

Punished for doing good: Heuristic-based judgement and the contingent returns to company philanthropy under high uncertainty

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Abstract

Companies donating in the aftermath of large-scale disasters often suffer public backlash and managers systematically fail to understand what corresponds to a donation that stakeholders perceive as contextually appropriate. We attribute this to the level of uncertainty that obscures the relative social value of a donation because accurate information about impacts is not available for months. We argue that stakeholders rely on a company's pre-disaster reputation as a heuristic to make judgments of its philanthropy. Thus, regardless of the amount of aid given, well-regarded firms obtain rents from responding first to a disaster, and this spills over to companies in the same industry that match their donations; the opposite applies to firms with an unfavorable reputation, and to those that imitate their gifts. Analyses of donations by the largest 2,000 companies worldwide to every major epidemic, natural disaster, and terrorist attack from 2007 to 2019 support this argument and show that this heuristic effect does not transfer to firms donating different amounts. The estimates survive a battery of time-varying and joint fixed effects and tests of confounders. They confirm that reputation is a stronger rent determinant than donation amount. We discuss ways to improve managerial philanthropic decisions in similar settings.

Keywords: company philanthropy, reputation, disasters, heuristics, corporate social responsibility

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As Margolis and Walsh (2003) famously noted, the world cries out for repair, and companies are increasingly called upon to help. Traditionally, these efforts have focused on enduring problems like poverty, health, and pollution. Recently, though, calls for company engagement have become more focused and more urgent, as firms are asked to address the misery caused by large-scale disasters such as epidemics and natural disasters that are striking with increased frequency and ferocity around the world (High-Level Panel on Humanitarian Financing, 2016). The human and economic toll of such disasters can be massive: physical infrastructures are destroyed, lives are lost, supply chains are disrupted, and social and economic benchmarks decline (Baker, Bloom, & Terry, 2020; Berlemann & Wenzel, 2018; Kousky, 2013). To help alleviate this suffering and hasten a return to normalcy, over 90 percent of multinational firms now contribute disaster aid annually—up from 30 percent two decades ago—and the value of these donations often exceed all of a firm’s other charitable gifts combined. Disaster giving has become one the fastest growing type of company philanthropy in recent years (Ballesteros & Magelssen, 2021).

Given the growth and scale of corporate disaster philanthropy, scholars have begun to study it in detail, including how the provision of aid affects a firm’s financial performance. Building on the broader corporate social responsibility (CSR) literature, this work expects that a firm’s stakeholders will view disaster aid favorably, and respond with loyalty, support, and cooperation that results in improved financial outcomes (Awaysheh, Heron, Perry, & Wilson, 2020; Henisz, 2016). Empirical results have been mixed, however. Some studies show that firms benefit from making large aid donations (Crampton & Patten, 2008; Madsen & Rodgers, 2015; Patten, 2008), while others have found no evidence of direct financial benefits, regardless of gift-size (Muller & Kräussl, 2011). In some cases, there is even evidence that large donations can lead to negative financial outcomes (Muller & Kaussl, 2008). Findings related to the timing of donations are

similarly uneven: some studies report that firms benefit when they quickly pledge aid after a disaster (Madsen & Rodgers, 2015), while others have found that this has no effect (Patten, 2008). Thus, despite donating ever-larger sums to disaster relief efforts, it is unclear if and when firms benefit from making these contributions.

In one regard, it's unsurprising that past studies have produced uneven result, as they have looked at different disasters, national contexts, and financial metrics. Still, we believe that data limitations are only part of the puzzle. To generate systematic insight into the financial outcomes of disaster giving, we argue that it is important to eschew the assumption that people reliably view such acts favorably, and theorize about the varied reactions that aid might elicit. In doing so, we seek to address a larger gap in the CSR literature, where studies often imply that CSR is linked to financial outcomes through stakeholder perceptions, but rarely explain or test this link (Aguinis & Glavas, 2012; Wu, Zhang, & Xie, 2020). Heeding calls for theory development in the area (George, Howard-Grenville, Joshi, & Tihanyi, 2016; Wang, Tong, Takeuchi, & George, 2016), we build on work that has begun to unpack how stakeholders view CSR acts (see for example Cuypers, Koh, & Wang, 2015), and argue that such perceptions likely result from a heuristic-based process (Maitland & Sammartino, 2014; Mousavi & Gigerenzer, 2017) that should be especially evident in contexts like disaster giving where judgements about the proper scale and targets of aid are ambiguous.

