



Why Activist Hedge Funds Target Socially Responsible Firms: The Reaction Costs of Signaling Corporate Social Responsibility

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Abstract:	In this paper, we develop and test a theory of how unintended audiences create reaction costs for firms that use corporate social responsibility (CSR) as a signal. Reaction costs are costs that signal senders incur when unintended audiences react negatively to a true signal that was intended for another audience. We argue that activist hedge funds—an unintended audience—treat CSR as a signal that firms have wasteful intentions and capabilities, which prevent firms from maximizing shareholder value in the short term. On that basis, we hypothesize that activist hedge funds are more likely to target firms with higher levels of CSR, thus imposing reaction costs on these firms. We further argue that this relationship is weaker when firms operate in industries with high levels of CSR, and stronger when firms' financial communication is vague. Using data on activist hedge fund campaigns in the U.S. between 2000 and 2016, we find supporting results. Our research shows that CSR signals may be costlier than previously assumed and contributes to research on CSR, signaling, and corporate governance.

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Why Activist Hedge Funds Target Socially Responsible Firms: The Reaction Costs of Signaling Corporate Social Responsibility

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WHY ACTIVIST HEDGE FUNDS TARGET SOCIALLY RESPONSIBLE FIRMS: THE REACTION COSTS OF SIGNALING CORPORATE SOCIAL RESPONSIBILITY

ABSTRACT

We develop and test a theory of how unintended audiences create reaction costs for firms that use corporate social responsibility (CSR) as a signal. Reaction costs are costs that signal senders incur when unintended audiences react negatively to a true signal that was intended for another audience. We argue that activist hedge funds—an unintended audience—treat CSR as a signal that firms have wasteful intentions and capabilities, which prevent firms from maximizing shareholder value in the short term. On that basis, we hypothesize that activist hedge funds are more likely to target firms with higher levels of CSR, thus imposing reaction costs on these firms. We further argue that this relationship is weaker when firms operate in industries with high levels of CSR, and stronger when firms' financial communication is vague. Using data on activist hedge fund campaigns in the U.S. between 2000 and 2016, we find supporting results. Our research shows that CSR signals may be costlier than previously assumed and contributes to research on CSR, signaling, and corporate governance.

Firms may engage in corporate social responsibility (CSR) for signaling purposes (Montiel, Husted, & Christmann, 2012). Signals are observable actions that a firm takes to provide information to stakeholders about its unobservable intentions and capabilities (Connelly, Certo, Ireland, & Reutzel, 2011). Specifically, the activities that serve as CSR signals indicate that a firm is “willing *and* able” (Durand, Hawn, & Ioannou, 2019: 299) to act with a long-term vision and to take into account the interests of different stakeholders (Bansal & DesJardine, 2014; Hillman & Keim, 2001). For example, by hiring a female board member (an observable action) a firm can signal to job-seekers that it is both willing and able (its unobservable intentions and capabilities) to support women in their careers (Miller & Triana, 2009; Turban & Greening, 1997). Similarly, by engaging in CSR activities (an observable action), a firm can signal to governments that it would be a trustworthy partner (an unobservable intention) for a government procurement contract (Flammer, 2018).

Although signals are costly (Su, Peng, Tan, & Cheung, 2016), our understanding of these costs remains limited. This is because, to date, research has only explored the signaling costs

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associated with intended audiences, such as job-seekers and governments, but overlooked the costs that unintended audiences may create for signal senders. There are two types of signaling costs associated with intended audiences: production costs, which arise from producing observable actions that serve as a signal for intended audiences, and penalty costs, which arise when intended audiences penalize firms that send false signals (Bergh, Connelly, Ketchen, & Shannon, 2014). In addition, unintended audiences can burden signal senders with a third type of signaling costs: reaction costs. Reaction costs are the costs that signal senders incur when unintended audiences react negatively to a true signal that was intended for another audience. Reaction costs matter because they may render signals costlier for signal senders than previously assumed.

We develop and test a theory of how unintended audiences create reaction costs for firms in the context of CSR by focusing on how activist hedge funds react to CSR signals. Activist hedge funds buy shares to influence the strategy of targeted firms within a relatively short period of time (Ahn & Wiersema, 2019; J.P. Morgan, 2015). They are becoming increasingly influential (DesJardine & Durand, 2020). Between 2011 and 2015 one in seven S&P 500 firms experienced at least one hedge fund attack (Chen & Feldman, 2018). According to the bank J.P. Morgan (2015: 1), “No recent development has influenced firms’ strategic and financial decision-making as profoundly as the surge in shareholder activism [by hedge funds] following the global financial crisis.” Firms are thus “increasingly fearful of becoming the next target of activism” (Shi, Connelly, Hoskisson, & Ketchen, 2019: 7).

Hedge fund attacks create substantial costs for firms. Some of these costs are easy to measure—for example, advertising costs or the costs of hiring legal experts, public-relations professionals, and other advisors. According to some estimates, these costs amount to an average

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3 of \$12.5 million per proxy contest for large capitalization firms (Activist Insight, 2017). Other
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5 costs are harder to measure—for example, the costs that arise when strategic partners or
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7 employees engage less with a firm due to the uncertainty created by a hedge fund attack or when
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9 top managers shift their time and attention to the attack (Gantchev, 2013; Kolhatkar, 2018). A
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11 background interview with a former head of investor relations whose firm was attacked by a
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13 hedge fund illustrates these costs. As he pointed out, the “leadership lost sight of the ball and
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15 became all-consumed by this battle and lost sight of growing the company”—the top managers
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17 “were constantly on the jets, going across North America and Europe to gauge shareholder
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19 support” when trying to fend off the activist hedge fund.
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24 Our theory development starts with the insight that activist hedge funds find it difficult to
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26 obtain accurate information on the intentions and capabilities of firms. Like other stakeholders,
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28 activist hedge funds may therefore interpret CSR as a signal that a firm has both the intention
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30 and the capability to act with a long-term vision and to take into account the interests of different
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32 stakeholders. However, unlike other stakeholders, activist hedge funds regard as “wasteful”
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34 intentions and capabilities that prevent firms from maximizing shareholder value in the short
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36 term. A firm whose intentions and capabilities activist hedge funds consider wasteful becomes an
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38 ideal target because hedge funds can generate considerable profit by reorienting such firms
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40 toward maximizing value for shareholders in the short term (Brav, Jiang, Partnoy, & Thomas,
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42 2008). On that basis, we hypothesize that firms exhibiting higher levels of CSR are more likely
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44 to be targeted by activist hedge funds.
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49 We examine two factors that, if our theory is correct, should influence the main effect.
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51 The first factor is a high level of CSR in the industry in which a firm operates. In an industry
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53 characterized by a high level of CSR, a firm that engages in CSR will blend in with what is
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considered normal in that industry. Because actors are tend to be overwhelmed by information (Ocasio, 1997; Simon, 1947), we expect that activist hedge funds will pay less attention to signals that “blend in.” This, in turn, should weaken the effect of CSR on hedge fund targeting. The second factor is vague financial communication. The more vague a firm’s financial communication, the less shareholders will know about that firm’s intentions and capabilities (e.g., Mazzola, Ravasi, & Gabbioneta, 2006). We expect that in such situations, activist hedge funds will rely more on CSR signals to draw inferences about the intentions and capabilities of a firm; thus, vague financial communication should strengthen the effect of CSR on hedge fund targeting.

To test our theory, we studied 506 activist hedge fund campaigns carried out in the U.S. between 2000 and 2016. We used multi-year panel data in logistic regression models to estimate the effect of CSR activities on a firm’s probability of being targeted by activist hedge funds. The results support our hypotheses: we found that a firm’s probability of being targeted by activist hedge funds increases from 3.04% to 3.88% when its CSR increases by one standard deviation above the average level of CSR. Because the outcome is nonlinear, the effect that CSR has on targeting strengthens at higher levels: when a firm’s CSR increases by two standard deviations, its probability of being targeted nearly doubles, rising to 5.11%. This effect is weaker when firms operate in industries characterized by high levels of CSR and stronger when financial communication is vague. The results of our analyses are robust to using matched samples and alternative measures of our key variables and models.

Our theory and results contribute to three streams of research. First, we advance research on instrumental CSR by showing that the effects of CSR signals are not always positive because stakeholders may not only draw favorable conclusions about a firm’s “moral character”

(Godfrey, 2005: 789), but also unfavorable conclusions about its “business character.” Second, we contribute to research on signaling by showing that signaling may be costlier for signal senders than previously assumed, because unintended audiences may create reaction costs. Third, we contribute to research on corporate governance by showing that signaling may create—rather than reduce—governance conflicts in situations where different stakeholders have divergent views on the purpose of the firm.

Our paper also has important practical implications. While prior research has shown that being targeted by an activist hedge fund suppresses firms’ CSR activities (DesJardine & Durand, 2020), we show that CSR makes targeting more likely in the first place. Taken together, it becomes clear that activist hedge funds compromise firms’ CSR activities by first targeting more socially-responsible firms and then suppressing the CSR activities of these firms to maximize financial returns in the short term.

