

Reputation-Building Actions After Corporate Social Irresponsibility

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Abstract

We examine firms' reputation-building actions in response to major violations of environmental and social (labor and consumer safety) laws. To do so, we construct a novel dataset of potential reputation-building actions taken by firms, based on hand-classification of 21,932 press releases, in the years preceding and subsequent to a major violation (e.g., an oil spill or a major labor lawsuit verdict). We find that while firms do take more reputation-building actions after being exposed for engaging in serious environmental or social misconduct, these actions typically do not benefit the stakeholders affected by the underlying violation. Instead, firms appear to target reputation-building actions at consumers irrespective of the underlying type of violation, and target employees and shareholders after environmental (but not social) violations. In terms of consequences, we find that taking more environmental (social) actions is associated with lower future reductions in penalties for environmental (social) violations. Finally, the stock market responds positively to reputation-building actions targeted at shareholders and customers but not at other stakeholder groups. Our results suggest that while firms may not on average attempt to take actions at least some of the actions reflect genuine commitments to improve rather than greenwashing.

Keywords: reputation repair; corporate social responsibility; environmental and social violation

JEL classification: M14, G23, G34

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1. INTRODUCTION

We investigate the nature and consequences of reputation-(re)building actions taken by firms found to have committed major violations of environmental and social laws. Reputational damage resulting from media, consumer, or investor outcry often follows corporate scandals. For instance, notable oil spills, from the 1989 *Exxon Valdez* disaster to BP's 2010 *Deepwater Horizon* disaster, have resulted in both hundreds of millions of dollars in direct regulatory penalties as well as short-term stock market losses (Lämsilähti 2012), substantial longer-term losses of reputational capital (McGuire, Holtmaat, and Prakash 2020), and punitive legislation.¹ The reputational consequences of socially irresponsible corporate actions may also escalate in the future in light of a recent increase in investors' interest in environmental and social issues.

However, little is known about whether, and especially how, firms systematically respond to major negative ESG incidents, in the form of environmental or social violations.² We address that deficiency in this paper. To do so, we hand-collect novel data on 21,932 reputation-building actions taken by offending firms and a set of matched controls after 468 serious violations of environmental or social laws between 2000 and 2020. We use this data to shed light on four issues: (i) the nature of actions taken; (ii) which stakeholders actions target and whether this aligns with the type of underlying violation; (iii) whether investors react to these actions; and (iv) whether undertaking such actions correlates with future improvements in firms' environmental and social track records.

It is not obvious ex-ante whether firms would engage in significant reputation-building actions subsequent to a negative ESG event. Prior literature documents the actions that firms may take to regain *shareholder* trust after a major accounting restatement (Chakravarthy,

¹ For example, in response to the *Exxon Valdez* oil spill, Congress substantially increased transport costs for oil companies by requiring tankers to be double-hulled (see www.nationalgeographic.com/environment/article/oil-spills-30-years-after-exxon-valdez).

² We define social violations as abuses of labor and consumer laws, pertaining to discrimination based on race, gender, age, or disability; wage theft; workplace safety; and consumer safety.

deHaan, and Rajgopal 2014). However, environmental and social violations may arise from different firm-level factors and affect different sets of stakeholders, and so Chakravarthy et al.'s (2014) findings may not generalize to our setting. For example, Karpoff, Lott, and Wehrly (2005) show that the market reaction to environmental violations appears to be driven entirely by direct monetary fines rather than reputational losses, suggesting that firms may not have a (shareholder-driven) need for reputation-building actions after an environmental violation. However, that study's sample period reflects a time when firms received significantly less investor pressure regarding their nonfinancial performance and hence may not generalize to more recent periods. Even less is known about how firms respond to violations of social (labor and consumer) laws associated with discrimination, wage theft, and worker or consumer safety.

Our primary sample of serious environmental and social violations is drawn from Violation Tracker, compiled by the non-profit organization Good Jobs First. We supplement this with data from Audit Analytics' Corporate and Legal dataset. Because of the extensive hand-collection required in constructing our database of reputation repair actions, we limit our sample of treatment events to those resulting in penalties of \$10 million or more. For these firms, as well as a set of control firms matched on firm fundamentals and within the same industry and year, we review *all* press releases by the firm, from one year before the violation to one year after the violation. We then use a procedure similar to Chakravarthy et al. (2014) to identify reputation-building actions. From each press release we identify actions related to environmental and social initiatives (e.g., empowering women or minorities; charitable actions; environmental protection), targeting consumers (e.g., sales promotions), and focusing on corporate governance and investors (e.g., board or management turnover; restructuring).

We begin our analyses by validating the importance of these actions and firms' incentives for subsequent reputation repair. We find that firms receive significantly more negative news coverage in influential outlets after the announcement of a violation. The latter

evidence suggests a need for firms to rebuild their reputation with other stakeholders, e.g., customers whose purchasing patterns could plausibly be influenced by news of the event (Christensen, De George, Joffre, and Macciocchi 2023) or employees who may not otherwise have been aware of the event if they were not personally harmed.

Given these incentives for reputation repair, our first set of tests examines whether the number of reputation-building actions taken by firms increases following the revelation of E&S-related violations. Our empirical approach compares violating firms after the revelation of a major violation to (i) the same firm prior to the revelation of the violation as well as (ii) matched control firms. Our key takeaway is that after a serious environmental or social violation, firms significantly increase their reputation-building efforts. Firms, on average, take 17.3-20.4% more actions after a violation, compared with themselves prior to the violation and with their matched control firms.

While we find an increase in reputation-building actions after major environmental and social violations, it is unclear whether this reflects remediation – targeting stakeholders harmed by the underlying violation – or instead a broader attempt at repairing reputation with other stakeholders. Our next set of tests explores this distinction, examining which stakeholder groups firms target with reputation-building actions after a violation. We first examine whether firms target stakeholders harmed by a violation by classifying actions as either direct or indirect. We define an action as direct if it matches the type of violation (e.g., environment-oriented actions in response to an oil spill or actions that empower women after a gender discrimination violation) and indirect otherwise. We find that the increase in reputation-building actions subsequent to a violation is driven by *indirect* actions; conversely, we find no increase in *direct* actions after a violation. These results suggest that firms' voluntary responses to public revelations of wrongdoing may be driven more by reputational concerns than by a sense of obligation to those they have harmed.

To validate the findings discussed in the preceding paragraph, we next classify actions according to their intended audience. We find that firms are most likely to take actions targeting customers and, to a lesser extent, employees and shareholders. Interestingly, this finding varies based on the type of underlying violation. While firms take more customer-centric actions after both environmental and social violations, we observe an increase in employee- and shareholder-focused actions only after *environmental* violations (even though 86% of our underlying social violations reflect harm done to employees). This result may reflect increasing concerns for greenness – or at least firms’ perceptions thereof – by both investors and employees, which has increased in recent years. Moreover, the fact that firms take additional employee-focused actions after environmental but not social violations, even though wrongdoing against employees falls into the latter category, serves as a particularly compelling example of firms being motivated by reputation rather than remediation.

Our approach to identifying reputation-building actions relies on corporate press releases and, as such, reflects forward-looking promises. In light of recent work on “empty ESG pledges” (Kim and Yoon 2023; Raghunandan and Rajgopal 2022, 2023), whether reputation-building actions result in future environmental or social performance improvements for affected firms is an open question. We exploit the remainder of Violation Tracker in this endeavor. We find that reputation-building actions by treatment firms are associated with a reduction in penalties for future environmental or social violations subsequent to the treatment event, and relative to the effects of actions taken by control firms during the same period. Moreover, and perhaps unsurprisingly, future improvements are correlated with actions of the same type: firms that take more environmental actions improve future environmental (but not social) performance, while firms that take more social actions improve future social (but not environmental) performance. Our findings suggest that while firms do not on average take

additional actions to benefit stakeholders harmed by a serious violation, when they do take such actions these may reflect a genuine commitment to improve.

Our final set of tests explores potential shareholder reactions to firms' reputation-building actions. We find that the stock market does respond positively on average to firms' reputation-building actions subsequent to major violations. However, this result is driven primarily by actions targeting shareholders and customers; we find weak or no evidence of a market reaction to actions targeting employees and other stakeholders. The former result is consistent with Chakravarthy et al. (2014), while the latter result suggests that potential financial benefits, if any, to actions meant to benefit other stakeholder groups may be realized indirectly (and/or that the market does not directly reward firms for taking prosocial actions).

To summarize, our key findings are as follows. Regardless of whether a firm is exposed for environmental or social violations, subsequent reputation-building actions seem to focus on customers. Firms also take more actions targeting employees and investors after an environmental (but not social) violation. More generally, reputation-building actions after a violation typically do not target the stakeholders who were harmed by the underlying violation. However, actions that do align with the underlying type of violation are associated with improvements in future compliance outcomes, suggesting that a firm's reputation building actions in the immediate wake of a violation can provide information about the firm's commitment to genuine improvement. More generally, reputation repair strategies appear more nuanced relative to what was previously known in the literature.

Our study makes two primary contributions to the accounting, finance, economics, and management literatures. First, a push to incorporate ESG principles into investment decisions in recent years has led to increasing attention on non-financial corporate scandals. Despite this, little is known about the systematic actions that firms take in response to such controversies. While we are not the first to study firms' reputation-building actions or to document that firms

do indeed take such actions after a scandal, the breadth of actions considered in our study allows us to study not just *whether* firms take reputation-building actions after scandals but more importantly *what types* of actions they take and *which stakeholders* these actions target. In doing so, we complement Chakravarthy et al. (2014), who investigate remedial corporate governance-related actions that firms take in response to serious financial reporting incidents, as well as recent work focused on specific actions in response to environmental or social misconduct (e.g., Akey et al. 2021, Kamiya et al. 2021).

Second, our study contributes toward an emerging literature on greenwashing (e.g., Liang, Sun, and Teo 2022; Kim and Yoon 2023; Raghunandan and Rajgopal 2022, 2023). These studies document several instances of firms and investment managers making proclamations of social responsibility, only to not follow through on them. However, prior work on greenwashing typically focuses on firms' attempts to greenwash in "normal" times rather than in the wake of a scandal; a commitment to change may carry more weight from a scandal-hit firm due to the level of external scrutiny that firm faces. Our study therefore sheds light on whether and when actions that may be taken for reputation-rebuilding purposes can still lead to genuine improvements in environmental and social (E&S) performance. Somewhat surprisingly, we find that although reputation-building actions do correlate to improved future E&S performance, it is only the actions *least* likely to result in future E&S performance improvement that are met with a market reaction. This finding is consistent with investors not appearing to reward prosocial behavior in practice, despite claims to the contrary.

2. RELATED LITERATURE

Our study draws upon two strands of prior literature: (i) how corporations use reputation repair strategies to respond to negative events more broadly as well as (ii) the reputational

consequences of poor environmental, social, and governance (ESG) practices. We describe each of these, as well as how they inform our predictions, below.

2.1 Reputation repair

It is useful to first define what we mean by reputation and by reputation repair. In defining reputation, we follow empirical work by Karpoff (2011) and Fombrun and Van Riel (2007), as well as earlier theoretical work by Klein and Leffler (1981). Specifically, we define a firm's reputation as an intangible asset valued at the reduction in cost of capital and increase in net cash flows that a firm enjoys, "when a firm's counterparties trust that the firm will uphold its implicit and explicit contracts" (Karpoff 2011). While firms typically do not disclose a separate line item reflecting the value of this asset, extant literature suggests that firms assign substantial value to a good reputation, and hence reputational penalties resulting from corporate misconduct can be significant (Armour, Mayer, and Polo 2017; Murphy, Shrieves and Tibbs 2009; Liu and Shankar 2015).

Given the potential materiality of reputational loss, firms may pro-actively take actions to repair damaged reputations (although it is an open question as to whether these actions are sincere or merely 'greenwashing' in terms of correlations with future behavior). While a literature on reputation repair actions exists, these studies are primarily case-driven rather than large-sample empirical attempts to systematically identify reputation repair actions. For example, Comyns and Franklin-Johnson (2018) investigate the actions of garment manufacturing firms affected by the 2013 Rana Plaza building collapse in Bangladesh, while Balmer, Powell, and Greyser (2011) study British Petroleum's reputation management actions both prior and subsequent to the 2010 Deepwater Horizon disaster.

Recent work in other settings moves away from the case-based approach toward larger-scale empirical methods. The most relevant papers in this regard are Akey et al. (2021) and

Chakravarthy, deHaan, and Rajgopal (2014). Akey et al. (2021) document that firms subject to corporate data breaches subsequently increased investments in CSR spending and charitable contributions, although they do not characterize the specific actions that drive this increase in spending. Chakravarthy et al. (2014) study financial rather than social breaches of trust, finding that firms with serious restatements subsequently engage in more reputation-building actions, especially with respect to actions targeted at capital market providers. Moreover, these reputation-building actions appear to be more than just cheap talk, as capital market-centric actions are associated with subsequent improvements in financial reporting quality. Our empirical approach is most similar to Chakravarthy et al. (2014) in that we characterize individual reputation-building actions taken by firms in the wake of corporate social irresponsibility. In doing so, we complement recent and concurrent work such as Akey et al. (2021) and Kamiya et al. (2021) that document increased investment in response to negative social events but do not characterize the nature of these investments. Moreover, it is unclear whether the increases in spending documented by Akey et al. (2021) or Kamiya et al. (2021) reflect efforts that lead to genuine performance improvements or short-term greenwashing. Our focus on concrete actions and their associations with subsequent violations and the concurrent short window market reaction to these actions allows us to disentangle these possibilities.