Put simply, heuristics are mental shortcuts that actors use to simplify judgement and decision-making tasks (Tversky & Kahneman, 1974). Originally conceived of as a corrective to rational choice models, the heuristics approach stresses that people lack the time, ability, and motivation to gather and assess all relevant data when making most judgements. Instead, they rely on simple

rules and readily available cues (Gigerenzer & Brighton, 2009). The use of heuristics is common in daily life and especially so when uncertainty is high and vital information is missing or difficult to access (Mousavi & Gigerenzer, 2014). In these situations, people tend to rely on a generic process known as “attribute substitution” where unobservable attributes are judged by looking at visible proxies (Kahneman, 2011). In essence, individuals use correlated cues to generate reasonable solutions to questions that cannot be answered analytically, or can only be answered at a great cost (Goldstein & Gigerenzer, 2002).

We see heuristics as a promising lens to study CSR perceptions. Rather than assuming that stakeholders have full information and rationally assess the desirability of a firm’s behavior, a heuristics approach recognizes that judgments are often made based on limited data and amidst considerable uncertainty. This aligns with the insight that CSR perceptions can be shaped by more than a firm’s observable acts (Aguinis & Glavas, 2012; Zhang, Wang, & Zhou, 2020). However, as compared to prior studies that have offered ad-hoc explanations for this phenomenon, the literature on heuristics proposes a systematic framework that directs attention to the nature of the judgement that a person is trying to make, the sources and level of uncertainty that surround this task, and the likely cues that people will use to make judgements in the face of this uncertainty. We apply this framework to theorize about perceptions of corporate disaster aid.

When a sudden large-scale disaster strikes, stakeholders want to know that corporate donations are sufficient, and motivated by a genuine concern for the intended beneficiaries (Mithani, 2017; Muller & Kräussl, 2011). However, this is very difficult to evaluate based on observable cues like donation size. Each disaster is a unique and chaotic event, where reliable data about the amount of damage and suffering caused is often unavailable for months, and sometimes years (Cavallo,

Galiani, Noy, & Pantano, 2013; Kousky, 2013). Under these conditions, even experts disagree about what is needed to mount an effective response (Holguín-Veras, Jaller, Van Wassenhove, Pérez, & Wachtendorf, 2012; Wassenhove, Tomasini, & Stapleton, 2008), and there is not nearly enough information to rationally assess the sufficiency of a firm's donation, nor the sincerity of its motives. Given this uncertainty, we expect that stakeholders will look to other cues, as substitute attributes, that might plausibly indicate whether or not a firm's gift is sufficient and sincere. We further expect that judgements will rely on different cues depending on when a firm gives aid, and whether or not its gift matches the amount that was pledged by the first donor in its industry.

When the first company donates aid after a disaster, there is almost no information to guide stakeholder judgements: the scale of destruction and misery are unclear, as is the nature of the required response (Useem, Kunreuther, & Michel-Kerjan, 2015). At this point there are also no gifts related to the focal disaster that could serve as reference points or benchmarks. Faced with this uncertainty, we expect that people will approach the very difficult question of "is this a good gift?" by substituting the simpler question "is this a good company?" which can be answered by looking at a firm's reputation (Fombrun & Shanley, 1990). Judged this way, aid from a well-regarded first donor may be perceived as sufficient and sincere, while aid from an ill-reputed first donor may be viewed as ill-suited and cynical. As a result, firms with good reputations may benefit from being the first to pledge aid after a disaster, no matter how much they give, while firms with a bad reputation may be punished for the same gift in the same situation.

Different dynamics should apply for later donations. By then, stakeholders will know how the initial corporate donation was viewed, and this should provide a more proximate cue for judging subsequent pledges. In these situations, research on similarity-based reasoning suggests that

stakeholders may extend their view of the first donor to other, similar firms (Greve, Kim, & Teh, 2016; Jonsson, Greve, & Fujiwara-Greve, 2009). Instead of asking “is this a good firm?” stakeholders may thus ask “does this look like a good donation?” and transfer their perception of the first donor to other firms that have similar features and offer similar aid. Perceptions are less likely to transfer to firms that give different amounts, though, as similarity-based judgements will be less relevant (Vergne, 2012). For these firms, we follow prior studies that have considered how judgements transfer between entities (see for example Fiske & Pavelchak, 1986), and argue that stakeholders will revert to judging a firm’s aid based on its reputation. An implication of this argument is that there may be times when a firm gives more than the first donor, but is viewed less favorably (e.g., if an ill-reputed firm gives more than a well-regarded first donor), or when a firm gives less but enjoys better outcomes (e.g., if a well-regarded firm gives less than an ill-reputed first-donor).

