Therefore, to capture firms' overall accountability to the public, we measure corporate misbehavior based on critical media reports across the broad range of CSR dimensions. We consider misbehavior before and after CSR reporting to directly address lead-lag relations, which helps to identify causal relations (Granger 1969).

Regarding the relation between CSR reporting and *prior* misbehavior, signaling theory implies that responsible firms benefit from CSR reporting by signaling that they have learned from past mistakes. Stakeholders are particularly vigilant in observing the activities of previously irresponsible firms, such that strategic costs increase (DeTienne and Lewis 2005). To reduce such costs, responsible firms have incentives to signal their type. Legitimacy theory argues that firms use CSR reporting after the revelation of misbehavior to respond to increased public pressure. To legitimize themselves, firms may expend higher effort to issue a CSR report or improve the report's quality as captured by the public's eye. Evidence of this is limited to a few case studies. Jantadej and Kent (1999) show that the mining firm Broken Hill published more environmental information after the disaster at Ok Tedi Mine. Others find similar effects after the Exxon Valdez oil spill (Patten 1992), the BP oil spill (Heflin and Wallace 2017), and the Fukushima nuclear disaster (Bonetti et al. 2023a, b).<sup>5</sup> Both theories imply a positive relation between prior misbehavior and

<sup>5</sup> Christensen (2016) includes prior misconduct, measured as publicized lawsuits, as a control variable in his analysis and finds insignificant results.

CSR reporting. However, irresponsible firms may not have sufficient favorable CSR information to be willing to issue a CSR report or improve their CSR disclosure quality, implying a negative relation. Based on signaling and legitimacy theory, we hypothesize:

*H1: Prior corporate misbehavior is positively associated with CSR reporting.*

Regarding the effects of CSR reporting on *subsequent* firm behavior, the arguments of signaling and legitimacy theory differ. Signaling theory implies that firms expect capital market benefits from improved CSR disclosure and better CSR information, which, in turn, improves monitoring and hence firm behavior. This is the rationale that standard setters are following (e.g., Christensen 2016; EC 2021) and suggests that firms that voluntarily issue CSR reports or spend higher efforts to improve CSR disclosure quality will internalize their CSR commitment and improve their behavior.

However, firms have no strong incentives to change their behavior. Sanctions on euphemistic reporting and misbehavior are largely absent (Mark-Ungericht and Weiskopf 2007). Prior evidence suggests that investors only show very limited reactions to voluntary CSR reports (Yoon and Serafeim 2020; Burzillo et al. 2023). Firms may hence use CSR reporting to improve their legitimacy and reputation without changing their activities (Lindblom 1994). Even higher CSR disclosure quality, as measured by publicly available ESG scores, does not reflect internal improvements in the responsibility of operations but largely represents the fulfilment of information requirements by the rating agencies (Ahmed et al. 2023). If CSR reporting helps firms to successfully improve their public image, it may lead to less legal scrutiny and investor activism but not necessarily to less misbehavior. Based on legitimacy theory, we hypothesize:

*H2: CSR reporting is positively associated with future corporate misbehavior.*

### 3 Measurement of CSR reporting and corporate misbehavior

We measure CSR reporting ( $CSRR_{i,t}$ ) in two ways: Firstly, we use an indicator variable for issuing a voluntary stand-alone GRI-based CSR report ( $CSRR_{i,t}$ ), as in prior research (e.g., Simnett et al. 2009; Dhaliwal et al. 2011; Christensen 2016).<sup>6</sup> We collect data from the GRI Database, which covers GRI reports since 1999. We use CorporateRegister, the firms' websites, and internet searches to verify the data

<sup>6</sup> The GRI guidelines provide a CSR reporting framework of high quality (e.g., Christensen 2016) and are the most frequently used (e.g., KPMG 2022). The GRI does not focus solely on financial materiality but extends to corporate impacts on sustainable development. Such double materiality is central to current debates and developments involving mandatory non-financial reporting (Adams and Abhayawansa 2022). Despite recent attempts to integrate CSR topics into annual reports (e.g., the introduction of the Integrated Reporting Framework), stand-alone reports are still the most common form of CSR reporting (e.g., KPMG 2008, 2011, 2017, 2022). We differentiate neither between the GRI versions G2 to G4 nor between the different application levels (A+ to C, undeclared, GRI-referenced).

from the database, to complete missing values, and to collect data for an alternative measure that captures all kinds of stand-alone CSR reports ( $CSRR_{I2_{i,t}}$ ) (which we use for robustness).<sup>7</sup> Secondly, to capture CSR disclosure quality ( $CSRR_{Q_{i,t}}$ ), we use Bloomberg's ESG disclosures score (e.g., Ioannou and Serafeim 2017; Huang et al. 2022).<sup>8</sup> This score captures transparency and the perceived quality of the presentation of CSR information from the perspective of investors, not the underlying CSR performance.

We identify cases of corporate irresponsibility ( $CIR_{i,t}$ ) as violations of the UNGC, based on the CCRD database.<sup>9</sup> The CCRD is “an independent, not-for-profit, multi-stakeholder co-operative with open membership” based in the United Kingdom that collects (positive and negative) CSR-relevant firm information (CCRD 2021a).<sup>10</sup> The CCRD covers all firms active in the European market and regularly conducts in-depth analyses of a broad range of primary and secondary publications, from daily news to allegations by NGOs like Greenpeace (CCRD 2020a, 2021c). It covers international media sources, uses translation experts or software when information is not available in English, and cooperates with local partners from around the world (CCRD 2020a, 2020b, 2021d, 2021e).<sup>11</sup> By investigating critical media reports, we respond to criticism on measures of CSR performance based on CSR reports or ESG ratings (e.g., Chatterji et al. 2009; Berg et al. 2022; Larcker et al. 2022).

The CCRD collects publicly available information about a firm, be it positive or negative news, and integrates it into “stories” where several sources are matched and combined to obtain a balanced coverage of the underlying event. The CCRD

<sup>7</sup> We measure CSR reporting in the year of publication  $t$ . In our sample period, we observe that firms do not generally continue to publish a GRI report in every single year after their first publication but rather publish GRI reports only in selected years. While some firms publish a GRI report every second year, others do not follow an obvious pattern.

<sup>8</sup> Bloomberg's ESG score compares a firm's CSR reporting to a list of ESG disclosure items. It ranges from zero (if a firm does not disclose any information on these data points) to 100 (if a firm discloses information on all data points). The score is composed of three pillars (E=environmental, S=social, and G=governance). Each pillar includes several topics that are further divided into fields. While the E, S, and G pillars and the topics are equally weighted, Bloomberg assigns weights to the fields, with quantitative fields weighted more heavily than binary fields.

<sup>9</sup> In particular, Donaldson and Dunfee's (1994, 1999) Integrative Social Contracts Theory and definition of hypernorms allow for a detailed differentiation between responsibility and irresponsibility based on the UNGC.

<sup>10</sup> The CCRD changed its website to [ethicalconsumer.org](https://ethicalconsumer.org) in 2019–2020, when it started to place higher emphasis on the ethical ratings and consultancy services that it provides based on the research database (now called Corporate Research Database; CCRD 2021b). We only use the database, not the ratings. Except for including information on how a particular story influences the rating of the firm, the underlying methods of the database have remained the same. Lately, Ethical Consumer has been providing a video introduction to the database at [https://youtu.be/iyiOooX\\_h3I](https://youtu.be/iyiOooX_h3I).

<sup>11</sup> Although this global orientation reduces potential coverage and language biases, we further address them in our robustness tests.

only includes one story per case of (mis)behavior (CCRD 2021a).<sup>12</sup> Each story provides a summary of the case, such as “discrimination against minorities,” “human rights abuse,” or “environmental pollution,” and a reference to the primary sources of information. In addition, each story entails an allocation to one or several subcategories of topics that the CCRD investigates (CCRD 2021f). These topics overlap with the UNGC principles but are not identical to them. Appendix 1 tabulates the UNGC principles, the corresponding CCRD (sub-)categories, and examples of misbehavior per CCRD subcategory. For instance, the CCRD includes a story on BP plc in 2010 with a primary reference to the BBC News website on “the 2010 BP Gulf of Mexico oil spill,” and allocates the story to the subcategories “climate change,” “pollution & toxics,” and “habitats & resources” (CCRD 2020c). This story violates the UNGC principles 7, 8, and 9 and thus represents a case of misbehavior in the category “environment.” We exclude CCRD stories from our analysis that refer to subcategories not included in the UNGC categories (e.g., animal rights).<sup>13</sup>

Following prior research (e.g., Brown and Deegan 1998; Christensen 2016), we treat all categories of misbehavior as equally important. We employ three ways to measure a firms’ corporate irresponsibility per year ( $CIR_{i,t}$ ). First, we analyze the occurrence of misbehavior and use a dichotomous variable that indicates whether a firm has committed irresponsible behavior ( $CIR_{I_{i,t}}$ ).  $CIR_{I_{i,t}}$  equals 1 if firm  $i$  commits at least one case of misbehavior in  $t$ , 0 otherwise, as in prior literature (Christensen 2016; Aouadi and Marsat 2018; Raghunandan and Rajgopal 2022; 2023). Second, we analyze the number of cases of misbehavior per year by a categorical variable ( $CIR_{N_{i,t}}$ ). Third, we analyze the severity of misbehavior by implementing a self-constructed misbehavior score ( $CIR_{S_{i,t}}$ ). For each case of misbehavior, the score measures the effect size by awarding score points. It ranges from one (limited effects) to five points (severe effects) per case. If a firm commits more than one case of misbehavior in a year, we summarize the score points over all cases of misbehavior to capture the overall severity of misbehavior in that year. Appendix 2 provides a detailed description of the scoring scheme.

To account for the time between issuing a CSR report and prior or subsequent cases of misbehavior, we introduce time lags and add cases of misbehavior over different time periods. We measure future misbehavior in the year subsequent to CSR reporting  $t+1$  ( $FutureCIR_{i,t+1}$ ) based on our three measures of  $CIR_{i,t+1} = (CIR_{I_{i,t+1}}, CIR_{N_{i,t+1}}, \text{ and } CIR_{S_{i,t+1}})$ .<sup>14</sup> For prior misbehavior, we investigate a longer time

<sup>12</sup> Advertising or comparable information in the news is one more reason to focus on misbehavior rather than aggregate CSR when analyzing firms’ true CSR behavior. While an aggregated measure might be biased by firm-induced media news or advertising, the negative news will not be. If the media prefers publishing negative over positive news or vice versa in order to win a bigger audience, then an aggregate measure of good and bad news will be biased. By focusing on negative news, this bias is avoided. If, on the other hand, the media’s desire to win a big audience leads to false accusations and exaggerations, then all firms will be equally affected.

<sup>13</sup> Breitingner and Bonardi (2019) apply a similar method when investigating corporate reputation damages based on the Swiss database RepRisk. Following Strike et al. (2006), we attribute a subsidiary’s misbehavior to the parent firm.

<sup>14</sup> To adjust for their strongly skewed distribution, we logtransform  $CIR_{N_{i,t+1}}$  and  $CIR_{S_{i,t+1}}$  ( $\ln(x+1)$ ) in our analyses.

lag to account for the time necessary to implement CSR reporting after misbehavior ( $PriorCIR_{i,t-3/\Sigma 3y}$ ). We analyze the occurrence, number, and severity of misbehaviors in the individual year t-3 ( $CIR_{I_{i,t-3}}$ ,  $CIR_{N_{i,t-3}}$ , and  $CIR_{S_{i,t-3}}$ ) and over the last three years ( $CIR_{I_{i,\Sigma 3y}}$ ,  $CIR_{N_{i,\Sigma 3y}}$ , and  $CIR_{S_{i,\Sigma 3y}}$ ) as alternative measures of  $PriorCIR_{i,t-3/\Sigma 3y}$ .<sup>15</sup>

Moreover, we use Refinitiv's ESG controversy score as an alternative measure of corporate misbehavior in robustness analyses. Refinitiv calculates a percentile rank score based on the weighted number of ESG controversies per year relative to other firms' performance.<sup>16</sup> Since a higher score implies fewer controversies, we use 1 minus the score to measure corporate misbehavior ( $CIR_{R_{i,t}}$ ).<sup>17</sup> We use the Refinitiv score in t-3 for prior misbehavior ( $PriorCIR_{i,t-3} = CIR_{R_{i,t-3}}$ ) and in t+1 for future misbehavior ( $FutureCIR_{i,t+1} = CIR_{R_{i,t+1}}$ ). We use the CCRD-based measures in our main analyses to avoid measurement problems of ESG scores and for better methodological traceability (e.g., Larcker et al. 2022; Li et al. 2023). Appendix 3 contains all variable definitions.

## 4 Econometric models

### 4.1 Prior corporate misbehavior and CSR reporting

To test *H1*, we include prior misbehavior in a regression of the determinants of CSR reporting.

$$\begin{aligned} CSRR_{i,t} = & \beta_0 + \beta_1 PriorCIR_{i,t-3/\Sigma 3y} + \beta_2 DJSI_{i,t} + \beta_3 UNGC_{i,t} + \beta_4 AGE_{i,t} + \beta_5 CROSS_{i,t} \\ & + \beta_6 BRAND_{i,t} + \beta_7 MSHARE_{i,t} + \beta_8 STATE_{i,t} + \beta_9 LEGAL_i + \beta_{10} FFLOAT_{i,t} \quad (1) \\ & + \beta_{11} VOLA_{i,t} + \beta_{12} LEV_{i,t} + \beta_{13} SIZE_{i,t} + \beta_{14} ROE_{i,t} + IND + YEAR + \varepsilon_{i,t} \end{aligned}$$

$CSRR_{i,t} = (CSRR_{I_{i,t}}, CSRR_{Q_{i,t}})$  is either our measure of the voluntary issuance of a GRI-based CSR report in t ( $CSRR_{I_{i,t}}$ ) or of CSR disclosure quality in t ( $CSRR_{Q_{i,t}}$ ), as outlined in Sect. 3.  $PriorCIR_{i,t-3/\Sigma 3y}$  measures misbehavior before the period of CSR reporting, as captured by our six measures of misbehavior explained in Sect. 3

<sup>15</sup> As for future misbehavior, we use logtransformed values for  $CIR_{N_{i,t-3}}$ ,  $CIR_{N_{i,\Sigma 3y}}$ ,  $CIR_{S_{i,t-3}}$ , and  $CIR_{S_{i,\Sigma 3y}}$  ( $\ln(x+1)$ ) to adjust for their strongly skewed distribution.

<sup>16</sup> Refinitiv calculates the ESG controversy score in three steps: (1) it counts the number of controversies based on public media along 23 topics; (2) it multiplies this number by severity weights based on market capitalization, using 1 for small firms (<2 billion), 2/3 for medium firms (>=2 billion), and 1/3 for large firms (>=10 billion); and (3) it calculates the score based on a percentile rank formula that is a ratio of (the number of firms with a worse value plus one half of the number of firms with the same value) divided by the number of firms with a value different from zero. The score takes the value of 1 in cases with zero controversies (Refinitiv 2022).

<sup>17</sup> We find significant correlations of  $CIR_{R_{i,t}}$  with our handcollected CCRD-based measures  $CIR_{I_{i,t}}$  (Bravais-Pearson correlation=0.20, Spearman rank correlation=0.20,  $p < 0.05$ , untabulated),  $CIR_{N_{i,t}}$  (Bravais-Pearson correlation=0.19, Spearman rank correlation=0.21,  $p < 0.05$ ), and  $CIR_{S_{i,t}}$  (Bravais-Pearson correlation=0.16, Spearman rank correlation=0.21,  $p < 0.05$ ). We also find correlations of the prior and future scores from Refinitiv with our CCRD-based measures of prior and future misbehavior (between 0.12 and 0.26,  $p < 0.05$ ).

( $CIR_{I_{i,t-3}}$ ,  $CIR_{I_{i,\Sigma 3y}}$ ,  $CIR_{N_{i,t-3}}$ ,  $CIR_{N_{i,\Sigma 3y}}$ ,  $CIR_{S_{i,t-3}}$ ,  $CIR_{S_{i,\Sigma 3y}}$ ). Based on *H1*, we expect a positive relation between prior misbehavior and CSR reporting. We include all determinants of CSR reporting identified in prior literature.  $DJSI_{i,t}$  is a dichotomous variable that indicates listing in the Dow Jones Sustainability Index (DJSI). Per industry, this index includes the most responsible 10 percent of firms listed in the Dow Jones Global Index. Disclosure of CSR information is required by listed firms, which implies a positive relation (Cho et al. 2012).  $UNGC_{i,t}$  is a dichotomous variable that indicates UNGC membership. The UNGC requires a yearly “Communication on Progress” in internalizing the UNGC principles (Williams 2014). Members regularly issue CSR reports (Skouloudis et al. 2014). Since the GRI is a partner of the UNGC (UNGC 2020c), we expect a positive sign.  $AGE_{i,t}$  is a firm’s age, measured in years since IPO. The older the firm is, the more its reputation depends on social aspects and the more likely it is to use CSR reporting (Roberts 1992; Muttakin and Khan 2014).  $CROSS_{i,t}$  is a dichotomous variable that indicates that a firm is cross-listed on three or more stock exchanges. Such firms voluntarily disclose more information to meet the regulation requirements of all stock exchanges and additional informational needs of foreign investors (Hahn and Kuehnen 2013).  $BRAND_{i,t}$  proxies for a firm’s visibility and is a dichotomous variable that indicates that the Interbrand Best Global Brands ranking records at least one of the firm’s brands in that year (Interbrand 2017). More visible firms use voluntary CSR reporting to appease stakeholder concerns, which increase with media exposure (Kotchen and Moon 2012).  $MSHARE_{i,t}$  measures proprietary costs proxied by market share, i.e., a firm’s sales divided by the sum of sales of all Fortune Global 500 firms from the same Industry Classification Benchmark (ICB) sector.<sup>18</sup> Higher market shares come with better competitive positions and lower proprietary costs. We multiply market shares by -1 for ease of interpretation (Dhaliwal et al. 2011). Firms with high proprietary costs use improved reporting to gain competitive advantages, which implies a positive sign.  $STATE_{i,t}$  is the percentage of state ownership, which proxies for corporate governance structures. The close relations to the government of (partly) state-owned firms reduce the perceived need to use CSR reporting for legitimization purposes (Zhao 2012).  $LEGAL_i$  is a binary variable that indicates whether firm *i* is headquartered in a civil law country, which implies a positive sign since these countries are considered more stakeholder oriented (Kolk and Perego 2010).  $FFLOAT_{i,t}$  measures free float (Gamerschlag et al. 2011). Widely held firms face higher information asymmetry and proclaim compliance with outside interests by doing additional reporting, which implies a positive sign (Chau and Gray 2002).  $VOLA_{i,t}$  is the average yearly volatility of the share price with respect to its mean. Prior literature is inconclusive about the sign (Bebbington et al. 2008).  $LEV_{i,t}$  is leverage. Prior literature is inconclusive about the sign (Hahn and Kuehnen 2013).  $SIZE_{i,t}$  is firm size, measured as the natural logarithm of market value. Large

<sup>18</sup> As the Fortune Global 500 includes only the firms with the highest sales worldwide, our measure of market share relates to the biggest competitors rather than all competitors. Butler et al. (2007) use a similar measure. They proxy strategic costs by a four-firm concentration ratio that measures a firm’s sales in relation to its four biggest competitors. Other studies using the Herfindahl–Hirschman index to proxy for proprietary costs (e.g., Dhaliwal et al. 2011; Christensen 2016) did not find a significant relation to CSR reporting.

firms use voluntary disclosures to reduce higher agency conflicts (Gamerschlag et al. 2011) and to respond to higher public pressure due to their greater impact on society (Hackston and Milne 1996). In addition, larger firms benefit from lower disclosure costs, while the costs for substantive CSR implementation increase (Wickert et al. 2016).  $ROE_{i,t}$  measures financial performance proxied by return on equity. Prior literature is inconclusive about the sign (Skinner 1994; Albers and Guenther 2011). We include industry fixed effects based on ICB supersectors ( $IND$ ) and year fixed effects ( $YEAR$ ).<sup>19</sup>

## 4.2 CSR reporting and future corporate misbehavior

We analyze the relation between CSR reporting and future corporate irresponsibility – that is, whether CSR reporting prevents or fosters misbehavior ( $H2$ ) – in a two stages least squares (2SLS) and a special regressor (SR) model due to endogeneity concerns. Voluntary CSR reporting depends on firms' choices (1) to engage in CSR activities and (2) to report on these activities (Christensen et al. 2021). A firm may engage in CSR reporting because of misbehavior resulting in bi-directional causality. According to Harjoto and Jo (2015), a time lag of the endogenous regressor ( $CSRR_{i,t}$  in  $t$  vs.  $FutureCIR_{i,t+1}$  in  $t+1$ ) can control for some but not all forms of endogeneity. 2SLS and SR models correct for potential estimation biases more comprehensively. Lewbel et al. (2012) compare four ways to identify consistent estimators in a binary model with an endogenous regressor. They conclude that the 2SLS and SR methods have the lowest requirements for the endogenous regressor and instrumental variables (IVs) and are preferable to maximum likelihood estimation and control functions.<sup>20</sup> We use  $FutureCIR_{i,t+1}$  as the dependent variable in the second stage and estimate  $CSRR_{i,t}$  in the first stage regression via IVs (Wooldridge 2003). The SR model includes an additional regressor in the second stage.

### 4.2.1 Main model: second stage 2SLS model

$$\begin{aligned} FutureCIR_{i,t+1} = & \beta_0 + \beta_1 CSRR_{i,t} + \beta_2 UNGC_{i,t+1} + \beta_3 PO_i \\ & + \beta_4 HO_i + \beta_5 GLOBAL_{i,t+1} + \beta_6 PriorCIR_{i,t-3/\Sigma 3y} + \beta_7 SIZE_{i,t+1} \quad (2) \\ & + \beta_8 ROE_{i,t} + IND + YEAR + \varepsilon_{i,t+1} \end{aligned}$$

<sup>19</sup> We do not use firm fixed effects since the dependent variable  $CSRR_{i,t}$  is a dichotomous variable taking the values zero and one. If a firm does not issue a GRI report in any sample year,  $CSRR_{i,t}$  takes the value zero in each year. If a firm issues a GRI report in each sample year,  $CSRR_{i,t}$  continuously takes the value one. Using firm fixed effects would exclude respective firms due to perfect prediction. In addition, firm fixed effects would prevent us from analyzing time-invariant variables like cultural differences ( $PO_i$  and  $HO_i$ ) and legal background ( $LEGAL_i$ ). For robustness purposes, we analyze different fixed effects models (Sect. 7).

<sup>20</sup> Maximum likelihood estimation requires a specific and complete set of IVs for the estimation to be consistent. Control functions additionally require that the endogenous regressor is discrete and distributed continuously (Lewbel et al. 2012). Other models used to control for endogeneity in accounting research, such as constrained regressions (e.g., Christodoulou and McLeay 2014), cannot be applied to our setting since we do not have fully identified relations.

$FutureCIR_{i,t+1}$  captures misbehavior that occurred in the period after issuing a CSR report as captured by our measures of  $CIR_{i,t+1} = (CIR_{I_{i,t+1}}, CIR_{N_{i,t+1}}, \text{ or } CIR_{S_{i,t+1}})$ , outlined in Sect. 3.  $CSRR_{i,t}$  is our measure of CSR reporting as captured by the voluntary issuance of a GRI-based CSR report in  $t$  ( $CSRR_{I_{i,t}}$ ) or CSR disclosure quality in  $t$  ( $CSRR_{Q_{i,t}}$ ), as outlined in Sect. 3.  $UNGC_{i,t+1}$  captures UNGC membership in  $t+1$  and represents managers' positive view of CSR, indicating a weaker tendency for misbehavior, compared to non-members (Cetindamar and Husoy 2007).  $PO_i$  and  $HO_i$  proxy for country cultural influences on the implementation of CSR (Maignan and Ralston 2002).  $PO_i$  is the encouragement of performance improvement and excellence (House et al. 2004; Javidan 2004), implying a positive relation.  $HO_i$  is humane orientation and indicates an encouragement of fairness and altruism (Kabasakal and Bodur 2004), implying a negative sign.  $GLOBAL_{i,t+1}$  is firm  $i$ 's degree of internationalization in  $t+1$ , measured as foreign sales divided by total sales (Meek et al. 1995). We expect a positive sign, as international activities increase operational complexity, which creates fertile ground for misbehavior (Reimann et al. 2015). Also, the "pollution haven hypothesis" predicts that firms try to take advantage of weaker CSR standards by diversifying internationally (Taylor 2005; He 2006). We further include prior misbehavior and expect a positive sign ( $PriorCIR_{i,t-3/\Sigma 3y} = CIR_{i,t-3}, CIR_{i,\Sigma 3y}, CIRN_{i,t-3}, CIRN_{i,\Sigma 3y}, CIRS_{i,t-3}, \text{ or } CIRS_{i,\Sigma 3y}$ ). We also expect a positive sign for  $SIZE_{i,t+1}$ , as organizational complexity increases with firm size and provides fertile ground for misbehavior (Strike et al. 2006). Financial performance ( $ROE_{i,t}$ ) may increase or decrease future misbehavior. Industry ( $IND$ ) and year fixed effects ( $YEAR$ ) control for industry and time differences.<sup>21</sup>

#### 4.2.2 First stage 2SLS model

We estimate the following first stage regression model of the endogenous CSR reporting variable ( $CSRR_{i,t} = CSRR_{I_{i,t}} \text{ or } CSRR_{Q_{i,t}}$ ):

$$\begin{aligned} CSRR_{i,t} = & \alpha_0 + \alpha_1 AGE_{i,t} + \alpha_2 FFLOAT_{i,t} + \alpha_3 UNGC_{i,t+1} + \alpha_4 PO_i \\ & + \alpha_5 HO_i + \alpha_6 GLOBAL_{i,t+1} + \alpha_7 PriorCIR_{i,t-3/\Sigma 3y} + \alpha_8 SIZE_{i,t+1} \quad (3) \\ & + \alpha_9 ROE_{i,t} + IND + YEAR + \mu_{i,t} \end{aligned}$$

$AGE_{i,t}$  and  $FFLOAT_{i,t}$  are our main IVs.<sup>22</sup> As a given construct within a firm's economic system,  $AGE_{i,t}$  represents an IV from a "natural experiment" (Larcker and

<sup>21</sup> As in model (1), we do not use firm fixed effects since the dependent variable  $CIR_{I_{i,t+1}}$  is a dichotomous variable taking the values zero and one. If a firm does not commit misbehavior in any year after CSR reporting,  $CIR_{I_{i,t+1}}$  takes the value zero in each sample year. If a firm commits misbehavior in each year,  $CIR_{I_{i,t+1}}$  continuously takes the value one. Using firm fixed effects would exclude respective firms due to perfect prediction. In addition, firm fixed effects would hinder us in analyzing time invariant variables like cultural differences ( $PO$  and  $HO$ ). For robustness purposes, we analyze different fixed effects models (Sect. 7).