2.2 Reputational consequences of poor ESG practices

Rapidly growing interest in ESG-focused investing (Hartzmark and Sussman 2019) has led to a literature on how companies and investors incorporate ESG factors and respond to ESG-related pressures. While much of this literature is beyond the scope of the present study, we summarize some of the most relevant work below. Most notable for the purposes of our study is recent literature documenting that even investors with a nominal ESG orientation appear to fixate on underlying *news* coverage of ESG issues (Yang 2022; Raghunandan and

Rajgopal 2022) rather than the underlying issues themselves. For example, Raghunandan and Rajgopal (2022) document that ESG-oriented mutual funds do not purchase stocks with superior overall records of compliance with labor and environmental laws, but that they *do* purchase stocks with fewer newsworthy ESG controversies and higher commercial ESG scores. This result suggests a reason that, although firm- and fund-level proclamations of social responsibility may not always hold water, we may observe legitimate reputation repair attempts in our sample: the violations underlying our treatment events are large enough to be newsworthy and directly financially material. Firms are therefore more likely to have incentives to proactively mitigate the fallout from serious environmental or social misconduct vis-à-vis other misconduct that is less likely to be covered in the media. In turn, this implies the paper's primary hypothesis:

Hypothesis 1: *Firms caught engaging in serious environmental or social misconduct subsequently take more proactive reputation repair actions.*

Moreover, based on the findings in Chakravarthy et al. (2014), we expect to find that this potential result is concentrated in actions that are more closely related to the underlying misconduct incident. For example, in the case of BP's Deepwater Horizon oil spill, we would expect BP to subsequently take more environmental actions relative to social actions. Conversely, for Wal-Mart's \$640 million wage theft settlement in 2008, we would expect subsequent reputation-building actions to be employee centric.

However, there are several reasons why the Hypothesis stated above may not hold. Investors may not respond to negative environmental or social events in the way that they respond to negative financial events. For example, Karpoff, Lott, and Wehrly (2005) document virtually no reputational penalties to environmental violations: they find that the drop in a firm's market value around the announcement of an EPA violation appears to be driven *only* by the direct penalties and losses associated with these violations. In such a situation, firms would have no economic need to engage in reputation repair efforts. Our goal in this paper is

therefore to shed light on a key question: whether firms deem major instances of environmental and social misconduct meaningful enough to engage in subsequent reputation repair actions and, if so, (i) how they do so and (ii) whether these actions lead to sustained improvements.

3. DATA AND VARIABLE MEASUREMENT

3.1 Treatment event selection

We begin by identifying the instances of serious environmental or social corporate misconduct around which we study reputation-building actions. We draw our primary sample from Violation Tracker, a dataset compiled by the organization Good Jobs First. Violation Tracker is the most comprehensive resource on corporate compliance violations, with data going back to 2000. We supplement Violation Tracker with data from the Corporate and Legal dataset by Audit Analytics. From these datasets we retain environmental and social violations only (although both datasets contain information on other types of violations, e.g., financial violations). More specifically, Violation Tracker classifies violations into nine major groups: competition, consumer protection, financial, employment, environment, government contracting, healthcare, workplace safety, and ‘other.’ We classify environmental violations as in Violation Tracker and social violations as those that are classified as pertaining to either employment issues (e.g., wage and hour violations, discrimination cases, and workplace safety violations) or consumer protection issues (e.g., product safety). We employ a similar process for violation data obtained from Audit Analytics, details of which are provided in Appendix A.

Environmental violations do not have subcategories in either Violation Tracker or Audit Analytics. Conversely, social violations fall into several broad subcategories. These include discrimination based on race, gender, age, or disability; wage violations; workplace safety; and other (e.g., product safety or other anti-consumer behavior). The two most common types of social violations, by a significant margin, reflect discrimination and wage issues. The

infrequency of safety issues reflects institutional factors: OSHA's enforcement process that relies on frequent low-value penalties rather than infrequent high-value penalties, and workers' compensation laws inhibit most potential private workplace safety lawsuits.

Because of the extensive hand collection required to obtain and classify potential reputation-building actions, we focus on only the most serious violations, which we measure based on penalty amounts. We retain all violations with an associated penalty amount of \$10 million or higher. This screen retains 468 violations for 399 distinct firm-years spanning 2000 to 2020. After removing observations for which we are unable to obtain financial data, we arrive at a sample of 411 treatment events reflecting 347 distinct firm-years. Figure 1 shows that these events are distributed relatively evenly across our sample period, suggesting that our results are unlikely to be driven by the characteristics of a particular time period.

While we observe only the date a violation was announced rather than the underlying dates during which the violation occurred, Figure 2 highlights the highly visible nature of these events and helps underscore why firms may have strong reputation repair incentives subsequent to the public announcement of a violation. Panel A plots total media coverage in a [-10,+10] day window centered around the announcement date, using data from Ravenpack. We observe a spike in news coverage on the violation data as well as for news coverage with negative and neutral sentiment. Panel B focuses specifically on negative news, relying on data from RepRisk. We observe a spike in news coverage flagged by RepRisk as having medium or high reach or severity around the violation date, consistent with Panel A.

3.2 Control firms

Treatment firms are likely not randomly selected from the broader population. For example, larger and higher-profile firms, as well as firms in certain industries, may be more likely to be targeted for regulatory enforcement and in particular larger fines. We therefore

employ a nearest-neighbor propensity score matching approach to identify a matched control firm for each treatment firm.³ We match within four-digit NAICS industry on firms' financial characteristics (market value, sales growth rate, market to book ratio, ROA, leverage, and prior-year returns) as well as their history of smaller violations in the two years preceding the treatment event. The latter variable captures firms' overall compliance culture and is likely correlated with the likelihood of a much larger scandal ultimately occurring. We detail our sample selection process in Table 1, Panel A, along with evidence of covariate balance resulting from our matching process in Panel B. Finally, Table 1 Panel C presents a breakdown of treatment events in our sample. We observe slightly more social than environmental violations, although the breakdown is relatively even across the two types of major violation events (54% social to 46% environmental).

3.3 Measuring reputation-building actions

Following the approach taken in Chakravarthy et al. (2014), we measure reputation-building actions using information from corporate press releases. We obtain from Factiva all press releases and news articles about both violating firms and matched controls from one calendar year prior to the violation through one calendar year after the violation (for control firms, we construct start and end dates based on the matched treatment firm's violation).

Within these press releases, we search for all press releases initiated by firms in our sample and distributed by the three major distribution wires (PR Newswire, Business Wire, and Globe Newswire). We then read each press release to identify actions based on their content, following the approach taken in Chakravarthy et al. (2014). We classify each action according to both its broader topic as well its likely audience, in terms of stakeholders, outlined below.

³ Because our research design involves a large amount of manual data collection for both treatment *and* control firms, we use propensity score matching to identify a discrete control firm for every treatment observation. It would be infeasible to use a statistical matching method such as entropy balancing for the purposes of constructing our primary sample, as this would require manually collecting information for thousands of additional companies.

3.3.1 Actions by topic

We include a press release in our sample if it falls into at least one of fourteen categories of actions, outlined in Appendix B. These fourteen categories can be thought of as comprising four broad groups: environmental, social, customer, and investor-focused (most commonly reflecting actions related to corporate governance). We classify actions in this way to match the available classification scheme for corporate misconduct. We briefly discuss these four groups and the subcategories falling within each below. Note that an action can fall into multiple categories (e.g., a restaurant introducing green packaging for to-go containers could be both environmental and customer-focused), meaning that the sum of the number of actions within each category does not equal the total number of actions in our data.

Reputation-building actions categorized as *Environment* are those that benefit the environment in some way. For example, a firm might announce a donation to organizations which promote environmental recovery, modify policies to reduce environmental strain (e.g., by switching to clean energy), or highlight its recognition (from a third-party certifying organization) as a leading environmentally responsible firm.

Actions classified as *Social* are divided into six subcategories. *Employee* actions are those which broadly benefit current or potential employees, such as wage raises or special bonuses, new hiring initiatives, or winning awards that highlight the company as a good place to work (e.g., certification from the Great Places to Work Institute). *Women*, *Minority*, and *Disability* are subcategories of *Social* that reflect actions that empower women, racial minorities, and individuals with disabilities respectively. Examples of such actions include donations to charities that fight for equality for the respective group of people, or the announcement of policy changes friendly toward one of these groups (e.g., an explicit initiative to hire more women or underrepresented minorities or an improvement in the firm's maternity

policies). *Supplier* reflects actions benefiting a firm's suppliers. Examples include providing recognizing certain suppliers with excellence awards or otherwise highlighting the work of a supplier in facilitating a corporate action or transaction. *Charity* actions reflect all other forms of donations, excluding those classified into one of the other subcategories above (*Environment*, *WomenEmpower*, *Minority*, *Disability*, or *Employee*).

Actions classified as *Customer* are those which are taken to improve the firm's reputation with its customers. Examples of such actions include introducing a new or improved product or service, introducing new promotions to incentivize customers to engage with the brand, or winning a third-party award for the quality of one of its products. Initiatives that prioritize product safety also fall under this category.

Finally, a firm may pin the cause of a violation on poor corporate governance or culture and, in turn, make changes to signal to third parties – especially investors – that it is serious about change. Our fourth main category of violations therefore captures actions targeted at improving corporate governance and/or appeasing investors; we label this category *Investor*. Within *Investor*, we draw upon Chakravarthy et al. (2014) to characterize six types of reputation-building actions. *BOD* (*Board of Directors*) reflects a change in the firm's board of directors, which may signal greater commitment to external monitoring. *IncentiveControl* reflects changes to firms' incentive or control systems, which may signal greater commitment to internal monitoring. *ChangeLeader* signifies a change in high-ranking roles (such as members of the C-suite, presidents, and vice presidents). While we acknowledge that not every vice president leaving a company reflects a significant action, we argue that those whose departures are deemed press release-worthy are likely to be among the more significant executives within the firm. *Reorg* represents a restructuring of the firm, including mass layoffs; this measure is targeted primarily at investors, seeking to assuage them that the firm is or will still be on steady financial footing in the wake of the scandal. Similarly, *StockRepurchase*

reflects instances of share repurchases by the firm, and is again targeted primarily at investors; a repurchase agreement by the firm should signify confidence that the firm will move beyond the corporate misconduct instance going forward to successfully regain the trust of other stakeholders. Finally, *OtherInvestor* refers to all other actions which may build reputation with investors, such as increasing dividends or acquiring other firms.

3.3.2 Actions by audience

We argue that reputation repair incentives with various stakeholder groups help to explain potential increases in firms' actions in the wake of a serious scandal. To better identify these incentives and how they vary by type of stakeholder, our second approach to classifying actions focuses on the primary audience for each reputation-building action. We consider five types of stakeholders as a potential audience for each action: shareholders, customers, employees, regulators, and suppliers. In addition, some actions may not fall into any of these groups (e.g., charitable donations not targeted at one of the stakeholder groups above), and so we create a catch-all sixth category for other actions.

We provide details of our classification of actions by audience in Appendix B. We note that while an action's topic(s), as described in Section 3.3.1, typically aligns with its intended audience (e.g. most *Customer* actions have customers as the intended audience), this need not always be the case if a firm takes an action that potentially benefits one set of stakeholders but discusses it in the context of another set in its press release. For example, firms may sometimes announce investments into ensuring the safety of a product or service. While these investments benefit customers, related press releases more commonly appear to be targeting regulators (e.g., highlighting compliance with standards). Similarly, some actions may fall under multiple types but target one of the related stakeholder groups. For example, investments into green packaging may be classified under both the *Customer* and *Environment* types but have a primary audience

of *Customer*. Nonetheless, such divergence is not prominent in our sample; for example, more than 90% of actions with *Customer* as the audience also have a topic of *Customer*.

3.3.3 Direct and indirect actions

Our third approach labels each action according to whether it is direct or indirect. We define a direct action as one that potentially benefits the stakeholder group(s) wronged by the underlying serious corporate misconduct incident. For instance, an environment-focused action, such as an announcement to pivot to solar energy, is a direct action if it comes in response to an environmental violation (e.g., for excessive pollution, which can result from using “dirty” power in the production process). Conversely, the announcement of a shift toward solar energy would be indirect if it occurred after an employment discrimination violation. Similarly, an initiative to hire more women and underrepresented minorities in the workforce reflects a direct action if it comes in response to an employment violation. However, the same initiative would reflect an indirect action if taken in response to an oil spill. In our empirical analyses, we consider an action to be direct if it is (i) an environment-related action after an environmental violation; (ii) a minority-focused action after a racial discrimination violation; (iii) a female employee-focused action after a gender discrimination violation; (iv) a disability-focused action after a disability discrimination violation; or (v) an employee-focused action after a wage violation. All other action-violation pairs are classified under *IndirectAction_{it}*. We provide summary statistics for potential reputation-building actions based on each of the three classification schemes outlined above in Table 2.