Our empirical approach follows previous studies that have used macro-level data to test micro-level arguments (see for example Bertrand, Bombardini, Fisman, & Trebbi, 2020; Cuypers et al., 2015; Greve et al., 2016). Therefore, we do not analyze perceptions of disaster aid directly, but rather infer perceptions from changes in a firm’s *off-trend revenue*¹ after it pledges aid. Our reputation measure is based on a firm’s media coverage in an affected nation the year before a disaster (Deephouse, 2000). We test our predictions using difference-in-difference models. Specifically, we match firms based on features that predict the trajectory of revenue in the five years before a disaster, and then analyze differences in off-trend revenue for first donors with

¹Revenue is the income that a corporate subsidiary has from its market operation, Off-trend revenue is income that it is not explained by the historic trajectory of market operation according to four predictors of expected income at the subsidiary level: revenue, R&D expenditure, size, and industry. Our approach also considers disruptions caused by a focal disaster.

positive versus negative reputations, and for followers that mimic or deviate from the first corporate gift in their industry. All estimates control for firm, industry, country, disaster, and time-specific variables. Our data comprise every reported company donation pledged in the aftermath of every large-scale epidemic, natural disaster, and terrorist attack worldwide from 2007 to 2019. We conduct numerous supplementary analyses and robustness checks to add confidence to our findings and rule out alternate explanations.

Results support our arguments and suggest that reactions to disaster aid bear little relation to the amount of aid pledged. Stakeholders avoid the difficult task of rationally assessing whether or not a gift is genuine and helpful by substituting information about a firm's reputation, the timing of its donation, and the similarity of its gift to that offered by the first donor. We thus find that a heuristics approach can provide novel insight into how stakeholders perceive CSR. Our study also offers practical guidance about how managers can navigate the systemic uncertainty created by disasters, and tailor their aid donations in ways that make positive financial outcomes more likely.

THEORY AND HYPOTHESES

Stakeholder Perceptions and CSR Outcomes

Scholars have long sought to understand the strategic value of CSR, defined as voluntary actions that benefit a firm's stakeholders as well as society. By and large, this work has argued that CSR is not a misallocation of resources, but rather a source of business advantage that can yield positive financial outcomes (Aguinis & Glavas, 2012; Ballesteros & Magelssen, 2021; Surroca, Aguilera, Desender, & Tribó, 2020). To explain this, studies have typically relied on a causal chain that assumes that stakeholders: 1) have stable interests and expectations; 2) can readily assess whether

or not CSR acts align with these expectations, and; 3) respond with increased loyalty, cooperation, and support when a firm meets or exceeds these expectations (Barnett & Salomon, 2012; Henisz, Dorobantu, & Nartey, 2013; Zhao & Murrell, 2016). These assumptions are consistent with a rational-choice judgement model (Becker, 1993) and support the argument that firms should benefit when they address their stakeholders' direct interests. Companies do this by, for example, offering employees work-life benefits and customers quality products (Flammer & Luo, 2016; Lins, Servaes, & Tamayo, 2017; Zhang et al., 2020) or when they engage in prosocial acts like philanthropy and environmental protection that politicians and investors value (Bertrand et al., 2020).

Empirical results have generally been supportive. Studies report that initiatives like charitable giving and volunteerism help firms to recruit and retain employees (Bode, Singh, & Rogan, 2015; Flammer & Luo, 2016), motivate customers to purchase their products (Servaes & Tamayo, 2013), and influence politicians to support their causes (Bertrand et al., 2020). CSR may also influence shareholders' investment decisions, leading to higher share prices (Chen, Dong, & Lin, 2020; Flammer, 2013) and greater access to capital (Cheng, Ioannou, & Serafeim, 2014). Finally, there is evidence that CSR can benefit overall financial performance by serving as informal insurance against scandals, lawsuits, and other adverse events (Albuquerque, Koskinen, & Zhang, 2019; Jia, Gao, & Julian, 2020; Kim, Lee, & Kang, 2021).