<sup>22</sup> For an IV estimation to be consistent, the IVs need to be relevant and exogenous (Stock and Watson 2012). That is, they need to correlate with the endogenous regressor ( $CSRR_{i,t}$ ) but not with the error term of the second stage ( $FutureCIR_{i,t+1}$ ) (Larcker and Rusticus 2010). Various tests substantiate the validity of our IVs (Sect. 6.2). We do not use a lagged value of the endogenous regressor as an IV, i.e.,  $CSRR_{I_{i,t}}$ , at any time before  $t$ , since the exogenous and the endogenous part of the reporting decision persist over

Rusticus 2010). Several studies use firm age as a valid IV (Harjoto and Jo 2011; Christensen 2016). Others use firm age as a proxy for reputation (e.g. Datta et al. 1999). Firms with a higher reputation tend to disclose more to maintain reputation (Reitmaier and Schultze 2017). Older firms have more experience and lower reporting costs (Camfferman and Cooke 2002; Alsaeed 2006), suggesting a positive relation of  $AGE_{i,t}$  to CSR reporting. In contrast, there is no relation to future misbehavior. Misbehavior depends on factors that develop independently of firm age, like corporate culture or competition. Literature on accounting fraud supports the irrelevance of firm age with respect to misbehavior since fraud firms do not differ in age compared to non-fraud firms (Farber 2005; Chen et al. 2006).

Our second IV is  $FFLOAT_{i,t}$ . High free float comes with high agency costs (Fama and Jensen 1983; Prencipe 2004). To reduce these costs and to announce compliance, managers use voluntary disclosures, implying a positive relation of  $FFLOAT_{i,t}$  with CSR reporting (Brammer and Pavelin 2006). On the other hand, a direct relation between  $FFLOAT_{i,t}$  and corporate misbehavior is not intuitive. Chen et al. (2006) find that boardroom characteristics are more relevant in explaining fraud than ownership characteristics. Other studies find no significant relation between financial fraud and blockholders (Larcker et al. 2007; Johnson et al. 2009).

We use two further IVs in additional analyses that have been used in prior research<sup>23</sup>: The dichotomous variable  $DJSI_{i,t-1}$  indicates DJSI listing in t-1, which positively relates to nonfinancial disclosures (Cho et al. 2012). Listed firms are more likely to issue a CSR report, as related disclosures are required for continued listing (Dhaliwal et al. 2012). In contrast, there is no evidence for a relation between DJSI listing in t-1 and corporate misbehavior in t+1. The dichotomous variable  $CROSS_{i,t}$  indicates cross-listing at three or more stock exchanges in t. Additional listings imply additional regulatory and reporting requirements, which increase voluntary disclosures. In contrast, cross-listing does not subject firms to the CSR regulations or laws of that country and hence does not affect misbehavior through legal bonding (Shi et al. 2018).

### 4.2.3 Second stage SR model

The SR method does not require a complete set of IVs and fits nonlinear models.<sup>24</sup> In comparison to the 2SLS model, it requires an additional regressor ( $V$ ) in the second stage with the following characteristics (Lewbel 2014):  $V$  is exogenous and continuously distributed (Lewbel et al. 2012).  $V$  has a positive coefficient and

Footnote 22 (continued)

time. Likewise, we do not use industry aggregates since the endogenous part of the reporting decision varies not only across industries but also within industries. The use of ranked endogenous regressors would only transfer endogeneity from the original regressors to the ranked ones.

<sup>23</sup> For robustness purposes, we repeat our analyses with all combinations of three or two of the four IVs and also analyze alternative IVs (Sect. 7.2).

<sup>24</sup> Lewbel (2014, 38) explains the SR method as follows: "For example, suppose an observed binary variable  $D$  satisfies  $D=I(V+W^*\geq 0)$ , where  $V$  is the observed special regressor, and  $W^*$  is an unobserved latent variable. [...] Special regressor methods work by exploiting the fact that if  $V$  is independent of  $W^*$

is monotonous (Dong and Lewbel 2015).<sup>25</sup> We include the average USD-EUR exchange rate ( $EXCHANGE_t$ ) as  $V$  in model (2). We use all different measures of future and prior misbehavior and CSR reporting, as outlined in Sect. 3<sup>26</sup>:

$$\begin{aligned} FutureCIR_{i,t+1} = & \beta_0 + \beta_1 CSRR_{i,t} + \beta_2 UNGC_{i,t+1} + \beta_3 PO_i + \beta_4 HO_i + \beta_5 GLOBAL_{i,t+1} \\ & + \beta_6 PriorCIR_{i,t-3/\Sigma 3y} + \beta_7 SIZE_{i,t+1} + \beta_8 ROE_{i,t} \\ & + \beta_9 EXCHANGE_t + IND + YEAR + \varepsilon_{i,t+1} \end{aligned} \quad (4)$$

USD and EUR are the most important currencies worldwide (e.g., Norrlof 2009). The US and Europe are the most strongly represented regions in our sample. The USD/EUR exchange rate is exogenous.<sup>27</sup> While it does not influence CSR reporting, it might influence future misbehavior since exchange rates influence the competitive environment in which a firm operates. Exchange rate fluctuations induce additional risk for internationally operating firms (Kotabe and Murray 2004). The yearly average exchange rate is continuously distributed.

## 5 Sample

Our main sample is based on all 814 firms listed in the Fortune Global 500 in the period from January 1, 2003, to December 31, 2013. The Fortune Global 500 lists the world's largest firms in terms of total sales and is frequently used in CSR studies because of its global impact (e.g., Muller and Whiteman 2009; Lee and Maxfield 2015).<sup>28</sup> The sample period starts in 2003, which marks the onset of intense voluntary CSR reporting due to rising public and governmental interest in CSR (Freundlieb and Teuteberg 2013). The sample period ends in 2013 for two reasons. First, the European Parliament and the Council issued EU directive 2014/95/EU in October 2014, which rendered CSR reporting mandatory as of January 2017 for large European firms. Early adopters might bias our analyses that explicitly focus

Footnote 24 (continued)

(either unconditionally or after conditioning on covariates) then variation in  $V$  changes the probability that  $D=1$  in a way that traces out the distribution of  $W^*$  (either the unconditional distribution or the distribution conditional on covariates)."

<sup>25</sup> Dong and Lewbel (2015) relax the additional requirement of great support for  $V$ .

<sup>26</sup>  $FutureCIR_{i,t+1} = CIR_{I_{i,t+1}}$ ,  $CIR_{N_{i,t+1}}$ , or  $CIR_{S_{i,t+1}}$ ;  $PriorCIR_{i,t-3/\Sigma 3y} = CIR_{I_{i,t-3/\Sigma 3y}}$ ,  $CIR_{N_{i,t-3/\Sigma 3y}}$ , or  $CIR_{S_{i,t-3/\Sigma 3y}}$ ; and  $CSRR_{i,t} = CSRR_{I_{i,t}}$  or  $CSRR_{Q_{i,t}}$ . The first stage regression remains basically unchanged. Since it includes all determinants and control variables of the second stage regression, it also includes  $V$  in the SR approach.

<sup>27</sup> IVs and the SR need to be exogenous in the respective model. That is, the IVs in model (3) need to correlate with  $CSRR_{i,t}$  but not  $FutureCIR_{i,t+1}$ , and the SR in model (4) needs to correlate with  $FutureCIR_{i,t+1}$  but not  $CSRR_{i,t}$ . Polynomial regressions of future misbehavior ( $CIR_{I_{i,t+1}}$ ,  $CIR_{N_{i,t+1}}$ , or  $CIR_{S_{i,t+1}}$ ) on the SR confirm a positive coefficient and monotonic graphical appearance (Dong and Lewbel 2015; Bontemps and Nauges 2016).

<sup>28</sup> Analyzing only the largest firms reduces potential concerns about the disproportionate media coverage of larger firms and improves the likelihood that all cases of misbehavior are detected by public media and hence the CCRD.

on voluntary CSR reporting. Second, the International Integrated Reporting Council published the Integrated Reporting Framework in December 2013. Adopting firms no longer issue stand-alone CSR reports but generally integrate CSR reports, annual reports, and other reports into one report, which our GRI measure does not capture.

We exclude 127 firms with missing data in Datastream or Eikon, 96 firms not covered by the CCRD, and 104 firms with missing data in other sources (UNGC homepage, DJSI or Interbrand ranking), resulting in a sample of 487 unique firms. We further exclude 858 firm-year observations due to bankruptcy or mergers and acquisitions. We do not exclude those firms completely to avoid survivorship biases. Our final main sample includes 4,499 firm-year observations. We collect data on misbehavior for the time before and after voluntary CSR reporting (2000–2014). As Bloomberg's ESG disclosure score does not cover all firms over the entire period, the analyses refer to a reduced sample of 3,150 firm-year observations.

Table 1 panel A shows the distribution of our main sample firms per ICB supersector and the proportion of firms with misbehavior ( $CIR_{I_{i,t}}$ ) per supersector.  $CIR_{I_{i,t}}$  is highest in the supersectors Food & Beverage (ICB code 3500), Personal & Household Goods (3700), and Technology (9500), where more than 50 percent of the firms engage in misbehavior. At 17.65 percent,  $CIR_{I_{i,t}}$  is lowest in the supersector Construction & Materials (2300). Panel B presents the firms' country of origin and shows that more than one-third of the firms are from the US (36.96 percent), followed by Japan (14.78), the UK (8.42), France (7.19), and Germany (5.13). The remaining 27.5 percent are in 22 different countries. The percentage of firm-year observations with misbehavior is highest in Turkey (100 percent, one firm with misbehavior in each year) and Taiwan (71.43 percent). It is lowest in Austria and Colombia (0 percent each, one/two firms without misbehavior).

Table 2 presents the development of the number of firms (not) issuing a GRI report in a particular year ( $CSRR_{I_{i,t}}=0/1$ ) over our sample period. The third (fourth) column presents the corresponding number of firms with (without) misbehavior in the following year ( $CIR_{I_{i,t+1}}=0/1$ ). The number of firms issuing a GRI report increased from 58 in 2003 to 262 in 2013. The number of firms with subsequent misbehavior does not follow a systematic trend; the levels are similar in the first and last sample year (145 in 2003 and 157 in 2013). This suggests that the increase in CSR reporting does not come with a systematic reduction in future misbehavior.

Table 3 provides the descriptive statistics. For ease of interpretation, the values for the number ( $CIR_{N_{i,t-3}}$ ) and severity of current ( $CIR_{S_{i,t}}$ ), prior ( $CIR_{N_{i,t-3}}$ ,  $CIR_{N_{i,\Sigma 3y}}$ ,  $CIR_{S_{i,t-3}}$ , or  $CIR_{S_{i,\Sigma 3y}}$ ), and future misbehaviors ( $CIR_{N_{i,t+1}}$  or  $CIR_{S_{i,t+1}}$ ) are raw data before logtransformation.<sup>29</sup> Forty-three percent of the observations are GRI reporters in  $t$ . Fifty-three percent issue some kind of CSR report in  $t$ . The average firm

<sup>29</sup> To adjust for its strongly skewed distribution, we logtransform our measures of the number and severity of misbehaviors in our empirical analyses (see Sect. 3 for details).

Table 1 Classification of sample firms

Industry	Supersector	Number of Firms	% of Firms per		CIR <sub><i>I,t</i></sub>	
			Supersector	Industry	No Misbehavior	Misbehavior %
<b>Panel A: Sample firms per ICB supersector</b>						
0001 Oil & Gas	0500 Oil & Gas	41	8.42	8.42	247	116
1000 Basic Materials	1300 Chemicals	12	2.46	6.37	76	31
	1700 Basic Resources	19	3.90		116	52
2000 Industrials	2300 Construction & Materials	21	4.31	18.48	182	39
	2700 Industrial Goods & Services	69	14.17		519	180
3000 Consumer Goods	3300 Automobiles & Parts	29	5.95	13.55	226	62
	3500 Food & Beverage	15	3.08		67	76
	3700 Personal & Household Goods	22	4.52		111	114
4000 Health Care	4500 Health Care	22	4.52	4.52	122	77
5000 Consumer Services	5300 Retail	43	8.83	13.14	255	130
	5500 Media	9	1.85		61	18
	5700 Travel & Leisure	12	2.46		70	30
6000 Telecommunications	6500 Telecommunications	15	3.08	3.08	91	32
7000 Utilities	7500 Utilities	38	7.80	7.80	247	86
8000 Financials	8300 Banks	48	9.86	18.48	326	107
	8500 Insurance	31	6.37		215	67
	8600 Real Estate	0	0		0	0
9000 Financial Services	8700 Financial Services	11	2.26		46	26
9500 Technology	9500 Technology	30	6.16	6.16	136	143
Total		<b>487</b>	<b>100</b>	<b>100</b>	<b>3,113</b>	<b>1,386</b>
						<b>30.81</b>

Table 1 (continued)

Nation	Number of Firms	% of Firms	$CIR_{i,t}$		
			No Misbehavior	Misbehavior %	
<b>Panel B: Sample firms per country</b>					
Australia	10	2.05	71	19	21.11
Austria	2	0.41	20	0	0.00
Brazil	3	0.62	17	4	19.05
Canada	18	3.70	128	19	12.93
Colombia	1	0.21	1	0	0.00
Denmark	2	0.41	15	1	6.25
Finland	5	1.03	38	11	22.45
France	35	7.19	236	109	31.59
Germany	25	5.13	160	102	38.93
Hong Kong	3	0.62	27	6	18.18
India	7	1.44	71	4	5.33
Ireland	3	0.62	26	5	16.13
Italy	11	2.26	82	12	12.77
Japan	72	14.78	532	142	21.07
Mexico	2	0.41	16	4	20.00
Netherlands	11	2.26	56	49	46.67
Portugal	2	0.41	6	1	14.29
Singapore	2	0.41	17	1	5.56
South Korea	17	3.49	87	32	26.89
Spain	12	2.46	106	21	16.54
Sweden	6	1.23	56	10	15.15
Switzerland	11	2.26	80	40	33.33
Taiwan	4	0.82	10	25	71.43

**Table 1** (continued)

Thailand	1	0.21	8	1	11.11
Turkey	1	0.21	0	6	100.00
United Kingdom	41	8.42	140	228	61.96
United States	180	36.96	1.107	534	32.54
<b>Total</b>	<b>487</b>	<b>100</b>	<b>3.113</b>	<b>1.386</b>	<b>30.81</b>

Presents the distribution of sample firms across ICB codes and geographic regions. Panel A shows the absolute and percental distribution of sample firms across ICB supersectors (SP) and the percental distribution of sample firms across ICB industries (IN). In addition, it shows the absolute number of firm-year observations per ICB supersector without ( $CIR_{i,t}=0$ ) and with misbehavior ( $CIR_{i,t}=1$ ) as well as the percentage of firm-year observations with misbehavior per ICB supersector ( $CIR_{i,t}=1$ ). Panel B shows the absolute and percental distribution of sample firms across countries. In addition, it shows the absolute number of firm-year observations per country without ( $CIR_{i,t}=0$ ) and with misbehavior ( $CIR_{i,t}=1$ ) as well as the percentage of firm-year observations with misbehavior per country ( $CIR_{i,t}=1$ )

**Table 2** Sample firms with/without GRI reports and future misbehavior per year

Year	$CSRR_{I_{i,t}}$		$CIR_{I_{i,t+1}}$	
	Reporter	Non-reporter	Misbehavior	No misbehavior
2003	58	332	145	245
2004	88	306	184	210
2005	106	301	143	264
2006	119	283	132	270
2007	147	251	111	287
2008	195	216	100	311
2009	213	204	117	300
2010	228	187	130	285
2011	254	171	101	324
2012	263	160	100	323
2013	262	155	157	260
Total	<b>1,933</b>	<b>2,566</b>	<b>1,420</b>	<b>3,079</b>

Presents the distribution of sample firms with and without GRI reports per year ( $CSRR_{I_{i,t}}$ ) and the distribution of firms with and without at least one case of misbehavior in the following year  $t+1$  ( $CIR_{I_{i,t+1}}$ )

has a Bloomberg ESG disclosure score of 40.32 percent. On average, almost one-third of the sample firms conduct misbehavior ( $CIR_{I_{i,t}}$ ). The mean of 0.94 for  $CIR_{I_{i,\Sigma 3y}}$  indicates that firms engage in misbehavior in about one of the past three years on average. The average firm conducts 0.54 cases of misbehavior per year; the maximum number in  $t$  and  $t+1$  is 23 ( $CIR_{N_{i,t}}$ ,  $CIR_{N_{i,t+1}}$ ). The maximum number of misbehaviors in  $t-3$  is 30 ( $CIR_{N_{i,t-3}}$ ). The average firm conducts 1.71 cases of misbehavior over the prior three years; the maximum number is 44 ( $CIR_{N_{i,\Sigma 3y}}$ ). The maximum severity score of misbehavior is 93.00; the mean is 2.37 in  $t$  ( $CIR_{S_{i,t}}$ ), 2.36 in  $t+1$  ( $CIR_{S_{i,t+1}}$ ), and 2.61 in  $t-3$  ( $CIR_{S_{i,t-3}}$ ). The maximum sum over the prior three years is 226.00 ( $CIR_{S_{i,\Sigma 3y}}$ ). The severity measure based on the Refinitiv controversy score ranges from zero to one with a mean of 0.33 in  $t$  ( $CIR_{R_{i,t}}$ ), 0.32 in  $t+1$  ( $CIR_{R_{i,t+1}}$ ), and 0.35 in  $t-3$  ( $CIR_{R_{i,t-3}}$ ). Notably, around one-third of the observations show DJSI listing (mean of dichotomous variable  $DJSI_{i,t}=0.33$ ) and UNGC membership in  $t$  (mean = 0.31).

Table 4 presents the results of difference in means tests. Panel A presents the determinants of GRI reporting for reporting vs. non-reporting firms. The difference is significant for all variables except  $ROE_{i,t}$ . The mean of all measures of prior misbehavior is significantly higher for GRI reporters than non-reporters. This indicates that CSR reporting increases after misbehavior, consistent with  $H1$ . Panel B shows the determinants of future misbehavior for firms with and without misbehavior in  $t+1$ . The difference in means is significant for all variables. The mean of  $CSRR_{I_{i,t}}$  and  $CSRR_{Q_{i,t}}$  is significantly higher for firms with future misbehavior than for firms without future misbehavior. Consistent with  $H2$ , this indicates a positive relation between CSR reporting and future misbehavior. Table 5 shows significant correlations between our measures of CSR reporting and prior (panel A) as well as future corporate misbehavior (panel B), consistent with  $H1$  and  $H2$ .

**Table 3** Descriptive statistics

Variable	N	Mean	SD	Min	Median	Max
<i>CSR reporting</i>						
$CSRR_{I_{i,t}}$	4,499	0.43	0.50	0.00	0.00	1.00
$CSRR_{I2_{i,t}}$	4,499	0.53	0.50	0.00	1.00	1.00
$CSRR_{Q_{i,t}}$	3,150	40.32	11.31	1.98	39.93	74.33
<i>CSR reporting history</i>						
$PriorGRI_{I_{i,t}}$	4,499	0.47	0.50	0.00	0.00	1.00
$PriorGRI_{N_{i,t}}$	4,499	1.84	2.68	0.00	0.00	14.00
$CSRR_{I_{i,t-3}}$	4,499	0.28	0.45	0.00	0.00	1.00
<i>Corporate misbehavior</i>						
$CIR_{I_{i,t}}$	4,499	0.31	0.46	0.00	0.00	1.00
$CIR_{N_{i,t}}$	4,499	0.54	1.25	0.00	0.00	23.00
$CIR_{S_{i,t}}$	4,499	2.37	5.38	0.00	0.00	93.00
$CIR_{R_{i,t}}$	3,986	0.33	0.37	0.00	0.16	1.00
<i>Future corporate misbehavior</i>						
$CIR_{I_{i,t+1}}$	4,499	0.32	0.46	0.00	0.00	1.00
$CIR_{N_{i,t+1}}$	4,499	0.55	1.24	0.00	0.00	23.00
$CIR_{S_{i,t+1}}$	4,499	2.36	5.30	0.00	0.00	93.00
$CIR_{R_{i,t+1}}$	3,982	0.32	0.36	0.00	0.16	1.00
<i>Prior corporate misbehavior</i>						
$CIR_{I_{i,t-3}}$	4,499	0.31	0.46	0.00	0.00	1.00
$CIR_{I_{i,\Sigma 3y}}$	4,499	0.94	1.14	0.00	0.00	3.00
$CIR_{N_{i,t-3}}$	4,499	0.58	1.41	0.00	0.00	30.00
$CIR_{N_{i,\Sigma 3y}}$	4,499	1.71	3.45	0.00	0.00	44.00
$CIR_{S_{i,t-3}}$	4,499	2.61	5.97	0.00	0.00	93.00
$CIR_{S_{i,\Sigma 3y}}$	4,499	7.68	15.84	0.00	2.00	226.00
$CIR_{R_{i,t-3}}$	3,194	0.35	0.40	0.00	0.16	1.00
<i>Further variables</i>						
$AGE_{i,t}$	4,499	35.00	26.99	0.00	30.00	156.00
$BRAND_{i,t}$	4,499	0.14	0.35	0.00	0.00	1.00
$CROSS_{i,t}$	4,499	0.41	0.49	0.00	0.00	1.00
$DJSI_{i,t}$	4,499	0.33	0.47	0.00	0.00	1.00
$DJSI_{i,t-1}$	4,499	0.33	0.47	0.00	0.00	1.00
$EXCHANGE_t$	4,499	0.77	0.05	0.68	0.76	0.88
$FFLOAT_{i,t}$	4,499	80.01	21.71	0.00	88.00	100.00
$GLOBAL_{i,t}$	4,499	41.03	32.42	-73.47	39.48	689.70
$GLOBAL_{i,t+1}$	4,499	41.53	30.70	-73.47	41.13	215.62
$HO_i$	4,499	3.98	0.38	3.18	4.17	4.96
$LEGAL_i$	4,499	0.46	0.50	0.00	0.00	1.00
$LEV_{i,t}$	4,499	26.04	15.08	0.00	24.75	98.92
$MSHARE_{i,t}$	4,499	-7.26	7.55	-59.00	-4.89	-0.00
$PO_i$	4,499	4.32	0.25	3.58	4.36	4.94
$RD_{i,t}$	4,487	712,730.20	1,583,548.00	0.00	1,029.00	1.36e+07

**Table 3** (continued)

Variable	N	Mean	SD	Min	Median	Max
$ROA_{i,t}$	4,488	5.12	5.64	-38.96	4.38	62.35
$ROE_{i,t}$	4,499	15.24	64.94	-662.10	13.57	3,821.40
$SIZE_{i,t}$	4,499	16.86	1.15	9.32	16.85	20.04
$SIZE_{i,t+1}$	4,499	16.91	1.13	9.88	16.90	20.29
$STATE_{i,t}$	4,499	2.24	10.48	0.00	0.00	93.50
$UNGC_{i,t}$	4,499	0.31	0.46	0.00	0.00	1.00
$UNGC_{i,t+1}$	4,499	0.33	0.47	0.00	0.00	1.00
$VOLA_{i,t}$	4,499	26.06	8.14	6.65	25.01	73.02

Presents the descriptive statistics for all variables used in our main and robustness analyses for our main sample of Fortune Global 500 firms over the period 2003–2013. Values for the number and severity of current ( $CIR_{N_{i,t}}$ ,  $CIR_{S_{i,t}}$ ), future ( $CIR_{N_{i,t+1}}$ ,  $CIR_{S_{i,t+1}}$ ), and prior misbehaviors ( $CIR_{N_{i,t-3}}$ ,  $CIR_{N_{i,\Sigma 3y}}$ ,  $CIR_{S_{i,t-3}}$ ,  $CIR_{S_{i,\Sigma 3}}$ ) are raw data before logtransformation. Since these data are strongly skewed, they are logtransformed in our empirical tests (Tables 4, 5, 6, 7 and 8). All variables are defined as in Appendix 3

## 6 Empirical results

### 6.1 Prior corporate misbehavior and CSR reporting

Table 6 presents the results for model (1), which tests *H1* (that prior corporate misbehavior and voluntary CSR reporting are positively associated). Panel A shows the results of a logistic regression on  $CSRR_{I_{i,t}}$  based on our six measures of  $PriorCIR_{i,t-3/\Sigma 3y}$ , displayed in column (A) through (F). In all columns, the McFadden pseudo- $R^2$  is about 0.26, which is similar to related studies (e.g., Dhaliwal et al. 2011; Christensen 2016) and indicates that the regression is well-specified. The goodness of fit (GOF) test is not significant, indicating that the model fits the data well (Kleinbaum and Klein 2010). The area under the ROC curve is higher than 82 percent. The model classifies about 75 percent of reporting and non-reporting firms correctly and is highly significant ( $p < 0.01$ ). Overall, the quality of our model specifications is very similar to related studies (Brammer and Pavelin 2006; Legendre and Coderre 2013).<sup>30</sup> All variance inflation factors (VIFs) are below the conservative threshold of 5. Robust standard errors control for heteroscedasticity. Industry and year fixed effects control for industry and time differences.