3.4 Control variables

To account for heterogeneous firm-level characteristics that may affect the nature of a firm’s remedial actions (for example, a more profitable firm may be able to more easily engage

in remedial efforts – whether real or ‘greenwashing’), we control for several firm-level financial factors. These include firm size (measured as the natural logarithm of the firm’s total assets), sales growth rate, return on assets (ROA), leverage, and market-to-book ratio. All continuous non-logged variables are winsorized at the 1% and 99% levels. We obtain the requisite data to construct these variables from Compustat. Summary statistics for all variables used in our regressions are provided in Table 3.

4. REPUTATION-BUILDING ACTIONS AFTER E&S VIOLATIONS

4.1 Do firms take more reputation-building actions?

Our first set of tests examines whether treated firms, on average, take more reputation-building actions subsequent to a major environmental or social violation. As discussed in Hypothesis 1, we expect to observe an increase in the frequency of reputation-building actions by treated firms in the post period. We test H1 using the following model:

$$Action_{it} = \beta_0 + \beta_1 Treat_i + \beta_2 Treat_i \times Post_t + \beta_3 X_{it} + IND_i + Cohort_{it} + \theta_t + \epsilon_{it} \quad (1)$$

In Equation (1), $Action_{it}$ refers to the number of reputation-building actions that firm i takes in year t . $Treat_i$ is an indicator variable that equals one for treated firms (i.e., those that commit major environmental or social violations) and zero for control firms, while $Post_t$ is an indicator that equals one for the treated firm and its matched control firm in the period after the violation. The main effect of $Post_t$ is subsumed by our fixed effects structure. Finally, X_{it} is a set of time varying control variables including firm size, leverage, market-to-book ratio, profitability, and sales growth rate. All specifications include industry fixed effects γ_i . Following Baker, Larcker, and Wang (2022) we include both year fixed effects θ_t and treatment-cohort-year fixed effects $Cohort_{it}$. A positive value of β_2 would suggest that, consistent with Hypothesis 1, firms do take significantly more reputation-building actions after being caught engaging in a serious instance of corporate social irresponsibility. We estimate

two versions of Equation (1). First, we construct the dependent variable as the natural logarithm of one plus the number of actions a firm takes and estimate equation (1) using OLS. Second, because our dependent variable is constructed based on count data, we follow Cohn, Liu, and Wardlaw's (2022) recommendation and estimate a Poisson regression.

Results from estimating Equation (1) are presented in Table 4. Column (1) presents results from the log-linear model while column (2) presents results from the Poisson model. In both cases, the coefficient on $Treat_i \times Post_t$ is significantly positive, indicating that firms take more prosocial actions after a serious ESG-related violation. In terms of economic magnitude, the coefficient estimate of 0.1750 in column (1) suggests that firms take on average 17.5% more remedial actions after a violation, relative to matched peers as well as themselves in the pre-violation announcement period. This figure translates to an additional 2.63 remedial actions, on average, relative to the sample average of 15.06 actions per twelve-month window.

It is possible that our results are driven partially by the choice of control group. While we do not think that this is a major concern given that we match on financial fundamentals and within year and industry, we nonetheless take an alternative approach for robustness that relies on entropy balancing. While it is infeasible to create an entropy-balanced control sample based on the broader Compustat universe given our labor-intensive data collection process, we create an entropy-balanced sample based on control firms that we have already collected data for. We present results using this control sample in columns (3) and (4). Our inferences continue to hold, and so in subsequent analyses we proceed with our main control group.

4.2 What types of reputation-building actions do firms take after serious violations?

Given the post-treatment increase in firms' reputation-building actions, our next set of tests sheds light on the types of actions firms take. We rely on the classification scheme outlined in Section 3.3.1, separately examining actions according to the four topic groups outlined in

that section (environmental, social, customer, and governance). We estimate a modified version of Equation (1) that constructs the dependent variable based only on each individual type of action and present results from this analysis in Table 5. We find that after a serious violation, the results in Table 4 appear to be driven by social and customer-focused actions (as well as mixed evidence, in columns (7) and (8), of an increase in investor/governance-focused actions as well). In untabulated analyses using more granular action categories, we find that both employee-focused actions and charitable donations increase; the latter is consistent with Akey et al.'s (2021) result in the context of corporate data breaches. Given that the sample is relatively evenly split between environmental and social treatment events, this result is unlikely to be driven purely by the composition of underlying violations. We posit that this result instead reflects potential mismatches between types of underlying events and subsequent actions, potentially driven by firms having stronger incentives for reputation repair with specific stakeholder groups than for remediation. We explore this possibility in Sections 4.3 and 4.4.

4.3 Who do firms target with reputation-building actions?

The fact that we observe post-violation increases in reputation-building actions that potentially benefit some, but not all, stakeholder groups raises the question of which groups firms target with reputation-building actions and whether these represent the same set of stakeholders that the underlying violation harmed. In this section, we examine this question. We first examine firms' proclivity for reputation-building actions by audience in Section 4.3.1, before assessing whether these actions have a remedial component in Section 4.3.2.

4.3.1 Reputation-building actions by target audience

To assess reputation-building actions by audience, we rely on the classification scheme outlined in Section 3.3.2. We estimate a modified version of Equation (1) that constructs the

dependent variable based on the number of actions a firm takes targeted at each stakeholder group in turn, and present results from this set of tests in Table 6. As with Tables 4 and 5, we present results for both the OLS and Poisson specifications. The results in Table 6 suggest that after a major environmental or social violation firms are more likely to take actions targeted at customers (columns 3 and 4). We also find some evidence, though not as robust, that firms take actions targeting shareholders (columns 1 and 2) and employees (columns 5 and 6) and no evidence that, subsequent to a major violation, firms target regulators or suppliers. Most of the results in columns (11) and (12) relate to charitable actions, consistent with our finding in Section 4.2 that firms make more donations after a serious violation.

Given that most of the violations in our sample do not harm customers, the fact that our strongest results nonetheless obtain for customer-focused actions highlights the potential disparity between incentives to remediate and incentives to rebuild reputation more generally. If firms are more concerned about the impact of a consumer fallout (via, e.g., boycotts) than falling out with other stakeholders, they may be more likely to target consumers with incentives to boost sales to offset any potential apprehension those customers may have.

4.3.2 Direct and indirect actions

Building on the results above, we further explore the potential disconnect between the stakeholders harmed by a violation and the set of stakeholders firms target with reputation-building actions. To do so we rely on the classification scheme outlined in Section 3.3.3, designating each reputation-building action as direct or indirect on the basis of both its topic as well as the type of violation underlying the treatment event. To explicitly test this possibility, we estimate a modified version of Equation (1) that constructs the dependent variable using either the number of direct or indirect actions.

Results based on these specifications are presented in Table 6. We find that after the revelation of a major violation only indirect, but not direct, actions increase for treated firms. These results may be initially surprising, especially in light of Chakravarthy, deHaan, and Rajgopal's (2014) finding that post-restatement actions targeting capital providers have stronger effects on subsequent capital provider perception. However, the results in Table 6 are consistent with the idea that the greatest sources of reputation risk in general (e.g., consumers, employees or investors) may not vary across violation types; this would drive a stronger result on indirect actions. More generally, the results in Tables 5 and 6 serve to highlight a key difference between our setting, which focuses on underlying *non*financial issues, relative to that study. A vast literature highlights the negative financial consequences to firms of losing investors' trust and so, to the extent that firms' incentives to engage in reputation-building actions are financially motivated, we would expect firms to have the strongest incentives to appease investors after losing their trust. Conversely, in the case of *non*-financial violations, the costs of potential customer backlash may be higher than the costs of damaged relations with the stakeholder groups directly harmed by the violation and, hence, firms' incentives for reputation rebuilding with (e.g.) customers exceed their incentives for direct remediation.

4.4 Reputation-building actions after environmental vs. social violations

In addition to having differential incentives to rebuild their reputations with different stakeholders, firms' incentives may also differ based on the type of underlying violation. For example, increasing levels of climate risk awareness by investors, as suggested by several studies (e.g., Pastor, Stambaugh, and Taylor 2022), may result in environmental violations causing greater reputational damage – and thus warranting more reputation-rebuilding actions – with investors relative to other types of violations. To provide more context for the findings

above, our next set of tests reexamines firms' reputation-building actions separately for our two main categories of violations (environmental and social).⁴

We present results from these analyses in Table 8. Panel A examines all actions firms take after environmental and social violations. Panels B and C examine which stakeholders firms target with reputation-building actions after environmental and social violations. We find in Panel A that our main results, presented in Table 4, hold for both types of actions separately; after either an environmental or social violation, firms take more reputation-building actions. However, from Panels B and C, this does not appear to reflect direct remediation. When considering actions by audience, we find that firms take more employee-focused actions after *environmental* but not *social* actions. We observe a similar pattern for shareholder-focused actions, while actions that target customers increase after both violation types.

While we cannot test this conjecture directly, one possible explanation for our finding related to employee-related actions reflects the *type* of employees that firms care about losing face with. More than half of the social violations in our sample (137 out of 222) relate to wage and hour issues which typically harm lower-paid and blue-collar employees. If actions targeting employees primarily focus on white-collar employees, and these employees exhibit greater care for the environment, firms may feel that environmental violations do more to harm their reputation with these employees than (most) social violations. A similar explanation for our investor results arises. Inasmuch as many social violations reflect efforts to pay employees (illegally) lower wages, investors may view such violations as simply part of a firm's effort to keep its wage bill down. Conversely, investors may care more about climate risk, leading firms to take more reputation-building actions targeting investors after environmental violations.

⁴ Given that only a small proportion of our social violations (30 out of 222) reflect issues other than labor, we would not have enough statistical power to further subdivide the social category, e.g., into violations that harm employees vs. those that harm consumers.

5. CONSEQUENCES OF REPUTATION-BUILDING ACTIONS

5.1 Do reputation-building actions result in sustained improvement?

Our approach thus far has focused on identifying whether firms take reputation-building actions in the wake of a major environmental or social scandal and, if so, the types of actions they take. However, the reputation-building actions we identify come from firms' press releases and to that end represent ex-ante commitments by firms rather than ex-post results. In this section, we therefore assess the credibility of reputation-building actions in two ways: (i) by directly testing whether there is a relation between reputation-building actions and future environmental or social violations; and (ii) by investigating stock price reactions to a reputation building action. These two sets of tests focus on firms' ex-post performance with non-shareholder stakeholders and with shareholders, respectively.

If a firm's announcements of reputation-building actions in the wake of a scandal represent genuine attempts to change, we should observe a decline in subsequent violations and a concurrent positive stock price reaction. If, in contrast, these announcements merely represent cheap talk then we should observe no change in treatment firms' subsequent environmental and social violations and no stock price reaction to that action.

To test whether reputation-building actions are associated with future improvements in environmental and social compliance, we again rely on Violation Tracker. This time, however, we draw upon *all* environmental or social violations in Violation Tracker rather than only the largest; our goal is to assess a firm's fundamental record with respect to environmental and social stakeholders, even if not all parts of a firm's record are equally newsworthy. We estimate the following model:

$$\begin{aligned} FutureViolations_i = & \beta_0 + \beta_1 Treat_i + \beta_2 Action_{it} + \beta_3 Treat_i \times Action_{it} \\ & + \beta_4 PastViolations_i + \beta_5 X_{it} + INDUSTRY_i + \theta_t + \epsilon_{it} \end{aligned} \quad (2)$$

In Equation (5), we construct the dependent variable $FutureViolations_i$ using the firm's violation records in years $t+1$ and $t+2$, relative to a year- t fine assessed for a serious

environmental or social violation (i.e., a treatment event). The independent variable $PastViolations_i$ is constructed similarly, but reflects penalties received in years $t-1$ and $t-2$. This variable accounts for firm i 's baseline violation rate, so that our results from estimating Equation (5) do not simply capture cross-sectional differences in firms' underlying propensities to violate environmental or social laws. We construct the violation variables used in Equation (2) using the natural logarithm of one plus the dollar value of penalties received to capture the severity of underlying penalties. We ensure consistency in violation type across specifications, e.g., when $FutureViolations_i$ reflects environmental violations then $PastViolations_i$ is also constructed using only the firm's environmental compliance history. We also include industry and year fixed effects.

The coefficient of interest in Equation (5) is β_3 , which reflects the difference in penalty reduction associated with reputation-building actions taken by treatment and control firms. A negative value of β_3 would suggest that reputation-building actions taken after a major environmental or social violation correlate to actual improvements in a firm's environmental and social performance. In contrast, an insignificant value of β_3 would suggest that reputation-repair actions after environmental or social scandals may simply represent greenwashing.

We present results from estimating Equation (2) in Table 9. Panel A considers all violations, while Panels B and C consider environmental and social violations, respectively. We find that future penalties for noncompliance with federal laws decrease after both environmental and social actions in Panel A. In Panels B and C we further find within-topic consistency: after a social violation, environmental reputation-building actions have no effect while social actions are correlated with less future recidivism. Similarly, after an environmental violation, social reputation-building actions have no effect while environmental actions are correlated with less future recidivism.