THEORY AND HYPOTHESES

Corporate Social Responsibility as a Signal

Firms engage in CSR both because of its direct effects (e.g., a reduction in carbon emissions) and because CSR involves widely observable actions that can signal a firm’s unobservable intentions and capabilities (Hafenbrädl & Waeger, 2019; Kölbel & Busch, 2019; Montiel et al., 2012). Signals reduce information asymmetry by providing outside audiences insights into a firm’s unobservable intentions and capabilities.¹ Specifically, CSR signals that firms have both the intention and the capability to act with a long-term vision and to take into account the interests of different stakeholders (Hillman & Keim, 2001; Slawinski & Bansal,

¹ Asymmetric information may concern (1) intentions or (2) qualities (Stiglitz, 2000). A firm’s capabilities are a key quality of firms, which is why we refer to the (1) intentions and (2) capabilities of firms. Our approach is in line with Spence (1973: 356), who explores the “productive capabilities” of job applicants, and with research on the signaling activities of firms (e.g., Janney & Folta, 2003; Paruchuri, Han, & Prakash, 2020; Su et al., 2016).

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2015). The “intentions” of firms are collective states of mind that “direct attention, experience, and action” (Bird, 1988: 442), while their “capabilities” emerge over time when firms act in line with their intentions (Bridoux, Coeurderoy, & Durand, 2017; Teece, Pisano, & Shuen, 1997).

To signal intentions and capabilities, CSR involves both policies and practices, as reflected in most definitions of CSR (e.g., Philippe & Durand, 2011) and measurements of CSR (e.g., MSCI, 2015; Thompson Reuters, 2019). CSR policies signal to stakeholders the unobservable intentions of a firm, while CSR practices signal a firm’s unobservable capabilities. For example, anti-discrimination policies (which constitute a CSR policy) signal that firms have the intention to act with a long-term vision and to take into account the interests of diverse employee groups. Similarly, waste-disposal practices (which constitute a CSR practice) signal that firms have the capability to act in ways that account for the interests of various stakeholders.

CSR signals will only be effective when firms that have the relevant unobservable intentions and capabilities use those signals, while other firms do not (Bergh et al., 2014; Spence, 1973). Without this kind of separating equilibrium, CSR signals have no information value. For a separating equilibrium to emerge, CSR signals must be less costly for firms that have the relevant unobservable intentions and capabilities than for firms that do not. Specifically, the difference in cost must be wide enough to render CSR signals too costly for firms that do not have the relevant intentions and capabilities. Therefore, to understand CSR signals, we need to look closely at the signaling costs of CSR.

The Signaling Costs of CSR

Signaling costs are costs that arise for signal senders. Existing research has explored how intended audiences give rise to two types of signaling costs: production costs and penalty costs. Production costs arise for signal senders when the observable actions that serve as a signal for

intended audiences are costly to produce.² For example, acquiring certifications (which serves as a signal) requires that firms spend time and money to meet certain requirements; this translates into production costs. This type of cost creates a separating equilibrium if firms that have the relevant unobservable capabilities can produce a signal at lower cost than firms that do not (Darnall & Edwards, 2006; King, Lenox, & Terlaak, 2005). Specifically, a separating equilibrium will arise if firms that know how to anticipate long-term developments and engage with their stakeholders (unobservable capabilities) find it easier to enact CSR practices and therefore incur lower production costs than firms without these capabilities. In such a scenario, firms that possess the relevant unobservable capabilities will invest in sending a signal, while other firms will abstain because their production costs would be too high (Connelly et al., 2011).

Penalty costs arise when intended audiences perceive a signal as false and punish the signal sender in response (Bergh et al., 2014). For example, a firm may signal its unobservable intentions by publicly committing to a cause, which costs little at the time. However, if audiences eventually regard this signal as false and conclude that the sending firm has not lived up to its commitment, they will react in ways that create penalty costs for the sender—for example, by boycotting the firm (McDonnell & Cobb, 2019). While production costs arise before a signal is sent, penalty costs arise afterwards. Penalty costs create a separating equilibrium if firms that are willing and able to honor their CSR policies (because these firms think in the long term and take into account different stakeholders) anticipate that they are less likely to be penalized by disappointed stakeholders than firms that are less willing and able to honor their CSR policies (lower penalty costs). In this scenario, the firms that possess the relevant unobservable intentions

² To distinguish between different types of signaling costs, we introduce the term “production costs,” which describes what Bergh et al. (2014: 1337) call more broadly “signal costs.”

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and capabilities will send true signals, while other firms will abstain from sending signals that would be false (Bergh et al., 2014).

In addition, unintended audiences can create a third type of signaling cost: reaction costs. Reaction costs are costs that signal senders incur when unintended audiences react negatively to a true signal that was intended for another audience. For example, a firm may compensate a CEO highly in order to signal to its shareholders—the intended audience—the CEO’s extraordinary talent (Khurana, 2002). However, this signal may be interpreted differently—in fact, negatively—by unintended audiences that are critical of managerial greed, such as the media or non-profit organizations (Vergne, Wernicke, & Brenner, 2018). Such reactions can be costly for firms because disgruntled stakeholders may withdraw their support, attack a firm’s reputation, and force managers to devote significant attention and resources to counteracting negative reactions. Reaction costs are similar to penalty costs in that both arise through a negative response from an audience. The difference between the two is that penalty costs arise from the responses of *intended* audiences to *false* signals, while reaction costs arise from the responses of *unintended* audiences to *true* signals. Figure 1 illustrates these three types of signaling costs.

--- INSERT FIGURE 1 ABOUT HERE ---

Activist Hedge Funds as an Unintended Audience of CSR Signals

Activist hedge funds are an important unintended audience for CSR signals because their views on the purpose of the firm are different from those of the audiences for which such signals are intended (employees, customers, suppliers, etc.). Activist hedge funds try to identify activities that are wasteful, in the sense that they do not maximize shareholder value in the short term (DesJardine & Durand, 2020). Background interviews we conducted illustrate the

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3 importance that activist hedge funds place on cutting “waste” or “fat.”³ One hedge fund manager
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5 argued that “in so many instances” of hedge fund activism, “cutting the fat is important and
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7 necessary.” Another hedge fund manager noted: “cutting the fat—that’s a pretty classic
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9 strategy.” To understand what activist hedge funds perceive as “fat” or wasteful, it is essential to
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11 realize that they rarely hold stocks for longer than three years (Coffee & Palia, 2016: 38). In 47%
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13 of U.S.-based campaigns carried out between 2001 and 2014, activist hedge funds held stocks for
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15 less than six months and in 84% of the campaigns, the holding period was less than two years
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17 (J.P. Morgan, 2015). The focus on the short term led an investor who was a board member in a
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19 firm targeted by a hedge fund to say: “I think it’s quite difficult to explain to a hedge fund that
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21 you’ll create value over seven years.”
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26 Because activist hedge funds mostly have a short investment horizon (Coffee & Palia,
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28 2016; DesJardine & Durand, 2020), they regard as wasteful firms’ intention and capability (1) to
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30 act with a long-term vision and (2) to take into account the interests of different stakeholders.
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32 Activist hedge funds are likely to see a firm’s intention and capability to act with a long-term
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34 vision as wasteful because focusing on long-term developments will hardly increase the stock
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36 price of firms within the relatively short investment horizon of hedge funds (Reilly, Souder, &
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38 Ranucci, 2016; Souder, Reilly, Bromiley, & Mitchell, 2016). Similarly, activist hedge funds are
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40 likely to regard a firm’s intention and capability to take into account the interests of different
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42 stakeholders as wasteful because responding to the expectations and demands of different
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50 ³ We conducted background interviews with nine people: six hedge fund managers, two investors who interacted
51 with activist hedge funds during activist campaigns, and one former head of investor relations. The interviews
52 involved open-ended questions about why hedge funds target specific firms and what hedge fund attacks implied for
53 firms. All interviews were recorded and transcribed, except in two cases, where we took detailed notes. The
54 interviews lasted an average of 39 minutes. In line with Briscoe, Chin, and Hambrick (2014: 1791), we use quotes
55 from these interviews to illustrate our theoretical reasoning.
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3 stakeholders increases costs in the short term (Bansal & DesJardine, 2014), even though it may
4 protect firms in the long run (DesJardine, Bansal, & Yang, 2019; Godfrey, 2005).
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8 The typical investment strategy of activist hedge funds is to target firms whose intentions
9 and capabilities these funds deem wasteful, reorient these firms so that they become willing and
10 able to create value for shareholders in the short term, and profit from a rising stock price.
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12 However, because activist hedge funds are “outsiders” who “are not privy to internal knowledge
13 of the organization” (Briscoe & Gupta, 2016: 24), they cannot easily obtain reliable information
14 about the intentions and capabilities of firms. The information that firms make public about what
15 they are willing and able to do tends to be highly standardized and subject to impression
16 management (Fiss & Zajac, 2006). For that reason, activist hedge funds tend to search for signals
17 that reveal a firm’s intentions and capabilities through actions, rather than words. Tellingly, one
18 hedge fund manager we interviewed noted that he looks at “the action[s] of the management” to
19 determine whether a firm wastes resources or not. In light of this information asymmetry, activist
20 hedge funds may interpret CSR as a signal that a firm has wasteful intentions and capabilities—
21 which would make the firm an ideal target.
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38 Firms that are targeted by activist hedge funds incur substantial reaction costs. Large
39 capitalization firms are estimated to spend on average \$12.5 million to contest a single proxy
40 fight (Activist Insight, 2017: 7). In some cases, these costs are substantially higher. Procter &
41 Gamble, for instance, purportedly spent at least \$100 million in 2017 to counter an activist hedge
42 fund campaign (Nicolaou & Fortado, 2017). In addition to burdening firms with such expenses,
43 hedge fund campaigns distract managers and other employees (see Kolhatkar, 2018). A former
44 head of investor relations described how an activist hedge fund campaign affected his firm in its
45 entirety: “there was . . . psychological stress . . . across all employees in the company . . . They
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3 were all stressed, wondering: ‘Will I have a job in a year?’” The effects of the hedge fund’s
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5 attack continued even after the firm narrowly won the proxy contest: “we were all so burnt out.
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7 Our CEO looked like he had gone through a war . . . It took another six months for our ELT
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9 [Executive Leadership Team] to recover and get the eye back on the ball of managing the
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11 company.” This evidence suggests that if CSR signals trigger a hedge fund campaign against a
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13 firm, this creates substantial reaction costs for that firm.
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17 Along these lines, we argue that CSR activities signal to activist hedge funds that a firm’s
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19 intentions and capabilities offer substantial cost-cutting potential, precisely because—from the
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21 hedge funds’ viewpoint—they are wasteful. Importantly, the cost-cutting potential is not limited
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23 to CSR expenditures. Even if hedge fund managers consider CSR wasteful (in a background
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25 interview, one of them noted: “I can definitely see how [CSR] can be wasteful”), CSR activities
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27 typically constitute only a fraction of a firm’s expenditures. This means that the cost-cutting
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29 potential of CSR alone seldom warrants the financial risk of a targeting campaign. Activist hedge
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31 funds are not primarily interested in cutting high CSR expenditures, but in cutting the costs
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33 associated with the intentions and capabilities that CSR activities signal. Hence:
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38 *Hypothesis 1. The more a firm engages in CSR activities, the higher the likelihood*
39 *that this firm will be targeted by an activist hedge fund.*
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41 **Factors that Influence the Effect of CSR Signals on Hedge Fund Targeting**