All measures of prior misbehavior are significantly positively related to  $CSRR_{I_{i,t}}$ . The odds ratios indicate that CSR reporting is between 6 and 22 percent more likely for firms with prior misbehavior than for their peers ( $CIR_{I_{i,t-3}}$ : 1.197 ( $p < 0.05$ ),  $CIR_{I_{i,\Sigma 3y}}$ : 1.084 ( $p < 0.05$ ),  $CIR_{N_{i,t-3}}$ : 1.223 ( $p < 0.05$ ),  $CIR_{N_{i,\Sigma 3y}}$ : 1.165 ( $p < 0.01$ ),  $CIR_{S_{i,t-3}}$ : 1.096 ( $p < 0.05$ ),  $CIR_{S_{i,\Sigma 3y}}$ : 1.064 ( $p < 0.1$ )). The effect

<sup>30</sup> Some studies calculate other quality measures like the Nagelkerke  $R^2$  or the Cox & Snell  $R^2$ . Values of about 0.41 and 0.30 for all our model specifications are in an uncritical range.

**Table 4** Difference in means tests**Panel A: Difference in means tests of the determinants of CSR reporting ( $CSRR_{i,t} = 0/1$ )**

Variable	All	GRI reporter	Non-reporter	Diff. in means	t
	Mean	Mean	Mean		
$CIR_{i,t-3}$	0.3136	0.3678	0.2728	-0.0950	-6.8341***
$CIR_{i,\Sigma 3y}$	0.9438	1.0879	0.8352	-0.2528	-7.4151***
$CIR_{N_{i,t-3}}$	0.2932	0.3550	0.2466	-0.1083	-7.4254***
$CIR_{N_{i,\Sigma 3y}}$	0.6305	0.7344	0.5523	-0.1821	-7.9941***
$CIR_{S_{i,t-3}}$	0.7107	0.8306	0.6203	-0.2103	-7.4962***
$CIR_{S_{i,\Sigma 3y}}$	1.3064	1.4653	1.1867	-0.2786	-7.4268***
$DJSI_{i,t}$	0.3350	0.4744	0.2300	-0.2445	-17.7888***
$UNGC_{i,t}$	0.3121	0.4904	0.1777	-0.3127	-23.7712***
$AGE_{i,t}$	34.9953	39.5820	31.5401	-8.0419	-10.0016***
$CROSS_{i,t}$	0.4072	0.4775	0.3542	-0.1232	-8.3924***
$BRAND_{i,t}$	0.1445	0.1945	0.1068	-0.0877	-8.3481***
$MSHARE_{i,t}$	-7.2645	-7.6841	-6.9484	0.7357	3.2397***
$STATE_{i,t}$	2.2394	2.6453	1.9336	-0.7117	-2.2568**
$LEGAL_i$	0.4614	0.5732	0.3772	-0.1960	-13.3036***
$FFLOAT_{i,t}$	80.0113	83.3963	77.4614	-5.9349	-9.1604***
$VOLA_{i,t}$	26.0618	25.4587	26.5162	1.0575	4.3194***
$LEV_{i,t}$	26.0360	26.7908	25.4675	-1.3233	-2.9154***
$SIZE_{i,t}$	16.8573	17.1238	16.6565	-0.4673	-13.8026***
$ROE_{i,t}$	15.2401	14.0574	16.1310	2.0736	1.0603

**Panel B: Difference in means test of the determinants of future corporate misbehavior ( $CIR_{i,t+1} = 0/1$ )**

Variable	All	Future misbehavior	No future misbehavior	Diff. in means	t
	Mean	Mean	Mean		
$CSRR_{i,t}$	0.4297	0.4908	0.4014	-0.0894	-5.6496***
$CSRR_{Q_{i,t}}$	40.3241	13.1035	39.1184	-3.9851	-9.2032***
$UNGC_{i,t+1}$	0.3343	0.3697	0.3180	-0.0518	-3.4240***
$PO_i$	4.3190	4.3290	4.3144	-0.0146	-1.8455*
$HO_i$	3.9799	3.9367	3.9998	0.0631	5.2324***
$GLOBAL_{i,t+1}$	41.5294	49.2299	37.9781	-11.2518	-11.5956***
$CIR_{i,t-3}$	0.3136	0.5648	0.1977	-0.3670	-26.5095***
$CIR_{i,\Sigma 3y}$	0.9438	1.8183	0.5404	-1.2779	-40.9976***
$CIR_{N_{i,t-3}}$	0.2932	0.5751	0.1631	-0.4120	-28.6581***
$CIR_{N_{i,\Sigma 3y}}$	0.6305	0.3637	1.2090	-0.8453	-40.3836***
$CIR_{S_{i,t-3}}$	0.7107	1.2714	0.4521	-0.8193	-29.8303***
$CIR_{S_{i,\Sigma 3y}}$	1.3064	2.2136	0.8880	-1.3255	-37.8636***
$SIZE_{i,t+1}$	16.9086	17.4152	16.6750	-0.7402	-21.4503***
$ROE_{i,t}$	15.2401	17.6670	14.1208	-3.5462	-1.7027*

Presents the difference in means tests. Panel A shows the difference in means tests of the determinants of CSR reporting ( $CSRR_{i,t}$ ). Panel B shows the difference in means tests of the determinants of future misbehavior ( $CIR_{i,t+1}$ ). Values for  $CIR_{N_{i,t-3}}$ ,  $CIR_{N_{i,\Sigma 3y}}$ ,  $CIR_{S_{i,t-3}}$ , and  $CIR_{S_{i,\Sigma 3y}}$  are logtransformed as in all empirical tests. All variables are defined as in Appendix 3

\*, \*\*, \*\*\* indicate that the estimated differences in means are statistically significant at the 10 percent, 5 percent, and 1 percent level, respectively, using a two-tailed test

**Table 5** Correlations

<b>Panel A: Correlation matrix – prior corporate misbehavior and CSR reporting</b>								
	$CSRR_{I_{i,t}}$	$CSRR_{Q_{i,t}}$	$CIR_{I_{i,t-3}}$	$CIR_{I_{i,\Sigma 3y}}$	$CIR_{N_{i,t-3}}$	$CIR_{N_{i,\Sigma 3y}}$	$CIR_{S_{i,t-3}}$	$CIR_{S_{i,\Sigma 3y}}$
$CSRR_{I_{i,t}}$	1	0.3851*	0.1014*	0.1099*	0.1101*	0.1184*	0.1111*	0.1101*
$CSRR_{Q_{i,t}}$	0.3960*	1	0.1334*	0.1573*	0.1456*	0.1616*	0.1563*	0.1692*
$CIR_{I_{i,t-3}}$	0.1086*	0.1404*	1	0.8063*	0.8900*	0.7623*	0.7052*	0.6277*
$CIR_{I_{i,\Sigma 3y}}$	0.1148*	0.1665*	0.7976*	1	0.7669*	0.9437*	0.6746*	0.7786*
$CIR_{N_{i,t-3}}$	0.1169*	0.1512*	0.9787*	0.7948*	1	0.8228*	0.7625*	0.6618*
$CIR_{N_{i,\Sigma 3y}}$	0.1197*	0.1681*	0.7787*	0.9815*	0.7979*	1	0.7162*	0.8191*
$CIR_{S_{i,t-3}}$	0.1098*	0.1566*	0.7385*	0.6813*	0.7576*	0.6877*	1	0.8520*
$CIR_{S_{i,\Sigma 3y}}$	0.1088*	0.1696*	0.6464*	0.8154*	0.6636*	0.8292*	0.8370*	1

<b>Panel B: Correlation matrix – CSR reporting and future corporate misbehavior</b>					
	$CIR_{I_{t+1}}$	$CIR_{N_{t+1}}$	$CIR_{S_{t+1}}$	$CSRR_{I_{i,t}}$	$CSRR_{Q_{i,t}}$
$CIR_{I_{t+1}}$	1	0.8999*	0.7054*	0.0839*	0.1619*
$CIR_{N_{t+1}}$	0.9826*	1	0.7581*	0.0751*	0.1569*
$CIR_{S_{t+1}}$	0.7171*	0.7319*	1	0.0642*	0.1320*
$CSRR_{I_{i,t}}$	0.1109*	0.1126*	0.0792*	1	0.3851*
$CSRR_{Q_{i,t}}$	0.1658*	0.1658*	0.1300*	0.3960*	1

Presents the correlation matrices with Bravais-Pearson correlations above and Spearman rank correlations below the diagonal. Panel A shows the correlations between the measures of prior corporate misbehavior and CSR reporting. Panel B shows the correlations between the measures of CSR reporting and future corporate misbehavior. All variables are defined as in Appendix 3

\* indicates that the estimated correlations are statistically significant at the 5 percent level

size is similar to factors identified in prior studies, such as firm size, leverage, and age.<sup>31</sup>

Panel B shows the results of an ordinary least squares (OLS) regression on  $CSRR_{Q_{i,t}}$ . For all measures of prior misbehavior, the adjusted  $R^2$  is around 0.39, which indicates that the regression is well-specified. All VIFs are below the conservative threshold of 5. Robust standard errors control for heteroscedasticity. Industry and year fixed effects control for industry and time differences. All measures of prior misbehavior are significantly positively related to  $CSRR_{Q_{i,t}}$ , which implies that the occurrence, number, and severity of prior misbehaviors are associated with higher CSR disclosure quality, i.e., extended information on the items identified as relevant by external agencies such as

<sup>31</sup> Government participation ( $STATE_{i,t}$ ) has no significant effect on CSR reporting. The sign is negative as expected. In our sample, state participation is very low (mean=2.24 percent). This may explain its lack of influence. Share price volatility ( $VOLA_{i,t}$ ) has no significant impact either, consistent with the inconclusive results in prior studies. Leverage ( $LEV_{i,t}$ ) has a significantly positive effect ( $p < 0.01$ ) on CSR reporting (Watson et al. 2002).  $ROE_{i,t}$  is insignificant. The other determinants significantly relate to CSR reporting and carry the expected signs.

**Table 6** Prior corporate misbehavior and CSR reporting (model (1))

**Panel A: Prior corporate misbehavior and the voluntary issuance of a stand-alone GRI report**  
 $CSR_{i,t} = \beta_0 + \beta_1 \text{PriorCIR}_{i,t} + \beta_2 \text{DISI}_{i,t} + \beta_3 \text{UNGC}_{i,t} + \beta_4 \text{AGE}_{i,t} + \beta_5 \text{CROSS}_{i,t} + \beta_6 \text{BRAND}_{i,t} + \beta_7 \text{MSHARE}_{i,t} + \beta_8 \text{STATE}_{i,t} + \beta_9 \text{LEGAL}_{i,t} + \beta_{10} \text{FFLOAT}_{i,t} + \beta_{11} \text{VOLA}_{i,t} + \beta_{12} \text{LEV}_{i,t} + \beta_{13} \text{SIZE}_{i,t} + \beta_{14} \text{ROE}_{i,t} + \text{IND} + \text{YEAR} + \varepsilon_{i,t}$  (1)

**Dependent variable: CSR<sub>i,t</sub>**

	Exp. sign	Column (A)			Column (B)			Column (C)		
		Odds ratio	Coeff	z	Odds ratio	Coeff	z	Odds ratio	Coeff	z
CIR <sub>i,t-3</sub>	+	1.197	0.180	2.11**						
CIR <sub>i,t-3y</sub>	+				1.084	0.081	2.21**	1.223	0.201	2.41**
CIR <sub>N<sub>i,t-3</sub></sub>	+									
CIR <sub>N<sub>i,t-3y</sub></sub>	+									
CIR <sub>S<sub>i,t-3</sub></sub>	+									
CIR <sub>S<sub>i,t-3y</sub></sub>	+									
DISI <sub>i,t</sub>	+	2.394	0.873	10.13***	2.376	0.866	10.00***	2.391	0.872	10.12***
UNGC <sub>i,t</sub>	+	2.663	0.979	10.77***	2.664	0.980	10.77***	2.655	0.976	10.75***
AGE <sub>i,t</sub>	+	1.010	0.010	6.20***	1.010	0.010	6.21***	1.010	0.010	6.18***
CROSS <sub>i,t</sub>	+	1.508	0.411	5.04***	1.505	0.409	5.02***	1.507	0.410	5.03***
BRAND <sub>i,t</sub>	+	1.420	0.350	2.60***	1.399	0.336	2.47***	1.406	0.341	2.53***
MSHARE <sub>i,t</sub>	+	1.025	0.025	3.97***	1.026	0.025	4.04***	1.025	0.025	3.98***
STATE <sub>i,t</sub>	-	0.999	-0.001	-0.37	0.999	-0.001	-0.36	0.999	-0.001	-0.35
LEGAL <sub>i,t</sub>	+	1.852	0.616	6.92***	1.853	0.617	6.93***	1.856	0.618	6.94***
FFLOAT <sub>i,t</sub>	+	1.006	0.006	2.66***	1.006	0.006	2.64***	1.006	0.006	2.68***
VOLA <sub>i,t</sub>	?	0.997	-0.003	-0.44	0.997	-0.003	-0.46	0.998	-0.002	-0.42
LEV <sub>i,t</sub>	?	1.009	0.009	2.97***	1.009	0.009	3.02***	1.009	0.009	3.01***
SIZE <sub>i,t</sub>	+	1.188	0.172	3.37***	1.182	0.167	3.25***	1.180	0.166	3.24***
ROE <sub>i,t</sub>	?	0.999	-0.001	-1.14	0.999	-0.001	-1.14	0.999	-0.001	-1.14
Constant		0.036	-3.330	-3.48***	0.038	-3.267	-3.39***	0.040	-3.220	-3.36***

**Table 6** (continued)

	Included	Included	Included	Included
Industry fixed effects	Included	Included	Included	Included
Year fixed effects	Included	Included	Included	Included
N	4,499	4,499	4,499	4,499
Chi <sup>2</sup>	1,073.43 ***	1,077.56 ***	1,072.99 ***	1,072.99 ***
Pseudo R <sup>2</sup>	0.2640	0.2641	0.2643	0.2643
GOF test	4,395.86	4,387.17	4,396.74	4,396.74
Area under ROC curve	0.8281	0.8281	0.8283	0.8283
Correctly classified	75.35 percent	75.31 percent	75.46 percent	75.46 percent
Highest VIF	3.38	3.39	3.38	3.38
Mean VIF	1.79	1.80	1.79	1.79
<b>Dependent variable:</b>				
<b>CSRR<sub>J<sub>it</sub></sub></b>	<b>Column (D)</b>			
	<b>Exp. sign</b>	<b>Odds ratio</b>	<b>Coeff</b>	<b>z</b>
CIR <sub>J<sub>it</sub>-3</sub>	+	1.165	0.153	2.72***
CIR <sub>J<sub>it</sub>Σ<sup>3y</sup></sub>	+	2.363	0.860	9.94***
CIR <sub>N<sub>it</sub>-3</sub>	+	2.649	0.974	10.71***
CIR <sub>N<sub>it</sub>Σ<sup>3y</sup></sub>	+	1.010	0.010	6.21***
CIR <sub>S<sub>it</sub>-3</sub>	+	1.503	0.407	5.00***
CIR <sub>S<sub>it</sub>Σ<sup>3y</sup></sub>	+	1.374	0.318	2.34**
DISI <sub>it</sub>	+	1.026	0.025	4.05***
UNGC <sub>it</sub>	+	2.397	0.874	10.15***
AGE <sub>it</sub>	+	2.661	0.979	10.76***
CROSS <sub>it</sub>	+	1.508	0.411	6.26***
BRAND <sub>it</sub>	+	1.425	0.354	5.04***
MSHARE <sub>it</sub>	+	1.025	0.025	4.00***
		<b>Odds ratio</b>	<b>Coeff</b>	<b>z</b>
		1.096	0.092	2.05**
		1.064	0.062	1.73
		2.387	0.870	10.06***
		2.653	0.976	10.72***
		1.010	0.010	6.28***
		1.508	0.411	5.04***
		1.426	0.355	2.62***
		1.026	0.025	4.02***
		<b>Odds ratio</b>	<b>Coeff</b>	<b>z</b>
		1.064	0.062	1.73
		2.387	0.870	10.06***
		2.653	0.976	10.72***
		1.010	0.010	6.28***
		1.508	0.411	5.04***
		1.426	0.355	2.62***
		1.026	0.025	4.02***

Table 6 (continued)

STATE <sub>i,t</sub>	-	0.999	-0.001	-0.33	0.999	-0.001	-0.35	0.999	-0.001	-0.35
LEGAL <sub>1</sub>	+	1.863	0.622	6.98***	1.861	0.621	6.97***	1.862	0.622	6.98***
FLOAT <sub>i,t</sub>	+	1.006	0.006	2.65***	1.006	0.006	2.68***	1.006	0.006	2.66***
VOLA <sub>A,i,t</sub>	?	0.997	-0.003	-0.45	0.998	-0.002	-0.41	0.998	-0.002	-0.41
LEV <sub>i,t</sub>	?	1.009	0.009	3.03***	1.009	0.009	2.93***	1.009	0.009	2.93***
SIZE <sub>i,t</sub>	+	1.172	0.159	3.07***	1.176	0.162	3.11***	1.177	0.163	3.08***
ROE <sub>i,t</sub>	?	0.999	-0.001	-1.11	0.999	-0.001	-1.12	0.999	-0.001	-1.12
Constant		0.003	-5.848	-3.22***	0.003	-5.876	-6.11***	0.003	-5.905	-6.07***
Industry fixed effects		Included			Included			Included		
Year fixed effects		Included			Included			Included		
N		4,499			4,499			4,499		
Chi <sup>2</sup>		1,078.17 ***			1,076.25 ***			1,080.43 ***		
Pseudo R <sup>2</sup>		0.2645			0.2640			0.2638		
GOF test		4,385.61			4,393.90			4,383.35		
Area under ROC curve		0.8283			0.8280			0.8279		
Correctly classified		75.46 percent			75.33 percent			75.33 percent		
Highest VIF		3.38			3.38			3.39		
Mean VIF		1.80			1.80			1.80		

Table 6 (continued)

**Panel B: Prior corporate misbehavior and CSR disclosure quality**

$$CSR_{i,t} = \beta_0 + \beta_1 Prior_{i,t} + \beta_2 DIS_{i,t} + \beta_3 UNGC_{i,t} + \beta_4 AGE_{i,t} + \beta_5 CROSS_{i,t} + \beta_6 BRAND_{i,t} + \beta_7 MSHARE_{i,t} + \beta_8 STATE_{i,t} + \beta_9 LEGAL_{i,t} + \beta_{10} FFLOAT_{i,t} + \beta_{11} VOLA_{i,t} + \beta_{12} LEV_{i,t} + \beta_{13} SIZE_{i,t} + \beta_{14} ROE_{i,t} + IND + YEAR + \epsilon_{i,t}$$

**Dependent variable:**

CSR<sub>it</sub>-Q<sub>it</sub>

	Column (A)			Column (B)			Column (C)		
	Exp. sign	Coeff	z	Coeff	z	Coeff	z	Coeff	z
CIR <sub>it</sub> Σ <sub>3</sub>	+	1.017	2.74***						
CIR <sub>it</sub> Σ <sub>3y</sub>	+			0.494	2.93***			1.200	3.52***
CIR <sub>it</sub> Σ <sub>3</sub>	+								
CIR <sub>it</sub> Σ <sub>3y</sub>	+								
CIR <sub>it</sub> Σ <sub>3</sub>	+								
CIR <sub>it</sub> Σ <sub>3y</sub>	+								
DIS <sub>it</sub>	+	5.078	14.01***	5.033	13.87***	5.074	14.02***		
UNGC <sub>it</sub>	+	4.186	10.63***	4.171	10.57***	4.165	10.57***		
AGE <sub>it</sub>	+	-0.016	-2.40**	-0.016	-2.42**	-0.016	-2.41**		
CROSS <sub>it</sub>	+	-0.339	-0.96	-0.365	-1.04	-0.350	-1.00		
BRAND <sub>it</sub>	+	-0.509	-0.97	-0.603	-1.14	-0.572	-1.08		
MSHARE <sub>it</sub>	+	0.161	6.26***	0.164	6.32***	0.162	6.29***		
STATE <sub>it</sub>	-	0.022	1.01	0.022	1.03	0.022	1.02		
LEGAL <sub>it</sub>	+	-3.193	-8.23***	-3.186	-8.22***	-3.195	-8.24***		
FFLOAT <sub>it</sub>	+	0.056	5.18***	0.056	5.13***	0.056	5.15***		
VOLA <sub>it</sub>	?	-0.069	-2.82***	-0.071	-2.89***	-0.069	-2.82***		
LEV <sub>it</sub>	?	-0.021	-1.60	-0.019	-1.48	-0.020	-1.56		
SIZE <sub>it</sub>	+	2.802	11.59***	2.761	11.21***	2.759	11.32***		
ROE <sub>it</sub>	?	0.001	1.21	0.001	1.30	0.001	1.29		
Constant		-19.248	-4.03***	-19.115	-3.98***	-18.493	-3.85***		
Industry fixed effects		Included		Included		Included			

Table 6 (continued)

Year fixed effects		Included	Included	Included			
N	Adjusted R <sup>2</sup>	0.393	0.394	0.394			
Highest VIF	Mean VIF	2.39	2.42	2.41			
		1.48	1.50	1.49			
<b>Dependent variable: CSRR_Q<sub>it</sub></b>							
	<b>Exp. sign</b>	<b>Column (D)</b>		<b>Column (E)</b>		<b>Column (F)</b>	
		<b>Coeff</b>	<b>z</b>	<b>Coeff</b>	<b>z</b>	<b>Coeff</b>	<b>z</b>
CIR_I <sub>it-3</sub>	+						
CIR_I <sub>it</sub> Σ <sub>3y</sub>	+						
CIR_N <sub>it-3</sub>	+						
CIR_N <sub>it</sub> Σ <sub>3y</sub>	+	0.926	3.78***				
CIR_S <sub>it-3</sub>	+			0.499	2.64***		
CIR_S <sub>it</sub> Σ <sub>3y</sub>	+					0.451	2.92***
DISI <sub>it</sub>	+	5.006	13.84***	5.104	14.11***	5.054	13.97***
UNGC <sub>it</sub>	+	4.127	10.44***	4.183	10.63***	4.142	10.5***
AGE <sub>it</sub>	+	-0.016	-2.42**	-0.015	-2.28**	-0.015	-2.29**
CROSS <sub>it</sub>	+	-0.381	-1.09	-0.351	-1.00	-0.376	-1.06
BRAND <sub>it</sub>	+	-0.684	-1.29	-0.437	-0.84	-0.486	-0.93
MSHARE <sub>it</sub>	+	0.165	6.37***	0.162	6.29***	0.165	6.39***
STATE <sub>it</sub>	-	0.022	1.05	0.022	1.02	0.023	1.06
LEGAL <sub>1</sub>	+	-3.176	-8.20***	-3.169	-8.17***	-3.134	-8.06***
FFLOAT <sub>it</sub>	+	0.056	5.07***	0.057	5.20***	0.056	5.16***
VOLA <sub>it</sub>	?	-0.071	-2.90***	-0.068	-2.79***	-0.070	-2.85***
LEV <sub>it</sub>	?	-0.019	-1.50	-0.021	-1.67*	-0.021	-1.63
SIZE <sub>it</sub>	+	2.708	10.93***	2.749	11.09***	2.705	10.74***

**Table 6** (continued)

ROE <sub>i,t</sub>	?	0.001	1.45	0.001	1.25	0.001	1.37
Constant		-18.260	-3.78***	-13.760	-2.87***	-13.583	-2.82***
Industry fixed effects	Included			Included		Included	
Year fixed effects	Included			Included		Included	
N		3,150		3,150		3,150	
Adjusted R <sup>2</sup>		0.395		0.393		0.393	
Highest VIF		2.45		2.48		2.52	
Mean VIF		1.51		1.49		1.51	

Presents the regression results for model (1). Panel A uses  $CSR_{i,t}$  as the dependent variable and hence refers to the association between prior corporate misbehavior and the voluntary issuance of a stand-alone GRI report in  $t$ . It shows the odds ratios, coefficients, and z-statistics from pooled logistic regressions with industry and year fixed effects. Columns (A) to (F) differ in the measures of prior misbehavior: Column (A) includes  $CIR_{i,t-3}$ . Column (B) includes  $CIR_{i,t-3y}$ . Column (C) includes  $CIR_{i,t-3}$ . Column (D) includes  $CIR_{i,t-3y}$ . Column (E) includes  $CIR_{i,t-3}$ . Column (F) includes  $CIR_{i,t-3y}$ . Panel B uses  $CSR_{i,t}$  as dependent variable and hence refers to the association between prior corporate misbehavior and CSR disclosure quality in  $t$ . It shows the coefficients and t-statistics from OLS regressions with industry and year fixed effects. We do not run logistic regressions here since, in contrast to  $CSR_{i,t}$ ,  $CSR_{i,t}$  is not binary. As in panel (A), columns (A) to (F) differ in the measures of prior misbehavior. In both panels, values for  $CIR_{i,t-3}$ ,  $CIR_{i,t-3y}$ , and  $CIR_{i,t-3y}$  are logtransformed as in all empirical tests. All variables are defined as in Appendix 3

\*, \*\*, \*\*\* indicate that the estimated coefficients are statistically significant at the 10 percent, 5 percent, and 1 percent level, respectively, using a two-tailed test

Bloomberg.<sup>32</sup> Overall, our findings support *H1* and imply that firms use CSR reporting to signal that they have learned from past mistakes, or, alternatively, that firms green-wash past misbehavior to reduce reputational damages according to legitimacy theory.