Our main takeaway from this table is that reputation-building actions can, but need not necessarily, reflect greenwashing. When actions are of a similar topic to the underlying violation, they correlate with future improvements. However, when actions pertain to other topics, they may simply reflect reputation repair strategies with nonaffected stakeholders as opposed to genuine commitments to improve. To that end, understanding what types of actions a firm takes after a serious violation may shed light on whether that firm should be expected to improve its treatment of affected stakeholders in the longer term.

5.2 Do investors view reputation-building actions as meaningful?

We next examine whether, on average, the stock market views a firm's commitment to rebuild its reputation after a serious ESG-related violation as economically meaningful by estimating short-term market reactions to these actions. If these actions are simply perceived as attempts at virtue signaling or greenwashing, we would expect no reaction. Conversely, if the market perceives these actions as credible commitments to change, we may observe either a positive or negative market reaction: positive if the market believes these actions will effectively rebuild the firm's reputation and improve productivity or performance, negative if the market believes these actions reflect wasteful spending. Another possibility is that the stock market anticipates these actions and prices them before the time the actual announcements of such actions are made. To assess these possibilities, we estimate the following equation:

$$CAR_{ijt} = \alpha_0 + \alpha_1 Treat_i + \alpha_2 Post_t + \alpha_3 Treat_i \times Post_t + \alpha_4 X_{it} + \delta_t + \epsilon_{it} \quad (3)$$

We estimate Equation (3) at the individual reputation-building action level. CAR_{ijt} represents short-term cumulative abnormal returns (CARs) relative to the date of an action (i and j index treatment event and individual action, respectively). We consider two distinct windows, where day 0 reflects the action date: a short window (0, +1) and a longer window (-1, +3). We use an estimation window of (-250, -30) days to compute CARs. A significant

coefficient on α_3 would imply that the stock market places greater weight (in either direction) on reputation-building events when undertaken after an environmental or social scandal.

We present results from estimating Equation (3) in Table 10. Panel A presents a 2 by 2 matrix of treatment and control firms' pre- and post- event mean CARs for reputation-building actions, which are then summarized in Panel B. From these two panels we observe an increased market reaction to reputation-building events for treatment first post-violation, suggesting that the market views these actions as credible commitments to improve operating performance. However, in Panels C through E we see substantial variation in this effect based on the type and topic of remedial action; the favorable market response documented in Panel B is driven by actions targeting shareholders and customers, which are largely indirect relative to the underlying violations. Our results on shareholder-focused actions are consistent with Chakravarthy et al. (2014), while our results on customer-focused actions may reflect a positive response to initiatives designed to boost sales at least in the short term. However, we find minimal or no response to actions targeting other stakeholder groups (most notably employees) or focused on environmental or social initiatives. These results suggest that investors' motives for caring about reputation-building actions are primarily financial rather than social in nature. In turn, these results contribute to the debate on investors' true motives with respect to firms' ESG initiatives (e.g., Krueger, Sautner, and Starks 2020; Raghunandan and Rajgopal 2022).

5. CONCLUSION

The extent of reputational damage in the wake of corporate social irresponsibility has been a topic of heated discussion by academics and practitioners alike. However, there is little large-sample empirical evidence on whether and, especially, how firms respond to these negative incidents. We contribute to this discussion by systematically examining whether firms take reputation-building actions in response to major ESG-related violations and what

stakeholders firms tend to target after different types of violations. To answer these questions, we first construct a comprehensive sample of prosocial actions taken by firms in the years preceding and subsequent to a major ESG-related corporate irresponsibility based on hand-classification of thousands of press releases. We then examine how firms react to those violations using a difference-in-differences approach.

We find that firms do view the reputational damage resulting from ESG-related violations as material enough to take subsequent prosocial actions to restore stakeholders' trust. These actions are more likely to reflect reputation-building rather than remedial, however, as they do not typically target the stakeholders harmed by the underlying violation event. Firms take more actions targeting customers after both environmental and social violations, and more actions targeting investors and employees after environmental violations. While we do not observe an increase in actions correlated with the underlying violation type on average, when such actions occur they do correlate with better future track records with environmental and social regulators. Finally, we find that the stock market reacts positively to reputation-building actions targeting investors or customers (where the latter maybe a signal of willingness to generate higher short-term sales figures), we do not find evidence of a market reaction to actions targeted at the stakeholders harmed by an underlying violation, suggesting that investors' response to reputation-building actions is financially rather than socially motivated. Taken together, our findings shed light on the significant heterogeneity in whether and how firms react to environmental or social reputational damage, and the consequences thereof.

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APPENDIX A: Definitions of Violation Types

Classification of violation categories:

Most violations originate from either the Violation Tracker (VT) dataset with an additional handful from the Audit Analytics Legal & Compliance dataset. VT has three tiers of categorization: offense_group, primary_offense, and secondary_offense, in order of increasing specificity. Audit Analytics has only one tier of categorization. Violations are first classified into two categories:

Environmental: The combination of violations from VT that have variable offense_group set to “environment-related offenses” and violations from Audit Analytics that are category type 21 (Environmental Law).

Social: The combination of violations from VT that have variable offense_group set to “employment-related offenses” or “safety-related offenses”, and violations from Audit Analytics that are category type 15, 18, 30, 57, 63, 69, 70, 72, 74, 75, 78, 79, 80, 81, 103, or 106.

Classification of violation subcategories:

There are no dedicated subcategories for environmental violations in VT. VT does provide subcategories of social violations, which we outline below.

<i>Discrimination</i>	Violations from VT with primary_offense set to “employment discrimination”, or secondary_offense set to any variable which relates to (i) race or nationality; (ii) sexual harassment; (iii) disabilities; (iv) age discrimination. For AuditAnalytics, there is no category type specifically relating to these measures.
<i>Wage</i>	Violations from VT with primary_offense set to “wage and hour violation”, or secondary_offense set to “earned sick time law violation”, “meal/rest break violation”, “off-the-clock work”, “overtime violation”, “Davis-Bacon Act and related”, “Fair Labor Standards Act”, “minimum wage violation”, “other pay violation”, “prevailing wage violation”, “Service Contract Act”, or “tip dispute”. For WRDS, relevant category type is 63.
<i>Other</i>	All other violations, most commonly those relating to consumer protection issues, retirement benefits-related issues (i.e., ERISA violations), or workplace safety issues.

APPENDIX B: Data Collection Protocol and Classification of Reputation-Building Actions

B.1 Sample Selection of Press Releases

We construct our sample of reputation-building actions using firm-initiated press releases. We begin by searching all press releases and news articles from Factiva about both violating firms and matched controls from one year prior to the violation through one year after the violation (for the control firm, we construct start and end dates based on the matched treatment firm's violation).

Within the search results, we employ two methods to identify firm-initiated press releases and collect reputation-building actions based on the content of the articles:

(1) We review all articles containing the keywords “announces” and “announced” to identify companies' reputation-building actions.

(2) We search for all press releases about the firm distributed through any of the three major newswires (PR Newswire, Business Wire, and Globe Newswire), without any specific keywords. Subsequently, we determine whether these press releases are initiated by the firm by searching for keywords that indicate the source of the press release, such as “source firm name,” “media firm name,” “contact firm name,” the firm's associated email suffix or phone number. We then read those press releases that contain the identified keywords and include corresponding actions in our sample. We account for potential duplication across wires as well as between this approach and approach (1).

We identify whether each firm-initiated press release represents a reputation-building action based on its content, following the approach taken in Chakravarthy et al. (2014). Specifically, a press release will be included in our sample if it contains a firm's action that falls into one or more of the following 14 categories:

- **BOD:** Actions involving a change in the company's board of directors, in the form of new additions, reelections, and retirements. Multiple changes on the same day (e.g., a new director replacing a retiring director, or multiple directors being elected at once) are counted as a single action.
- **ChangeLeader:** Turnovers of executives, such as the C-suite and president/VP of major departments or regions.
- **IncentiveControl:** A new and significant change to incentive or control systems, e.g., the integration of an ERP system.
- **Reorg:** Restructuring or reorganizing of the firm, which includes business model and strategy changes. It also includes the discontinuity of some business, new establishments, and other activities that significantly improve the capacity or operational efficiency. Also includes major job cuts.
- **StockRepurchase:** Repurchase of the firm's shares by the firm.

- **OtherInvestor:** Actions that potentially improve the firm’s reputation among investors, but that do not fall into any of the previous categories. The two most prominent examples are acquisitions of other firms and dividend increases.
- **Customer:** Actions that benefit the customers of the firm, such as announcing new and improved products and projects, providing additional customer support, and reducing prices. This category also includes promotional activities as well as awards geared toward increasing reputation with customers (e.g., for product quality).
- **Employee:** Actions that benefit current and potential employees, including bonuses, increased paid time off, or significant creation of new positions. Awards geared toward increasing reputation with current and potential employees (e.g., winning some form of “best employer” award) are also included.
- **Women:** Actions which, broadly speaking, empower women. Examples include new policies or regulations that benefit women in the workplace, supporting or funding movements for empowering women or announcing appointments of women in significant positions of power with the intention of empowering women in that industry (e.g., highlighting broader initiatives toward promoting women in STEM professions).
- **Minority:** Actions that empower minorities. Examples include announcing the firm’s inclusion in a top N list of most diverse companies, donations to movements that combat racial discrimination, or working with minority-owned suppliers.
- **Disability:** Actions that provide support for disabled employees or for organizations that provide care for disabled individuals.
- **Charity:** Charitable actions that involve giving back to the community, including donations, sponsorships, scholarships, and other partnerships that involve donating time.
- **Supplier:** Actions that benefit the suppliers of the firm. Examples include establishing or extending long-term contracts with its suppliers, raising award programs for suppliers, or supporting the financing of suppliers.
- **Environment:** Actions that improve efficiency or sustainability of energy production or business operation, ultimately leading to a better outcome for the environment. Keywords include “clean”, “sustainable”, and “green”.

Some actions can fall into multiple categories. Following the procedures above, we construct our sample of reputation-repair actions, which consists of a total of 21,932 press releases.

B.2 Classification of Press Releases

To characterize reputation-repair actions, we employ three classification schemes: the primary audience of the action, whether the action was direct or indirect, and the topic of the action. In the following sections, we provide a detailed explanation of each classification scheme and outline our methodology for conducting the classifications.

B.2.1 By Audience

To examine firms' incentives for reputation-rebuilding actions and understand how these incentives vary depending on the intended audience, we begin by identifying the primary audience for each action. The primary audience refers to the specific stakeholder group that a firm is targeting with an action. We consider five types of stakeholders: *Shareholder*, *Customer*, *Employee*, *Regulator*, and *Supplier*. We also include a category labeled “*Not Specified*,” to capture remaining actions (e.g., those targeted at a general audience rather than any specific stakeholder group). We provide guidance below on how we identify the primary audience:

- ***Shareholder***: We label the primary audience as shareholders if the action could plausibly send a signal to investors that the firm is or will be on steady financial footing in the wake of the scandal or that the firm is improving its corporate governance by making changes at the top. This category also includes actions directly providing financial benefits to investors, such as increasing dividends.
- ***Customer***: We label the primary audience as customers if the action is mostly related with the benefits of existing customers or new customers. Such actions include (but are not limited to) announcing new and improved products and projects, providing additional consumer support, offering discounts, reducing prices, and other promotional activities.
- ***Employee***: We label the primary audience as employees if the action benefits current and potential employees. Such actions include (but are not limited to) offering bonuses, increasing paid time off, creating new positions, or introducing new policies that benefit minorities in the workforce.
- ***Regulator***: We label the primary audience as regulators if the action suggests that the firm is taking efforts to avoid future compliance violations. Such actions include (but are not limited to) increasing protections for women and minorities, adding hotlines for whistleblowers, ensuring compliance with wage and hour or safety laws, or reducing toxic releases.
- ***Supplier***: We label the primary audience as suppliers if the action could plausibly be one that benefits suppliers. Such actions include introducing new solutions for supply chain management, recognizing suppliers with excellence awards, or achieving awards from supplier management.
- ***Not specified***: When the action does not appear to primarily target one of the groups above, we label it as “not specified”.

Note that the set of actions with *Customer* as the primary audience is not identical to the set of actions with a topic of Consumer as characterized in Appendix B.1, although the overlap rate is over 90%.

For example, the action based on the press release with headline “Yum hires rat expert to review standards” is classified as *Topic-Customer* (benefiting consumers by ensuring food safety standards) but its primary audience is identified as *Regulator*. Similarly, the action based on the press release with headline “Target + MIO Showcase Remarkable Value and Design with Introduction of Eco-Friendly Outdoor Living Collection” pertains to a *Topic-Environmental* action but targets *Customer* as its primary audience.

B.2.2 Direct vs. Indirect Actions

To understand whether firms undertake reputation-building actions for signaling purposes or as the start of genuine improvement, we classify actions as follows based on how related the action is to the violation.

- ***Same Subcategory***

An action is classified in this way if its topic corresponds to the same category as the violation, such as environment-related actions in response to environmental violations, supporting women (ethnicity minorities, people with disabilities) following gender (race, disability) discrimination violations, or improving employee welfare in response to violations regarding wages and time.