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43 We identify two factors that, if our theory is correct, should influence the effect of CSR
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45 on hedge fund targeting. The two factors reflect the idea that signals can be more or less salient
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47 and valuable to signal receivers. First, given that some signals will be particularly “noteworthy,
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49 or salient, in a given context” (Ramaswami, Dreher, Bretz, & Wiethoff, 2010: 391), we focus on
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51 whether a firm’s level of CSR stands out from or blends into the average level of CSR in its
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53 industry. Second, given that a signal will be more valuable for signal receivers if they have few
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ways to gain information about a firm (Ragozzino & Reuer, 2011), we examine how vague the information is that firms communicate to their shareholders.

The first factor that influences a firm’s probability of being targeted by activist hedge funds is a high level of CSR in the industry to which this firm belongs. The average level of CSR varies substantially among different industries (Dabic, Colovic, Lamotte, Painter-Morland, & Brozovic, 2016). In industries where this average is high, firms that pursue CSR actively will blend in. By contrast, such firms will stick out in industries characterized by low CSR. Actors pay selective attention to signals because they are overwhelmed by information (Simon, 1947) and their attention is limited (Ocasio, 1997). It is for that reason that it matters whether a firm’s CSR activities make it stand out or blend in: audiences pay less attention to signals that blend in and more attention to signals that stand out. By recognizing that some signals stand out more than others, we take into account that the effects of signaling “might be moderated by . . . receiver attention” (Bergh et al., 2014: 1352).

Activist hedge funds constantly compare firms to identify significant differences between them. In a background interview, one hedge fund manager explained that the essence of his activity is to constantly “benchmark a business against its peers.” Given these comparisons, we expect that in an industry with a high level of CSR, activist hedge funds pay little attention to a firm’s CSR activities because high levels of CSR activities blend in with what is considered average in that firm’s industry. In such industries, activist hedge funds are less likely to notice CSR signals and therefore less likely to infer that firms that engage in CSR have wasteful intentions and capabilities. This reduced attention to CSR signals should weaken the effect of CSR on hedge fund targeting. By contrast, in industries with low levels of CSR, we expect activist hedge funds to pay particular attention to firms whose level of CSR sticks out from the

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3 industry's average. In such industries, activist hedge funds will pay close attention to CSR
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5 signals and are therefore more likely to infer that firms that engage in CSR have wasteful
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7 intentions and capabilities. The increased attention to CSR signals makes it more likely that
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9 firms that engage in CSR become targets of activist hedge funds and incur the associated
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11 reaction costs. Therefore:
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15 *Hypothesis 2. A high level of CSR in an industry weakens the relationship between*
16 *a firm's CSR activities and the likelihood that this firm will be targeted by an*
17 *activist hedge fund.*
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19 The second factor influencing a firm's probability of being targeted by activist hedge
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21 funds is vague financial communication. Firms communicate their strategies, operations, and
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23 finances to shareholders, analysts, and other parts of the financial sector (Hutchins, 2008). When
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25 firms use approximations, express doubt, and make general rather than specific statements (Guo,
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27 Sengul, & Yu, 2019), financial communication is vague. Vague financial communication
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29 increases the information asymmetry between firms and their shareholders (Bergh, Ketchen,
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31 Orlandi, Heugens, & Boyd, 2019). Specifically, the more vague a firm's financial
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33 communication, the less will current and potential shareholders know about that firm's intentions
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35 and capabilities (e.g., Mazzola et al., 2006).
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39 Vague financial communication tends to reveal little about a firm's intentions and
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41 capabilities. We argue that in such cases, activist hedge funds will rely more on CSR signals to
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43 glean information on a potential target's intentions and capabilities. Put differently, if words (i.e.,
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45 financial communication) are vague, actions (i.e., CSR activities) become more important as
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47 signals. This idea reflects the general point that when information asymmetry is high, signals
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49 become more valuable to those who receive them (Bergh et al., 2014). On those grounds, we
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51 expect that vague financial communication makes it more likely that activist hedge funds will
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53 take into account CSR signals to select their targets, because they have few other ways to gain
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knowledge about their potential targets’ intentions and capabilities. This suggests that vague financial communication should strengthen the effect of CSR on hedge fund targeting and increase the reaction costs that firms incur. Thus:

Hypothesis 3. Vague financial communication strengthens the relationship between a firm’s CSR activities and the likelihood that this firm will be targeted by an activist hedge fund.

METHODS

Sample Construction: Identifying Firms Targeted by Activist Hedge Funds

To construct our sample, we started by collecting CSR data on all firms listed in MSCI KLD (hereafter “KLD”). KLD rates firms’ environmental, social, and governance performance. We then collected accounting and financial data on these firms from Thomson Reuters Datastream, investor holdings data from Thomson Reuters Institutional (13F) Holdings, investor classifications from Brian Bushee’s website, executive data from Execucomp, and transcripts of quarterly earnings conference calls from S&P Global and other sources. To construct our targeting variable, we identified every year in the period 2000–2016 in which each firm in our sample had been the target of hedge fund activism. We chose the year 2000 as our starting date because hedge fund activism intensified after 2000 (Goranova & Ryan, 2014) and because data on CSR became more widely available after 2000.

Identifying firms targeted by activist hedge funds in the U.S. depends on regulatory filings. Specifically, the U.S. Securities and Exchange Commission (SEC) requires that all shareholders submit a Schedule 13D filing within 10 days of acquiring 5% of any class of security of a firm publicly listed on a U.S. stock exchange, if the reason for the acquisition is to influence the management of that firm. Importantly, the SEC requires only shareholders who plan to actively influence a firm’s management to file a Schedule 13D. Shareholders who acquire over 5% ownership and plan to passively hold their stock must file another form, Schedule 13G.

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3 The Schedule 13D form contains background information on the filer and the purpose of the
4 transaction, which we leveraged to limit our sample to activist hedge funds.
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8 We used the same initial list as DesJardine and Durand (2020) to identify firms in our
9 sample that were targeted by an activist hedge fund. First, we used data from Activist Insight to
10 identify firms that had been targeted between 2011 and 2016. Activist Insight mainly identifies
11 firms targeted by activist hedge funds on the basis of Schedule 13D filings. In addition, Activist
12 Insight searches news articles and other filings to identify instances of hedge fund activism
13 where a hedge fund has acquired less than the 5% ownership threshold above which hedge funds
14 must notify the SEC. At the time of data collection, Activist Insight had utilized over 16,000
15 news articles and 43,000 regulatory documents to identify hedge fund campaigns, which makes
16 this dataset uniquely comprehensive.
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28 The main drawback of using data from Activist Insight is that the first year for which
29 they are available is 2011. To complement our set with earlier data, we used hand-collected
30 Schedule 13D filings between 2000 and 2010, following the multistep process outlined by
31 DesJardine and Durand (2020) and Gantchev (2013). Combining all data sources, we compiled a
32 final sample that comprises (a) 506 targeted firms and 4,515 corresponding firm–year
33 observations and (b) 1,106 non-targeted (control) firms and 10,447 corresponding firm–year
34 observations.
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45 **Dependent Variable: Being Targeted by Activist Hedge Funds**

46 We use hedge fund targeting as proxy for reaction costs. Drawing on our data, we created
47 a dichotomous variable, *target*, which is equal to 1 if a firm has been targeted by an activist
48 hedge fund in a given year and 0 otherwise. We control for “wolf pack” activism (Coffee &
49 Palia, 2016: 4) by including only the first instance when a firm is targeted by an activist hedge
50 fund.
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Independent Variables

CSR score. We used CSR measures from KLD as a proxy for how actively firms used CSR as a signal to employees, customers, and their other stakeholders. KLD data is frequently used in CSR studies (e.g., Ioannou & Serafeim, 2015) and is widely considered to contain “the most comprehensive data available to measure CSR” (Petrenko, Aime, Ridge, & Hill, 2016: 269). These data include environmental, social, and governance ratings for publicly traded firms. Importantly, in line with our conceptualization of CSR signals, KLD measures both firms’ CSR policies (which we see as a signal for their intentions) and their CSR practices (which we see as a signal for their capabilities). For example, KLD’s measurement of CSR includes whether a firm has a “no-layoff policy” (MSCI, 2015: 59) and whether it has “practices in place to develop strong employee relations” (MSCI, 2015: 60). The KLD database uses public disclosures, expert assessment, firm surveys, and other sources (e.g., media) to rate the “strengths” and “concerns” that a firm’s CSR practices and policies reflect and to classify them into the following sub-domains: *environment, community, diversity, employee relations, human rights, product quality, and corporate governance*. For this purpose, the KLD uses a binary system where 1 indicates the presence of a strength or concern in a particular area and 0 indicates its absence. For example, a firm’s number of strengths in the *environment* sub-domain corresponds to the sum of its strengths in *climate change, natural resource use, waste management, and environmental opportunities*.