## 6.2 CSR reporting and future corporate misbehavior

Table 7 presents the results for model (2), which tests *H2* on the relation of CSR reporting with future misbehavior.<sup>33</sup> Panel A columns (A) through (F) show the results for the decision to issue a CSR report ( $CSRR_{i,t}$ ) and our three measures of future misbehavior  $CIR_{i,t+1}$ , with two alternative prior period measures of misbehavior as a control. The Durbin-Wu-Hausman test indicates endogeneity related to  $CSRR_{i,t}$  ( $p < 0.01/0.05$ ) in all cases. The centered  $R^2$  is between 0.10 and 0.49. The models are highly significant ( $p < 0.01$ ).  $AGE_{i,t}$  and  $FFLOAT_{i,t}$  fulfill the criterion of relevance, as simple correlations (untabulated) and multivariate tests (Tables 6 and 7) indicate significant relations to  $CSRR_{i,t}$ .<sup>34</sup> Regarding exogeneity,  $AGE_{i,t}$  and  $FFLOAT_{i,t}$  show no economically meaningful correlations with any measure of  $FutureCIR_{i,t+1}$  (between 0.03 and 0.08).<sup>35</sup> The Kleinbergen-Papp F statistic of the first stage is between 46 and 48, which is above the critical value of 19.93 for a model with one endogenous regressor and two IVs (Stock and Yogo 2002; Bascle 2008).<sup>36</sup> We can reject weak identification and associated asymptotic biases based on these results (Bascle 2008) and confirm the relevance and suitability of the IVs. We find a significantly positive association of  $CSRR_{i,t}$  with all measures of  $FutureCIR_{i,t+1}$  ( $p < 0.01/0.05$ ), consistent with *H2* and legitimacy theory. In all columns, we document a positive association between past and future misbehavior. Column (G) analyzes the incremental effect of the severity of prior misconduct in more detail. We include the interaction of  $CIR_{i,\Sigma 3y}$  and  $CIR_{S_{i,\Sigma 3y}}$  in model (2) with future misconduct  $CIR_{S_{i,t+1}}$  as the dependent variable. We continue to find a significantly positive association of  $CSRR_{i,t}$  with  $CIR_{S_{i,t+1}}$  (0.263;  $p < 0.05$ ). Moreover, while we find that the coefficient on  $CIR_{S_{i,\Sigma 3y}}$  is positive (0.352;  $p < 0.01$ ), the coefficient on  $CIR_{i,\Sigma 3y}$  is negative (-0.256;  $p < 0.01$ ), which indicates that prior incidents of misbehavior in the absence of high severity are associated with less severe future misconduct. However, the interaction is positively significant (0.114;  $p < 0.01$ ), implying that the severity of future misbehavior increases in the frequency of prior misbehavior when the incidents are more severe.

<sup>32</sup> This is in line with literature on ESG rating coverage, such as by Bloomberg, that finds an increase in CSR disclosures for more-covered firms (Bikmetova and Pirinsky 2022).

<sup>33</sup> We use heteroscedasticity-robust standard errors ( $r$ ) since the Pagan-Hall test is significant with  $p < 0.01$  and rejects homoscedasticity.

<sup>34</sup> This also holds for the additional IVs  $DJSI_{i,t-1}$  and  $CROSS_{i,t}$ .

<sup>35</sup> Correlations of  $DJSI_{i,t-1}$  and  $CROSS_{i,t}$  are slightly higher (between 0.16 and 0.18), but the C statistic test of exogeneity for  $DJSI_{i,t-1}$  and  $CROSS_{i,t}$  finds insignificant results in our additional analyses ( $p > 0.1$ , untabulated), supporting their exogeneity (Bascle 2008). Prior studies have validated the exogeneity of firm age (e.g., Harjoto and Jo 2011; Christensen 2016); hence, the prerequisite to perform the C statistic test of at least one exogenous instrument (Wooldridge 2013) may be considered fulfilled.

<sup>36</sup> We cannot use the Anderson-Rubin or Cragg-Donald tests (which also serve to validate relevance) since we use heteroscedasticity-robust standard errors (e.g., Baum et al. 2007; Cheng et al. 2014).



Table 7 (continued)

1 <sup>st</sup> stage results with dependent variable: CSRR $I_{i,t}$												
	Coeff.	t	Coeff.	t	Coeff.	t	Coeff.	t	Coeff.	t	Coeff.	t
$AGE_{i,t}$	0.002	6.29***	0.002	6.30***	0.002	6.28***	0.002	6.27***	0.002	6.37***	0.002	6.37***
$FLOAT_{i,t}$	0.001	2.42**	0.001	2.40**	0.001	2.42**	0.001	2.36**	0.001	2.42**	0.001	2.44**
$UNGC_{i,t+1}$	0.211	12.58***	0.211	12.59***	0.210	12.55***	0.210	12.55***	0.211	12.62***	0.211	12.59***
$PO_i$	-0.191	-6.37***	-0.190	-6.35***	-0.192	-6.40***	-0.192	-6.40***	-0.190	-6.35***	-0.189	-6.32***
$HO_i$	0.054	2.51**	0.054	2.52**	0.054	2.50**	0.055	2.57***	0.054	2.52**	0.052	2.41**
$GLOBAL_{i,t+1}$	0.001	4.59***	0.001	4.58***	0.001	4.51***	0.001	4.45***	0.001	4.60***	0.001	4.55***
$CIR_{I,t+3}$	0.028	1.92*										
$CIR_{I,t+3y}$			0.010	1.59	0.032	2.24**					-0.012	0.84
$CIR_{N,t+3}$					0.022	2.25**			0.013	1.71*		
$CIR_{N,t+3y}$											0.006	1.05
$CIR_{S,t+3}$											0.017	1.89*
$CIR_{S,t+3y}$											0.018	2.52**
$CIR_{I,t+3y} * CIR_{S,t+3y}$			0.018	2.58***	0.017	2.49**	0.016	2.31**	0.017	2.43**	0.017	2.36**
$SIZE_{i,t+1}$	0.018	2.66***	-0.000	-1.22	-0.000	-1.21	-0.000	-1.19	-0.000	-1.22	-0.000	-1.25
$ROE_{i,t}$	0.700	3.82***	0.699	3.80***	0.726	3.95***	0.734	3.96***	0.716	3.87***	0.696	3.75***
Constant	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
Industry fixed effects	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
Year fixed effects	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included

Panel B: CSR disclosure quality and future misbehavior														
$FutureCIR_{i,t+1} = \beta_0 + \beta_1 CSRR\_Q_{i,t} + \beta_2 UNGC_{i,t+1} + \beta_3 PO_i + \beta_4 HO_i + \beta_5 GLOBAL_{i,t+1} + \beta_6 PriorCIR_{i,t+3y} + \beta_7 SIZE_{i,t+1} + \beta_8 ROE_{i,t} + \beta_9 IND + YEAR + e_{i,t+1}$														
Dep. var. 2 <sup>nd</sup> stage	Column (A)		Column (B)		Column (C)		Column (D)		Column (E)		Column (F)		Column (G)	
	Coeff.	z	Coeff.	z	Coeff.	z	Coeff.	z	Coeff.	z	Coeff.	z	Coeff.	z
$CSRR\_Q_{i,t}$ (instrument)	0.021	4.11***	0.015	3.37***	0.014	2.97***	0.008	1.88*	0.031	3.72***	0.019	2.65***	0.021	2.97***
$UNGC_{i,t+1}$	-0.045	-2.01**	-0.039	-1.97**	-0.036	-1.81*	-0.033	-1.85*	-0.076	-2.03**	-0.078	-2.33**	-0.075	-2.29**
$PO_i$	0.093	2.28**	0.079	2.22**	0.041	1.17	0.025	0.82	0.130	1.98**	0.077	1.31	0.084	1.46
$HO_i$	-0.014	-0.51	-0.012	-0.49	-0.017	-0.73	-0.010	-0.47	0.018	0.41	0.034	0.91	0.025	0.66
$GLOBAL_{i,t+1}$	-0.000	-0.22	-0.000	-0.45	0.000	0.20	0.000	0.09	-0.001	-1.76*	-0.001	-2.06**	-0.001	-2.08**
$CIR_{I,t+3}$	0.258	12.10***			0.321	15.45***							-0.256	-7.20***
$CIR_{I,t+3y}$			0.176	21.19***										
$CIR_{N,t+3}$					0.288	21.73***								
$CIR_{N,t+3y}$							0.288	21.73***						
$CIR_{S,t+3}$									0.417	21.79***			0.408	32.03***
$CIR_{S,t+3y}$													0.316	14.19***
$CIR_{I,t+3y} * CIR_{S,t+3y}$													0.121	9.98***

**Table 7** (continued)

$SIZE_{i,t+1}$	0.024	1.32	0.010	0.61	0.042	2.48**	0.031	2.04**	0.089	3.03***	0.062	2.42**	0.041	1.65*
$ROE_{i,t}$	-0.000	-1.93*	-0.000	-0.84	-0.000	-1.57	-0.000	-0.32	0.000	1.41	0.000	3.07***	0.000	3.06***
Constant	-1.240	-5.17***	-0.790	-3.68***	-1.085	-5.01***	-0.690	-3.53***	-2.851	-7.08***	-1.960	-5.48***	-1.623	-4.59***
Industry fixed effects	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
Year fixed effects	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
N	3,150	3,150	3,150	3,150	3,150	3,150	3,150	3,150	3,150	3,150	3,150	3,150	3,150	3,150
F statistic	332.84***	263.54***	263.54***	51.17***	51.17***	0.2490	0.3673	62.42***	98.48***	0.3213	125.63***	0.4559	138.93***	0.4711
Centered R <sup>2</sup>	0.1016	0.2678	0.2678	6.32	6.27	6.32	6.25	6.25	6.31	6.27	6.27	6.27	8.13	8.13
Highest VIF	6.35	2.47	2.47	2.45	2.45	2.45	2.47	2.47	2.46	2.46	2.48	2.48	3.46	3.46
Mean VIF	18.385***	10.649***	10.649***	8.728***	8.728***	3.073*	3.073*	3.073*	15.108***	15.108***	7.437***	7.437***	9.333***	9.333***
Durbin-Wu-Hausman	35.172	34.399	34.399	34.875	34.875	33.722	33.722	33.722	35.468	35.468	34.583	34.583	34.112	34.112
Chi2 (endogeneity)														
Kleinbergen-Paap Wald														
rk F statistic (weak identification)														
<b>1<sup>st</sup> stage results with dependent variable: <math>CSR_{i,t}</math></b>														
	<b>Coeff.</b>	<b>t</b>	<b>Coeff.</b>	<b>t</b>	<b>Coeff.</b>	<b>t</b>	<b>Coeff.</b>	<b>t</b>	<b>Coeff.</b>	<b>t</b>	<b>Coeff.</b>	<b>t</b>	<b>Coeff.</b>	<b>t</b>
$AGE_{i,t}$	-0.014	-2.14**	-0.014	-2.15**	-0.014	-2.16**	-0.015	-2.17**	-0.014	-2.05**	-0.014	-2.08**	-0.014	-2.12**
$FFLOAT_{i,t}$	0.084	8.36***	0.084	8.26***	0.084	8.32***	0.083	8.17***	0.084	8.41***	0.084	8.30***	0.083	8.23***
$UNGC_{i,t+1}$	2.659	6.61***	2.653	6.60***	2.637	6.54***	2.620	6.49***	2.678	6.67***	2.653	6.61***	2.652	6.60***
$PO_{i,t}$	-3.260	-4.10***	-3.242	-4.08***	-3.297	-4.14***	-3.277	-4.12***	-3.267	-4.11***	-3.281	-4.13***	-3.265	-4.10***
$HO_{i,t}$	-2.740	-4.58***	-2.720	-4.54***	-2.744	-4.59***	-2.695	-4.50***	-2.746	-4.58***	-2.708	-4.51***	-2.710	-4.51***
$GLOBAL_{i,t+1}$	0.054	7.81***	0.053	7.72***	0.053	7.71***	0.053	7.61***	0.054	7.85***	0.054	7.76***	0.053	7.71***
$CIR_{i,t+3}$	0.848	2.26**												
$CIR_{i,t+2y}$			0.354	2.09**	1.002	2.94***	0.681	2.77***					0.055	0.14
$CIR_{i,t+3}$									0.368	1.93*				
$CIR_{i,t+2y}$											0.329	2.10**	0.121	0.52
$CIR_{i,t+3y}$													0.075	0.56
$CIR_{i,t+2y}$													2.673	12.99***
$CIR_{i,t+3}$													0.003	1.51
$CIR_{i,t+3}$													0.003	1.50
$CIR_{i,t+2y}$													14.952	2.88***
$CIR_{i,t+2y}$													15.086	2.89***
$CIR_{i,t+2y}$													Included	Included
$CIR_{i,t+2y}$													Included	Included
$SIZE_{i,t+1}$	2.745	14.30***	2.719	13.70***	2.705	13.89***	2.672	13.32***	2.720	13.58***	2.683	12.99***	2.673	12.99***
$ROE_{i,t}$	0.003	1.46	0.003	1.48	0.003	1.49	0.003	1.51	0.003	1.48	0.003	1.51	0.003	1.50
Constant	14.032	2.78***	14.244	2.80***	14.985	2.93***	15.174	2.95***	14.516	2.81***	14.952	2.88***	15.086	2.89***
Industry fixed effects	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
Year fixed effects	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included

**Table 7** (continued)

Presents the first and second stage coefficients and  $t$ - $z$ -statistics from a 2SLS regression of model (2) with industry and year fixed effects. Panel A uses  $CSR_{i,t}$  as CSR reporting variable and hence refers to the association between the voluntary issuance of a stand-alone GRI report in  $t$  and future corporate misbehavior in  $t+1$ . Columns (A) to (G) differ in the measure of prior and future misbehavior: Column (A) includes  $CIR_{i,t}$  and  $CIR_{i,t+1}$ . Column (B) includes  $CIR_{i,t}$  and  $CIR_{i,t+1}$ . Column (C) includes  $CIR_{i,t}$  and  $CIR_{i,t+1}$ . Column (D) includes  $CIR_{i,t}$  and  $CIR_{i,t+1}$ . Column (E) includes  $CIR_{i,t}$  and  $CIR_{i,t+1}$ . Column (F) includes  $CIR_{i,t}$  and  $CIR_{i,t+1}$ . Column (G) includes  $CIR_{i,t}$  and  $CIR_{i,t+1}$ . Panel B uses  $CSR_{i,t}$  as CSR reporting variable and hence refers to the association between CSR disclosure quality in  $t$  and future corporate misbehavior in  $t+1$ . As in panel A, columns (A) to (G) differ in the measures of prior and future misbehavior. In both panels, values for  $CIR_{i,t}$ ,  $CIR_{i,t+1}$ ,  $CIR_{i,t}$  and  $CIR_{i,t+1}$  are logtransformed as in all empirical tests. All variables are defined as in Appendix 3

\*, \*\*, \*\*\* indicate that the estimated coefficients are statistically significant at the 10 percent, 5 percent, and 1 percent level, respectively, using a two-tailed test

Panel B shows the results for  $CSRR\_Q_{i,t}$ . The endogeneity results are similar to  $CSRR\_I_{i,t}$ . In columns (A) through (G), we find a significantly positive association of  $CSRR\_Q_{i,t}$  with all measures of  $FutureCIR_{i,t+1}$  ( $p < 0.01/0.1$ ), consistent with  $H2$  and legitimacy theory. Voluntary CSR reporting does not seem to foster behavioral change and break the direct relation between prior and future misbehavior. The interaction results in column (G) are largely equivalent to panel A. Overall, the results imply that more extensive voluntary CSR reporting is not a signal of credible CSR commitment. Instead, more extensive voluntary CSR reporting is associated with an increase in the occurrence, number, and severity of future misbehaviors; hence, it likely serves as an instrument of impression management and greenwashing.

Table 8 presents the results for the SR model, where we trim outliers in all continuous variables at the 2.5th and 97.5th percentiles (panel A with  $CSRR\_I_{i,t}$ :  $N = 4,278$ , panel B with  $CSRR\_Q_{i,t}$ :  $N = 2,996$ ) and de-mean  $V$  to ensure that its mean is zero, consistent with the underlying methodology (Dong and Lewbel 2015; Bontemps and Nauges 2016). The general White (1980) test negates heteroscedasticity. We present marginal effects since regression coefficients in binary models have less explanatory power. The results are inferentially equivalent to the 2SLS results. All measures of  $FutureCIR_{i,t+1}$  are positively associated with  $CSRR\_I_{i,t}$  ( $p < 0.01/0.05/0.1$ ) and  $CSRR\_Q_{i,t}$  ( $p < 0.01/0.05$ ). All SR model specifications show adequate test statistics.

## 7 Additional analyses and robustness

In additional and robustness analyses, we address concerns that factors such as a firm's CSR reporting history, alternative IVs, variable measurement, model specification, or sample composition may affect our results. All tests strongly support our main inferences. Table 9 summarizes the results for models (1) and (2) for our measures of prior and future misbehavior based on  $CIR\_I_{i,t}$ . Results with our other measures of misbehavior (based on  $CIR\_N_{i,t}$ ,  $CIR\_S_{i,t}$ ) are inferentially equivalent.

### 7.1 Reporting history

First, we address the concern that the firm's history of CSR reporting may affect our results. Following Granger (1969), we include an additional variable in model (1) that accounts for prior CSR reporting. We use either a dichotomous variable that indicates whether firm  $i$  has issued a GRI report in any year prior to  $t$  ( $PriorGRI\_I_{i,t}$ ) or a categorical variable that counts the number of prior GRI reports before  $t$  ( $PriorGRI\_N_{i,t}$ ). For both variants, we find a significantly positive association with CSR reporting in  $t$  ( $CSRR\_I_{i,t}$  or  $CSRR\_Q_{i,t}$ ) ( $p < 0.01$ , untabulated). As in our main analyses, we find a significantly positive association between each measure of prior misbehavior ( $CIR\_I_{i,t-3}$ ,  $CIR\_I_{i,\Sigma 3y}$ ,  $CIR\_N_{i,t-3}$ ,  $CIR\_N_{i,\Sigma 3y}$ ,  $CIR\_S_{i,t-3}$ , or  $CIR\_S_{i,\Sigma 3y}$ ) and  $CSRR\_Q_{i,t}$  ( $p < 0.01/0.05$ ). However, there is no significant relation with  $CSRR\_I_{i,t}$ . Subsequent to misbehavior, firms with a (more experienced) history of CSR reporting improve the quality of their reports rather than increase their likelihood of issuing another CSR report, which is not surprising since they have already been issuing

Table 8 CSR reporting and future corporate misbehavior (SR model)

**Panel A: Voluntary issuance of a stand-alone GRI report and future misbehavior**

$$FutureCIR_{i,t+1} = \beta_0 + \beta_1 CSR_{i,t} + \beta_2 UNGC_{i,t+1} + \beta_3 PO_{i,t} + \beta_4 HO_{i,t} + \beta_5 GLOBAL_{i,t+1} + \beta_6 PriorCIR_{i,t-3} \Sigma_{3y} + \beta_7 SIZE_{i,t+1} + \beta_8 ROE_{i,t} + \beta_9 EXCHANGE_{i,t} + IND + YEAR + \epsilon_{i,t+1} \quad (4)$$

Dep. variable	Column (A)		Column (B)		Column (C)		Column (D)		Column (E)		Column (F)	
	Coef. z	Marg. Effect	Coef. z	Marg. Effect	Coef. z	Marg. Effect	Coef. z	Marg. Effect	Coef. z	Marg. Effect	Coef. z	Marg. Effect
<i>CSR<sub>i,t</sub></i> (instrument)	0.018 3.81***	0.104 3.85***	0.015 3.21***	0.092 2.39**	0.017 3.27***	0.109 3.86***	0.019 4.28***	0.118 7.41***	0.026 3.32***	0.204 3.99***	0.015 1.92*	0.131 1.80**
<i>UNGC<sub>i,t+1</sub></i>	-0.004 -2.44**	-0.021 -3.31***	-0.003 -2.34**	-0.021 -1.61	-0.004 -2.52**	-0.026 -1.80*	-0.005 -3.53***	-0.030 -3.15***	-0.010 -4.13***	-0.079 -4.83***	-0.008 -3.42***	-0.072 -3.02**
<i>PO<sub>i,t</sub></i>	0.008 3.83***	0.048 4.90***	0.006 3.60***	0.034 2.15**	0.008 3.34***	0.050 3.50***	0.006 3.08***	0.039 2.23**	0.003 0.83	0.023 0.64	0.001 0.42	0.013 0.36
<i>HO<sub>i,t</sub></i>	-0.006 -4.16***	-0.033 -2.63***	-0.006 -4.39***	-0.036 -3.33***	-0.007 -4.38***	-0.042 -4.59***	-0.005 -3.87***	-0.031 -4.29***	-0.006 -2.49**	-0.045 -2.56**	-0.004 -1.85*	-0.036 -1.78*
<i>GLOBAL<sub>i,t+1</sub></i>	0.000 1.71*	0.000 1.38	0.000 1.14	0.000 0.66	0.000 0.96	0.000 1.15	0.000 0.44	0.000 0.41	0.000 0.08	0.000 0.08	-0.000 -0.33	-0.000 -0.27
<i>CIR<sub>i,t-3</sub></i>	0.005 4.59***	0.026 2.35**	0.004 9.41***	0.024 4.30***	0.008 7.43***	0.049 5.19***	0.006 9.87***	0.037 6.81***	0.011 13.51***	0.089 6.40***	0.012 18.20***	0.102 9.71***
<i>CIR<sub>i,t-3y</sub></i>												
<i>CIR<sub>i,t-6</sub></i>												
<i>CIR<sub>i,t-9</sub></i>												
<i>CIR<sub>i,t-12</sub></i>												
<i>SIZE<sub>i,t+1</sub></i>	0.002 3.52***	0.010 1.95*	0.001 2.51**	0.007 1.57	0.002 3.84***	0.013 2.65***	0.001 3.14***	0.009 3.21***	0.055 6.73***	0.044 4.05***	0.005 5.77***	0.041 5.91***
<i>ROE<sub>i,t</sub></i>	-0.000 -0.42	-0.000 -0.11	0.000 0.44	0.000 0.08	0.000 0.44	0.000 0.30	0.000 0.64	0.000 0.13	0.000 0.56	0.000 0.31	0.000 0.75	0.000 0.43
<i>Constant</i>	-0.055 -4.46***	-0.310 -3.77***	-0.031 -2.61***	-0.191 -1.83*	-0.060 -4.48***	-0.375 -3.94***	-0.049 -4.28***	-0.303 -3.17***	-0.102 -5.17***	-0.808 -4.55***	-0.083 -4.30***	-0.737 -6.13***
<i>Special regressor</i>	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
<i>Industry fixed effects</i>	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
<i>Year fixed effects</i>	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
N	4,278	4,278	4,278	4,278	4,278	4,278	4,278	4,278	4,278	4,278	4,278	4,278
Chi <sup>2</sup>	1,075.14 ***		1,253.10 ***		1,026.23 ***		1,168.12 ***		900.43 ***	1,119.98 ***		
RMSE	0.027		0.027		0.030		0.025		0.044	0.043		
Sigma	5.96		6.15		5.50		5.89		6.26	6.34		
White test (homoskedasticity)	241.70 ***		220.54 ***		246.79 ***		222.65 ***		237.41 ***	230.21 ***		
Trimming level	2.5		2.5		2.5		2.5		2.5	2.5		
Bootstrap samples	10		10		10		10		10	10		
Sargan statistic (overid. restrictions test)	-346.252		-354.041		-329.438		-270.521		-487.054	-474.606		
Basmann statistic (overid. restrictions test)	-4,293.60		-4,294.78		-4,290.86		-4,278.61		-4,309.19	-4,308.18		