- ***Different Category***

An action is classified in this way if it is not directly related to the violation category (such as customer- and shareholder-orientated actions in response to E&S violations or environmental actions in response to discrimination violations).

B.2.3 By Topic

We classify actions into four main categories: environmental, social, customer, and investor or governance focused. These categories align with the nature of the environmental violations and social violations being addressed. The mapping from these four categories to the fourteen specific types of actions outlined in Appendix B.1 above is as follows:

- ***Environmental actions:*** Environment.
- ***Social actions:*** Employee, Women, Minority, Disability, Charity, Supplier.
- ***Customer actions:*** Customer.
- ***Investor actions:*** BOD, ChangeLeader, IncentiveControl, Reorg, StockRepurchase, Other

APPENDIX C: Variable Definitions

Variable	Definition
<i>Reputation-Building Actions</i>	
<i>Total Actions</i>	Number of reputation-repair actions, across all types of actions
<i>By Audience</i>	
<i>Shareholder</i>	Number of actions targeted at shareholders as the primary audience
<i>Customer</i>	Number of actions targeted at customers as the primary audience
<i>Employee</i>	Number of actions targeted at employees as the primary audience
<i>Regulator</i>	Number of actions targeted at regulators as the primary audience
<i>Supplier</i>	Number of actions targeted at suppliers as the primary audience
<i>Not Specified</i>	Number of actions targeted at a general audience
<i>By Direct to Indirect Types</i>	
<i>Same Subcategory</i>	Number of actions of the same subcategory as the violation
<i>Different Category</i>	Number of actions of different subcategories as the violation
<i>By Topics</i>	
<i>Environmental</i>	Number of actions that could potentially benefit the environment
<i>Social</i>	Number of actions that could potentially benefit employees, suppliers, minorities, people with disabilities; and other charitable actions involving community support
<i>Customer</i>	Number of actions that could potentially benefit customers.
<i>Investor</i>	Number of actions that could potentially benefit investors or improve corporate governance.
<i>Treat and Post</i>	
<i>Treat</i>	An indicator variable that equals one for treated firms (i.e., those that commit major environmental or social violations) and zero for control firms
<i>Post</i>	An indicator variable that equals one for the treated firm and its matched control firm in the period after the violation, and zero otherwise
<i>Control Variables</i>	
<i>Firm Size</i>	The natural logarithm of the firm's total assets
<i>Leverage</i>	Ratio of (long-term debt + debt in current liabilities) to shareholders' equity
<i>M/B Ratio</i>	Ratio of market value of equity to book value of equity
<i>ROA</i>	Ratio of net income to lagged asset
<i>Sales Growth</i>	Growth rate of sales
<i>Other Variables</i>	
<i>CAR</i>	The short-term cumulative abnormal return relative to the date of an action (<i>i</i> and <i>j</i> index treatment event and individual action, respectively)

FIGURE 1: Time Trend of Violation Events

Figure 1 shows the distribution of underlying violation events (which comprise our treatment events) by year from 2000 to 2019.

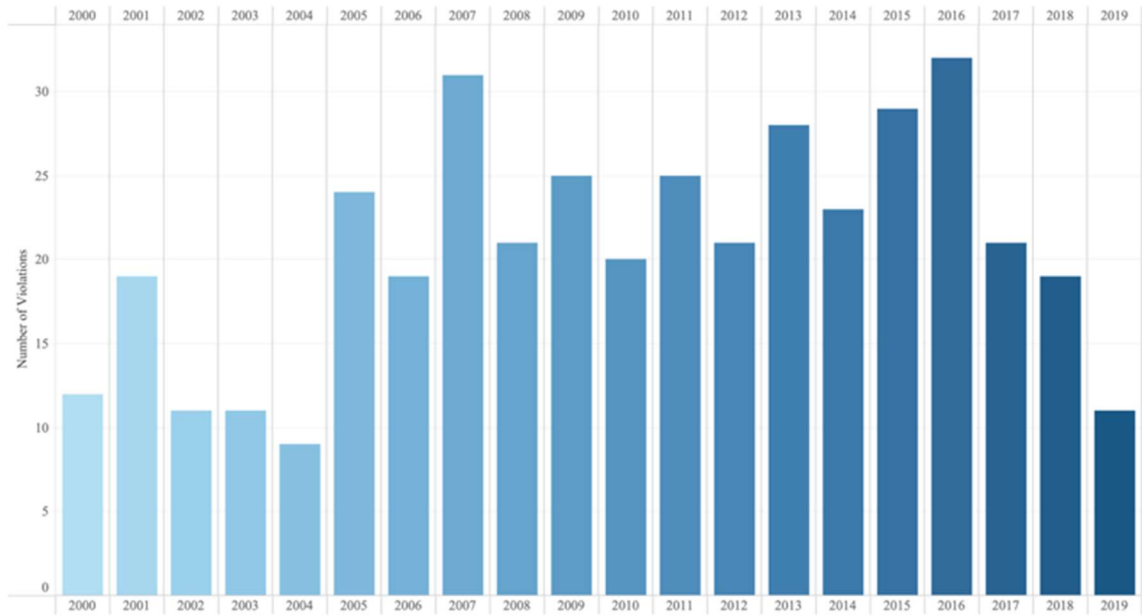
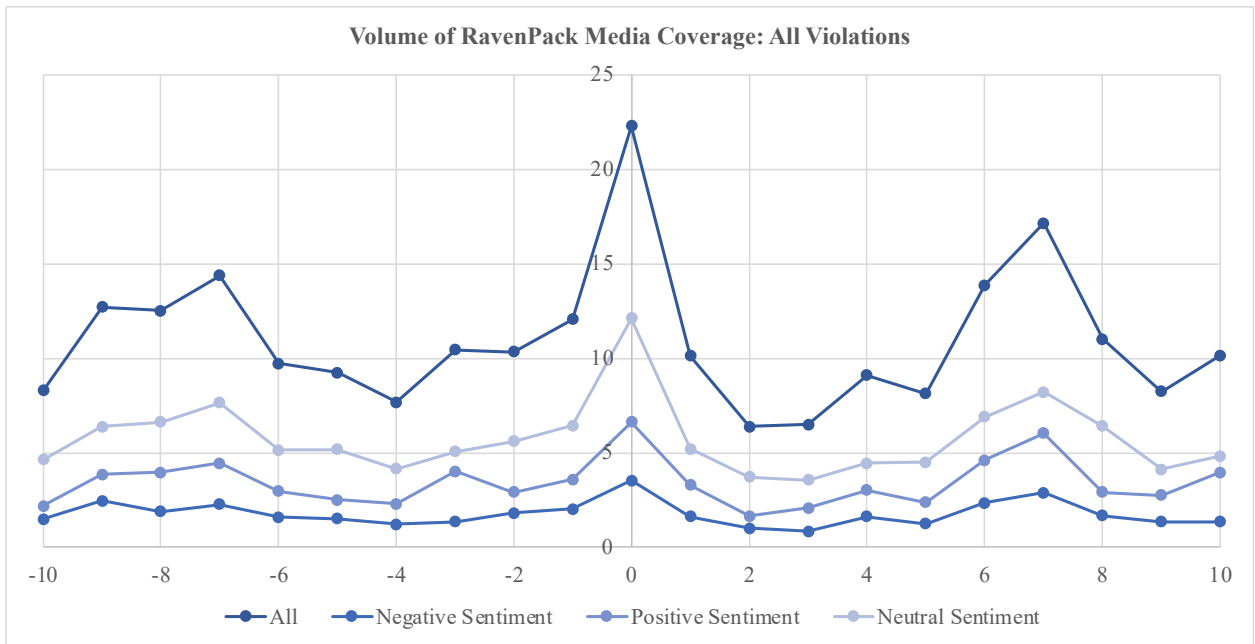


FIGURE 2: Media Coverage Around Violation Events

This figure illustrates daily average media coverage volume around the penalty dates of violations in our sample. We plot the volume of all articles, as well as articles classified as negative, positive, and neutral sentiment, from 10 days before the penalty date to 10 days after the penalty date. Panel A uses Ravenpack data to compile this figure while Panel B uses negative news coverage with medium or high severity or reach, as classified by the RepRisk database.

Panel A: Ravenpack



Panel B: RepRisk

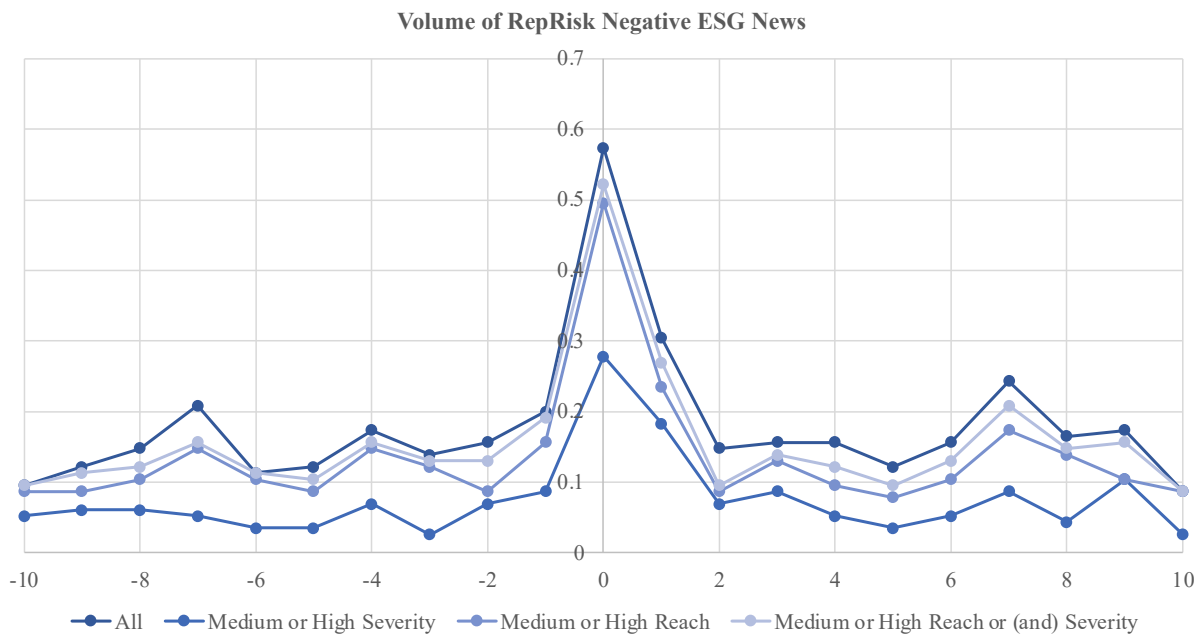


TABLE 1: Sample Selection and Breakdown of Violations by Type

This table details our sample selection procedure as well a breakdown of the types of violations that comprise our treatment events. Panel A details our sample selection procedure while Panel B provides the covariate balance results in our final matched sample. Panel C provides the number of violations by type that comprise our treatment events.

Panel A: Sample selection for main analyses

	Observations deleted/added	Observations remaining
Violations with penalties > \$10 million from Violation Tracker dataset		446
Plus: Observations from AuditAnalytics Corporate & Legal dataset	22	468
Less: Violations missing data	(50)	418
Less: Violations too recent to analyze	(7)	411
Matched control firms	411	822
Pre- and post-period observations	822	1644

Panel B: Covariate balance in final matched sample

Variable	Control firm- years	Treatment firm- years	Difference	t-stat of difference
Firm size	10.243	10.544	0.301	[1.273]
Leverage	0.268	0.270	0.002	[0.101]
M/B ratio	3.099	2.692	-0.408	[-1.040]
ROA	0.059	0.052	-0.006	[-1.212]
Sales growth	0.085	0.065	-0.020	[-1.386]
Prior-year returns	1.133	1.093	-0.041	[-1.579]

Panel C: Violation types in final sample

Violation Type	Number of Violations
Environmental violations	189
Social violations	222
Discrimination	55
Wage	137
Other	30
Total violations	411

TABLE 2: Descriptive Statistics about Reputation-Building Actions

This table presents descriptive statistics and t-test results about the number of actions taken by treated firms and matched control firms in the pre- and post-event periods. We present statistics for the overall number of actions as well as actions by audience (*Shareholder, Customer, Employee, Regulator, Supplier, Not Specified*), by direct-to-indirect types (*Same Subcategory, Different Category*) and by topics (*Environmental, Social, Customer, Governance*). *, **, and *** denote significance at 10%, 5%, and 1% levels, respectively.