For our purposes, we computed the variable *CSR score* by summing a firm’s strengths in the following sub-domains: *environment, community, diversity, employee relations, and human rights*. We excluded the *corporate governance* sub-domain from our measurement of CSR for two reasons. First, the definition of CSR we apply in this study does not encompass corporate governance. Second, there is evidence that corporate governance constitutes a distinct reason for

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3 which activist hedge funds target firms (Brav et al., 2008). For those reasons, we decided to
4 control for *corporate governance* in multiple ways in our models, so as to isolate the effect that
5 CSR has on targeting, instead of incorporating *corporate governance* into our main independent
6 variable. Following Flammer (2015), we also excluded the *product quality* sub-domain, which
7 mainly pertains to research and development and quality programs rather than to CSR. In
8 robustness checks, we tested this measure using multiple combinations of the various sub-
9 dimensions and also used a *net CSR score* by subtracting the number of concerns in each sub-
10 domain from the number of strengths and obtained similar results.
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21 ***Industry CSR.*** To test Hypothesis 2, we needed a measure to assess the CSR levels in a
22 specific industry. *Industry CSR* equals the average *CSR score* for all firms, excluding the focal
23 firm, in an industry group classified according to two-digit SIC codes.
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28 ***Vague financial communication.*** Following prior research (Guo et al., 2019; Guo, Yu, &
29 Gimeno, 2017), we used text analysis to measure communication vagueness in managers'
30 speech. *Firm vagueness* equals the total number of vague words and phrases divided by the total
31 number of words spoken by managers during quarterly earnings conference calls (to control for
32 the total length of each call). Therefore, *firm vagueness* is expressed as a percentage, where a
33 value of 0.03 indicates that 3% of all words spoken during a call are characterized as "vague." In
34 line with recent research on strategy, we used Hiller's communication vagueness dictionary to
35 capture the vague terminology that managers tend to use (Hiller, 2019; Hiller, Marcotte, &
36 Martin, 1969). The dictionary contains 362 vague words and expressions, classified along 10
37 dimensions of vagueness, which we combined to create an index measure of communication
38 vagueness. Examples of vague words and expressions include non-specific references (e.g.,
39 "somewhere" or "stuff"), approximations (e.g., "nearly" or "sort of"), probabilistic terms (e.g.,
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“at times” or “could be”), and expressions of doubt (e.g., “apparently” or “seems”).

We used earnings call transcripts for three reasons. First, earnings calls are the primary medium that managers use to explain their strategies and operations directly to financial audiences (DesJardine & Shi, in-press). Second, the question-and-answer portion of earnings calls is unscripted, making this portion of earnings calls less subject to impression management than other types of financial communication (Matsumoto, Pronk, & Roelofsen, 2011). Third, because earnings calls occur quarterly, we can measure vague financial communication more consistently in a given year, instead of having to rely on annual publications, such as letters to shareholders (DesJardine & Bansal, 2019).

Control Variables

In an effort to select the most relevant control variables, we consulted the literature to identify which factors affect the likelihood that activist hedge funds will target a firm. Previous studies have found that activist hedge funds are more likely to target firms that are smaller (Boyson & Mooradian, 2011; Clifford, 2008; Klein & Zur, 2011), more profitable (Brav et al., 2008; Clifford, 2008; Klein & Zur, 2009, 2011), less valuable (Brav et al., 2008; Clifford, 2008), more liquid (Norli, Ostergaard, & Schindele, 2014), and more leveraged (Boyson, Gantchev, & Shivdasani, 2017; Boyson & Mooradian, 2011; Brav et al., 2008; Klein & Zur, 2009, 2011). We therefore included in our models variables for each of these indicators as controls: *firm size* measures the log of total assets; *ROA* (return on assets) assesses financial performance; *market-to-book* ratio indicates a firm’s market value divided by the book value of assets; *current ratio* indicates the current assets divided by the current liabilities to capture financial liquidity; *debt ratio* indicates the total debt divided by the total assets to capture a firm’s financial leverage. Gupta, Han, Mortal, Silveri, and Turban (2018) also found that activist hedge funds are more likely to target firms led by a female CEO. This led us to include as a covariate *female CEO*,

which equals 1 for firms with a female CEO and 0 for firms with a male CEO.

Firms with substandard corporate governance are another category of firms that activist hedge funds often target. For instance, firms that lack board independence or have more takeover defenses are more likely to be targeted by an activist hedge fund than firms with stronger corporate governance (Brav, Jiang, & Kim, 2010). First, we control for the overall strength of a firm's *corporate governance* as the sum of strengths in the corporate governance domain of KLD. Second, we control for whether a firm's CEO is also the chairman of the board; *CEO duality* equals 1 where a CEO holds both positions and 0 otherwise.

Activist hedge funds may expect to be more successful in their campaigns when they target firms with certain types of investors (Brav et al., 2008). For that reason, we also consider a firm's ownership structure. In line with previous studies (e.g., Connelly et al. 2010), we computed measures that reflect the percentages of shares held by short-term investors and by long-term investors. Using the investor classification that Bushee (1998) developed, we calculated *transient ownership* as the total percentage of a firm's shares held by transient investors and *dedicated ownership* as the total percentage of shares held by dedicated investors. We lagged all control variables by one year.

Model and Analysis

Because the dependent variable of interest in our main analysis is the probability of an event occurring—in this case, the probability of a firm being targeted by an activist hedge fund—we use logistic regression. The method of logistic regression relies on the estimation of maximum likelihood to model the probability of binary outcomes; at the same time, it takes into account the non-normal distribution of errors associated with limited dependent variables. To make our results easier to interpret, we opted for logistic regression models that estimate probability, rather than log odds, using the form:

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$$P_{it} = \frac{\exp^{\beta_1 X_{it}}}{1 + \exp^{\beta_1 X_{it}}} \tag{1}$$

where P_{it} is the dependent variable of interest equal to the probability (ranging from 0 to 1) that firm i will be targeted in year t , while X_{it} is the vector of the independent and moderating variables for firm i in year t . We are interested in the coefficient, β , for *CSR score*, which indicates the effect that CSR has on the likelihood that a firm will be targeted by an activist hedge fund.

To test the moderating hypotheses, we added an interaction term to model (1). In ordinary least squares (OLS) regression, the marginal effect of an interaction between two variables is the coefficient for their interaction. However, as Hoetker (2007) warns, the coefficient for the interaction term in a logistic regression model is not an estimate or an accurate test of the hypothesized moderation effect. This complication occurs because the interaction effect is a function of the coefficients for the interacted variables and the values of *all* other variables in a model. Consequently, different observations in our sample may exhibit differences in the magnitude and sign of the marginal effect; i.e., the change in probability of being targeted by an activist hedge fund due to a one-unit change in *CSR score*. To address this concern, we used the *margins* command in Stata to graph all results and then checked the average marginal effects, allowing us to interpret more accurately the marginal effects across the entire range of values.

Because of the panel nature of our sample, we have included estimations of firm-specific random effects in all specifications. Including random effects allows us to differentiate between firms that are targeted and firms that are not targeted. Moreover, the mathematics of maximum likelihood estimation mean that including firm fixed effects (e.g., using a conditional logistic regression) would force us to drop all of our control firms, because there is no within-group variation in the dependent variable *target*. However, dropping the control firms would introduce

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3 endogenous selection bias as the sample that the conditional logistic regression is estimated on
4 would mechanically exclude observations based on the value of the dependent variable (Beck,
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6 2018; Elwert & Winship, 2014). Commenting on the potential sampling problem of fixed effects
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8 models, Dai, Dietvorst, Tuckfield, Milkman, and Schweitzer (2018) note that logistic regression
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10 models typically produce inconsistent estimates when firm fixed effects are included, unless data
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12 characteristics meet a stringent set of assumptions.⁴ For these reasons, we favor random effects.
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14 To mitigate potential multicollinearity and to make our results easier to interpret, we mean-
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16 centered all interaction terms. We cluster standard errors by firms.
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21 RESULTS

22 Does CSR Increase a Firm's Likelihood of Being Targeted by an Activist Hedge Fund?

23 Table 1 presents the descriptive statistics and correlations for all variables used in this
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25 study. To test Hypothesis 1, we compared the *CSR score* of targeted firms to that of non-targeted
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27 control firms. We first ran a univariate analysis and found that the mean *CSR score* of targeted
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29 firms was 1.390 in the year they were targeted by an activist hedge fund. In comparison, the
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31 mean *CSR score* of non-targeted firms was 1.168. The difference in these means (0.222) is
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33 statistically significant ($t = 8.566$; $p < 0.001$), indicating that CSR increases the likelihood that
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35 firms will be targeted by activist hedge funds.
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43 To further probe Hypothesis 1, we used panel data logistic regression models to test
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45 whether CSR affects a firm's likelihood of being targeted by an activist hedge fund. We present
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47 all results in Table 2. As we explained earlier, to make the economic interpretation of our results
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49 easier, we used logistic regression models that estimate probabilities, rather than log odds. To
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55 ⁴ For details about the incidental parameter problem, see Wooldridge (2010).
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assess whether CSR contributes to the model fit, we report Wald test statistics. Model 1 is the baseline that includes only the control variables and year and industry fixed effects, and Model 2 adds *CSR score* as the main variable of interest.