Table 8 (continued)

**Panel B: CSR disclosure quality and future misbehavior**

$$FutureCIR_{i,t+1} = \beta_0 + \beta_1 CSR_{i,t} + \beta_2 UNGC_{i,t+1} + \beta_3 PO_i + \beta_4 HO_i + \beta_5 GLOBAL_{i,t+1} + \beta_6 PriorCIR_{i,t-3\Delta y} + \beta_7 SIZE_{i,t+1} + \beta_8 ROE_{i,t} + \beta_9 EXCHANGE_{i,t} + IND_{i,t} + YEAR + \epsilon_{i,t+1} \quad (4)$$

Dep. variable 2 <sup>nd</sup> stage	Column (A)		Column (B)		Column (C)		Column (D)		Column (E)		Column (F)	
	Coeff. z	Marg. Effect	Coeff. z	Marg. Effect	Coeff. z	Marg. Effect	Coeff. z	Marg. Effect	Coeff. z	Marg. Effect	Coeff. z	Marg. Effect
<i>CSR Q<sub>i,t</sub> (instrument)</i>	0.001 6.73***	0.005 9.79***	0.001 6.09***	0.005 8.37***	0.002 6.26***	0.005 5.30***	0.002 6.31***	0.005 4.26***	0.002 4.97***	0.013 5.67***	0.001 4.00***	0.012 2.03**
<i>UNGC<sub>i,t+1</sub></i>	-0.002 -2.01**	-0.008 -1.21	-0.003 -2.16**	-0.010 -2.47***	-0.004 -2.87***	-0.012 -2.21**	-0.005 -3.76***	-0.017 -1.78*	-0.007 -3.83***	-0.057 -3.96***	-0.006 -3.31***	-0.056 -4.16***
<i>PO<sub>i</sub></i>	0.001 0.42	0.003 0.27	0.004 4.52	0.013 1.14	-0.002 -0.93	-0.007 -0.67	-0.002 -0.77	-0.006 -0.98	-0.004 -1.24	-0.033 -3.33***	-0.003 -1.13	-0.034 -0.70
<i>HO<sub>i</sub></i>	-0.001 -0.884	-0.004 -0.29	-0.002 -1.39	-0.008 -0.93	-0.000 -0.13	-0.001 -0.08	-0.001 -0.62	-0.004 -0.51	0.001 0.37	0.007 0.26	0.002 0.94	0.020 0.41
<i>GLOBAL<sub>i,t+1</sub></i>	-0.000 -4.31***	-0.000 -3.61***	-0.000 -3.73***	-0.000 -3.01***	-0.000 -4.62***	-0.000 -8.79***	-0.000 -5.19***	-0.000 -5.35***	0.000 -3.06***	-0.001 -3.48***	0.000 -2.85***	-0.001 -1.99**
<i>CIR<sub>i,t+3</sub></i>	0.004 3.87***	0.013 1.07										
<i>CIR<sub>i,t+2y</sub></i>			0.003 6.54***	0.012 2.75***	0.006 4.71***	0.017 2.67***						
<i>CIR<sub>i,t+1.5y</sub></i>							0.020 3.66***					
<i>CIR<sub>i,t+1.3y</sub></i>								0.064 3.70***				
<i>CIR<sub>i,t+1.1y</sub></i>									0.008 9.20***			
<i>CIR<sub>i,t+0.9y</sub></i>										0.008 12.98***		0.081 2.44**
<i>ROE<sub>i,t</sub></i>	-0.002 -1.99**	-0.005 -0.67	-0.002 -2.35**	-0.007 -2.14**	-0.002 -1.68*	-0.005 -1.42	-0.002 -2.32**	-0.007 -1.21	0.001 0.38	0.004 0.33	0.000 0.32	0.004 0.11
<i>SIZE<sub>i,t+1</sub></i>	0.000 0.57	-0.000 -0.11	-0.000 -0.41	-0.000 -0.16	-0.000 -0.24	-0.000 -0.07	-0.000 -0.16	-0.000 -0.05	-0.000 -0.27	-0.000 -0.09	-0.000 -0.15	-0.000 -0.02
<i>Constant</i>	-0.074 -3.18***	-0.141 -0.92	-0.044 -3.26***	-0.169 -1.84*	-0.047 -2.89***	-0.137 -1.48	-0.037 -2.31**	-0.118 -1.48	-0.077 -3.61***	-0.600 -3.30***	-0.069 -3.64***	-0.683 -1.59
<i>Special regressor</i>	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
<i>Industry fixed effects</i>	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
<i>Year fixed effects</i>	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
N	2,996	2,996	2,996	2,996	2,996	2,996	2,996	2,996	2,996	2,996	2,996	2,996
Chi <sup>2</sup>	622.97 ***	715.05 ***	715.05 ***	715.05 ***	564.50 ***	564.50 ***	638.46 ***	638.46 ***	539.93 ***	539.93 ***	674.04 ***	674.04 ***
RMSE	0.026	0.025	0.025	0.026	0.03	0.03	0.03	0.03	0.039	0.039	0.034	0.034
Sigma	6.18	6.26	6.26	6.18	6.74	6.74	6.61	6.61	5.8	5.8	6.04	6.04
White test (homoskedasticity)	203.61 ***	210.28 ***	210.28 ***	210.28 ***	198.64 ***	198.64 ***	211.76 ***	211.76 ***	206.27 ***	206.27 ***	207.70 ***	207.70 ***
Trimming level	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Bootstrap samples	10	10	10	10	10	10	10	10	10	10	10	10
Sargan statistic (overid. restrictions test)	-231.035	-202.186	-202.186	-202.186	-173.809	-173.809	-153.478	-153.478	-375.774	-375.774	-344.216	-344.216
Basmann statistic (overid. restrictions test)	-2,993.20	-2,984.61	-2,984.61	-2,984.61	-2,980.32	-2,980.32	-2,973.48	-2,973.48	-3,008.17	-3,008.17	-3,006.17	-3,006.17

**Table 8** (continued)

Presents the coefficients and marginal effects with z-statistics from a SR regression of model (4) with industry and year fixed effects. Panel A uses  $CSR_{i,t}$  as CSR reporting variable and hence refers to the association between the voluntary issuance of a stand-alone GRI report in t and future corporate misbehavior in t+1. Columns (A) to (F) differ in the measures of prior and future misbehavior: Column (A) includes  $CIR_{i,t+1}$  and  $CIR_{i,t+1}$ . Column (B) includes  $CIR_{i,t+1}$  and  $CIR_{i,t+1}$ . Column (C) includes  $CIR_{i,t+1}$  and  $CIR_{i,t+1}$ . Column (D) includes  $CIR_{i,t+1}$  and  $CIR_{i,t+1}$ . Column (E) includes  $CIR_{i,t+1}$  and  $CIR_{i,t+1}$ . Column (F) includes  $CIR_{i,t+1}$  and  $CIR_{i,t+1}$ . Panel B uses  $CSR_{i,t}$  as CSR reporting variable and hence refers to the association between CSR disclosure quality in t and future corporate misbehavior in t+1. As in panel (A), columns (A) to (F) differ in the measures of prior and future misbehavior. In both panels, values for  $CIR_{i,t+1}$ ,  $CIR_{i,t+1}$ ,  $CIR_{i,t+1}$ ,  $CIR_{i,t+1}$ ,  $CIR_{i,t+1}$ , and  $CIR_{i,t+1}$  are logtransformed as in all empirical tests. All continuous variables are trimmed at the 2.5th and 97.5th percentile, consistent with the underlying methodology (Dong and Lewbel 2015; Bontemps and Nauges 2016). Standard errors (untabulated) of the marginal effects at the mean are bootstrapped. All variables are defined as in Appendix 3

\*, \*\*, \*\*\* indicate that the estimated coefficients are statistically significant at the 10 percent, 5 percent, and 1 percent level, respectively, using a two-tailed test

**Table 9** Additional analyses and robustness

Regression specification	(A) Coeff. (z) $CIR_{I,t+3}$ on $CSRR_{I,t}$ (model (1))	(B) Coeff. (t) $CIR_{I,t+3}$ on $CSRR_{I,t}$ (model (1))	(C) Coeff. (z) $CSRR_{I,t}$ on $CIR_{I,t+1}$ (model (2))	(D) Coeff. (z) $CSRR_{I,t}$ on $CIR_{I,t+1}$ (model (2))
Reference models with $CIR_{I,t+3}$ and $CIR_{I,t+1}$ (Table 6 and 7)	0.180 (2.11) **	1.017 (2.74) ***	0.448 (5.84) ***	0.021 (4.11) ***
<b>Reporting history (Sect. 7.1)</b>				
<i>PriorGR</i> $J_{i,t}$ as an additional variable in model (1) (following Granger (1969)) and as an alternative variable to $CSRR_{i,t}$ in model (2)	0.084 (0.84)	0.829 (2.29) **	0.326 (5.74) ***	0.326 (5.74) ***
<i>PriorGR</i> $N_{i,t}$ as an additional variable in model (1) (following Granger (1969)) and as an alternative variable to $CSRR_{i,t}$ in model (2)	0.119 (1.24)	0.757 (2.11) **	0.063 (5.79) ***	0.063 (5.79) ***
<b>Alternative instrumental variables (Sect. 7.2)</b>				
$AGE_{i,t}^{gr}, FFLOAT_{i,t}, DJSI_{i,t+1}, CROSS_{i,t}$	–	–	0.330 (3.09) ***	0.021 (5.45) ***
$AGE_{i,t}^{gr}, DJSI_{i,t+1}, CROSS_{i,t}$ (without $FFLOAT_{i,t}$ )	–	–	0.422 (5.43) ***	0.020 (4.11) ***
$AGE_{i,t}^{gr}, FFLOAT_{i,t}, DJSI_{i,t+1}$ (without $CROSS_{i,t}$ )	–	–	0.429 (5.08) ***	0.020 (5.40) ***
$AGE_{i,t}^{gr}, FFLOAT_{i,t}, CROSS_{i,t}$ (without $DJSI_{i,t+1}$ )	–	–	0.393 (4.25) ***	0.022 (4.25) ***
$FFLOAT_{i,t}, DJSI_{i,t+1}, CROSS_{i,t}$ (without $AGE_{i,t}$ )	–	–	0.554 (6.12) ***	0.021 (5.43) ***
$AGE_{i,t}^{gr}, DJSI_{i,t+1}$ (without $FFLOAT_{i,t}, CROSS_{i,t}$ )	–	–	0.389 (4.50) ***	0.019 (3.86) ***
$AGE_{i,t}^{gr}, CROSS_{i,t}$ (without $FFLOAT_{i,t}, DJSI_{i,t+1}$ )	–	–	0.316 (3.30) ***	0.054 (3.27) ***
$FFLOAT_{i,t}, DJSI_{i,t+1}$ (without $AGE_{i,t}, CROSS_{i,t}$ )	–	–	0.599 (5.33) ***	0.021 (5.45) ***
$FFLOAT_{i,t}, CROSS_{i,t}$ (without $AGE_{i,t}, DJSI_{i,t+1}$ )	–	–	0.581 (4.60) ***	0.024 (4.28) ***
$DJSI_{i,t+1}, CROSS_{i,t}$ (without $AGE_{i,t}, FFLOAT_{i,t}$ )	–	–	0.523 (5.62) ***	0.021 (4.15) ***
$RD_{i,t}$ and $CSRR_{I,t+3}$ as additional IVs (following Christensen (2016))	–	–	0.138 (3.95) ***	0.014 (4.69) ***
<b>Alternative variable measurement (Sect. 7.3)</b>				
Refinitiv's ESG controversy score in t-3 ( $CIR_{R_{i,t+3}}$ ) and in t+1 ( $CIR_{R_{i,t+1}}$ ) instead of CCRD measures	0.222 (1.85) *	0.995 (1.94) *	0.166 (2.78) ***	0.011 (3.46) ***
Applying Refinitiv's weighting mechanism to CCRD-based measures of the number of misbehaviors in t-3 ( $CIR_{Nw_{i,t+3}}$ ) and in t+1 ( $CIR_{Nw_{i,t+1}}$ )	0.345 (2.38) **	2.238 (3.48) ***	0.143 (3.72) ***	0.007 (3.85) ***

Table 9 (continued)

Regression specification	(A) Coeff. (z) $CIR_{i,t+3}$ on $CSRR_{i,t}$ (model (1))	(B) Coeff. (t) $CIR_{i,t+3}$ on $CSRR_{i,t}$ (model (1))	(C) Coeff. (z) $CSRR_{i,t}$ on $CIR_{i,t+1}$ (model (2))	(D) Coeff. (z) $CSRR_{i,t}$ on $CIR_{i,t+1}$ (model (2))
Applying Refinitiv's weighting mechanism to CCRD-based measures of the number of misbehaviors over the last three years ( $CIR_{Nw,t,\Sigma y}$ ) and in $t+1$ ( $CIR_{Nw,t,t+1}$ )	0.242 (2.76) ***	1.561 (3.90) ***	0.067 (1.85) *	0.005 (2.56) **
$CSRR_{i,t}$ (issuance of any kind of stand-alone CSR report) instead of $CSRR_{i,t}$	0.075 (2.14) **	-	0.367 (5.70) ***	-
$ROA_{i,t}$ instead of $ROE_{i,t}$ as a performance measure	0.180 (2.11) **	0.993 (2.68) ***	0.451 (5.85) ***	0.021 (5.46) ***
Industry fixed effects with ICB industries (IND2), not supersectors (IND)	0.183 (2.15) **	1.193 (3.13) ***	0.443 (5.71) ***	0.020 (5.32) ***
Exclusion of outliers (winsorizing continuous variables, 1st & 99th percentile)	0.182 (2.14) **	1.045 (2.82) ***	0.447 (5.77) ***	0.021 (5.45) ***
Exclusion of outliers (trimming continuous variables, 1st & 99th percentile)	0.182 (2.03) **	1.193 (3.02) ***	0.470 (5.69) ***	0.024 (5.51) ***
<b>Alternative model specifications (Sect. 7.4)</b>				
Industry-year fixed effects (f.e.) and separate year & industry f.e	0.191 (2.16) **	0.940 (2.45) **	0.450 (5.99) ***	0.020 (5.46) ***
Year & country f.e. (instead of year & industry f.e.)	0.251 (2.87) ***	1.076 (2.96) ***	0.570 (6.38) ***	0.021 (4.95) ***
Year & country f.e. plus clustered standard errors on firm level	0.251 (1.99) **	1.076 (1.95) *	0.570 (4.11) ***	0.021 (3.00) ***
Country-year f.e. and separate year & country f.e	0.254 (2.81) ***	1.044 (2.78) ***	0.538 (6.61) ***	0.021 (5.13) ***
Year, industry & country f.e	0.200 (2.22) **	0.447 (1.32)	0.512 (6.08) ***	0.022 (5.57) ***
Probit instead of logistic estimations of model (1) with $CSRR_{i,t}$	0.102 (2.04) **	-	-	-
2SLS estimation using probit regressions in the first stage with $CSRR_{i,t}$	-	-	0.288 (4.69) ***	-
2SLS estimation using logistic regressions in the first stage with $CSRR_{i,t}$	-	-	0.267 (4.47) ***	-
Including a measure for the number of peer misbehaviors over the last three years ( $CIR_{Npeer,t,\Sigma y}$ ) in model (1) and (2) with $CIR_{N,t,\Sigma y}$ and $CIR_{N,t,t+1}$	0.112 (2.02) **	1.056 (4.15) ***	0.796 (2.85) ***	0.010 (2.81) ***

**Table 9** (continued)

Regression specification	(A) Coeff. (z) $CIR_{I_{i,t-3}}$ on $CRRR_{I_{i,t}}$ (model (1))	(B) Coeff. (t) $CIR_{I_{i,t-3}}$ on $CRRR_{Q_{i,t}}$ (model (1))	(C) Coeff. (z) $CRRR_{I_{i,t}}$ on $CIR_{I_{i,t+1}}$ (model (2))	(D) Coeff. (z) $CRRR_{Q_{i,t}}$ on $CIR_{I_{i,t+1}}$ (model (2))
<b>Cross-sectional analyses (Sect. 7.5)</b>				
Exclusion of high impact industries	0.414 (2.97) ***	2.947 (5.29) ***	0.384 (5.34) ***	0.023 (4.35) ***
Exclusion of financial firms	0.135 (1.47)	1.045 (2.55) **	0.482 (4.74) ***	0.020 (4.67) ***
Exclusion of US firms	0.223 (2.10) **	0.363 (0.76)	0.284 (3.60) ***	0.016 (4.65) ***
Exclusion of firms from outside Europe	0.383 (2.70) ***	-1.181 (-2.10) **	0.260 (2.12) **	0.015 (3.32) ***
<b>Extended timeframe (Sect. 7.6)</b>				
2014–2016	-0.359 (-1.95) *	-0.093 (-0.15)	0.080 (0.40)	0.002 (0.29)
2017–2018	-0.314 (-1.05)	-0.815 (-0.77)	-0.028 (-0.12)	0.008 (0.66)

Presents the main results of the robustness tests. The line items explain the adjustments made relative to our reference models (1) and (2), as presented in Tables 6 and 7. For better readability, we only present the results for our measures of the occurrence of misbehavior in  $t-3$  ( $CIR_{I_{i,t-3}}$ ) and in  $t+1$  ( $CIR_{I_{i,t+1}}$ ). Results with our other measures of prior and future misbehavior are similar. Column (A) presents the coefficients and z-statistics of  $CIR_{I_{i,t-3}}$  in a logistic regression on  $CRRR_{I_{i,t}}$  (model (1)); reference Table 6, panel A). Column (B) presents the coefficients and t-statistics of  $CIR_{I_{i,t-3}}$  in an OLS regression on  $CRRR_{Q_{i,t}}$  (model (2)); reference Table 6, panel B). Column (C) presents the coefficients and z-statistics of  $CRRR_{I_{i,t}}$  in a 2SLS regression on  $CIR_{I_{i,t+1}}$  (model (2)); reference Table 7, panel A). Column (D) presents the coefficients and z-statistics of  $CRRR_{Q_{i,t}}$  in a 2SLS regression on  $CIR_{I_{i,t+1}}$  (model (2)); reference Table 7, panel B). All variables are defined as in Appendix 3

\* \*\*, \*\*\* indicate that the estimated coefficients are statistically significant at the 10 percent, 5 percent, and 1 percent level, respectively, using a two-tailed test

CSR reports in the past. In model (2), we replace the CSR reporting variable in  $t$  with each of the reporting history variables ( $PriorGRI_{I_{i,t}}$  or  $PriorGRI_{N_{i,t}}$ ). For both variables, we find a significantly positive association with future misbehavior ( $CIR_{I_{i,t+1}}$ ,  $CIR_{N_{i,t+1}}$ , or  $CIR_{S_{i,t+1}}$ ) ( $p < 0.01/0.05/0.1$ ), indicating an increase in misbehavior after a (more experienced) history of CSR reporting, which is in line with legitimacy theory.

Furthermore, controlling for prior CSR reporting quality in model (1) with  $CSRR_{Q_{i,t}}$  as the dependent variable does not change our main inferences. We include a variable that captures CSR reporting quality prior to past misbehavior, i.e.,  $CSRR_{Q_{i,t}}$  in the last available year prior to  $t-3$  ( $PriorCSRR_{Q_{i,t}}$ ). The associations between prior misbehavior and  $CSRR_{Q_{i,t}}$  remain positively significant ( $p < 0.05/0.1$ , untabulated) for all measures of prior misbehavior ( $CIR_{N_{i,t-3}}$ ,  $CIR_{N_{i,\Sigma 3y}}$ ,  $CIR_{S_{i,t-3}}$ ,  $CIR_{S_{i,\Sigma 3y}}$ ) except the association between ( $CIR_{I_{i,t-3}}$ ,  $CIR_{I_{i,\Sigma 3y}}$ ) and  $CSRR_{Q_{i,t}}$ .

## 7.2 Alternative instrumental variables

To address the concern that our choice of IVs may bias the results, we repeat the analyses of model (2) with all 10 combinations of four, three, or two of the IVs outlined in Sect. 4.2.2. In addition, we follow Christensen (2016) and use R&D expenses ( $RD_{i,t}$ ) and GRI reporting in  $t-3$  ( $CSRR_{I_{i,t-3}}$ ) as additional IVs. Each specification confirms a significantly positive relation of CSR reporting and future misbehavior ( $p < 0.01/0.05/0.1$ ), in line with legitimacy theory.

## 7.3 Alternative variable measurement

To address the concern that our variable measurement may bias the results, we repeat our main analyses with different measures of misbehavior. First, we measure irresponsibility based on Refinitiv's ESG controversy score instead of the CCRD. We find significantly positive associations of CSR reporting ( $CSRR_{I_{i,t}}$ ,  $CSRR_{Q_{i,t}}$ ) with both the prior ESG controversy score in  $t-3$  ( $CIR_{R_{i,t-3}}$ ) ( $p < 0.05/0.1$ ) and the future ESG controversy score in  $t+1$  ( $CIR_{R_{i,t+1}}$ ) ( $p < 0.01$ ).

Second, as an alternative measure for the severity of misbehavior, we apply Refinitiv's weighting mechanism to our CCRD-based data on the number of cases of misbehavior in  $t-3$ , over the period from  $t-3$  to  $t-1$ , and in  $t+1$  ( $CIR_{Nw_{i,t-3}}$ ,  $CIR_{Nw_{i,\Sigma 3y}}$ ,  $CIR_{Nw_{i,t+1}}$ ).<sup>37</sup> Again, we find significantly positive associations between prior misbehavior ( $CIR_{Nw_{i,t-3}}$ ,  $CIR_{Nw_{i,\Sigma 3y}}$ ) and CSR reporting ( $CSRR_{I_{i,t}}$ ,  $CSRR_{Q_{i,t}}$ ) ( $p < 0.01/0.05$ ) and between CSR reporting ( $CSRR_{I_{i,t}}$ ,  $CSRR_{Q_{i,t}}$ ) and future misbehavior ( $CIR_{Nw_{i,t+1}}$ ) ( $p < 0.01/0.05$ ).

<sup>37</sup> Refinitiv multiplies the number of cases of misbehavior by severity weights based on market capitalization (1 for small firms (<2 billion), 2/3 for medium firms (>=2 billion), and 1/3 for large firms (>=10 billion)).

We further use a measure for voluntary CSR reporting that does not require firms to have applied the GRI standards ( $CSRR\_I2_{i,t}$  instead of  $CSRR\_I_{i,t}$ ), i.e., a dichotomous variable that indicates the voluntary issuance of any kind of stand-alone CSR report (including but not limited to GRI reports). The results are similar to our main results and in line with legitimacy theory. Moreover, we measure performance by return on assets ( $ROA_{i,t}$ ) instead of  $ROE_{i,t}$  and find consistent results. Next, we measure industry fixed effects based on ICB industries instead of supersectors and again find consistent results. Furthermore, we adjust for outliers in all continuous variables by winsorizing and trimming at the 1<sup>st</sup> and 99<sup>th</sup> percentiles (e.g., Albers and Guenther 2011). The results remain inferentially unaffected.

#### 7.4 Alternative model specifications

Our main inferences remain valid for different combinations of fixed effects: (1) industry-year fixed effects in addition to separate year and industry fixed effects; (2) country instead of industry fixed effects in addition to year fixed effects; (3) as in (2) and additionally clustered standard errors on the firm level to reduce the risk of serial correlation in the residuals<sup>38</sup>; (4) country-year fixed effects in addition to separate year and country fixed effects; and (5) fixed effects on all three dimensions, i.e., year, industry, and country.<sup>39</sup> Analyzing probit instead of logistic estimations of model (1) using  $CSRR\_I_{i,t}$  as the dependent variable supports our inferences. We also rerun the 2SLS regression in model (2) using probit and logistic regressions for the first stage because  $CSRR\_I_{i,t+1}$  is binary. Our main inferences remain unaffected.<sup>40</sup>

In addition, we control for potential peer effects following Qianqian und Rui (2018), who find that peer performance affects firms' earnings management, i.e., intensifies opportunistic reporting behavior. Therefore, we include the mean number of prior misbehaviors of all firms within the same ICB industry ( $CIR\_Npeer_{i,\Sigma 3y}$ ) in models (1) and (2). This variable is positively significant in both models ( $p < 0.01$ , untabulated) and does not change our main inferences. The firms' voluntary GRI reporting decision, their CSR disclosure quality, and their future misbehavior are significantly associated with both their own and their peer group's prior misbehavior.

<sup>38</sup> The misbehavior severity score ( $CIR\_S_{i,t-3}$  and  $CIR\_S_{i,\Sigma 3y}$ ) turns insignificant in model (1). The indicator variables and the number of misbehaviors ( $CIR\_I_{i,t-3}$ ,  $CIR\_I_{i,\Sigma 3y}$ ,  $CIR\_N_{i,t-3}$ ,  $CIR\_N_{i,\Sigma 3y}$ ), however, remain significant ( $p < 0.05/0.1$ ). All specifications of model (2) confirm a significantly positive association of CSR reporting with future misbehavior ( $p < 0.01/0.05/0.1$ ), in line with legitimacy theory.