	<i>Treatment-Pre Mean</i>	<i>Control-Pre Mean</i>	<i>Difference-Pre Mean</i>	<i>Treatment-Post Mean</i>	<i>Control-Post Mean</i>	<i>Difference-Post Mean</i>	<i>Diff-in-Diff Mean</i>
<i>Panel A: Total Actions</i>							
<i>Total</i>	15.0633	11.0389	4.0243***	16.7956	10.4647	6.3309***	2.3066**
<i>Panel B: By Audience</i>							
<i>Shareholder</i>	6.0754	5.3625	0.7129**	6.2579	5.1119	1.1460***	0.4331
<i>Customer</i>	4.3236	3.2944	1.0292***	5.1119	3.0146	2.0973***	1.0681**
<i>Employee</i>	0.7324	0.4818	0.2506***	0.8832	0.4185	0.4647***	0.2141*
<i>Regulator</i>	0.1898	0.0633	0.1265***	0.2044	0.0852	0.1192***	-0.0073
<i>Supplier</i>	0.1022	0.0243	0.0779***	0.1387	0.0268	0.1119***	0.0341
<i>Not Specified</i>	3.6399	1.8127	1.8273***	4.1995	1.8078	2.3917***	0.5645
<i>Panel C: Direct vs. Indirect</i>							
<i>Same Subcategory</i>	0.9976	0.5718	0.4258***	1.1217	0.5864	0.5353***	0.1095
<i>Different Category</i>	14.0657	10.4672	3.5985***	15.6691	9.8783	5.7908***	2.1922**
<i>Panel D: By Topic</i>							
<i>Environmental</i>	1.0511	0.5572	0.4939***	1.2603	0.6934	0.5669***	0.0730
<i>Social</i>	4.0900	2.2895	1.8005***	4.7251	2.1095	2.6156***	0.8151*
<i>Customer</i>	4.2141	3.0170	1.1971***	5.0170	2.6934	2.3236***	1.1265**
<i>Investor</i>	6.3406	5.5207	0.8200**	6.5401	5.2555	1.2847***	0.4647

TABLE 3: Sample Descriptive Statistics

This table presents descriptive statistics for variables used in our main analyses. The sample size in this table is 1,644 firm-year observations representing the 411 distinct treatment events in our final sample, reflected in Tables 3-7.

Variable	Mean	Median	SD	P10	P90
<i>Total Actions</i>	13.341	10.000	11.589	3.000	28.000
<u>By Audience</u>					
<i>Shareholder</i>	5.702	5.000	4.684	1.000	12.000
<i>Customer</i>	3.936	2.000	5.538	0.000	10.000
<i>Employee</i>	0.629	0.000	1.310	0.000	2.000
<i>Regulator</i>	0.136	0.000	0.609	0.000	0.000
<i>Supplier</i>	0.073	0.000	0.339	0.000	0.000
<i>Not Specified</i>	2.865	1.000	4.717	0.000	7.000
<u>Direct vs. Indirect</u>					
<i>Same Subcategory</i>	0.819	0.000	2.047	0.000	2.000
<i>Different Category</i>	12.520	9.000	11.146	2.000	26.000
<u>By Topics</u>					
<i>Environmental</i>	0.891	0.000	1.663	0.000	3.000
<i>Social</i>	3.304	2.000	5.028	0.000	9.000
<i>Customer</i>	3.735	2.000	5.074	0.000	10.000
<i>Investor</i>	5.914	5.000	4.865	1.000	12.000
<u>Control Variables</u>					
<i>Firm size</i>	10.394	10.342	2.061	7.705	13.081
<i>Leverage</i>	0.269	0.240	0.169	0.062	0.512
<i>M/B ratio</i>	2.895	2.002	4.784	0.896	5.387
<i>ROA</i>	0.056	0.048	0.060	-0.001	0.135
<i>Sales growth</i>	0.075	0.049	0.219	-0.135	0.294

TABLE 4: Serious Violations and Reputation-Building Actions

This table presents results from tests of whether the number of reputation-building actions by a firm increases after it is caught engaging in serious environmental or social misconduct. *Treat* is an indicator variable that equals one for treated firms (i.e., those that commit major environmental or social violations) and zero for control firms; *Post* is an indicator variable that equals one for the treated firm and its matched control firm in the period after the violation, and zero otherwise. The main variable of interest is *Treat*×*Post*. In columns 1 and 3, the dependent variable is calculated as the logarithm of one plus the number of actions. In columns 2 and 4, we instead use Poisson regression with the number of actions as the dependent variable. Columns 1 and 2 present results using propensity score matching while columns 3 and 4 present entropy-balanced results based on the matched sample. All specifications include industry, cohort, and year fixed effects. *t*-statistics based on standard errors clustered by company are presented in brackets beneath coefficient estimates. *, **, and *** denote significance at 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)
<i>Dependent variable</i>	<i>All Actions</i>	<i>All Actions</i>	<i>All Actions</i>	<i>All Actions</i>
<i>Specification</i>	<i>Log</i>	<i>Poisson</i>	<i>Log</i>	<i>Poisson</i>
<i>Treat</i> × <i>Post</i>	0.1750*** [3.74]	0.1725*** [3.61]	0.2041*** [4.40]	0.1930*** [4.05]
<i>Treat</i>	0.1926*** [2.91]	0.2433*** [3.40]	0.1397** [2.09]	0.2009*** [2.82]
<i>Firm Size</i>	0.2215*** [10.47]	0.2387*** [9.01]	0.2195*** [9.62]	0.2347*** [8.33]
<i>Leverage</i>	-0.1255 [-0.72]	-0.1269 [-0.61]	-0.0532 [-0.29]	-0.0604 [-0.29]
<i>M/B Ratio</i>	0.0090 [1.55]	0.0078 [1.50]	0.0043 [0.71]	0.0034 [0.59]
<i>ROA</i>	0.7628 [1.44]	1.0343 [1.62]	0.9924* [1.76]	1.2500* [1.94]
<i>Sales Growth</i>	-0.0105 [-0.10]	0.0195 [0.18]	0.0316 [0.27]	0.0652 [0.59]
<i>Observations</i>	1,644	1,644	1,638	1,638
<i>Adj. R² (pseudo R²)</i>	0.326	0.267	0.310	0.251
<i>Matching</i>	PSM	PSM	Entropy	Entropy

TABLE 5: Serious Violations and Reputation-Building Actions by Topic

This table presents results from tests of which topics of reputation-building actions firms take after serious E&S violations. Columns 1 and 2 focus on environmental actions, columns 3 and 4 consider social actions, columns 5 and 6 consider actions that benefit customers and columns 7 and 8 examine actions related to governance and shareholders. In columns 1, 3, 5 and 7, the dependent variable is calculated as the logarithm of one plus the number of actions. In column 2, 4, 6 and 8, we consider the number of actions using Poisson regression. *Treat* is an indicator variable that equals one for treated firms (i.e., those that commit major environmental or social violations) and zero for control firms; *Post* is an indicator variable that equals one for the treated firm and its matched control firm in the period after the violation, and zero otherwise. The main variable of interest is *Treat*×*Post*. All specifications include industry, cohort, and year fixed effects. *t*-statistics based on standard errors clustered by company are presented in brackets beneath coefficient estimates. *, **, and *** denote significance at 10%, 5%, and 1% levels, respectively.

<i>Topic</i>	(1) <i>Environmental</i> <i>Log</i>	(2) <i>Environmental</i> <i>Poisson</i>	(3) <i>Social</i> <i>Log</i>	(4) <i>Social</i> <i>Poisson</i>	(5) <i>Customer</i> <i>Log</i>	(6) <i>Customer</i> <i>Poisson</i>	(7) <i>Investor</i> <i>Log</i>	(8) <i>Investor</i> <i>Poisson</i>
<i>Treat</i> × <i>Post</i>	-0.0024 [-0.05]	-0.0204 [-0.14]	0.1357** [2.50]	0.2543*** [2.98]	0.1724*** [3.14]	0.2965*** [3.25]	0.0979* [1.82]	0.0855 [1.35]
<i>Treat</i>	0.1634*** [3.49]	0.5366*** [3.61]	0.2817*** [3.62]	0.4475*** [3.86]	0.1304* [1.89]	0.2362** [2.48]	0.1002 [1.38]	0.1122 [1.24]
<i>Firm Size</i>	0.1046*** [7.13]	0.3797*** [8.05]	0.2353*** [9.11]	0.4202*** [8.56]	0.2137*** [9.73]	0.2991*** [8.32]	0.0925*** [4.24]	0.1113*** [4.14]
<i>Leverage</i>	-0.0264 [-0.21]	-0.0008 [-0.00]	-0.3225 [-1.46]	-0.4247 [-1.09]	-0.5220** [-2.27]	-0.8382** [-2.57]	0.2968* [1.65]	0.3768* [1.73]
<i>M/B Ratio</i>	0.0050 [1.49]	0.0283** [2.33]	0.0079 [1.27]	0.0108* [1.71]	0.0029 [0.44]	0.0080 [0.81]	0.0066 [1.58]	0.0035 [0.81]
<i>ROA</i>	-0.0659 [-0.19]	-0.5432 [-0.37]	0.6122 [1.13]	1.0403 [1.07]	0.2511 [0.43]	0.7104 [0.72]	0.8020 [1.54]	1.1655* [1.83]
<i>Sales Growth</i>	-0.0218 [-0.25]	-0.2190 [-0.77]	-0.0394 [-0.23]	-0.1533 [-0.70]	-0.0523 [-0.39]	0.0322 [0.18]	0.0613 [0.60]	0.0530 [0.56]
<i>Observations</i>	1,644	1,640	1,644	1,644	1,644	1,644	1,644	1,644
<i>Adj. R²</i> (<i>pseudo R²</i>)	0.220	0.224	0.341	0.324	0.313	0.255	0.154	0.115

TABLE 6: Serious Violations and Reputation-Building Actions by Audience

This table presents results from tests of which stakeholder groups firms target with reputation-building actions. We estimate an analogue of Equation (1) for actions for each of the six primary audience groups (*Shareholder*, *Customer*, *Employee*, *Regulator*, *Supplier*, *Not Specified*). The dependent variable for each column is based on the number of actions targeting each audience group (e.g., *Shareholder* represents the number of actions that target shareholders). In odd-numbered columns, the dependent variable is calculated as the logarithm of one plus the number of actions and we estimate a linear specification, while in even-numbered columns the dependent variable reflects the number of actions and we estimate a Poisson regression. *Treat* is an indicator variable that equals one for treated firms (i.e., those that commit major environmental or social violations) and zero for control firms; *Post* is an indicator variable that equals one for the treated firm and its matched control firm in the period after the violation, and zero otherwise. The main variable of interest is *Treat*×*Post*. All specifications include industry, cohort, and year fixed effects. *t*-statistics based on standard errors clustered by company are presented in brackets beneath coefficient estimates. *, **, and *** denote significance at 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
<i>Audience</i>	<i>Shareholder</i>	<i>Shareholder</i>	<i>Customer</i>	<i>Customer</i>	<i>Employee</i>	<i>Employee</i>	<i>Regulator</i>	<i>Regulator</i>	<i>Supplier</i>	<i>Supplier</i>	<i>Not Specified</i>	<i>Not Specified</i>
<i>Specification</i>	<i>Log</i>	<i>Poisson</i>	<i>Log</i>	<i>Poisson</i>	<i>Log</i>	<i>Poisson</i>	<i>Log</i>	<i>Poisson</i>	<i>Log</i>	<i>Poisson</i>	<i>Log</i>	<i>Poisson</i>
<i>Treat</i> × <i>Post</i>	0.0880*	0.0826	0.1412***	0.2631***	0.0688	0.3826**	0.0080	-0.0036	0.0152	0.2590	0.1306***	0.1622*
	[1.65]	[1.31]	[2.64]	[3.11]	[1.65]	[2.44]	[0.49]	[-0.01]	[1.32]	[1.10]	[2.85]	[1.76]
<i>Treat</i>	0.1022	0.1003	0.1160	0.1717	0.0840*	0.3263**	0.0531**	1.1419**	0.0445**	1.0053**	0.2710***	0.5608***
	[1.41]	[1.10]	[1.62]	[1.60]	[1.82]	[2.07]	[1.99]	[2.48]	[2.24]	[2.23]	[3.46]	[4.71]
<i>Firm Size</i>	0.0877***	0.1071***	0.2218***	0.3224***	0.0738***	0.3266***	0.0100*	0.2010**	0.0189**	0.6563***	0.2275***	0.4404***
	[4.06]	[4.00]	[9.75]	[8.56]	[5.08]	[4.84]	[1.69]	[2.24]	[2.38]	[3.82]	[9.24]	[9.06]
<i>Leverage</i>	0.3199*	0.3847*	-0.4470*	-0.7504**	-0.0633	-0.3101	-0.0080	-1.2923	-0.0234	-2.7834	-0.3355	-0.3765
	[1.79]	[1.77]	[-1.89]	[-2.12]	[-0.60]	[-0.66]	[-0.12]	[-1.21]	[-0.57]	[-1.31]	[-1.53]	[-0.84]
<i>M/B Ratio</i>	0.0071*	0.0049	0.0042	0.0096	0.0090**	0.0335***	0.0069**	0.1247***	-0.0002	0.0217	0.0026	0.0005
	[1.68]	[1.14]	[0.60]	[0.93]	[2.38]	[3.06]	[2.09]	[5.85]	[-0.14]	[0.36]	[0.48]	[0.07]
<i>ROA</i>	0.8920*	1.2081**	0.2955	0.4626	-0.3222	-2.3060	0.1801	1.5837	0.1593	1.9666	1.0011*	2.1925**
	[1.77]	[1.98]	[0.50]	[0.48]	[-0.86]	[-1.32]	[0.92]	[0.58]	[1.52]	[0.53]	[1.86]	[2.14]
<i>Sales Growth</i>	0.0615	0.0397	-0.0517	-0.0145	0.0027	0.0108	-	-	-0.0022	-1.2278	-0.0005	-0.0408
	[0.61]	[0.42]	[-0.36]	[-0.08]	[0.03]	[0.03]	[-3.15]	[-2.67]	[-0.13]	[-1.54]	[-0.00]	[-0.21]
<i>Observations</i>	1,644	1,644	1,644	1,644	1,644	1,632	1,644	1,377	1,644	1,365	1,644	1,644
<i>Adj. R² (pseudo R²)</i>	0.156	0.114	0.308	0.253	0.125	0.162	0.0682	0.260	0.136	0.345	0.318	0.329