Recent reviews point out, however, that while existing studies strongly imply that the link between CSR and financial outcomes is driven by stakeholder perceptions, these perceptions are rarely theorized or tested directly. Thus, in addition to modelling the high-level link between CSR initiatives and organizational outcomes, it is important to understand the factors that create

variance in how a firm's behavior is perceived (Aguinis & Glavas, 2012; Wang et al., 2016). To this end, a handful of studies have begun to relax the assumption that all prosocial acts are positively viewed. For instance, there is evidence that workers respond less favorably if they believe volunteerism programs are motivated by public relations concerns, and not a desire to help the community (Gatignon-Turnau & Mignonac, 2015). Studies also report that the impacts of CSR on human resources are substantial only when employees believe that a firm's behavior is sincere rather than self-serving (Cassar & Meier, 2018; Wang, Gibson, & Zander, 2020). Cause-related marketing research has similarly found that customers offer greater support to firms whose initiatives they perceive as altruistic (De Vries & Duque, 2018) rather than profit-seeking (Makov & Newman, 2016), and there is a general finding that the benefits of charity are enhanced if stakeholders think that a firm is legitimate (Koh, Qian, & Wang, 2014) and perceive its gifts as substantive and genuine (Cuypers et al., 2015; Mithani, 2017).

Yet, despite offering consistent evidence that stakeholders look beyond a firm's behavior to judge CSR acts, studies in this milieu have built on different theoretical foundations, and offer varied empirical findings. Some have taken a micro-perspective, using attribution theory to account for the motives that stakeholders ascribe to a firm's behavior (Bertrand et al., 2020; Lins et al., 2017). These studies show that inferences about motive matter, but say little about the source of different attributions. In comparison, studies that consider why perceptions vary have drawn on theories such as absorptive capacity (Barnett, 2007; Barnett & Salomon, 2012) or the resource-based view (Wang & Choi, 2013) that frame CSR as an organizational capability. Still others have drawn on institutional theory, and factors like legitimacy (Li & Lu, 2020) and symbolic versus substantive action (Cuypers et al., 2015) to explain why perceptions of CSR can vary. Each of these approaches offers useful insight, but the collective result is a set of thinly linked insights

rather than an integrated and additive research program. Reflecting this, Wang et al. (2020: 4) assert that “how stakeholders perceive CSR acts is important [yet we do not] understand systematically when and to what extent stakeholder responses are affected by their perception of CSR.... This suggests that there are ample opportunities to advance theory development in this area.”

A Heuristic-Based Approach

We argue that a heuristics approach can complement and integrate existing findings by offering a general framework that supports theoretically grounded predictions about how and why CSR acts evoke different perceptions—and thus different outcomes—in different contexts, and at different points of time.

Broadly speaking, heuristics are the strategies that people use to simplify judgement and decision-making tasks (Simon, 1990). Research in this area asserts that actors lack the time to gather and assess all relevant data, have limited working memory, and limited computational skills. As a result, most judgements fall short of the tenets of rational choice theory, where actors are assumed to have relatively complete information, stable preferences, and an ability to generate objectively accurate evaluations (Becker, 1993). Rather, judgements are the product of mental shortcuts that people use to generate reasonable appraisals based on minimal cognitive effort (Kahneman, Slovic, Slovic, & Tversky, 1982). There are debates about whether or not heuristic-based reasoning yields judgements that are more or less accurate than could be achieved with complete information and more effortful evaluation—i.e., an effort-accuracy tradeoff (Marewski, Gaissmaier, & Gigerenzer, 2010), but there is broad agreement that heuristics reflect the cognitive strategies that people use in their day-to-day lives, especially when uncertainty is high and key

data are missing or hard to access (Gigerenzer & Gaissmaier, 2011; Kahneman & Frederick, 2002). In these situations, people sidestep the demanding work required to produce an objectively accurate judgement, and instead base their thinking on observable cues that they believe are related to the missing information. In short, individuals engage in attribute substitutions, where a target attribute is judged by looking at a correlated cue that comes more easily to mind (Tversky & Kahneman, 1973).