<sup>39</sup> The associations between the indicator variables of misbehavior ( $CIR\_I_{i,t-3}$  and  $CIR\_I_{i,\Sigma 3y}$ ) and  $CSRR\_Q_t$  turn insignificant in model (1). The associations between the number and severity of misbehaviors ( $CIR\_N_{i,t-3}$ ,  $CIR\_N_{i,\Sigma 3y}$ ,  $CIR\_S_{i,t-3}$ ,  $CIR\_S_{i,\Sigma 3y}$ ) and  $CSRR\_Q_{i,t}$ , however, remain significant ( $p < 0.05/0.1$ , untabulated). The associations of all variants or prior misbehavior variables and  $CSRR\_I_{i,t}$  remain significant ( $p < 0.01/0.05/0.1$ ). All specifications of model (2) confirm a significantly positive association of CSR reporting with future misbehavior ( $p < 0.01/0.05$ ).

<sup>40</sup> The coefficients of  $CSRR\_I_{i,t}$  in the second stage turn insignificant using the combination  $CIR\_N_{i,t+1}$  and  $CIR\_N_{\Sigma 3y}$  and the combination  $CIR\_S_{i,t+1}$  and  $CIR\_S_{\Sigma 3y}$ . All other specifications confirm a significantly positive association of  $CSRR\_I_{i,t}$  with future misbehavior ( $p < 0.01/0.05/0.1$ ).

## 7.5 Alternative sample composition: cross-sectional analyses

To address the concern that our results may depend on the industrial or regional background of the sample firms, we repeat our primary analyses for different sample compositions. First, we exclude ICB supersectors with high environmental and social impact (with  $CSRR_{I_{i,t}}$ :  $N=1,952$ , with  $CSRR_{Q_{i,t}}$ :  $N=1,355$ ) following Young and Marais (2012).<sup>41</sup> High impact industries implemented CSR reporting at a very early stage (KPMG 1999, 2002), and CSR-related scandals have been prevalent in these industries (e.g., Boele et al. 2001; Flammer 2013). While our main inferences hold for the subsample excluding high impact industries ( $p < 0.01/0.05$ ), the subsample with only firms from high impact industries (with  $CSRR_{I_{i,t}}$ :  $N=2,547$ , with  $CSRR_{Q_{i,t}}$ :  $N=1,795$ ) provides some different results for model (1): prior misbehavior ( $CIR_{I_{i,t-3}}$ ,  $CIR_{N_{i,t-3}}$ , or  $CIR_{S_{i,t-3}}$ ) is not significantly associated with  $CSRR_{I_{i,t}}$  or  $CSRR_{Q_{i,t}}$ , consistent with the explanation that firms from high impact industries are under pressure to report on CSR due to the bad image of their industry and not necessarily their own behavior. The results of model (2) again show a significantly positive association of CSR reporting and future misbehavior ( $CIR_{I_{i,t+1}}$ ,  $CIR_{N_{i,t+1}}$ , or  $CIR_{S_{i,t+1}}$ ,  $p < 0.01/0.05/0.1$ , untabulated), in line with legitimacy theory.

Second, we exclude financial firms (ICB code 8000; with  $CSRR_{I_{i,t}}$ :  $N=3,712$ , with  $CSRR_{Q_{i,t}}$ :  $N=2,612$ ) since voluntary reporting is highly industry-specific (e.g., Kolk et al. 2001). Our main inferences remain valid.<sup>42</sup>

Third, we control for the influence of country cultural differences on voluntary reporting (Maignan and Ralston 2002; Welford 2004) by re-estimating our models for different subsamples: We first exclude all firms from the US, the most frequently represented nation in our sample (with  $CSRR_{I_{i,t}}$ :  $N=2,858$ , with  $CSRR_{Q_{i,t}}$ :  $N=2,028$ ). We find a significantly positive association between all variables of prior misbehavior and  $CSRR_{I_{i,t}}$  ( $p < 0.01/0.05/0.1$ ) but not  $CSRR_{Q_{i,t}}$ . All specifications of model (2) confirm a significantly positive association of CSR reporting with future misbehavior ( $p < 0.01/0.05$ ). Next, we only include European firms (with  $CSRR_{I_{i,t}}$ :  $N=1,605$ , with  $CSRR_{Q_{i,t}}$ :  $N=1,197$ ), since Europe has emphasized CSR more strongly than other regions (Tschoop 2005; Welford 2005).<sup>43</sup> In model (1), the association of prior misbehavior with  $CSRR_{Q_{i,t}}$  is either insignificant ( $CIR_{N_{i,t-3}}$ ,  $CIR_{S_{i,t-3}}$ ) or negatively significant ( $CIR_{I_{i,t-3}}$ ,  $CIR_{I_{i,\Sigma 3y}}$ ,  $CIR_{N_{i,\Sigma 3y}}$ ,  $CIR_{S_{i,\Sigma 3y}}$ ,  $p < 0.01/0.05/0.1$ ). With  $CSRR_{I_{i,t}}$ , all variants of prior misbehavior are significantly positively associated ( $p < 0.01/0.05$ ). Firms with prior misbehavior tend to increase their likelihood of issuing a CSR report but decrease their disclosure quality, which might be a result of

<sup>41</sup> 0500 Oil & Gas, 1300 Chemicals, 1700 Basic Resources, 2300 Construction & Materials, 2700 Industrial Goods & Services, 3300 Automobiles & Parts, 3500 Food & Beverage, 3700 Personal & Household Goods, 7500 Utilities.

<sup>42</sup> For  $CSRR_{I_{i,t}}$ , the indicator and the severity score of misbehavior ( $CIR_{I_{i,t-3}}$ ,  $CIR_{I_{i,\Sigma 3y}}$ ,  $CIR_{S_{i,t-3}}$ ,  $CIR_{S_{i,\Sigma 3y}}$ ) turn insignificant in model (1). The number of misbehaviors ( $CIR_{N_{i,t-3}}$  and  $CIR_{N_{i,\Sigma 3y}}$ ), however, remains significant ( $p < 0.1$ , untabulated). With  $CSRR_{Q_{i,t}}$ , all variants of prior misbehavior are significantly positively associated ( $p < 0.01/0.05$ ). All specifications of model (2) confirm a significantly positive association of CSR reporting with future misbehavior ( $p < 0.01/0.05/0.1$ ).

<sup>43</sup> These tests further reduce concerns about potentially biased coverage of different regions by the CCRD. We do not calculate our initial model for single countries since this would prevent us from investigating important aspects like cultural differences ( $PO_i$  and  $HO_i$ ) and the influence of legal background ( $LEGAL_i$ ).

higher public scrutiny on CSR and related (mis-)reporting due to the stronger regulations in Europe. Most specifications of model (2) confirm a significantly positive association of CSR reporting with future misbehavior ( $p < 0.01/0.05/0.1$ ).<sup>44</sup>

## 7.6 Alternative sample composition: extended timeframe

Finally, we analyze a broader sample of Fortune Global 500 firms until 2018.<sup>45</sup> We compare our main sample period (2003–2013) to the periods 2014–2016 (after the issuance of the EU directive and the Integrated Reporting Framework) and 2017–2018 (after the effective date of the EU directive). For 2014–2016, we find a significantly negative association between prior misbehavior and  $CSRR_{I_{i,t}}$  in model (1) ( $p < 0.01/0.05/0.1$ ). For 2017–2018, the association is insignificant for  $CIR_{I_{t-3}}$ ,  $CIR_{I_{\Sigma 3y}}$ , and  $CIR_{N_{\Sigma 3y}}$  and significantly negative for  $CIR_{N_{t-3}}$ ,  $CIR_{S_{t-3}}$ , and  $CIR_{S_{\Sigma 3y}}$  ( $p < 0.05/0.1$ , untabulated). In model (2), the association of  $CSRR_{I_{i,t}}$  with future misbehavior is insignificant for  $CIR_{I_{i,t-3}}$ ,  $CIR_{I_{i,\Sigma 3y}}$ , and  $CIR_{N_{i,t-3}}$  and negatively significant for  $CIR_{N_{i,\Sigma 3y}}$ ,  $CIR_{S_{i,t-3}}$ , and  $CIR_{S_{i,\Sigma 3y}}$  ( $p < 0.05/0.1$ , untabulated) for 2014–2016 and insignificant for 2017–2018. However, this extended time period is characterized by a transition from voluntary to mandatory CSR reporting. We observe in the data collection process that many firms have replaced GRI-based stand-alone CSR reports with integrated reports or mandatory reports which are not captured by our measure for  $CSRR_{I_{i,t}}$ . The  $CSRR_{I_{i,t}}$  measure is therefore not suitable for this time period, and the results cannot be interpreted as evidence of a decrease in misbehavior.

For  $CSRR_{Q_{i,t}}$ , we find no significant associations with prior or future misbehavior in either time period. Again, the interpretation of these results requires caution, as many of our sample firms are operating in jurisdictions that are affected by the European and other initiatives to mandate the disclosure of CSR-related information. The firms' reporting and hence our measure for  $CSRR_{Q_{i,t}}$  will therefore be affected by these regulations. Overall, our measures of  $CSRR_{i,t}$  do not well reflect *voluntary* CSR reporting during the later time periods, which is why we excluded these periods from our main analyses. More future research is needed to analyze the effects of mandatory CSR reporting on misbehavior in a clean setting.

## 8 Quasi-natural experiment

To further validate our results, we use a quasi-natural experiment and analyze an exogenous shock to textile-related industries. In 2013, the Rana Plaza disaster in Bangladesh led many firms to sign an accord for better working conditions. We analyze the voluntary signature as an additional form of proclaiming CSR commitment, to shed more light on the relation between public CSR commitment and actual

<sup>44</sup> The association is insignificant when using the combinations  $CSRR_{I_{i,t}}$  and  $CIR_{I_{i,\Sigma 3y}}$  or  $CSRR_{Q_{i,t}}$  and  $CIR_{S_{i,\Sigma 3y}}$ .

<sup>45</sup> After excluding firms not covered by the databases used, the sample includes 632 firms.

behavior.<sup>46</sup> The general expectation is that catastrophes like the Rana Plaza disaster lead to better working conditions in the related industries, since public scrutiny following the events is high and firms have incentives to fix their shortcomings. We compare the firms affected by the disaster to a control group of unaffected firms from other industries in a difference-in-differences design. In addition, we divide the group of affected firms into signatories and non-signatories of the accord. Signaling theory implies a particular reduction in misbehavior for signatories if the signature constitutes a credible signal of CSR commitment. However, the results of our analyses above imply that many firms proclaim CSR commitment for legitimization rather than signaling. Legitimacy theory implies that prior misbehavior increases the likelihood of firms signing the accord and that signatories do not reduce, and may even increase, their misbehavior afterwards. We thus expect that signatories behave less responsibly than non-signatories pre and post accord.<sup>47</sup>

We analyze 528 firms in five ICB subsectors: Clothing & Accessories (ICB code 3763), Footwear (3765), Food Retailers & Wholesalers (5337), Apparel Retailers (5371), and Broadline Retailers (5373). The 176 firms that signed the accord in 2013 (Bangladeshaccord 2013) are concentrated in these five ICB subsectors, except for three firms that we exclude since their main activities are in inadequately represented subsectors (Food Products (3577), Furnishing (3726), and Toys (3747)). We exclude 95 firms that signed the accord after 2013 or signed the follow-up accord that became effective in 2018. We further exclude 139 signatories and 171 non-signatories that are not covered by the databases used (Datastream, Eikon, and CCRD). The final sample includes 34 signatories and 89 non-signatories. As in Paik et al. (2017), the size of these two subsamples is relatively small but sufficient (Barnes 2017). We analyze misbehavior from 2000 to 2018. As a control sample, we analyze the Fortune Global 500 firms described in Sect. 7.6 (632 firms). Table 10 shows the results. Panel A provides the means and standard deviations of  $CIR_{i,t}$  for the period pre (2000–2012) and post the disaster (2014–2018) for the three samples. Linear regressions test for differences (panel B). Figure 1 illustrates the results.

<sup>46</sup> In April 2013, the Rana Plaza building in Dhaka collapsed, killing more than 1,100 people and badly injuring thousands more (Bangladeshaccord 2019). This was an unexpected shock to the market and affected textile-related firms all over the world that commonly outsource their manufacturing in Bangladesh to save costs (Quinlan and Sheldon 2011; Barnes 2017). In response to an increase in external pressure after the disaster, outsourcing firms, trade unions, and witnesses initiated a safety agreement (the Accord on Fire and Building Safety in Bangladesh) effective in May 2013 – only one month after the disaster (Bangladeshaccord 2019). The aim was to gather money and resources to improve safety and working conditions and foster CSR over economic targets (Paik, Lee, and Krumwiede 2017).

<sup>47</sup> Another, more recent incident occurred in Dhaka in 2017. An old heating boiler exploded in a factory despite inspections in accordance with the accord (Bangladeshaccord 2017). The factory was a supplier for several firms that had signed the accord in 2013. Akbar and Deegan (2021) highlight that a main reason for increased disclosures on workplace safety after the Rana Plaza disaster is to respond to outside pressure. Sinkovics et al. (2016) further find that outside pressure after the disaster has led firms to prioritize measurable standards implementation above the needs of their employees and society as a whole. In addition, firms seek greater efficiency in their processes to cope with the increasing cost of compliance, and neglect harmful side effects that destroy social value. Overall, this indicates that improvements after the disaster do not necessarily address all dimensions of CSR.

Table 10 Quasi-natural experiment: Bangladesh Accord

Panel A: Means (standard deviation) of  $CIR_{i,t}$  by firm groups and periods

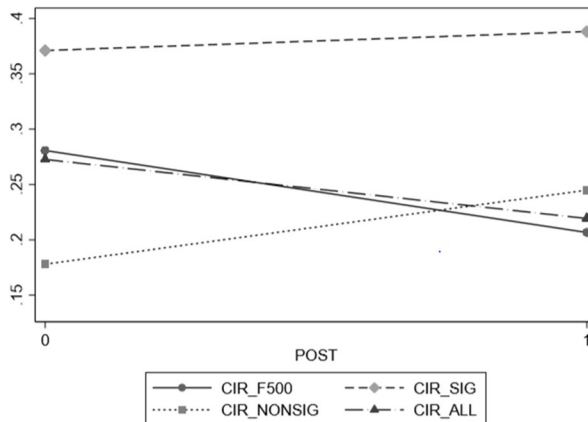
	F500	FIRMS		TOTAL
		Signatories	Non-signatories	
POST	Pre shock event	0.2807 (0.4494) N = 8,216	0.3710 (0.4836) N = 442	0.1780 (0.3827) N = 1,157
	Post shock event	0.2066 (0.4050) N = 3,160	0.3882 (0.4888) N = 170	0.2449 (0.4305) N = 445
TOTAL	0.2601 (0.4387) N = 11,376	0.3758 (0.4847) N = 612	0.1966 (0.3976) N = 1,602	0.2578 (0.4375) N = 13,590

Table 10 (continued)

Variable	Without determinants and control variables (N = 13,590)		With determinants and control variables (N = 8,966)	
	Coefficient	t	Coefficient	t
<i>POST</i>	-0.0740	-8.13***	-0.0633	-6.37***
<i>FIRMS</i>				
<i>Signatories</i>	0.0904	4.25***	0.1015	3.26***
<i>Non-signatories</i>	-0.1026	-7.51***	0.0222	0.97
<i>POST * FIRMS</i>				
<i>F500 Signatories</i>	0.0912	2.26**	0.0874	1.87*
<i>F500 Non-signatories</i>	0.1409	5.44***	0.0358	1.37
<i>UNGC<sub>i,t</sub></i>			0.0027	0.27
<i>PO<sub>i</sub></i>			0.0495	2.93***
<i>HO<sub>i</sub></i>			-0.0620	-4.67***
<i>GLOBAL<sub>i,t</sub></i>			0.0006	4.07***
<i>CIR<sub>i,t,t-1</sub></i>			0.3847	39.57***
<i>SIZE<sub>i,t</sub></i>			0.0593	16.92***
<i>ROE<sub>i,t</sub></i>			-0.0114	-1.79*
<i>Constant</i>	0.2807	58.47***	-1.1928	-10.98***
<i>Industry fixed effects</i>			Included	

Presents the results of a quasi-natural experiment surrounding the Rana Plaza disaster. Panel A shows means and standard deviations of  $CIR_{i,t}$  as well as the number of estimations for each firm group and time period. Panel B shows the results of linear regressions excluding and including the determinants and control variables of model (2). All variables are defined as in Appendix 3

\*, \*\*, \*\*\* indicate that the estimated coefficients are statistically significant at the 10 percent, 5 percent, and 1 percent levels, respectively, using a two-tailed test



**Fig. 1** Mean corporate misbehavior pre and post 2013 by firm groups. Displays the mean corporate misbehavior ( $CIR_{I_{i,t}}$ ) pre and post 2013 by firm groups (created in STATA). On average, corporate misbehavior is significantly lower for the overall sample of firms and for the control group of unaffected Fortune Global 500 firms in the period after the incident compared to the period before the incident. While for both non-signatories and signatories corporate misbehavior is significantly higher after the incident, the average corporate misbehavior remains significantly higher for signatories compared to non-signatories as well as to the unaffected Fortune Global 500 firms

Overall,  $CIR_{I_{i,t}}$  has significantly declined for the average firm in the total sample from pre to post 2013. The coefficient of  $-0.0740$  ( $p < 0.01$ ) of  $POST$  indicates that the average unaffected Fortune Global 500 firm has reduced misbehavior by 0.0740 from pre to post 2013 (0.2807 vs. 0.2066). The mean of  $CIR_{I_{i,t}}$  is higher for signatories than for unaffected firms by 0.0904 pre 2013 ( $p < 0.01$ ; 0.3710 vs. 0.2807) and by 0.1816 post 2013 ( $p < 0.01$ ; 0.3882 vs. 0.2066). This difference has thus increased by  $(0.1816 - 0.0904 =) 0.0912$  from pre to post 2013 ( $p < 0.05$ ).  $CIR_{I_{i,t}}$  of non-signatories is lower than that of unaffected firms by 0.1026 pre 2013 ( $p < 0.01$ ; 0.1780 vs. 0.2807). Post 2013, it is higher by 0.0383 ( $p < 0.1$ ; 0.2449 vs. 0.2066). This difference has thus increased by  $(0.0383 - 0.1026 =) 0.1409$  ( $p < 0.01$ ). The main inferences hold after including the determinants and control variables of model (2) and using industry fixed effects.<sup>48</sup> Overall, the results indicate that misbehavior is more likely for signatories compared to both non-signatories and unaffected firms pre and post 2013 and that signatories do not reduce their misbehavior after signing the accord. Firms seem to sign the accord to greenwash misbehavior rather than to signal true CSR commitment.

<sup>48</sup> The difference in the mean of  $CIR_{I_{i,t}}$  pre 2013 and the change of  $CIR_{I_{i,t}}$  from pre to post 2013 for non-signatories compared to unaffected firms is no longer significant. All other differences, particularly those of signatories, remain significant.  $PO_{i,t}$ ,  $HO_{i,t}$ ,  $GLOBAL_{i,t}$ ,  $CIR_{I_{i,t-1}}$ , and  $SIZE_{i,t}$  are significant at  $p < 0.01$ ;  $ROE_{i,t}$  is significant at  $p < 0.1$ .  $UNGC_{i,t}$  is not significant. We measure prior misbehavior ( $CIR_{I_{i,t-1}}$ ) in the year before the dependent variable  $CIR_{I_{i,t}}$  in order to control for the direct relation between past and future misbehavior. We measure all other variables at the same time as  $CIR_{I_{i,t}}$ , i.e., in  $t$  (comparable to model (2) where  $FutureCIR_{i,t+1}$  and further variables are measured at the same time,  $t+1$ ). We do not use year fixed effects since  $POST$  captures time differences.

## 9 Conclusion

We analyze corporate misbehavior pre and post voluntary CSR reporting to address the reciprocal relation of proclaimed and implemented CSR commitment over time. Prior literature on the relation between CSR reporting and CSR performance often aggregates responsible and irresponsible behaviors. To avoid measurement problems arising from this aggregation, we measure irresponsible behavior only, but across all CSR dimensions and preceding as well as subsequent to CSR reporting. We find significantly positive associations between CSR reporting (the voluntary issuance of a GRI report and CSR disclosure quality) and both *prior* and *future* misbehavior (occurrence, number, and severity). This implies that prior misbehavior increases the efforts expended for CSR reporting. However, our results imply that CSR reporting, even of better quality, is not an indication of improved operations but is related to increased future misbehavior, both in terms of number and severity.

We substantiate our findings using the Rana Plaza disaster in Bangladesh in 2013 as a quasi-natural experiment. We analyze the voluntary decision to sign an accord for better working conditions as an additional form of proclaiming CSR commitment. We find that misbehavior is more likely for signatories before and after the signature, compared to non-signatories and firms from industries not affected by the exogenous shock. Signatories show no sign of improvement. Consistent with legitimacy theory, our results imply that voluntarily proclaiming CSR commitment is not a credible signal of the latter but serves impression management and greenwashing purposes.

An inevitable limitation of our study is that we cannot entirely rule out endogeneity issues. Still, multiple approaches that address these issues support our inferences. Also, due to a lack of data, we had to exclude some firms from countries with apparent human rights violations like China. Our analyses focus on the period until 2013 when CSR reporting was generally voluntary and before some jurisdictions had begun to mandate it. Whereas we find an *increase* in misbehavior subsequent to voluntary CSR reporting during our main sample period, we find no such evidence for the extended time period of 2014–2018. However, this later time period is characterized by a transition to mandatory reporting during which our measures do not well reflect voluntary CSR reporting, which is why we excluded it from our main analyses. Whereas some jurisdictions, like Europe, have decided to mandate the disclosure of CSR information, others, like the US, remain undecided about whether and how to mandate CSR reporting. The results from our main sample period are unaffected by CSR reporting mandates and provide valuable insights for debates over what voluntary CSR reporting can and cannot achieve. Nevertheless, future research is needed to investigate whether mandatory CSR reporting is more effective in altering firm behavior toward more responsibility than voluntary CSR reporting.