TABLE 7: Direct and Indirect Actions

This table presents results from tests of whether firms take more direct and indirect actions after a , with respect to the type of underlying violation (environmental or social). We classify reputation-building actions into two direct-to-indirect-types: *Same Subcategory* and *Different Category*. The dependent variable in column 1 is the total number of actions that belongs to *Same Subcategory* and the dependent variable in column 2 is the number of actions that belongs to *Different Category*. In columns 1 and 3, the dependent variable is calculated as the logarithm of one plus the number of actions. In columns 2 and 4, we consider the number of actions using Poisson regression. *Treat* is an indicator variable that equals one for treated firms (i.e., those that commit major environmental or social violations) and zero for control firms; *Post* is an indicator variable that equals one for the treated firm and its matched control firm in the period after the violation, and zero otherwise. The main variable of interest is *Treat*×*Post*. All specifications include industry, cohort, and year fixed effects. *t*-statistics based on standard errors clustered by company are presented in brackets beneath coefficient estimates. *, **, and *** denote significance at 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)
<i>Direct to Indirect Type</i>	<i>Same</i>	<i>Same</i>	<i>Different</i>	<i>Different</i>
<i>Specification</i>	<i>Subcategory</i>	<i>Subcategory</i>	<i>Category</i>	<i>Category</i>
	<i>Log</i>	<i>Poisson</i>	<i>Log</i>	<i>Poisson</i>
<i>Treat</i> × <i>Post</i>	0.0260 [0.58]	0.1380 [0.89]	0.1728*** [3.60]	0.1747*** [3.51]
<i>Treat</i>	0.1394*** [3.19]	0.4958*** [2.70]	0.1750*** [2.67]	0.2280*** [3.10]
<i>Firm Size</i>	0.0755*** [5.60]	0.2573*** [3.50]	0.2177*** [10.16]	0.2378*** [8.69]
<i>Leverage</i>	-0.0729 [-0.65]	-1.1335 [-1.61]	-0.0911 [-0.52]	-0.0958 [-0.45]
<i>M/B Ratio</i>	0.0088** [2.14]	0.0414** [2.56]	0.0078 [1.33]	0.0057 [1.09]
<i>ROA</i>	-0.1932 [-0.46]	-1.6978 [-0.62]	0.8380 [1.57]	1.2137* [1.88]
<i>Sales Growth</i>	-0.0505 [-0.62]	0.0889 [0.21]	0.0183 [0.17]	0.0171 [0.16]
<i>Observations</i>	1,644	1,640	1,644	1,644
<i>Adj. R² (pseudo R²)</i>	0.143	0.183	0.322	0.270

TABLE 8: Serious Violations and Reputation-Building Actions by Violation Types

This table presents results of tests examining reputation-building actions that firms take after different types of violations. Panel A presents results for all reputation-building actions broken down according to whether the underlying violation was environmental or social. Panel B presents results for environmental violations by type of audience while Panel C presents results for social violations by type of audience. In Panel A, we consider all types of actions; columns (1) and (2) consider only the subsample based on environmental violations as treatment events while columns (3) and (4) consider social violations. Panels B and C instead consider actions according to the target audience after environmental (Panel B) or social (Panel C) violations. In all panels, *Treat* is an indicator variable that equals one for treated firms (i.e., those that commit major violations) and zero for control firms; *Post* is an indicator variable that equals one for the treated firm and its matched control firm in the period after the violation, and zero otherwise. The main variable of interest is *Treat*×*Post*. All specifications include industry, cohort, and year fixed effects. *t*-statistics based on standard errors clustered by company are presented in brackets beneath coefficient estimates. *, **, and *** denote significance at 10%, 5%, and 1% levels, respectively.

<i>Panel A: Environmental and Social Violations and Reputation-Building Actions</i>				
	(1)	(2)	(3)	(4)
<i>Underlying Violation Type</i>	<i>Environmental</i>	<i>Environmental</i>	<i>Social</i>	<i>Social</i>
<i>Specification</i>	<i>Log</i>	<i>Poisson</i>	<i>Log</i>	<i>Poisson</i>
<i>Treat</i> × <i>Post</i>	0.2408*** [3.52]	0.2533*** [4.23]	0.1224* [1.95]	0.1199* [1.78]
<i>Treat</i>	0.0963 [1.03]	0.0354 [0.39]	0.2675*** [3.30]	0.3786*** [4.55]
<i>Firm Size</i>	0.2268*** [7.65]	0.2868*** [7.94]	0.2288*** [8.43]	0.2300*** [7.38]
<i>Leverage</i>	-0.0937 [-0.26]	-0.0561 [-0.12]	-0.0963 [-0.45]	-0.1048 [-0.45]
<i>M/B Ratio</i>	0.0059 [0.77]	0.0054 [0.86]	0.0112 [1.64]	0.0091 [1.38]
<i>ROA</i>	1.9571*** [2.73]	2.6492*** [3.34]	-0.2604 [-0.42]	-0.0408 [-0.06]
<i>Sales Growth</i>	-0.1266 [-0.86]	-0.1497 [-0.98]	0.1214 [0.79]	0.1674 [1.31]
<i>Observations</i>	756	756	888	888
<i>Adj. R² (pseudo R²)</i>	0.307	0.255	0.366	0.307

Panel B: Environmental Violations and Reputation-Building Actions by Audience

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
<i>Audience</i>	<i>Shareholder</i>	<i>Shareholder</i>	<i>Customer</i>	<i>Customer</i>	<i>Employee</i>	<i>Employee</i>	<i>Regulator</i>	<i>Regulator</i>	<i>Supplier</i>	<i>Supplier</i>	<i>Not Specified</i>	<i>Not Specified</i>
<i>Specification</i>	<i>Log</i>	<i>Poisson</i>	<i>Log</i>	<i>Poisson</i>	<i>Log</i>	<i>Poisson</i>	<i>Log</i>	<i>Poisson</i>	<i>Log</i>	<i>Poisson</i>	<i>Log</i>	<i>Poisson</i>
<i>Treat</i> × <i>Post</i>	0.1997*** [2.72]	0.2496*** [2.94]	0.1081 [1.57]	0.1869* [1.74]	0.1567*** [3.30]	1.0218*** [4.94]	0.0200 [0.65]	0.0342 [0.10]	0.0194 [1.35]	0.8803** [1.98]	0.1108 [1.42]	0.1788 [1.38]
<i>Treat</i>	-0.0404 [-0.44]	-0.1624* [-1.67]	-0.0100 [-0.10]	-0.0058 [-0.04]	0.0333 [0.69]	0.0465 [0.19]	0.1030* [1.97]	1.2673** [2.57]	0.0150 [0.82]	1.2890* [1.83]	0.2530** [2.30]	0.4938*** [2.81]
<i>Firm Size</i>	0.1208*** [3.37]	0.1743*** [4.85]	0.2029*** [6.86]	0.4622*** [5.17]	0.0673*** [5.20]	0.4241*** [4.56]	0.0019 [0.18]	0.0155 [0.17]	0.0168*** [2.61]	1.4379* [1.93]	0.2151*** [7.01]	0.4602*** [7.35]
<i>Leverage</i>	0.3781 [1.23]	0.4185 [1.20]	-0.1591 [-0.42]	-0.0982 [-0.11]	-0.1030 [-0.60]	-0.3298 [-0.34]	-0.0942 [-0.67]	-1.6976 [-1.37]	-0.0121 [-0.19]	-1.3444 [-0.46]	-0.6753 [-1.59]	-1.3337 [-1.46]
<i>M/B Ratio</i>	0.0070 [1.36]	0.0079 [1.16]	-0.0023 [-0.22]	-0.0034 [-0.37]	0.0103 [1.64]	0.0348* [1.85]	0.0158** [2.28]	0.1160*** [4.83]	-0.0004 [-0.45]	-0.0230 [-0.26]	0.0012 [0.12]	-0.0071 [-0.56]
<i>ROA</i>	1.3430* [1.66]	1.9730** [2.18]	2.2154*** [3.26]	4.8218*** [3.30]	0.5398 [1.39]	2.8851 [1.31]	0.2727 [0.76]	2.8149 [1.05]	0.0174 [0.20]	-5.6844 [-0.69]	1.1306 [1.33]	3.1583** [1.97]
<i>Sales Growth</i>	0.0684 [0.51]	0.0690 [0.60]	-0.2604 [-1.31]	-0.5842 [-1.59]	-0.0636 [-0.56]	-0.5365 [-0.84]	- 0.1960*** [-2.62]	-2.0818** [-2.48]	-0.0025 [-0.11]	- 4.9016** [-2.44]	-0.1814 [-0.91]	-0.4390 [-1.13]
<i>Observations</i>	756	756	756	756	756	752	756	646	756	251	756	756
<i>Adj. R² (pseudo R²)</i>	0.150	0.131	0.262	0.286	0.113	0.184	0.157	0.332	0.129	0.401	0.244	0.274

Panel C: Social Violations and Reputation-Building Actions by Audience

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
<i>Audience</i>	<i>Shareholder</i>	<i>Shareholder</i>	<i>Customer</i>	<i>Customer</i>	<i>Employee</i>	<i>Employee</i>	<i>Regulator</i>	<i>Regulator</i>	<i>Supplier</i>	<i>Supplier</i>	<i>Not Specified</i>	<i>Not Specified</i>
<i>Specification</i>	<i>Log</i>	<i>Poisson</i>	<i>Log</i>	<i>Poisson</i>	<i>Log</i>	<i>Poisson</i>	<i>Log</i>	<i>Poisson</i>	<i>Log</i>	<i>Poisson</i>	<i>Log</i>	<i>Poisson</i>
<i>Treat</i> × <i>Post</i>	-0.0044 [-0.06]	-0.0591 [-0.76]	0.1718** [2.19]	0.2867** [2.55]	-0.0063 [-0.10]	0.0760 [0.41]	0.0022 [0.13]	0.3992 [0.68]	0.0128 [0.71]	0.1490 [0.54]	0.1506** [2.48]	-0.0044 [-0.06]
<i>Treat</i>	0.2289** [2.49]	0.3371*** [3.28]	0.2044** [2.19]	0.2386* [1.94]	0.1256* [1.92]	0.4535*** [2.67]	0.0126 [0.75]	0.2082 [0.50]	0.0669** [2.54]	1.3363*** [3.14]	0.2782*** [2.72]	0.2289** [2.49]
<i>Firm Size</i>	0.0608** [2.48]	0.0599** [2.08]	0.2660*** [9.20]	0.3382*** [9.08]	0.0846*** [4.40]	0.3332*** [5.23]	0.0123** [2.54]	0.7181*** [3.21]	0.0225** [1.99]	0.5840*** [5.04]	0.2335*** [6.81]	0.0608** [2.48]
<i>Leverage</i>	0.3851* [1.75]	0.4741** [1.99]	-0.7149** [-2.31]	-0.9630** [-2.45]	-0.0312 [-0.24]	-0.1021 [-0.21]	-0.0238 [-1.01]	-1.3749 [-1.23]	-0.0365 [-0.69]	-2.1839 [-1.00]	-0.1476 [-0.53]	0.3851* [1.75]
<i>M/B Ratio</i>	0.0083 [1.42]	0.0060 [1.10]	0.0055 [0.73]	0.0140 [1.07]	0.0095** [2.25]	0.0305*** [2.70]	0.0011 [1.03]	0.1149** [2.44]	-0.0008 [-0.38]	0.0213 [0.35]	0.0031 [0.59]	0.0083 [1.42]
<i>ROA</i>	0.4681 [0.75]	0.6910 [0.99]	-1.1812 [-1.61]	-0.9533 [-0.96]	-1.1233** [-2.39]	- 4.5433*** [-3.11]	0.0825 [1.43]	7.3610* [1.83]	0.2868 [1.51]	5.4530 [1.11]	0.4895 [0.77]	0.4681 [0.75]
<i>Sales Growth</i>	0.1303 [0.86]	0.0739 [0.54]	0.1326 [0.64]	0.2782 [1.37]	-0.0061 [-0.06]	-0.0284 [-0.07]	-0.0175 [-0.60]	-0.4781 [-0.35]	0.0026 [0.08]	-0.1542 [-0.14]	0.1318 [0.76]	0.1303 [0.86]
<i>Observations</i>	888	888	888	888	888	876	888	352	888	647	888	884
<i>Adj. R² (pseudo R²)</i>	0.180	0.143	0.347	0.273	0.163	0.211	0.0349	0.231	0.166	0.391	0.373	0.377

TABLE 9: Reputation-Building Actions and Subsequent Violations

This table presents results from tests of whether the number of subsequent violations committed by a firm significantly decreases after the firm takes reputation rebuilding actions. In all panels, we construct the violation-related variables using logarithms of penalty amounts. In panel A, we construct the dependent variable based on all violations; panel B instead focus on social violations; and panel C focus on environmental violations. In column 1 of all panels, we consider the logarithms of one plus the number of actions that the firm takes in the twelve months subsequent to the revelation of the violation treatment event. In columns 2, 3 and 4, we consider the logarithms of one plus the number of actions focused on environmental issues, social issues and benefiting customers, respectively. In all columns, *Treat* is an indicator variable that equals one for treated firms (i.e., those that commit major environmental or social violations) and zero for control firms. The main variable of interest is the interaction term *Treat*×*Action*. The variable *Past Violations* is constructed to be consistent with the dependent variable, i.e., it reflects prior violations of all types in panel A; prior social violations in panel B; and prior environmental violations in panel C. All specifications include industry and year fixed effects. t-statistics are presented in brackets beneath coefficient estimates. *, **, and *** denote significance at 10%, 5%, and 1% levels, respectively.