In line with the literature, Model 1 indicates that smaller (Boyson & Mooradian, 2011), lower value (Klein & Zur, 2011), and more liquid (Norli et al., 2014) firms are more likely to be targeted by activist hedge funds. Furthermore, firms with a female CEO are more likely to be targeted (Gupta et al., 2018), while firms with a CEO who is also the board chair are less likely to be targeted. Our results also show that greater institutional ownership, in the form of higher levels of transient and dedicated ownership, increases a firm’s likelihood of being targeted (Brav et al., 2008).

Regarding Hypothesis 1, in Model 2 of Table 2, the coefficient on *CSR score* is 0.112 ($p < 0.001$), indicating a strong positive association between a firm’s CSR and its probability of being targeted by an activist hedge fund. Importantly, we also see that the coefficient of *CSR score* is positive and statistically significant across all values of this variable. The average marginal effect for *CSR score* ranges from 0.03 to 0.04 ($p < 0.001$). For an average firm, whose *CSR score* takes the mean value of 1.737, the probability of being targeted is 3.04%. When *CSR score* increases by one or two standard deviations above the mean, a firm’s probability of being targeted rises to 3.88% and 5.11%, respectively. Consequently, a firm whose CSR score is two standard deviations higher than the mean level of 1.737 is nearly twice as likely to be targeted than the average firm. As Figure 2 illustrates, this effect is non-linear and becomes stronger at higher levels of CSR. Overall, these results support Hypothesis 1.

--- INSERT TABLE 2 & FIGURE 2 ABOUT HERE ---

Hypothesis 2 predicts that CSR will have a weaker effect on a firm’s probability of being

targeted when that firm operates in an industry with a high level of CSR. In line with our expectations, Model 3 indicates *industry CSR* negatively moderates the relationship between a firm's CSR and its probability of being targeted ($\beta = -0.073$; $p < 0.01$). Economically, the positive effect that CSR has on the probability of a firm being targeted weakens by 7.3% when *industry CSR* increases by one standard deviation. We plot these effects in Figure 3. Both statistically and graphically Hypothesis 2 is supported.

Hypothesis 3 states that a firm's probability of being targeted by an activist hedge fund because of its CSR activities is higher when its financial communication is more vague. As shown in Model 4, the positive effect of CSR on targeting becomes stronger as communication vagueness increases ($\beta = 0.045$; $p < 0.01$). In terms of economic significance, when *firm vagueness* increases by one standard deviation, the positive effect of CSR on a firm's probability of being targeted becomes stronger by 4.5%. We plot the effects of firm vagueness in Figure 5. Overall, these results support Hypothesis 3. Model 5 includes both interactions and further supports the prior results.

--- INSERT FIGURES 3 & 4 ABOUT HERE ---

Robustness Analyses

Two-stage least squares for endogeneity analyses. An endogeneity concern exists whereby an overlooked, and thus omitted, variable simultaneously explains both why firms engage in more CSR and why activist hedge funds target those firms. For instance, firms with excess cash might spend more on CSR and at the same time attract activist hedge funds that aim to redistribute the cash to shareholders. We attempted to address this concern directly by controlling for numerous characteristics and trends that are related to CSR and to hedge fund targeting. We also included year fixed effects to account for the likelihood that the targeting behavior of hedge funds and their interest in the CSR that firms exhibit follow general trends,

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3 such as market optimism. Lastly, we asked hedge fund managers to explain how spending that in
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5 their view is wasteful influences their choice of which firms to target.
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8 We acknowledge that adding controls does not rule out endogeneity concerns. For that
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10 reason, we use two-stage instrumental variable regressions to replicate our main results. Given
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12 that the dependent variable is binary, we chose probit models with continuous endogenous
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14 regressors to test our hypotheses. This type of analysis requires that we first identify instruments
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16 that predict CSR (our independent variable), but not targeting (our dependent variable). We
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18 chose natural disaster damage data as our focal data source because it fulfills these relevance and
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20 exogeneity requirements of valid instruments. Prior research has shown that natural disasters can
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22 influence both a firm’s short-term CSR practices, such as philanthropic giving, and its long-term
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24 CSR practices, such as forming alliances with non-governmental organizations (NGOs) to
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26 address related social issues (Ballesteros, Useem, & Wry, 2017; Johnson, Connolly, & Carter,
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28 2011; Muller & Kräussl, 2011). At the same time, it is unlikely that natural disasters influence
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30 the likelihood that a firm will be targeted by an activist hedge fund.
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35 We collected data on state-level natural disasters in the U.S. from SHELDUS and merged
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37 these data into our main dataset according to the state in which each firm in our sample is
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39 headquartered. We calculated *fatalities* as the number of fatalities caused by natural disasters per
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41 capita in a state–year. We focus on the severity of natural disasters that are in close proximity to
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43 a firm (i.e., in the same state) to capture significant disaster events that are likely to affect a
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45 firm’s decisions on CSR. Following guidance for using a single instrument (Bascle, 2008;
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47 Semadeni, Withers, & Trevis Certo, 2014), we report results to illustrate that *fatalities* is a valid
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49 instrument of *CSR score*. First, the coefficient estimate of *fatalities* is positive and statistically
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51 significant ($\beta = 0.971$ with $p < 0.01$) in the regression that explains *CSR score*. Second, the p-
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value is 0.744 when regressed on activist hedge fund targeting. And third, the Cragg–Donald Wald F statistic is 21.667, which exceeds the minimum levels specified by Stock and Yogo (2005) for the strength of such instruments. We also used the disaster data to test alternative instruments, including *injuries* (i.e., the total number of injuries due to natural disasters in a state–year) and *property damage* (i.e., the total value of damaged property due to natural disasters in a state–year).

Table 3 presents the results we obtained from the two-stage probit models, which replicate our main findings. In the first-stage results, *CSR score* is the dependent variable, regressed on *fatalities* and all prior controls; in the second-stage results, we use the predicted value of *CSR score* from the first stage as a predictor of a firm’s probability of being targeted and include the same control variables. Model 6 tests the main effect of CSR on a firm’s probability of being targeted, while Model 7 includes in addition the interaction terms. Both models include the controls, as well as year and industry fixed effects. The results of Model 6 support Hypothesis 1: *CSR score* increases the likelihood of a firm being targeted by an activist hedge fund ($\beta = 0.039$, $p < 0.05$). Similarly, the results of Model 7 support both hypotheses 2 and 3. Here, the main effect is weakened when a firm operates in an industry with a high level of CSR ($\beta = -0.065$, $p < 0.05$), which makes that firm’s CSR signals less salient, and stronger when financial communication is more vague ($\beta = 0.105$, $p < 0.05$).

--- INSERT TABLE 3 ABOUT HERE ---

Matched sample. Propensity score matching has been extensively used to identify characteristics that affect a firm’s probability of being targeted by activist hedge funds (Denes, Karpoff, & McWilliams, 2017). In line with this literature, we constructed matched samples using various matching algorithms. We started by matching each targeted firm to a non-targeted

control firm in the same year and with the same two-digit SIC code. We then matched pairs of firms using a nearest neighbor propensity score without replacement that we based on pre-treatment levels ($t - 1$) and trends ($t - 3$ to $t - 1$) of *firm size*, *ROA*, *market-to-book ratio*, *current ratio*, and *debt ratio*. With the matched sample, we replicated each logistic regression model from our main analyses and found similar results to those reported here.

Alternative measures of CSR. We altered our calculation of CSR in three ways to ensure our aggregate calculation of *CSR score* was not driving our results. First, we calculated a *net CSR score* by subtracting each firm’s concerns from its strengths in the KLD database. Using this net measure, we obtained similar, but economically stronger results to those in our main analyses. Some researchers have questioned the validity of net measures of CSR because strengths and concerns, which KLD’s score relies on, represent independent constructs (Mattingly & Berman, 2006; Walls, Berrone, & Phan, 2012). In view of these reservations, we chose to rely on the results we obtained from the main CSR measure.

Second, to achieve greater granularity, we compared various dimensions of CSR with respect to the likelihood that activist hedge funds will target a firm on the basis of each of these dimensions. Previous studies suggest that the different dimensions of CSR may have different effects on firm outcomes (DesJardine et al., 2019). Testing this possibility, we found that the *environment* ($\beta = 0.306; p < 0.001$), *community* ($\beta = 0.304; p < 0.05$), *employee relations* ($\beta = 0.145; p < 0.05$), and *human rights* ($\beta = 0.117; p < 0.10$) sub-dimensions of CSR all have a positive and statistically significant effect on a firm’s probability of being targeted. In contrast, *diversity* ($\beta = 0.047; p > 0.10$) has no significant effect.