# Appendix 1

**Table 11** UNGC principles and corresponding CCRD (sub-)categories

UNGC categories	CCRD categories	CCRD subcategories	Examples of misbehavior per CCRD sub-category
Human rights Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights; and Principle 2: make sure that they are not complicit in human rights abuses	People	Human rights	Racial discrimination, gender discrimination, dispossession, human rights violations, sexual harassment, intimidation, violence
Labor Principle 3: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining; Principle 4: the elimination of all forms of forced and compulsory labour; Principle 5: the effective abolition of child labour; and Principle 6: the elimination of discrimination in respect of employment and occupation		Workers' rights  Supply chain management	Unnecessary worker injuries, poverty wages, excessive overtime, forced labour, poor working conditions  Poor supply chain policy, unsustainable sourcing, poor conditions in supplier companies
Environment Principle 7: Businesses should support a precautionary approach to environmental challenges; Principle 8: undertake initiatives to promote greater environmental responsibility; and Principle 9: encourage the development and diffusion of environmentally friendly technologies	Environment	Climate change  Pollution & toxics  Habitats & resources	Destruction of rainforest/deforestation, release of greenhouse gas emissions Air pollution, water pollution, oil spills, widespread use of pesticides Habitat destruction, threats to endangered species (biodiversity), illegal logging, displacement of local communities, water depletion
Anti-corruption Principle 10: Businesses should work against corruption in all its forms, including extortion and bribery	Politics	Political activities  Anti-social finance	Political donations (e.g., against environmental laws)  Bribery, tax avoidance, price-fixing

## Appendix 2

Table 12 Misbehavior severity score

Panel A: Scoring scheme		Range & Magnitude Criteria	Description
Scoring	Effects		
1 point	limited effects	Number of categories Impact Health severity Social severity Environmental severity	Only one category affected Little: only one person/living being affected Rarely a direct threat to life (no significant magnitude and consequences) Typically results in little inconveniences Rarely a direct threat to the environment
2 points	minor effects	Number of categories Impact Health severity Social severity Environmental severity	One or two categories affected Moderate: impact on a small group ( $\leq 500$ ) of people/living beings Temporary discomfort, rarely a direct threat to life Typically results in an inconvenience to daily life Rarely a direct threat to the environment
3 points	moderate effects	Number of categories Impact Health severity Social severity Environmental severity	More than one category affected Great: large group of people/living beings is affected Temporary injuries, often threatening to life, some damage unavoidable Typically results in disruptions to daily life Often threatening to the environment, some damage unavoidable
4 points	major effects	Number of categories Impact Health severity Social severity Environmental severity	More than two categories affected Great: large group of people/living beings is affected Permanent injuries, extensive damage to communities likely Results in major disruptions to daily life Extensive damage to the environment likely

Table 12 (continued)

5 points	severe effects	Number of categories	Several categories affected
		Impact	Great: large group of people/living beings is affected
		Health severity	Life saving actions needed, death occurs, extensive and widespread severe damage to communities
		Social severity	Results in extreme disruptions to daily life
		Environmental severity	Extensive and widespread severe damage to the environment
<b>Panel B: Examples</b>			
<b>Category</b>	<b>Score</b>	<b>Examples</b>	
E	1 point	Poor toxic chemicals policy	
	2 points	Small gas leak; unauthorised release of dust; breach of license for using more water than permitted	
	3 points	Illegal discharge of waste water, water contamination, river pollution; emitting illegal levels of air pollution	
	4 points	Destruction of rainforest, clear-cut land	
	5 points	Large-scale oil spill, extreme pollution	
S	1 point	Unfair dismissal of a worker	
	2 points	Different types of discrimination (gender, race, disability etc.)	
	3 points	Wages below the subsistence level; excessive overtime	
	4 points	'Slave-like conditions'; increase in landlessness	
	5 points	Factory collapse killing workers	
G	1 point	Excessive directors' pay	
	2 points	Bribery scheme; corruption	
	3 points	Tax evasion; money laundering schemes	
	4 points	Profound infiltration of a national government	
	5 points	(No cases identified)	

### Appendix 3

Table 13 List of variables

Variable	Measurement	Source
<i>CSR reporting</i>		
$CSR_{i,t}$	A placeholder for one of the three CSR reporting variables (below) in year $t$	GRI database, CorporateRegister, firm websites, internet
$CSR_{I_{i,t}}$	Dichotomous variable: 1 indicates the voluntary issuance of a stand-alone GRI report by firm $i$ in year $t$ ; 0 indicates no stand-alone GRI report in year $t$	CorporateRegister, firm websites, internet
$CSR_{I2_{i,t}}$	Dichotomous variable: 1 indicates the voluntary issuance of any kind of stand-alone CSR report by firm $i$ in year $t$ ; 0 indicates no stand-alone CSR report in year $t$	CorporateRegister, firm websites, internet
$CSR_{Q_{i,t}}$	CSR disclosure quality measured by the Bloomberg's ESG disclosure score for firm $i$ in year $t$ (in percent)	Bloomberg
<i>CSR reporting history</i>		
$PriorGRI_{i,t}$	Dichotomous variable: 1 indicates the voluntary issuance of at least one stand-alone GRI report by firm $i$ before $t$ ; 0 indicates no stand-alone GRI report before $t$	GRI database, CorporateRegister, firm websites, internet
$PriorGRI_{N_{i,t}}$	Categorical variable: counts the number of GRI reports issued by firm $i$ before $t$ , i.e., it measures in how many years firm $i$ had issued a GRI report until $t-1$	GRI database, CorporateRegister, firm websites, internet
$PriorCSR_{Q_{i,t}}$	CSR disclosure quality measured by the Bloomberg's ESG disclosure score for firm $i$ in the last available year prior to $t-3$ , i.e. in $t-4$ or, if $CSR_{Q_{i,t}}$ is not available in $t-4$ , then in $t-5$ or, if $CSR_{Q_{i,t}}$ is also not available in $t-5$ , then in $t-6$ , etc. (in percent)	Bloomberg
$CSR_{I_{i,t-3}}$	Dichotomous variable: 1 indicates the voluntary issuance of a stand-alone GRI report in year $t-3$ ; 0 indicates no stand-alone GRI report in year $t-3$	GRI database, CorporateRegister, firm websites, internet
<i>Corporate misbehavior</i>		
$CIR_{i,t}$	A placeholder for one of the four variables of corporate irresponsibility (below) in year $t$	

Table 13 (continued)

Variable	Measurement	Source
$CIR_{i,t}$	Dichotomous variable: 1 indicates at least one case of misbehavior of firm $i$ in year $t$ ; 0 indicates no case of misbehavior of firm $i$ in year $t$ . A case of misbehavior is defined as a violation of at least one of the 10 principles of the UNGC and is identified based on the public information summarized in the CCRD database. See Appendix 1 for an overview of the UNGC principles and their correspondence to the categorization of CSR-related issues by the CCRD as well as for examples of cases of misbehavior	CCRD
$CIR_{N_{i,t}}$	Categorical variable: counts the number of cases of misbehavior of firm $i$ in year $t$	CCRD
$CIR_{S_{i,t}}$	Sum of the misbehavior severity score over all cases of misbehavior of firm $i$ in year $t$ . See Appendix 2 for details on the misbehavior severity score as well as for examples	CCRD
$CIR_{R_{i,t}}$	1 – ESG controversy score from Refinitiv for firm $i$ in year $t$	Refinitiv
<i>Future corporate misbehavior</i>		
$FutureCIR_{i,t+1}$	A placeholder for one of the five variables of future corporate irresponsibility (below) in year $t+1$	
$CIR_{I_{i,t+1}}$	Dichotomous variable: 1 indicates at least one case of misbehavior of firm $i$ in year $t+1$ ; 0 indicates no case of misbehavior of firm $i$ in year $t+1$	CCRD
$CIR_{N_{i,t+1}}$	Categorical variable: counts the number of cases of misbehavior of firm $i$ in year $t+1$ ; the variable is logtransformed ( $\ln(x+1)$ ) in the empirical analysis	CCRD
$CIR_{S_{i,t+1}}$	Sum of the misbehavior severity score over all cases of misbehavior of firm $i$ in year $t+1$ ; the variable is logtransformed ( $\ln(x+1)$ ) in the empirical analysis	CCRD
$CIR_{R_{i,t+1}}$	1 – ESG controversy score from Refinitiv for firm $i$ in year $t+1$	Refinitiv
$CIR_{Nw_{i,t+1}}$	$CIR_{N_{i,t}}$ in year $t+1$ , weighted in accordance with the weighting system applied by the Refinitiv controversy score; the variable is logtransformed ( $\ln(x+1)$ ) in the empirical analysis	CCRD
<i>Prior corporate misbehavior</i>		
$PriorCIR_{i,t-3:t-1}$	A placeholder for one of the 11 variables of prior corporate irresponsibility (below) in year $t-3$ or over the period from $t-3$ to $t-1$	

Table 13 (continued)

Variable	Measurement	Source
$CIR_{J_{i,t+3}}$	Dichotomous variable: 1 indicates at least one case of misbehavior of firm i in year t-3 ( $CIR_{J_{i,t}}$ in t-3); 0 indicates no case of misbehavior of firm i in year t-3	CCRD
$CIR_{J_{i,\Sigma 3y}}$	Categorical variable: counts the number of years in which a firm committed at least one case of misbehavior over the period from t-3 to t-1 ( $CIR_{J_{i,t}}$ in t-3 + $CIR_{J_{i,t}}$ in t-2 + $CIR_{J_{i,t}}$ in t-1)	CCRD
$CIR_{N_{i,t+3}}$	Categorical variable: counts the number of cases of misbehavior of firm i in year t-3 ( $CIR_{N_{i,t}}$ in t-3); the variable is logtransformed ( $\ln(x+1)$ ) in the empirical analysis	CCRD
$CIR_{N_{i,\Sigma 3y}}$	Categorical variable: counts the number of cases of misbehavior of firm i over the period from t-3 to t-1 ( $CIR_{N_{i,t}}$ in t-3 + $CIR_{N_{i,t}}$ in t-2 + $CIR_{N_{i,t}}$ in t-1); the variable is logtransformed ( $\ln(x+1)$ ) in the empirical analysis	CCRD
$CIR_{S_{i,t+3}}$	Sum of the misbehavior severity score over all cases of misbehavior of firm i in year t-3 ( $CIR_{S_{i,t}}$ in t-3); the variable is logtransformed ( $\ln(x+1)$ ) in the empirical analysis	CCRD
$CIR_{S_{i,\Sigma 3y}}$	Sum of the misbehavior severity score over all cases of misbehavior of firm i over the period from t-3 to t-1 ( $CIR_{S_{i,t}}$ in t-3 + $CIR_{S_{i,t}}$ in t-2 + $CIR_{S_{i,t}}$ in t-1); the variable is logtransformed ( $\ln(x+1)$ ) in the empirical analysis	CCRD
$CIR_{R_{i,t+3}}$	1 - ESG controversy score from Refinitiv for firm i in year t-3	Refinitiv
$CIR_{Nw_{i,t+3}}$	$CIR_{N_{i,t}}$ in year t-3, weighted in accordance with the weighting system applied by the Refinitiv controversy score; the variable is logtransformed ( $\ln(x+1)$ ) in the empirical analysis	CCRD
$CIR_{Nw_{i,\Sigma 3y}}$	$CIR_{N_{i,t}}$ over the period from t-3 to t-1 ( $CIR_{N_{i,t}}$ in t-3 + $CIR_{N_{i,t}}$ in t-2 + $CIR_{N_{i,t}}$ in t-1), weighted in accordance with the weighting system applied by the Refinitiv controversy score; the variable is logtransformed ( $\ln(x+1)$ ) in the empirical analysis	CCRD
$CIR_{Npeer_{i,\Sigma 3y}}$	Mean number of cases of misbehavior over the period from t-3 to t-1 ( $CIR_{N_{i,\Sigma 3y}}$ ) of all firms within the same ICB industry as firm i	CCRD
$CIR_{J_{i,t-1}}$	Dichotomous variable: 1 indicates at least one case of misbehavior of firm i in year t-1 ( $CIR_{J_{i,t}}$ in t-1); 0 indicates no case of misbehavior of firm i in year t-1	CCRD

Table 13 (continued)

Variable	Measurement	Source
<i>Further variables</i>		
$AGE_{i,t}$	Categorical variable: counts the number of years since IPO of firm $i$	Datastream
$BRAND_{i,t}$	Dichotomous variable: 1 indicates Interbrand listing of firm $i$ in year $t$ ; 0 indicates no Interbrand listing of firm $i$ in year $t$	Interbrand ranking
$CROSS_{i,t}$	Dichotomous variable: 1 indicates three or more cross-listings of firm $i$ in year $t$ ; 0 indicates no or less than three cross-listings of firm $i$ in year $t$	Datastream
$DJSI_{i,t}$	Dichotomous variable: 1 indicates DJSI listing of firm $i$ in year $t$ ; 0 indicates no DJSI listing of firm $i$ in year $t$	DJSI ranking
$DJSI_{i,t-1}$	Dichotomous variable: 1 indicates DJSI listing of firm $i$ in year $t-1$ ; 0 indicates no DJSI listing of firm $i$ in year $t-1$	DJSI ranking
$EXCHANGE_t$	Average yearly exchange rate USD-EUR in year $t$	Internet
$FFLOAT_{i,t}$	Free float in percent of firm $i$ in year $t$ ; Datastream excludes strategic shareholders with at least 5 percent of the firms' shares	Datastream
$FIRMS$	Indicator variable: 1 indicates the group of Fortune Global 500 firms; 2 indicates the group of the signatories of the Accord on Fire and Building Safety in Bangladesh; 3 indicates the group of non-signatories	Internet
$GLOBAL_{i,t}$	Foreign sales/Total sales of firm $i$ in year $t$	Datastream
$GLOBAL_{i,t+1}$	Foreign sales/Total sales of firm $i$ in year $t+1$	Datastream
$HO_i$	GLOBE score on humane orientation of firm $i$ 's home country	GLOBE study
$IND$	Industry fixed effects based on ICB supersectors, i.e., indicator variables for each of the ICB supersectors	Datastream
$IND2$	Industry fixed effects based on ICB industries, i.e., indicator variables for each of the ICB industries	Datastream
$LEGAL_i$	Dichotomous variable: 1 indicates a civil law home country of firm $i$ ; 0 indicates a common law home country of firm $i$	Datastream
$LEV_{i,t}$	Total debt/Total assets of firm $i$ in year $t$	Datastream

Table 13 (continued)

Variable	Measurement	Source
$MSHARE_{i,t}$	Market share of firm $i$ in percent * (-1) in year $t$	Datastream,
$PO_i$	GLOBE score on performance orientation of firm $i$ 's home country	GLOBE study
$POST$	Dichotomous variable: 1 indicates the period from 2014 to 2018; 0 indicates the period from 2000 to 2012 (before and after the Rana Plaza disaster)	-
$RD_{i,t}$	Research and development expenses of firm $i$ in year $t$	Datastream
$ROA_{i,t}$	Return on assets of firm $i$ in year $t$	Datastream
$ROE_{i,t}$	Return on equity of firm $i$ in year $t$	Datastream
$SIZE_{i,t}$	Ln (market capitalization of firm $i$ in year $t$ )	Datastream
$SIZE_{i,t+1}$	Ln (market capitalization of firm $i$ in year $t+1$ )	Datastream
$STATE_{i,t}$	State ownership in percent of firm $i$ in year $t$	Datastream
$UNGC_{i,t}$	Dichotomous variable: 1 indicates UNGC membership of firm $i$ in year $t$ ; 0 indicates no UNGC membership of firm $i$ in year $t$	Eikon UNGC homepage
$UNGC_{i,t+1}$	Dichotomous variable: 1 indicates UNGC membership of firm $i$ in year $t+1$ ; 0 indicates no UNGC membership of firm $i$ in year $t+1$	UNGC homepage
$VOLA_{i,t}$	Stock price volatility of firm $i$ in year $t$	Datastream
$YEAR$	Year fixed effects, i.e., indicator variables for each year	-

**Acknowledgements** We gratefully acknowledge helpful comments by Patricia Dechow and Stephen Penman (the editors), an anonymous reviewer, Liz Demers, Frank Hefflin, Philip Joos, Maria Lotze, Gaia Melloni, and participants at the 44th Annual Conference of the Canadian Academic Accounting Association (CAAA) 2020, the 42nd Annual Congress of the European Accounting Association (EAA) 2019, the 4th Congress on Social and Environmental Accounting Research (CSEAR France) 2017, the 16th Annual Conference of the European Academy of Management (EURAM) 2016, and the 27th International Congress on Social and Environmental Accounting Research and Emerging Scholars Colloquium (CSEAR UK) 2015. We also acknowledge the excellent research assistance of Marianne Schuermann in developing and collecting data for the severity score.

**Funding** Open Access funding enabled and organized by Projekt DEAL.

**Open Access** This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>.

## References

- Adams, C. A., and S. Abhayawansa. 2022. Connecting the COVID-19 pandemic, environmental, social and governance (ESG) investing and calls for 'harmonisation' of sustainability reporting. *Critical Perspectives on Accounting* 82:102309.
- Ahmed, D., E. Demers, J. Hendriksen, P. Joos, and B. Lev. 2023. Are ESG ratings informative about companies' socially responsible behaviors abroad? Evidence from the Russian invasion of Ukraine. *Accountability in a Sustainable World Quarterly*, forthcoming. Retrieved June 4, 2023, from [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4151996](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4151996).
- Akbar, S., and C. Deegan. 2021. Analysis of corporate social disclosures of the apparel industry following crisis: An institutional approach. *Accounting & Finance* 61(2): 3565–3600.
- Akerlof, G. A. 1970. The market for "lemons": Quality uncertainty and the market mechanism. *The Quarterly Journal of Economics* 84(3): 488–500.
- Albers, C., and T. Guenther. 2011. Disclose or not disclose. Determinants of social reporting for STOXX Europe 600 firms. *Journal of Management Control* 21(3): 323–347.
- Alsaeed, K. 2006. The association between firm-specific characteristics and disclosure: The case of Saudi Arabia. *Managerial Auditing Journal* 21(5): 476–496.
- Al-Tuwaijri, S. A., T. E. Christensen, and K. E. Hughes. 2004. The relations among environmental disclosure, environmental performance, and economic performance: A simultaneous equations approach. *Accounting, Organizations, and Society* 26(5–6): 447–471.
- Aouadi, A., and S. Marsat. 2018. Do ESG Controversies matter for firm value? Evidence from international data. *Journal of Business Ethics* 151 (4): 1027–1047.
- Bangladeshaccord. 2013. *Annual report Bangladesh Accord Foundation 2013*. Retrieved June 23, 2019, from <https://admin.bangladeshaccord.org/wp-content/uploads/2018/07/Annual-report-Bangladesh-Accord-Foundation-2013.pdf>.
- Bangladeshaccord. 2019. *Accord on Fire and Building Safety in Bangladesh. About*. Retrieved June 12, 2019, from <https://bangladeshaccord.org/about>.
- Bangladeshaccord. 2017. *Accord statement on boiler explosion at Multifabs Ltd*. Retrieved September 10, 2019, from <https://bangladeshaccord.org/updates/2017/07/05/accord-statement-on-boiler-explosion-at-multifabs-ltd>.
- Barnes, M. 2017. Discussion of Corporate Social Responsibility Performance and Outsourcing: The Case of the Bangladesh Tragedy. *Journal of International Accounting Research* 16(1): 81–82.

- Bascle, G. 2008. Controlling for endogeneity with instrumental variables in strategic management research. *Strategic Organization* 6(3): 285–327.
- Baum, C. F., M. E. Schaffer, and S. Stillman. 2007. Enhanced routines for instrumental variables/generalized method of moments estimation and testing. *The Stata Journal* 7(4): 465–506.
- Bebbington, J., C. Larrinaga, and J. M. Moneva. 2008. Corporate social reporting and reputation risk management. *Accounting, Auditing & Accountability Journal* 21(3): 337–361.
- Berg, F., J. F. Kölbl, and R. Rigobon. 2022. Aggregate confusion: The divergence of ESG ratings. *Review of Finance* 26(6): 1315–1344.
- Bikmetova, N., and C. A. Pirinsky. 2022. The real effects of ESG rating agencies. *DBJ Discussion Paper Series, No. 2201*. Retrieved June 02, 2023, from [https://www.dbj.jp/ricf/pdf/research/DBJ\\_DP\\_2201.pdf](https://www.dbj.jp/ricf/pdf/research/DBJ_DP_2201.pdf).
- Boele, R., H. Fabig, and D. Wheeler. 2001. Shell, Nigeria and the Ogoni. A study in unsustainable development: I. The story of Shell, Nigeria and the Ogoni people – environment, economy, relationships: conflict and prospects for resolution. *Sustainable Development* 9(2): 74–86.
- Bonetti, P., C. H. Cho, and G. Michelon. 2023a. Environmental disclosure and the cost of capital: Evidence from the Fukushima nuclear disaster. *European Accounting Review* 1–29. <https://doi.org/10.1080/09638180.2023.2203410>.
- Bonetti, P., Ch. Leuz, and G. Michelon. 2023b. *Internalizing Externalities: Disclosure Regulation for Hydraulic Fracturing, Drilling Activity and Water Quality*. European Corporate Governance Institute - Law Working Paper No. 676/2023. (No. w30842). National Bureau of Economic Research. Retrieved February 14, 2023, from [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4171246](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4171246).
- Bontemps, C., and C. Nauges. 2016. The impact of perceptions in averting-decision models. An application of the special regressor method to drinking water choices. *American Journal of Agricultural Economics* 98(1): 297–313.
- Brammer, S., and S. Pavelin. 2006. Voluntary environmental disclosures by large UK companies. *Journal of Business Finance & Accounting* 33(7–8): 1168–1188.
- Breitinger, D., and J. -P. Bonardi. 2019. Firms, breach of norms, and reputation damage. *Business & Society* 58(6): 1143–1176.
- Brown, N., and C. Deegan. 1998. The public disclosure of environmental performance information – A dual test of media agenda setting theory and legitimacy theory. *Accounting and Business Research* 29(1): 21–41.
- Burzillo, S., M. Shaffer, and R. Sloan. 2023. *Do Sustainability Reports Contain Financially Material Information?* Retrieved August 16, 2023, from [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3976550](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3976550).
- Butler, M., A. Kraft, and I. S. Weiss. 2007. The effect of reporting frequency on the timeliness of earnings. The cases of voluntary and mandatory interim reports. *Journal of Accounting and Economics* 43(2–3): 181–217.
- Camfferman, K., and T. E. Cooke. 2002. An analysis of disclosure in the annual reports of U.K. and Dutch companies. *Journal of International Accounting Research* 1(1): 3–30.
- Cetindamar, D., and K. Husoy. 2007. Corporate social responsibility practices and environmentally responsible behavior: The case of the United Nations Global Compact. *Journal of Business Ethics* 76(2): 163–176.
- Chatterji, A. K., D. Levine, and M. W. Toffel. 2009. How well do social ratings actually measure corporate social responsibility? *Journal of Economics & Management Strategy* 18(1): 125–169.
- Chau, G. K., and S. J. Gray. 2002. Ownership structure and corporate voluntary disclosure in Hong Kong and Singapore. *The International Journal of Accounting* 37(2): 247–265.
- Chen, G., M. Firth, D. N. Gao, and O. M. Rui. 2006. Ownership structure, corporate governance, and fraud: Evidence from China. *Journal of Corporate Finance* 12(3): 424–448.
- Cheng, B., I. Ioannou, and G. Serafeim. 2014. Corporate social responsibility and access to finance. *Strategic Management Journal* 35(1): 1–23.
- Cho, C. H., and D. M. Patten. 2007. The role of environmental disclosures as tools of legitimacy: A research note. *Accounting, Organizations and Society* 32(7–8): 639–647.
- Cho, C. H., R. P. Guidry, A. M. Hageman, and D. M. Patten. 2012. Do actions speak louder than words? An empirical investigation of corporate environmental reputation. *Accounting, Organizations, and Society* 37(1): 14–25.
- Christensen, D. M. 2016. Corporate accountability reporting and high-profile misconduct. *The Accounting Review* 91(2): 377–399.

- Christensen, H. B., L. Hail, and C. Leuz. 2021. Mandatory CSR and sustainability reporting: Economic analysis and literature review. *Review of Accounting Studies* 26(3): 1176–1248.
- Christodoulou, D., and S. McLeay. 2014. The double entry constraint, structural modeling and economic estimation. *Contemporary Accounting Research* 31(2): 609–628.
- Clarkson, P. M., Y. Li, G. D. Richardson, and F. P. Vasvari. 2008. Revisiting the relation between environmental performance and environmental disclosure: An empirical analysis. *Accounting, Organizations and Society* 33(4–5): 303–327.
- Cormier, D., I. M. Gordon, and M. Magnan. 2004. Corporate environmental disclosure: Contrasting management's perceptions with reality. *Journal of Business Ethics* 49(2): 143–165.
- Cormier, D., M. Magnan, and B. VanVelthoven. 2005. Environmental disclosure quality in large German companies: Economic incentives, public pressures or institutional conditions? *European Accounting Review* 14(1): 3–39.
- Corporate Critic Research Database (CCRD). 2020b. *Publications Referenced by Ethical Consumer*. Retrieved March 4, 2020, from <http://www.corporatecritic.org/info/rr/publications.aspx>.
- Corporate Critic Research Database (CCRD). 2020a. *Research & Ratings. How is Corporate Critic compiled?* Retrieved March 4, 2020, from <http://www.corporatecritic.org/info/rr/compiled.aspx>
- Corporate Critic Research Database (CCRD). 2020c. *Gulf of Mexico oil spill, habitats, pollution and GHG impacts*. Retrieved January 5, 2020, from <http://www.corporatecritic.org/abstracts.aspx?%20IDs=545454>.
- Corporate Critic Research Database (CCRD). 2021a. *Ethical Consumer: About Ethical Consumer*. Retrieved September 27, 2021, from <https://www.ethicalconsumer.org/about-us>.
- Corporate Critic Research Database (CCRD). 2021b. *Ethical Consumer Research & Consultancy: Corporate Research Database*. Retrieved September 27, 2021, from <https://research.ethicalconsumer.org/corporate-research-database>.
- Corporate Critic Research Database (CCRD). 2021c. *Ethical Consumer Research & Consultancy: Our Ethical Ratings System*. Retrieved September 27, 2021, from <https://research.ethicalconsumer.org/corporate-research-database/our-ethical-ratings-system>.
- Corporate Critic Research Database (CCRD). 2021d. *Ethical Consumer Research & Consultancy: Partnerships*. Retrieved September 27, 2021, from <https://research.ethicalconsumer.org/research-consultancy/partnerships>.
- Corporate Critic Research Database (CCRD). 2021e. *Ethical Consumer Research & Consultancy: Global Directory of Ethical Consumption Organisations*. Retrieved September 27, 2021, from <https://research.ethicalconsumer.org/research-hub/global-directory-ethical-consumption-organisations>.
- Corporate Critic Research Database (CCRD). 2021f. *Ethical Consumer: Our Ethical Ratings*. Retrieved September 27, 2021, from <https://www.ethicalconsumer.org/about-us/our-ethical-ratings>.
- Datta, S., M. Iskandar-Datta, and A. Patel. 1999. Bank monitoring and the pricing of corporate public debt. *Journal of Financial Economics* 51(3): 435–449.
- Davis, J. H., F. D. Schoorman, and L. Donaldson. 1997. Toward a stewardship theory of management. *The Academy of Management Review* 22(1): 20–47.
- Dechow, P. M. 2023. Understanding the sustainability reporting landscape and research opportunities in accounting. *The Accounting Review* 98(5): 481–493.
- DeTienne, K. B., and L. W. Lewis. 2005. The pragmatic and ethical barriers to corporate social responsibility disclosure. The Nike case. *Journal of Business Ethics* 60(4): 359–376.
- DeVilliers, C. J., and D. Alexander. 2014. The institutionalisation of corporate social responsibility reporting. *The British Accounting Review* 46(2): 198–212.
- Dhaliwal, D. S., O. Z. Li, A. Tsang, and Y. G. Yang. 2011. Voluntary nonfinancial disclosure and the cost of equity capital: The initiation of corporate social responsibility reporting. *The Accounting Review* 86(1): 59–100.
- Dhaliwal, D. S., S. Radhakrishnan, A. Tsang, and Y. G. Yang. 2012. Nonfinancial disclosure and analyst forecast accuracy: International evidence on corporate social responsibility disclosure. *The Accounting Review* 87(3): 723–759.
- Donaldson, L., and J. H. Davis. 1991. Stewardship theory or agency theory: CEO governance and shareholder returns. *Australian Journal of Management* 16(1): 49–64.
- Donaldson, T., and T. W. Dunfee. 1994. Towards a unified conception of business ethics: Integrative social contracts theory. *The Academy of Management Review* 19(2): 252–284.
- Donaldson, T., and T. W. Dunfee. 1999. *Ties that bind: A social contracts approach to business ethics*. Harvard Business School Press.