Panel A: All Violations

<i>Violation Type</i>	<i>All</i> (1)	<i>All</i> (2)	<i>All</i> (3)	<i>All</i> (4)
<i>Treat</i> × <i>AllAction</i>	-0.8920* [-1.77]			
<i>Treat</i> × <i>Environmental</i>		-1.2162** [-2.09]		
<i>Treat</i> × <i>Social</i>			-1.0295** [-2.41]	
<i>Treat</i> × <i>Customer</i>				-0.3402 [-0.82]
<i>Treat</i>	2.8407** [2.11]	1.3775*** [2.61]	1.5572** [2.40]	1.3245** [2.07]
<i>Action</i>	0.9869** [2.28]			
<i>Environmental</i>		1.1074** [2.27]		
<i>Social</i>			1.5283*** [4.26]	
<i>Customer</i>				-0.0088 [-0.02]
<i>Past Violations</i>	0.4156*** [7.37]	0.4229*** [7.46]	0.4012*** [7.09]	0.4363*** [7.61]
<i>Firm Size</i>	1.0643*** [5.20]	1.1018*** [5.39]	0.9962*** [5.12]	1.1708*** [5.58]
<i>Leverage</i>	0.1442 [0.12]	0.0822 [0.07]	0.3642 [0.29]	-0.0252 [-0.02]
<i>M/B Ratio</i>	0.0137 [0.34]	0.0178 [0.43]	-0.0003 [-0.01]	0.0243 [0.58]
<i>ROA</i>	-4.5974 [-1.08]	-4.4041 [-1.03]	-5.3250 [-1.27]	-4.2459 [-0.98]
<i>Sales Growth</i>	-0.5246 [-0.33]	-0.3893 [-0.24]	-0.2857 [-0.20]	-0.4870 [-0.30]
<i>Observations</i>	789	789	789	789
<i>Adj. R² (pseudo R²)</i>	0.494	0.492	0.502	0.490

Panel B: Social Violations

<i>Violation Type</i>	<i>Social</i> (1)	<i>Social</i> (2)	<i>Social</i> (3)	<i>Social</i> (4)
<i>Treat</i> × <i>AllAction</i>	-0.5810 [-0.99]			
<i>Treat</i> × <i>Environmental</i>		-0.6538 [-0.92]		
<i>Treat</i> × <i>Social</i>			-0.9272* [-1.95]	
<i>Treat</i> × <i>Customer</i>				-0.7155 [-1.50]
<i>Treat</i>	2.6347* [1.74]	1.6405*** [2.79]	1.9529*** [2.87]	2.1813*** [3.07]
<i>Action</i>	0.7942* [1.72]			
<i>Environmental</i>		0.8074 [1.30]		
<i>Social</i>			1.5542*** [3.72]	
<i>Customer</i>				0.4510 [1.10]
<i>Past Violations</i>	0.4346*** [7.53]	0.4421*** [7.66]	0.4225*** [7.31]	0.4486*** [7.83]
<i>Firm Size</i>	0.7927*** [4.05]	0.8295*** [4.29]	0.6875*** [3.63]	0.8597*** [4.37]
<i>Leverage</i>	-3.0823* [-1.77]	-3.1439* [-1.80]	-2.8157 [-1.59]	-3.0554* [-1.79]
<i>M/B Ratio</i>	-0.0055 [-0.13]	-0.0020 [-0.05]	-0.0214 [-0.51]	0.0012 [0.03]
<i>ROA</i>	-2.8099 [-0.60]	-2.5629 [-0.55]	-3.5462 [-0.78]	-2.2948 [-0.49]
<i>Sales Growth</i>	-0.9933 [-0.63]	-0.8900 [-0.56]	-0.7739 [-0.51]	-0.9267 [-0.58]
<i>Observations</i>	789	789	789	789
<i>Adj. R² (pseudo R²)</i>	0.404	0.402	0.415	0.403

Panel C: Environmental Violations

<i>Violation Type</i>	<i>Environmental</i> (1)	<i>Environmental</i> (2)	<i>Environmental</i> (3)	<i>Environmental</i> (4)
<i>Treat</i> × <i>AllAction</i>	-0.9577 [-1.60]			
<i>Treat</i> × <i>Environmental</i>		-1.5064* [-1.82]		
<i>Treat</i> × <i>Social</i>			-0.7849 [-1.33]	
<i>Treat</i> × <i>Customer</i>				-0.2173 [-0.42]
<i>Treat</i>	2.0967 [1.52]	0.4559 [0.78]	0.4357 [0.69]	0.3685 [0.47]
<i>Action</i>	0.6572 [1.39]			
<i>Environmental</i>		1.4292* [1.79]		
<i>Social</i>			0.9862* [1.93]	
<i>Customer</i>				-0.7248 [-1.54]
<i>Past Violations</i>	0.4512*** [8.10]	0.4465*** [8.05]	0.4518*** [8.16]	0.4409*** [8.08]
<i>Firm Size</i>	0.6208*** [3.42]	0.5874*** [3.20]	0.5344*** [3.06]	0.8551*** [4.41]
<i>Leverage</i>	1.1644 [0.78]	1.1159 [0.76]	1.2449 [0.83]	0.7017 [0.46]
<i>M/B Ratio</i>	0.0428 [1.00]	0.0411 [0.99]	0.0337 [0.77]	0.0508 [1.13]
<i>ROA</i>	-3.5560 [-0.80]	-3.8334 [-0.88]	-4.4039 [-1.00]	-3.1406 [-0.72]
<i>Sales Growth</i>	-0.0734 [-0.07]	0.0646 [0.06]	0.1055 [0.10]	-0.2085 [-0.20]
<i>Observations</i>	789	789	789	789
<i>Adj. R² (pseudo R²)</i>	0.486	0.488	0.488	0.492

TABLE 10: Reputation-Building Actions and Market Returns

This table presents results from tests of whether the short-term cumulative abnormal returns (CAR) around the date of reputation-building actions are larger for treatment firms post-treatment. The unit of observation is the individual reputation-building action level. In Panels A and B, we consider all actions. Panel A presents t-tests results and shows univariate means, while Panel B presents the same information in a regression format. In Panels C, D and E, we group actions by audience, direct vs. indirect, and topic and re-estimate the specification in Panel B. We use two event windows: (0,+1) days and (-1, +3) days around the announcement of an action. *Treat* is an indicator variable that equals one for treated firms (i.e., those that commit major environmental or social violations) and zero for control firms; *Post* is an indicator variable that equals one for the treated firm and its matched control firm in the period after the violation, and zero otherwise. All specifications include industry and year fixed effects. *t*-statistics based on standard errors clustered by company are presented in brackets beneath coefficient estimates. *, **, and *** denote significance at 10%, 5%, and 1% levels, respectively.

Panel A: 2x2 Matrix

	<i>Treatment-Pre</i> <i>Mean</i>	<i>Control-Pre</i> <i>Mean</i>	<i>Difference-Pre</i> <i>Mean</i>	<i>Treatment-Post</i> <i>Mean</i>	<i>Control-Post</i> <i>Mean</i>	<i>Difference-Post</i> <i>Mean</i>	<i>Diff-in-Diff</i> <i>Mean</i>
(0,+1)	-0.0002	0.0022	-0.0024***	0.0011	-0.0007	0.0019***	0.0042***
(-1,+3)	-0.0015	0.0031	-0.0046***	0.0013	-0.0006	0.0019*	0.0065***

Panel B: All Actions

<i>CAR Window</i>	(0,+1) (1)	(-1,+3) (2)
<i>Treat</i> × <i>Post</i>	0.0041*** [3.19]	0.0065*** [3.22]
<i>Treat</i>	-0.0023** [-2.57]	-0.0047*** [-2.84]
<i>Post</i>	-0.0029*** [-3.11]	-0.0037** [-2.34]
<i>Observations</i>	15,962	15,962
<i>Adj. R</i> ²	0.00167	0.00383

Panel C: By Audience

<i>Audience</i> <i>CAR Window</i>	<i>Shareholder</i>		<i>Customer</i>		<i>Employee</i>		<i>Regulator</i>		<i>Supplier</i>		<i>Not Specified</i>	
	(0,+1) (1)	(-1,+3) (2)	(0,+1) (3)	(-1,+3) (4)	(0,+1) (5)	(-1,+3) (6)	(0,+1) (7)	(-1,+3) (8)	(0,+1) (9)	(-1,+3) (10)	(0,+1) (11)	(-1,+3) (12)
<i>Treat</i> × <i>Post</i>	0.0054*** [2.65]	0.0050* [1.69]	0.0055*** [2.87]	0.0069* [1.93]	0.0002 [0.03]	0.0037 [0.37]	-0.0153 [-1.45]	0.0018 [0.11]	-0.0089 [-0.71]	0.0204* [2.01]	0.0015 [0.65]	0.0090*** [3.04]
<i>Treat</i>	-0.0030** [-1.98]	-0.0032 [-1.29]	-0.0030** [-2.38]	-0.0063** [-2.03]	0.0017 [0.37]	-0.0066 [-0.76]	0.0213 [0.92]	0.0143 [0.60]	-0.0091 [-1.24]	-0.0551** [-2.57]	-0.0003 [-0.14]	-0.0037 [-1.38]
<i>Post</i>	-0.0032** [-2.28]	-0.0020 [-0.88]	-0.0025* [-1.77]	-0.0049* [-1.85]	0.0050 [0.94]	0.0042 [0.49]	0.0043 [0.50]	-0.0004 [-0.04]	0.0132 [1.06]	-0.0059 [-0.71]	-0.0041** [-2.60]	0.0065*** [-3.19]
<i>Observations</i>	6,640	6,640	4,912	4,912	766	766	145	145	90	90	3,403	3,403
<i>Adj. R²</i>	0.00489	0.00468	0.00503	0.00795	-0.00631	0.00524	0.0976	0.0752	0.399	0.609	0.0136	0.0391

Panel D: By Direct-to-Indirect Types

<i>Direct Type</i> <i>CAR Window</i>	<i>Same Subcategory</i>		<i>Different Category</i>	
	(0,+1) (1)	(-1,+3) (2)	(0,+1) (3)	(-1,+3) (4)
<i>Treat</i> × <i>Post</i>	0.0032 [0.76]	0.0099* [1.67]	0.0041*** [3.03]	0.0063*** [3.03]
<i>Treat</i>	0.0001 [0.02]	-0.0019 [-0.37]	-0.0025** [-2.55]	-0.0049*** [-2.79]
<i>Post</i>	-0.0017 [-0.54]	-0.0051 [-1.20]	-0.0029*** [-3.04]	-0.0036** [-2.21]
<i>Observations</i>	941	941	15,018	15,018
<i>Adj. R²</i>	0.0202	0.0389	0.00176	0.00391

Panel E: By Topics

<i>Violation Type</i>	<i>Social</i>		<i>Environment</i>		<i>Customer</i>		<i>Investor</i>	
<i>CAR Window</i>	(0,+1)	(-1,+3)	(0,+1)	(-1,+3)	(0,+1)	(-1,+3)	(0,+1)	(-1,+3)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Treat</i> × <i>Post</i>	0.0014	0.0054	0.0029	0.0109*	0.0054***	0.0078**	0.0055***	0.0054*
	[0.61]	[1.60]	[0.64]	[1.93]	[2.74]	[2.10]	[2.74]	[1.81]
<i>Treat</i>	-0.0006	-0.0032	0.0004	-0.0046	-0.0031**	-0.0064*	-0.0032**	-0.0039
	[-0.35]	[-1.21]	[0.08]	[-0.93]	[-2.38]	[-1.94]	[-2.12]	[-1.58]
<i>Post</i>	-0.0017	-0.0022	-0.0062**	-0.0082**	-0.0029**	-0.0056**	-0.0035**	-0.0024
	[-0.91]	[-0.91]	[-2.13]	[-2.12]	[-2.00]	[-1.98]	[-2.52]	[-1.08]
<i>Observations</i>	3,982	3,982	984	984	4,654	4,654	6,836	6,836
<i>Adj. R²</i>	0.0139	0.0357	0.0131	0.0253	0.00455	0.00891	0.00489	0.00416