Third, to further probe Hypothesis 2, we computed *industry-adjusted firm-CSR* as a firm’s *CSR score* minus the average *CSR score* of all firms with the same two-digit SIC code,

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3 excluding the focal firm. We then replicated our main model using *industry-adjusted firm-CSR*
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5 as the focal independent variable and found slightly stronger results than those used in Model 3.
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8 ***Alternative measures of information asymmetry.*** In our main analyses, we measured
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10 vague financial communication because vague communication tends to increase information
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12 asymmetry. As a robustness check, we used a more established measure of information
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14 asymmetry; namely, the geographic distance between actors (Ryu, McCann, & Reuer, 2018). In
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16 our context, activist hedge funds that are geographically close to potential target firms could gain
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18 more detailed insights into the intentions and capabilities of these firms than activist hedge funds
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20 located farther away. Following Ragozzino and Reuer (2011), we calculated *geographic distance*
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22 by measuring the orthodromic distance between an activist hedge fund that targeted a firm and
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24 that firm's headquarters. We used multinomial logistic regression to model the effect that
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26 geographic distance has on the relationship between CSR and the probability that an activist
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28 hedge fund will target a specific firm.⁵ Specifically, we divided activist–target dyads into three
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30 groups: (1) firms that are not targeted (baseline group); (2) targeted firms whose headquarters are
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32 located within 25 miles of the respective activist hedge funds' headquarters (*low geographic*
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34 *distance*); and (3) targeted firms where this distance exceeds 25 miles (*high geographic*
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36 *distance*). The cut-off point of 25 miles roughly indicates that a firm is either in or fairly near the
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38 same city as the activist hedge fund that has targeted that firm; however, using 50 miles as a cut-
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40 off point does not change the results.
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47 The results of this analysis are presented in Table 4. In Model 8, the coefficient on *CSR*
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49 *score* compares the effect of CSR on the probability that an activist hedge fund will target a
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53 ⁵ We cannot use interaction models with geographic distance because we do not have data on distance for non-
54 targeted firms. Consequently, in the case of non-targeted firms (where *target* = 0), there is no variation in
55 *geographic distance* within the outcome *target* = 0, which makes interaction models implausible.
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particular firm where geographic distance is either low (under 25 miles) or high (over 25 miles) to the same effect with respect to firms that were not targeted. As shown, the coefficient on *CSR score* is not statistically significant in the case of firms that have been targeted by an activist hedge fund located within the *low geographic distance* range. In comparison, the coefficient on *CSR score* is positive and highly statistically significant in the case of firms that have been targeted by an activist hedge fund and are located farther than 25 miles away from that hedge fund ($\beta = 0.172; p < 0.001$). In line with our theory, we see that, because geographic distance increases information asymmetry, activist hedge funds located farther away from a potential target firm rely more heavily on CSR signals to draw inferences about the intentions and capabilities of that firm. Accordingly, geographic distance strengthens the positive effect that CSR has on a firm’s probability of being targeted by activist hedge funds.

--- INSERT TABLE 4 ABOUT HERE ---

Further analyses. In the years leading up to the financial crisis there was a rise in hedge fund activism. To check whether our results would hold if we only used observations from the period preceding the financial crisis (2000–2007), we also experimented with several sampling windows. The results we obtained from these tests were similar, reassuring us that the financial crisis has no effect on our results.

Lastly, to further control for corporate governance, we added an additional variable that captured the total annual compensation earned by each firm’s top five highest paid executives. Including this control variable did not change our findings in any meaningful way.

DISCUSSION

Our paper introduces the idea that signals may be costlier for firms than previously assumed because unintended audiences can create reaction costs for firms that send signals. Using CSR as our context, we hypothesized that firms that engage more actively in CSR are

more likely to be targeted by activist hedge funds because these shareholders interpret CSR as a signal that firms have wasteful intentions and capabilities. We found that a firm's probability of being targeted by activist hedge funds rises from 3.04% to 3.88% when its CSR activities are one standard deviation higher than the average level of CSR. When this difference increases to two standard deviations, the probability of being targeted nearly doubles, rising to 5.11%. Given these results are nonlinear, the effect becomes even more pronounced at higher levels of CSR. We further hypothesized and found that this effect is weaker in industries characterized by high levels of CSR and stronger when financial communication is vague. Any factor that increases a firm's probability of being targeted by activist hedge funds is consequential because, as we explained, reaction costs amount to \$12.5 million per proxy contest on average (Activist Insight, 2017) and can reach \$100 million in extreme cases (Nicolaou & Fortado, 2017). In addition, firms face costs associated with a loss of managerial attention (Kolhatkar, 2018), the postponing of strategic moves (Lazard, 2020), and the possibility of sequential hedge fund attacks (Coffee & Palia, 2016). In this section, we draw out the theoretical implications of our research and outline directions for future studies.

Theoretical Implications

Reaction costs and returns on CSR signals. Our first contribution is to research on instrumental CSR (e.g., Flammer, 2013). Research in this tradition tends to assume that CSR pays out for firms because stakeholders use CSR as a "signal of a firm's underlying moral character" (Godfrey, 2005: 789). This research shows that a firm's CSR activities help build goodwill among its stakeholders and increase stakeholder support in the aftermath of negative events (Luo, Kaul, & Seo, 2018; Shiu & Yang, 2017). However, we show that the costs of CSR signals may be higher than is commonly assumed. CSR signals may create not only production costs and penalty costs for firms, but also reaction costs. In our context, reaction costs arise when

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some stakeholders use CSR to draw inferences not about the “moral character” of a firm, but about its “business character,” which reflects the extent to which a firm focuses on maximizing shareholder value. While CSR activities may build goodwill among stakeholders who draw positive conclusions about a firm’s “moral character,” they also expose that firm to attacks from stakeholders who draw negative conclusions about its “business character.”

We expect that reaction costs can also arise for firms that deliberately abstain from CSR to signal that they focus squarely on maximizing shareholder value. While such signals may impress the intended audience (e.g., some types of shareholders), they can also create reaction costs for firms if unintended audiences react negatively. For example, when social movements or NGOs want to raise awareness for an issue (e.g., deforestation), their campaigns will often target firms whose CSR performance is weak (den Hond & de Bakker, 2007; Mena & Waeger, 2014). Consequently, reaction costs in response to CSR may cut both ways, in the sense that they may affect both firms that deliberately signal CSR and firms that deliberately abstain from CSR. Whether or not CSR benefits a firm financially depends, among other things (Barnett, 2007; Marti & Gond, 2018), on which stakeholders react to the firm’s CSR signals. If unintended audiences create reaction costs, the financial consequences of increasing or decreasing CSR will change accordingly.

Unintended audiences and the limits of signaling. The second contribution of our study is to research on signaling (e.g., Bergh et al., 2014). This body of research “focuses primarily on the deliberate communication of positive information” (Connelly et al., 2011: 44) and therefore mainly explores how intended audiences react to signals. However, our paper shows that signals can also reach audiences that perceive the same information as negative. Such unintended audiences make signaling costlier than previous research has assumed. Unintended audiences are

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3 becoming more important for firms because, due to globalization (Scherer, Baumann-Pauly, &
4 Schneider, 2013) and social media exposure (Etter, Ravasi, & Colleoni, 2019), firms now have to
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6 deal with increasingly heterogenous audiences. Heterogeneous audiences are likely to interpret
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8 the same signal in different ways and some may react negatively.
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12 Unintended audiences point to the limits of signaling. Signaling theory has focused
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14 mostly on “one-to-one . . . communication” (Connelly et al., 2011: 44) that enables one side
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16 within a dyad to reduce information asymmetry for the other side. However, unintended
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18 audiences increase the number of potentially relevant stakeholders, which may present firms
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20 with a more fundamental epistemic problem than information asymmetry: uncertainty about
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22 informational demands. In such a context, firms are unclear about what information different
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24 stakeholders want to know. In the presence of this epistemic problem, signaling reaches its limits
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26 because signal senders will find it hard to determine what signals they should send.
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31 ***Corporate governance conflicts and signaling.*** Our third contribution is to research on
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33 corporate governance (e.g., Daily, Dalton, & Cannella, 2003). The prevalent view is that
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35 “transparent information disclosure” is a sign of “good governance” (Aguilera, Desender,
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37 Bednar, & Lee, 2015: 485). In line with this view, existing research regards signaling and the
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39 information that signals convey to shareholders as a key mechanism that firms can use to reduce
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41 governance conflicts (Aguilera et al., 2015). For example, Marcel and Cowen (2014) show that
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43 the boards of firms implicated in financial fraud may dismiss a director to signal that they are
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45 willing and able to remedy the exposed governance problems. However, as our findings on the
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47 reaction costs of signaling imply, signaling does not always reduce governance conflicts, but
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49 may actually create such conflicts.
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54 To avoid governance conflicts that may result from signaling, we expect firms will
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3 restrict their signaling activities. Firms will not only avoid false signals, but also send fewer true
4 signals—a phenomenon that Carlos and Lewis (2018) call “strategic silence”—to avoid eliciting
5 negative reactions by unintended audiences. The decision to refrain from sending true signals to
6 avoid negative reactions shows that unintended audiences add complexity to signaling
7 environments, and that more complex signaling environments are less effective in reducing
8 information asymmetry in markets.
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17 **Limitations and Future Research**