- Dong, Y., and A. Lewbel. 2015. A simple estimator for binary choice models with endogenous regressors. *Econometric Reviews* 34(1–2): 82–105.
- Dowling, J., and J. Pfeffer. 1975. Organizational legitimacy: Social values and organizational behavior. *The Pacific Sociological Review* 18(1): 122–136.
- Downar, B., J. Ernstberger, S. Reichelstein, S. Schwenen, and A. Zaklan. 2021. The Impact of carbon disclosure mandates on emissions and financial operating performance. *Review of Accounting Studies* 26(3): 1137–1175.
- Dube, S., and C. Zhu. 2021. The disciplinary effect of social media: Evidence from firms' responses to Glassdoor reviews. *Journal of Accounting Research* 59(5): 1783–1825.
- Einwiller, S. A., C. E. Carroll, and K. Korn. 2010. Under What Conditions Do the News Media Influence Corporate Reputation? The Roles of Media Dependency and Need for Orientation. *Corporate Reputation Review* 12(4): 299–315.
- European Commission (EC). 2021. *Corporate sustainability reporting*. Retrieved May 31, 2021, from [https://ec.europa.eu/info/business-economy-euro/company-reporting-and-auditing/company-reporting/non-financial-reporting\\_en](https://ec.europa.eu/info/business-economy-euro/company-reporting-and-auditing/company-reporting/non-financial-reporting_en).
- European Union (EU). 2019. *Regulation (EU) 2019/2088 of the European Parliament and of the Council of 27 November 2019 on sustainability-related disclosures in the financial services sector*. Retrieved January 14, 2022, from <https://eur-lex.europa.eu/eli/reg/2019/2088/oj?msclid=55f05e62b18111ec851a1b441213b6c1&locale=en>.
- Fama, E. F., and M. C. Jensen. 1983. Separation of ownership and control. *The Journal of Law & Economics* 26(2): 301–325.
- Farber, D. B. 2005. Restoring trust after fraud: Does corporate governance matter? *The Accounting Review* 80(2): 539–561.
- Fiechter, P., J. -M. Hitz, and N. Lehmann. 2022. Real effects of a widespread CSR reporting mandate: Evidence from the European Union's CSR Directive. *Journal of Accounting Research* 60(4): 1499–1549.
- Flammer, C. 2013. Corporate social responsibility and shareholder reaction: The environmental awareness of investors. *Academy of Management Journal* 56(3): 758–781.
- Freundlieb, M., and F. Teuteberg. 2013. Corporate social responsibility reporting – a transnational analysis of online corporate social responsibility reports by market-listed companies: Contents and their evolution. *International Journal of Innovation and Sustainable Development* 7(1): 1–26.
- Friedman, M. 1970. The social responsibility of business is to increase its profits. *The New York Times Magazine*, 119(41): 122–126.
- Frynas, J. G., and C. Yamahaki. 2016. Corporate social responsibility: Review and roadmap of theoretical perspectives. *Business Ethics: A European Review* 25(3): 258–285.
- Gamerschlag, R., K. Moeller, and F. Verbeeten. 2011. Determinants of voluntary CSR disclosure: Empirical evidence from Germany. *Review of Managerial Science* 5(2–3): 233–262.
- Global Reporting Initiative (GRI). 2011. *A new phase: The growth of sustainability reporting. GRI's Review 2010/11*. Retrieved March 4, 2019, from <https://www.globalreporting.org/resourcelibrary/GRI-Year-In-Review-2010-2011.pdf>.
- Granger, C.W.J. 1969. Investigating causal relations by econometric models and cross-spectral methods. *Econometrica* 37 (3): 424–438.
- Grewal, J., G. D. Richardson, and J. Wang. 2023. *Effects of Mandatory Carbon Reporting on Unrepresentative Environmental Disclosures*. Retrieved August 16, 2023, from <https://ssrn.com/abstract=4166184>.
- Hackston, D., and M. J. Milne. 1996. Some determinants of social and environmental disclosures in New Zealand companies. *Accounting, Auditing & Accountability Journal* 9(1): 77–108.
- Haddock, J. 2005. Consumer influence on internet-based corporate communication of environmental activities: The UK food sector. *British Food Journal* 107(10): 792–805.
- Hahn, R., and M. Kuehnen. 2013. Determinants of sustainability reporting: A review of results, trends, theory, and opportunities in an expanding field of research. *Journal of Cleaner Production* 59:5–21.
- Hahn, R., and R. Luelfs. 2014. Legitimizing negative aspects in GRI-oriented sustainability reporting: A qualitative analysis of corporate disclosure strategies. *Journal of Business Ethics* 123(3): 401–420.
- Hail, L., A. Tahoun, and C. Wang. 2018. Corporate scandals and regulation. *Journal of Accounting Research* 56(2): 617–671.
- Harjoto, M. A., and H. Jo. 2011. Corporate governance and CSR nexus. *Journal of Business Ethics* 100(1): 45–67.

- Harjoto, M. A., and H. Jo. 2015. Legal vs. normative CSR: Differential impact on analyst dispersion, stock return volatility, cost of capital, and firm value. *Journal of Business Ethics* 128(1): 1–20.
- He, J. 2006. Pollution haven hypothesis and environmental impacts of foreign direct investment: The case of industrial emission of sulfur dioxide (SO<sub>2</sub>) in Chinese provinces. *Ecological Economics* 60(1): 228–245.
- Heflin, F., and D. Wallace. 2017. The BP oil spill: Shareholder wealth effects and environmental disclosures. *Journal of Business Finance & Accounting* 44(3–4): 337–374.
- Hermalin, B. E. 2013. Leadership and corporate culture. In *The handbook of organizational economics*, ed. R. Gibbons and J. Roberts, 432–478. Princeton University Press.
- Hoi, C. K., Q. Wu, and H. Zhang. 2013. Is corporate social responsibility (CSR) associated with tax avoidance? Evidence from irresponsible CSR activities. *The Accounting Review* 88(6): 2025–2059.
- Holder-Webb, L., J. R. Cohen, L. Nath, and D. Wood. 2009. The supply of corporate social responsibility disclosures among U.S. firms. *Journal of Business Ethics* 84(4): 497–527.
- House, R. J., P. J. Hanges, M. Javidan, P. W. Dorfman, and V. Gupta. 2004. *Culture, leadership, and organizations. The GLOBE study of 62 societies*. SAGE Publications.
- Huang, X., and L. Watson. 2015. Corporate social responsibility research in accounting. *Journal of Accounting Literature* 34:1–16.
- Huang, Q., Y. Li, M. Lin, and G. A. McBrayer. 2022. Natural disasters, risk salience, and corporate ESG disclosure. *Journal of Corporate Finance* 72:102152.
- Hughes, S. B., A. Anderson, and S. Golden. 2001. Corporate environmental disclosures: Are they useful in determining environmental performance? *Journal of Accounting and Public Policy* 20(3): 217–240.
- Interbrand. 2017. *Best Global Brands*. Retrieved May 30, 2017, from <http://interbrand.com/best-brands/best-global-brands/methodology/>.
- Ioannou, I., and G. Serafeim. (2017). The consequences of mandatory corporate sustainability reporting. *The Oxford Handbook of Corporate Social Responsibility*, Vol. 2, Oxford University Press.
- Jantadej, P., and P. Kent. 1999. Corporate environmental disclosures in response to public awareness of the Ok Tedi Copper Mine disaster: A legitimacy theory perspective. *Accounting Research Journal* 12(1): 72–88.
- Javidan, M. 2004. Performance orientation. In *Culture, leadership, and organizations The GLOBE study of 62 societies*, ed. R.J. House, P.J. Hanges, M. Javidan, P.W. Dorfman, and V. Gupta, 239–281. SAGE Publications.
- Johnson, S. A., H. E. Ryan Jr., and Y. S. Tian. 2009. Managerial incentives and corporate fraud: The sources of incentives matter. *Review of Finance* 13(1): 115–145.
- Kabasakal, H., and M. Bodur. 2004. Humane orientation in societies, organizations, and leader attributes. In *Culture, leadership, and organizations. The GLOBE study of 62 societies*, ed. R.J. House, P.J. Hanges, M. Javidan, P.W. Dorfman, and V. Gupta, 564–601. SAGE Publications.
- Kim, E. -H., and T. P. Lyon. 2011. Strategic environmental disclosure: Evidence from the DOE's voluntary greenhouse gas registry. *Journal of Environmental Economics and Management* 61(3): 311–326.
- Kim, J. -B., C. Wang, and F. Wu. 2023. The real effects of risk disclosure: Evidence from climate change reporting in 10-Ks. *Review of Accounting Studies* 28(4): 2271–2318.
- Kleinbaum, D. G., and M. Klein. 2010. *Logistic regression. A self-learning text*, 3rd ed. Springer.
- Kolk, A., and P. Perego. 2010. Determinants of the adoption of sustainability assurance statements: An international investigation. *Business Strategy and the Environment* 19(3): 182–198.
- Kolk, A., S. Walhain, and S. VanDeWateringen. 2001. Environmental reporting by the Fortune Global 250: Exploring the influence of nationality and sector. *Business Strategy and the Environment* 10(1): 15–28.
- Kotabe, M., and J. Y. Murray. 2004. Global sourcing strategy and sustainable competitive advantage. *Industrial Marketing Management* 33 (1): 7–14.
- Kotchen, M., and J. J. Moon, 2012. Corporate social responsibility for irresponsibility. *The B.E. Journal of Economic Analysis & Policy*, 12(1), Article 55.
- KPMG. (1999). *KPMG International Survey of Environmental Reporting 1999*. Retrieved March 4, 2020, from [https://www.researchgate.net/publication/254796996\\_KPMG\\_International\\_survey\\_of\\_environmental\\_reporting\\_1999](https://www.researchgate.net/publication/254796996_KPMG_International_survey_of_environmental_reporting_1999).

- KPMG. 2002. *KPMG International Survey of Corporate Sustainability Reporting 2002*. Retrieved March 4, 2020, from [https://www.researchgate.net/publication/254746739\\_KPMG\\_International\\_Survey\\_of\\_Corporate\\_Sustainability\\_Reporting\\_2002](https://www.researchgate.net/publication/254746739_KPMG_International_Survey_of_Corporate_Sustainability_Reporting_2002).
- KPMG. 2008. *KPMG International Survey of Corporate Responsibility Reporting 2008*. Retrieved October 21, 2020, from <https://www.in.kpmg.com/securedata/aci/files/sustcorporateresponsibilityreportingsurvey2008.pdf>.
- KPMG. 2011. *KPMG International Survey of Corporate Responsibility Reporting 2011*. Retrieved October 21, 2020, from <https://assets.kpmg/content/dam/kpmg/pdf/2012/02/Corporate-responsibility-reporting-2012-eng.pdf>.
- KPMG. 2017. *The KPMG Survey of Corporate Responsibility Reporting 2017*. Retrieved October 21, 2020, from <https://assets.kpmg/content/dam/kpmg/xx/pdf/2017/10/kpmg-survey-of-corporate-responsibility-reporting-2017.pdf>.
- KPMG 2022. *KPMG Survey of Sustainability Reporting 2022*. Retrieved October 10, 2022, from <https://assets.kpmg.com/content/dam/kpmg/sg/pdf/2022/10/ssr-small-steps-big-shifts.pdf>.
- Krüger, P. 2015. Corporate goodness and shareholder wealth. *Journal of Financial Economics* 115(2): 304–329.
- Lambert, R., C. Leuz, and R. E. Verrecchia. 2007. Accounting information, disclosure, and the cost of capital. *Journal of Accounting Research* 45(2): 385–420.
- Larcker, D. F., and T. O. Rusticus. 2010. On the use of instrumental variables in accounting research. *Journal of Accounting and Economics* 49(3): 186–205.
- Larcker, D. F., S. A. Richardson, and I. Tuna. 2007. Corporate governance, accounting outcomes, and organizational performance. *The Accounting Review* 82(4): 963–1008.
- Larcker, D. F., L. Pomorski, B. Tayan, and E. M. Watts. 2022. ESG ratings – a compass without direction. *Rock Center for Corporate Governance at Stanford University Working Paper Forthcoming*. Retrieved August 9, 2024 from [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4179647](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4179647).
- Lee, J., and S. Maxfield. 2015. Doing Well by Reporting Good: Reporting Corporate Responsibility and Corporate Performance. *Business and Society Review* 120(4): 577–606.
- Legendre, S., and F. Coderre. 2013. Determinants of GRI G3 application levels: The case of the Fortune Global 500. *Corporate Social Responsibility and Environmental Management* 20(3): 182–192.
- Lewbel, A. 2014. An overview of the special regression method. In *The Oxford handbook of applied non-parametric and semiparametric econometrics and statistics*, ed. J.S. Racine, L. Su, and A. Ullah, 38–61. Oxford University Press.
- Lewbel, A., Y. Dong, and T. T. Yang. 2012. Comparing features of convenient estimators for binary choice models with endogenous regressors. *Canadian Journal of Economics* 45(3): 809–829.
- Li, X., Y. Lou, and L. Zhang. 2023. *Do commercial ties influence ESG ratings? Evidence from Moody's and S&P*. [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4190204](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4190204).
- Lindblom, C. K. 1994. The implications of organizational legitimacy for corporate social performance and disclosure. Conference Paper, *Critical Perspectives on Accounting Conference, New York, NY*.
- Linnenluecke, M. K., and A. Griffiths. 2010. Corporate sustainability and organizational culture. *Journal of World Business* 45(4): 357–366.
- Mahoney, L. S., L. Thorne, L. Cecil, and W. LaGore. 2013. A research note on standalone corporate social responsibility reports: Signaling or greenwashing? *Critical Perspectives on Accounting* 24(4–5): 350–359.
- Maignan, I., and D. A. Ralston. 2002. Corporate social responsibility in Europe and the U.S.: Insights from businesses' self-presentations. *Journal of International Business Studies* 33(3): 497–514.
- Mark-Ungericht, B., and R. Weiskopf. 2007. Filling the empty shell. The public debate on CSR in Austria as a paradigmatic example of a political discourse. *Journal of Business Ethics* 70(3): 285–297.
- Matsumura, E. M., R. Prakash, and S. C. Vera-Munoz. 2014. Firm-value effects of carbon emissions and carbon disclosures. *The Accounting Review* 89(2): 695–724.
- Mattingly, J. E., and S. L. Berman. 2006. Measurement of corporate social action – discovering taxonomy in the KLD ratings data. *Business & Society* 45(1): 20–46.
- McCarten, M., I. Diaz-Rainey, H. Roberts, and E. K. M. Tan. 2022. Political connections, tacit power and corporate misconduct. *Journal of Business Finance & Accounting* 49(9–10): 1530–1552.
- McGuire, J., S. Dow, and K. Argheyd. 2003. CEO incentives and CSR. *Journal of Business Ethics* 45(4): 341–359.
- Meek, G. K., C. B. Roberts, and S. J. Gray. 1995. Factors influencing voluntary annual report disclosures by U.S., U.K. and Continental European multinational corporations. *Journal of International Business Studies* 26(3): 555–572.

- Merkel-Davies, D. M., and N. M. Brennan. 2007. Discretionary disclosure strategies in corporate narratives: Incremental information or impression management? *Journal of Accounting Literature* 26:116–194.
- Mishina, Y., B. J. Dykes, E. S. Block, and T. G. Pollock. 2010. Why “good” firms do bad things: The effect of high aspiration, high expectations, and prominence on the incident of corporate illegality. *The Academy of Management Journal* 53(4): 701–722.
- Moneva, J. M., P. Archel, and C. Correa. 2006. GRI and the camouflaging of corporate unsustainability. *Accounting Forum* 30(2): 121–137.
- Morris, R. D. 1987. Signalling, agency theory and accounting policy choice. *Accounting and Business Research* 18(69): 47–56.
- Muller, A., and G. Whiteman. 2009. Exploring the geography of corporate philanthropic disaster response: A study of Fortune Global 500 firms. *Journal of Business Ethics* 84(4): 589–603.
- Muttakin, M. B., and A. Khan. 2014. Determinants of corporate social disclosure: Empirical evidence from Bangladesh. *Advances in Accounting* 30(1): 168–175.
- Neu, D., H. Warsame, and K. Pedwell. 1998. Managing public impressions: Environmental disclosures in annual reports. *Accounting, Organizations and Society* 23(3): 265–282.
- Norrflo, C. 2009. Key currency competition. The Euro versus the Dollar. *Cooperation and Conflict* 44(4): 420–442.
- Paik, G. H., B. Lee, and K. R. Krumwiede. 2017. Corporate social responsibility performance and outsourcing: The case of the Bangladesh tragedy. *Journal of International Accounting Research* 16(1): 59–79.
- Patten, D. M. 1991. Exposure, legitimacy, and social disclosure. *Journal of Accounting and Public Policy* 10(4): 297–308.
- Patten, D. M. 1992. Intra-industry environmental disclosures in response to the Alaskan oil spill: A note on legitimacy theory. *Accounting, Organizations and Society* 17(5): 471–475.
- Patten, D. M. 2002. The relation between environmental performance and environmental disclosure: A research note. *Accounting, Organizations and Society* 27(8): 763–773.
- Plumlee, M., D. Brown, R. M. Hayes, and R. S. Marshall. 2015. Voluntary environmental disclosure quality and firm value: Further evidence. *Journal of Accounting and Public Policy* 34(4): 336–361.
- Prencipe, A. 2004. Proprietary costs and determinants of voluntary segment disclosure: Evidence from Italian listed companies. *European Accounting Review* 13(2): 319–340.
- Qianqian, D., and S. Rui. 2018. Peer performance and earnings management. *Journal of Banking & Finance* 89:125–137.
- Quinlan, M., and P. Sheldon. 2011. The enforcement of minimum labor standards in an era of neo-liberal globalization: An overview. *The Economic and Labor Relations Review* 22(2): 5–31.
- Raghuandan, A., and S. Rajgopal, 2023. Do socially responsible firms walk the talk? *Journal of Law and Economics, forthcoming*.
- Raghuandan, A., and S. Rajgopal. 2022. Do ESG funds make stakeholder-friendly investments? *Review of Accounting Studies* 27(3): 822–863.
- Rasche, A., and S. Waddock. 2014. Global sustainability governance and the UN Global Compact: A rejoinder to critics. *Journal of Business Ethics* 122 (2): 209–216.
- Refinitiv. 2022. *Environmental, social and Governance scores from Refinitiv*. Retrieved September 29, 2022, from [https://www.refinitiv.com/content/dam/marketing/en\\_us/documents/methodology/refinitiv-esg-scores-methodology.pdf](https://www.refinitiv.com/content/dam/marketing/en_us/documents/methodology/refinitiv-esg-scores-methodology.pdf).
- Reimann, F., J. Rauer, and L. Kaufmann. 2015. MNE subsidiaries’ strategic commitment to CSR in emerging economies: The role of administrative distance, subsidiary size, and experience in the host country. *Journal of Business Ethics* 132(4): 845–857.
- Reitmaier, C., and W. Schultze. 2017. Enhanced business reporting: Value relevance and determinants of valuation-related disclosures. *Journal of Intellectual Capital* 18(4): 832–867.
- Roberts, R. W. 1992. Determinants of corporate social responsibility disclosure: An application of stakeholder theory. *Accounting, Organizations and Society* 17(6): 595–612.
- Schultze, W., and R. Trommer. 2012. The concept of environmental performance and its measurement in empirical studies. *Journal of Management Control* 22:375–412.
- Semenova, N., and L. G. Hassel. 2015. On the validity of environmental performance metrics. *Journal of Business Ethics* 132(2): 249–258.
- Shi, H., X. Zhang, and J. Zhou. 2018. Cross-listing and CSR performance: Evidence from AH shares. *Frontiers of Business Research in China* 12(11): 126–140.

- Simnett, R., A. Vanstraelen, and W. Chua. 2009. Assurance on sustainability reports: An international comparison. *The Accounting Review* 84(3): 937–967.
- Sinkovics, N., S. Ferdous Hoque, and R. R. Sinkovics. 2016. Rana Plaza collapse aftermath: Are CSR compliance and auditing pressures effective? *Accounting, Auditing & Accountability Journal* 29(4): 617–649.
- Skinner, D. J. 1994. Why firms voluntarily disclose bad news. *Journal of Accounting Research* 32(1): 38–60.
- Skouloudis, A., N. Jones, C. Malesios, and K. Evangelinos. 2014. Trends and determinants of corporate non-financial disclosure in Greece. *Journal of Cleaner Production* 68:174–188.
- Spence, M. 1973. Job market signaling. *The Quarterly Journal of Economics* 87(3): 355–374.
- Stock, J. H., and M. Yogo, 2002. Testing for weak instruments in linear IV regression. *National Bureau of Economic Research Technical Working Paper Series 284*. Retrieved May 30, 2017, from <http://www.nber.org/papers/T0284>.
- Stock, J. H., and M. W. Watson. 2012. *Introduction to econometrics*, 3rd ed. Pearson.
- Strike, V. M., J. Gao, and P. Bansal. 2006. Being good while being bad: Social responsibility and the international diversification of U.S. firms. *Journal of International Business Studies* 37(6): 850–862.
- Taylor, M. S. 2005. Unbundling the pollution haven hypothesis. *Advances in Economic Analysis & Policy* 4(2): 1–28.
- Thorne, L., L. S. Mahoney, and G. Manetti. 2014. Motivations for issuing standalone CSR reports: A survey of Canadian firms. *Accounting, Auditing & Accountability Journal* 27(4): 686–714.
- Tomar, S. 2023. Greenhouse Gas Disclosure and Emissions Benchmarking. *Journal of Accounting Research* 61(2): 451–492.
- Topping, N. 2012. How does sustainability disclosure drive behavior change? *Journal of Applied Corporate Finance* 24(2): 45–48.
- Treviño, L. K. 2005. Out of touch – The CEO’s role in corporate misbehavior. *Brooklyn Law Review* 70(4): 1195–1212.
- Tschopp, D. J. 2005. Corporate social responsibility: A comparison between the United States and the European Union. *Corporate Social Responsibility and Environmental Management* 12(1): 55–59.
- United Nations Global Compact (UNGC). 2020a. *United Nations Global Compact. The ten principles of the UN Global Compact*. Retrieved October 21, 2020, from <https://www.unglobalcompact.org/what-is-gc/mission/principles>.
- United Nations Global Compact (UNGC). 2020b. *Who we are. Our Participants*. Retrieved October 21, 2020, from <https://www.unglobalcompact.org/what-is-gc/participants>.
- United Nations Global Compact (UNGC). 2020c. *Reporting on the SDGs*. Retrieved October 21, 2020, from <https://www.unglobalcompact.org/take-action/action/sdg-reporting>.
- VanMarrewijk, M. 2003. Concepts and definitions of CSR and corporate sustainability: Between agency and communion. *Journal of Business Ethics* 44(2–3): 95–105.
- Watson, A., P. Shrive, and C. Marston. 2002. Voluntary disclosure of accounting ratios in the UK. *The British Accounting Review* 34(4): 289–313.
- Welford, R. 2004. Corporate social responsibility in Europe and Asia. *Journal of Corporate Citizenship* 13:31–47.
- Welford, R. 2005. Corporate social responsibility in Europe, North America and Asia. *Journal of Corporate Citizenship* 17:33–52.
- White, H. 1980. A heteroskedasticity-consistent covariance matrix estimator and a direct test for heteroskedasticity. *Econometrica* 48(4): 817–838.
- Wickert, C., A. G. Scherer, and L. J. Spence. 2016. Walking and talking corporate social responsibility: Implications of firm size and organizational cost. *Journal of Management Studies* 53(7): 1169–1196.
- Williams, O. F. 2014. The United Nations Global Compact: What did it promise? *Journal of Business Ethics* 122(2): 241–251.
- Wiseman, J. 1982. An evaluation of environmental disclosures made in corporate annual reports. *Accounting, Organizations and Society* 7(1): 53–63.
- Wooldridge, J. M. 2003. *Solutions manual and supplementary materials for Econometric analysis of cross section and panel data*. MIT Press.
- Wooldridge, J. M. 2013. *Introductory econometrics. A modern approach*, 5th ed. Mason.
- Wu, J. 2014. The antecedents of corporate social and environmental irresponsibility. *Corporate Social Responsibility and Environmental Management* 21(5): 286–300.

- Yoon, A. and Serafeim, G. 2020. Stock price reactions to ESG news: The role of ESG ratings and disagreement. <https://scholarspace.manoa.hawaii.edu/server/api/core/bitstreams/b3b44b92-706b-4474-aab2-a20a6e51bd2c/content>. Accessed 1 Jul 2024.
- Young, S., and M. Marais. 2012. A multi-level perspective of CSR reporting: The implications of national institutions and industry risk characteristics. *Corporate Governance: An International Review* 20(5): 432–450.
- Zhao, M. 2012. CSR-based political legitimacy strategy: Managing the state by doing good in China and Russia. *Journal of Business Ethics* 111(4): 439–460.

**Publisher's Note** Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.