18 Our analysis of why activist hedge funds target socially responsible firms has certain
19 limitations that future research could address. First, our paper examines the average reaction
20 costs that hedge fund activism creates for firms, but does not measure directly these costs for
21 each firm. Future studies could measure these costs by quantifying the resources that firms
22 allocate to their responses to activist hedge fund campaigns. With regard to production costs, we
23 know that “some signalers are in a better position than others to absorb the associated costs”
24 (Connelly et al., 2011: 45). It would be worth investigating whether firms also vary in their
25 capacity to absorb reaction costs.
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28 Second, we assumed that activist hedge funds have similar objectives and strategies.
29 However, our interviews and existing research (Ahn & Wiersema, 2019; Lazard, 2020) indicate
30 that differences exist between activist hedge funds with regard to their investment strategies,
31 negotiation tactics, and the frequency and size of their targeting campaigns. Future research
32 could examine whether these differences moderate the relationship between unintended signaling
33 and targeting. For example, hedge funds with longer investment horizons may decide that they
34 have little to gain from targeting firms that signal the intention and capability to act with a long-
35 term vision and to take into account the interests of different stakeholders.
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37 Third, we analyzed reaction costs in one context (hedge fund targeting based on CSR),
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3 but future research should explore reaction costs arising from other unintended audiences
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5 reacting to different signals, such as social movements, customer watchdogs, or regulators. We
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7 also need more theorizing about how firms cope when reaction costs do arise and how they
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9 balance reaction costs with the positive benefits that arise from sending true signals.
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12 **CONCLUSION**

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14 While the economic effects of activist hedge funds remain controversial (Bebchuk, Brav,
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16 & Jiang, 2015; Coffee & Palia, 2016), their effects on CSR are becoming clear. DesJardine and
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18 Durand (2020) show that CSR activities are suppressed by nearly 25% after firms become the
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20 target of an activist hedge fund. Turning from the consequences of hedge fund activism to what
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22 happens beforehand, our study shows that CSR increases the likelihood firms are targeted by an
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24 activist hedge fund. By combining these insights, it becomes evident that activist hedge funds
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26 compromise CSR, not just by suppressing firms' CSR activities, but also by targeting more
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28 socially-responsible firms in the first place.
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33 These new insights have important practical implications. For policy-makers, our study
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35 indicates that protecting firms targeted by activist hedge funds could relieve pressures that
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37 ultimately undermine the CSR activities of firms. For socially-responsible firms, our findings
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39 highlight the importance of attracting socially-minded and long-term shareholders who can
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41 potentially moderate the profit-centered interventions of activist hedge funds (Durand, Paugam,
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43 & Stolowy, 2019). For investors who care about sustainability, hopefully our paper encourages
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45 reassessing whether investments in activist hedge funds align with their values. Today, many
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47 individuals and organizations are invested in activist hedge funds through their pension funds
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49 and endowments, which have been a major driver of growth for activist hedge funds since 2009
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51 (J.P. Morgan, 2015). Ultimately, policy-makers, firms, and investors need to weigh the potential
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efficiency gains that activist hedge funds bring to corporations against the negative effects that those funds tend to create for corporate social responsibility.

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TABLE 1 Correlation Matrix and Summary Statistics

	Variable	N	Mean	s.d.	1	2	3	4	5	6	7	8	9	10	11	13	14	15
1	CSR score	14,962	1.737	2.523														
2	Target	14,962	0.028	0.166	0.030													
3	Firm vagueness	14,962	0.031	0.033	-0.109	-0.052												
4	Industry CSR	14,962	1.208	0.607	0.255	0.004	-0.086											
5	Firm size	14,962	8.166	1.617	0.532	0.017	-0.066	0.117										
6	ROA	14,962	0.045	0.098	0.078	-0.070	-0.007	0.050	-0.111									
7	Market-to-book	14,962	1.891	1.220	0.000	-0.054	-0.011	0.038	-0.325	0.376								
8	Current ratio	14,962	0.147	0.162	-0.013	0.031	-0.016	-0.067	-0.333	0.160	0.414							
9	Debt ratio	14,962	0.903	2.195	0.067	-0.014	-0.023	0.044	0.145	-0.112	-0.099	-0.125						
10	Female CEO	14,962	0.018	0.131	0.032	0.039	-0.051	0.032	0.042	0.011	-0.017	-0.041	0.000					
11	Corporate governance	14,962	0.131	0.365	0.328	0.015	-0.057	0.031	0.258	-0.026	-0.102	-0.061	0.024	-0.029				
12	CEO duality	14,962	0.251	0.434	-0.003	-0.017	-0.006	0.001	-0.050	-0.008	-0.003	-0.019	-0.013	-0.012	-0.020			
13	Transient ownership	14,962	0.051	0.077	-0.050	0.077	-0.024	-0.004	0.047	-0.079	0.058	-0.036	0.041	0.052	-0.074	-0.066		
14	Dedicated ownership	14,962	0.091	0.054	-0.184	0.012	0.000	-0.138	-0.221	-0.016	-0.006	0.207	-0.023	-0.029	-0.076	-0.042	-0.214	
15	Geographic distance	4,190	47.686	386.033	0.013	0.756	-0.029	-0.010	-0.026	-0.049	-0.036	0.062	-0.033	-0.011	0.008	-0.013	-0.001	0.024

$|r| > 0.02$ implies significance at $p < 0.05$

TABLE 2 CSR and Hedge Fund Targeting Interaction Models

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
CSR score		0.112*** (0.030)	0.067+ (0.035)	0.087** (0.031)	0.070 (0.045)
<i>Hypothesized Interactions</i>					
CSR Score * Industry CSR			-0.073** (0.027)		-0.033+ (0.020)
CSR score * Firm vagueness				0.045** (0.014)	0.054** (0.018)
<i>Control variables</i>					
Firm size	-0.106* (0.053)	-0.198** (0.062)	-0.192** (0.066)	-0.245*** (0.053)	-0.211*** (0.064)
ROA	-0.622 (0.508)	-0.616 (0.505)	-0.640 (0.513)	-0.780* (0.320)	-0.593 (0.504)
Market-to-book ratio	-0.638*** (0.093)	-0.664*** (0.094)	-0.652*** (0.099)	-0.637*** (0.081)	-0.663*** (0.095)
Current ratio	0.978* (0.454)	0.785+ (0.458)	1.148** (0.434)	0.706+ (0.392)	0.690 (0.459)
Debt ratio	-0.043 (0.032)	-0.044 (0.031)	-0.061+ (0.034)	-0.014 (0.025)	-0.044 (0.032)
Female CEO	0.592+ (0.317)	0.519+ (0.315)	0.696+ (0.385)	0.487+ (0.289)	0.554+ (0.315)
Corporate governance	0.194 (0.171)	0.070 (0.177)	0.084 (0.186)	0.066 (0.159)	0.086 (0.180)
CEO duality	-0.267* (0.127)	-0.259* (0.126)	-0.298* (0.127)	-0.244* (0.111)	-0.256* (0.126)
Transient ownership	6.109*** (1.232)	6.552*** (1.236)	6.911*** (1.325)	5.542*** (1.036)	6.528*** (1.241)
Dedicated ownership	4.694*** (0.651)	4.762*** (0.647)	4.635*** (0.712)	3.864*** (0.573)	4.854*** (0.647)
Industry CSR	0.135+ (0.076)	0.094 (0.077)	0.198+ (0.104)	0.097 (0.077)	0.171+ (0.093)
Firm vagueness	-0.003 (0.073)	-0.008 (0.073)	-0.003 (0.069)	-0.004 (0.073)	-0.076 (0.076)
Constant	-5.123** (1.573)	-4.644** (1.575)	-5.072** (1.792)	-4.720** (1.575)	-3.966* (1.578)
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes
Firm-year observations	14,962	14,962	14,962	14,962	14,962
Wald χ^2	--	12.19	14.63	18.49	24.38
χ_p^2	--	0.00	0.00	0.00	0.00

To facilitate interpretation, we estimate probabilities rather than log odds. The dependent variable indicator *target* is set to 1 if an activist hedge fund has initiated a campaign against the target firm and 0 otherwise. All interaction terms are mean centered.

***significant at the 0.001 level; **significant at the 0.01 level; *significant at the 0.05 level; +significant at the 0.10 level

TABLE 3 Two-Stage Least Squares Probit Models using Natural Disaster Fatalities

Variable	Model 6		Model 7	
	1 st Stage	2 nd Stage	1 st Stage	2 nd Stage
CSR score		0.039*		0.052**
		(0.018)		(0.016)
Fatalities	1.026**		1.118**	
	(0.364)		(0.359)	
<i>Hypothesized Interactions</i>				
CSR Score * Industry CSR				-0.065*
				(0.032)
CSR score * Firm vagueness				0.105*
				(0.045)
<i>Control variables</i>				
Firm size	0.853***	-0.423***	0.810***	-0.415***
	(0.037)	(0.116)	(0.039)	(0.105)
ROA	1.038***	-0.474+	0.946**	-0.441+
	(0.309)	(0.248)	(0.304)	(0.239)
Market-to-book ratio	0.232***	-0.250***	0.219***	-0.250***
	(0.035)	(0.056)	(0.034)	(0.053)
Current ratio	2.084***	-0.625	2.221***	-0.695
	(0.264)	(0.529)	(0.266)	(0.522)
Debt ratio	-0.019	-0.014	-0.024+	-0.013
	(0.015)	(0.018)	(0.013)	(0.018)
Female CEO	0.909***	-0.175	0.887***	-0.169
	(0.252)	(0.301)	(0.232)	(0.285)
Corporate governance	1.555***	-0.547+	1.411***	-0.511+
	(0.141)	(0.332)	(0.143)	(0.283)
CEO duality	0.085	-0.135*	0.090	-0.141**
	(0.069)	(0.057)	(0.068)	(0.054)
Transient ownership	-2.073***	1.695***	-1.918***	1.690***
	(0.460)	(0.373)	(0.445)	(0.375)
Dedicated ownership	-1.783***	2.081***	-1.566***	1.998***
	(0.371)	(0.454)	(0.357)	(0.411)
Industry CSR	0.492***	0.145	0.278***	0.030
	(0.039)	(0.124)	(0.012)	(0.045)
Firm vagueness	0.009	-0.018	0.045	-0.020
	(0.015)	(0.019)	(0.036)	(0.018)
Constant	-5.933***	1.761	-5.690***	1.740
	(0.315)	(1.449)	(0.326)	(1.292)
Year fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Firm-year observations	14,962	14,962	14,962	14,962

***significant at the 0.001 level; **significant at the 0.01 level; *significant at the 0.05 level; +significant at the 0.10 level

TABLE 4 Geographic Distance Multinomial Logistic Regression

Variable	Model 8	
	Low Geographic Distance	High Geographic Distance
CSR score	0.162 (0.130)	0.172*** (0.044)
<i>Control variables</i>		
Size	-0.274 (0.246)	-0.458*** (0.085)
Financial performance	5.436 (3.884)	0.149 (0.795)
Market value	-1.922** (0.686)	-0.804*** (0.147)
Liquidity	2.160 (1.802)	0.950 (0.641)
Leverage	-0.085 (0.166)	-0.093+ (0.048)
Female CEO	0.969 (1.211)	-0.449 (0.610)
Corporate governance	-0.140 (0.817)	0.231 (0.248)
CEO duality	-0.261 (0.548)	-0.201 (0.182)
Transient ownership	6.732 (4.232)	6.553*** (1.683)
Dedicated ownership	3.216 (2.969)	5.294*** (0.911)
Industry CSR	-0.159 (0.335)	0.058 (0.099)
Firm vagueness	-0.168 (0.255)	0.258* (0.115)
Constant	-4.630+ (2.807)	-1.514+ (0.880)
Year fixed effects	Yes	
Industry fixed effects	Yes	
Firm–year observations	14,962	

In this table, the coefficient on *CSR score* compares the effect of CSR on a firm’s probability of being targeted relative to that of non-targeted firms (the baseline group). Low geographic distance denotes 25 miles or less, while high geographic distance denotes 25 miles or more between the headquarters of the targeted firm and of the activist hedge fund. All interaction terms are mean centered.
***significant at the 0.001 level; **significant at the 0.01 level; *significant at the 0.05 level. +significant at the 0.10 level

FIGURE 1 Signaling Costs around CSR

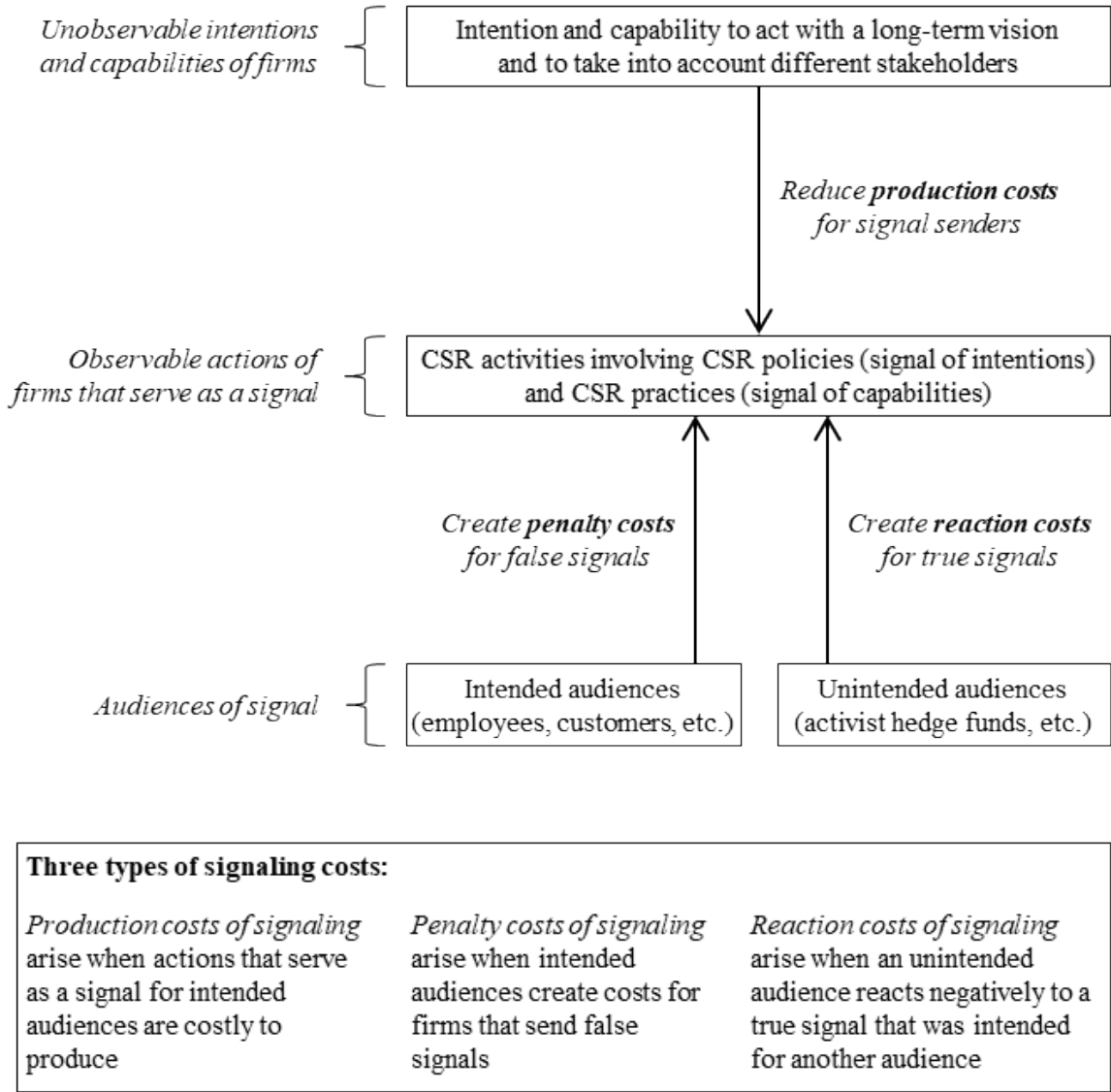


FIGURE 2 Probability of Being Targeted Over Range of CSR (H1)

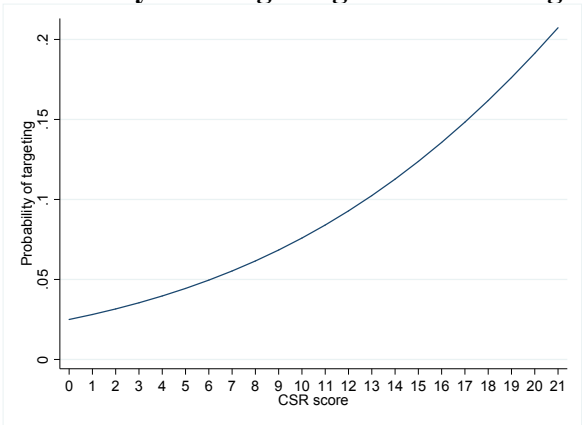
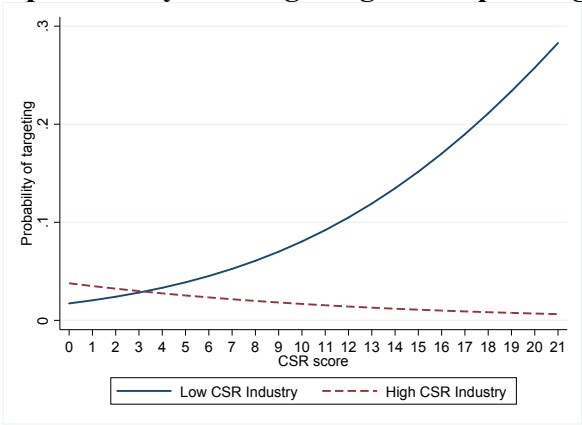
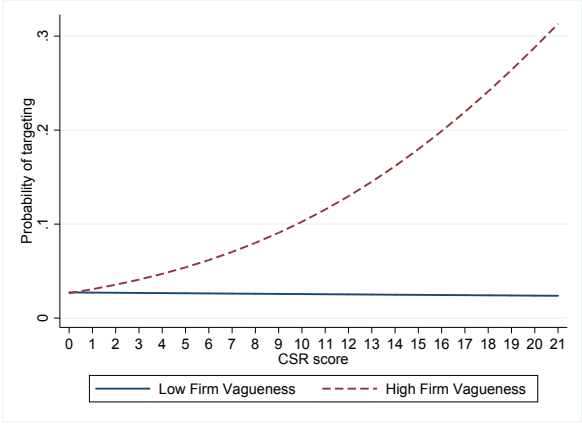


FIGURE 3 Effect of CSR on the probability of Being Targeted Depending on Industry CSR (H2)



Low CSR industry = mean of industry average for *CSR Score* – 2 S.D.
High CSR Industry = mean of industry average for *CSR Score* + 2 S.D.

FIGURE 4 Effect of CSR on the probability of Being Targeted Depending on Firm Vagueness (H3)



Low firm vagueness = mean – 2 S.D.; High firm vagueness = mean + 2 S.D.

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