It is important to note that attribute substitution is a generic process that varies across contexts and can involve a variety of different heuristics (Shah & Oppenheimer, 2008).² The approach does not make general, a-priori predictions, but it is useful as a framework for theorizing about situation-specific judgement and decision processes. Studies typically focus on either identifying and validating different types of heuristics (e.g., the similarity heuristic (Tversky, 1977), or on pinpointing the actual attribute substitutions that people make in particular settings (Gigerenzer & Gaissmaier, 2011). In either case, there are three relevant theoretical considerations: 1) what actors are trying to judge or decide in a given situation; 2) the sources and level of uncertainty surrounding this assessment, and; 3) the cues that might reasonably serve as proxies for missing or difficult to observe information. This basic approach is evident—though often latent—in research that studies the cognitive strategies like simple rules (Bingham & Eisenhardt, 2011) and analogical reasoning (Gavetti et al., 2005), that managers use to make decisions under uncertainty. It can also be seen in studies that consider how stakeholders evaluate firm-level attributes that are

² Studies have shown that, depending on the context, attribute substitutions may involve similarity heuristics (Tversky, 1977), moral heuristics (Sunstein, 2005), the likeability heuristic (Chaiken, 1980), the effort heuristic (Kruger et al., 2004), and numerous others (see Shah & Oppenheimer, 2008).

difficult to observe directly (Wu et al., 2020), as well as in research that studies how evaluations diffuse from firm-to-firm through similarity judgements (Greve et al., 2016).

One advantage of applying an attribute substitution framework to CSR perceptions is that it can accommodate and integrate existing research. Indeed, there is broad agreement among prior studies that, when judging CSR, stakeholders are interested in a firm's motives and whether or not its behavior will serve its espoused purpose (consideration 1) (Cuypers et al., 2015; Mithani, 2017; Wang et al., 2016). Most also agree that motives are largely unobservable, creating uncertainty that leads stakeholders to rely on other attributes to inform their assessments (consideration 2), with different studies pointing to different situation-specific cues (consideration 3) (Barnett & Salomon, 2012). Viewed this way, extant findings align with the idea that CSR judgements follow a heuristic process that involves different types of attribute substitutions. However, this research has overwhelmingly focused on substitutions that proxy for a firm's motives, with little consideration of uncertainty related to the effectiveness of a firm's acts (consideration 1), or the context where a CSR initiative unfolds (consideration 2). We argue that both are key to understanding the attribute substitutions that actors rely on to judge a firm's disaster aid (consideration 3).

Heuristics and Perceptions of Corporate Disaster Aid

Sudden large-scale disasters such as earthquakes and terrorist attacks are striking with increased frequency and ferocity worldwide (SwissRe, 2018). Although relief and recovery have historically been the purview of governments and charities, the majority of aid often comes from companies. From 1990 to 2015, the portion of the 10,000 largest multinational firms worldwide that provided disaster aid rose from 15 percent to over 70 percent, and the average donation size

grew by almost 1,800 percent, often eclipsing all of a firm's other philanthropy (Ballesteros, Useem, & Wry, 2017).

To date, most corporate disaster aid studies have followed the rational choice assumptions that characterize much of the CSR literature. Stakeholders are thought to value disaster aid and react positively when they are aware of a firm's giving (Madsen & Rodgers, 2015). In turn, this is expected to create more favorable operating conditions in an afflicted region, leading to positive returns (Ballesteros, 2017; Mithani, 2017) or cushioning the losses associated with interrupted operations (Muller & Kraussl, 2011). However, empirical results have been inconsistent. Some studies report that firms benefit from making fast and generous gifts, while others report that neither has any effect on a firm's subsequent financial performance (Crampton & Patten, 2008; Madsen & Rodgers, 2015; Mithani, 2017; Muller & Kräussl, 2011). To make sense of these varied findings, we argue that it is important to recognize the sources of uncertainty that surround disaster giving, and the likely cues that guide stakeholder judgements under these conditions.

As compared to CSR that targets established problems through more-or-less accepted means, disaster philanthropy takes place against a backdrop of high uncertainty. Every disaster is unique, but almost all are characterized by destruction and suffering that spark economic and humanitarian crises (Ballesteros et al., 2017). Even in disaster-prone areas, this creates ambiguity and chaos, as people and organizations struggle to understand the scale of destruction (High-Level Panel on Humanitarian Financing, 2016). Under these conditions, it is very hard to know how much and what types of aid are needed to reduce suffering and initiate recovery (Ballesteros & Gatignon, 2019; Holguín-Veras et al., 2012), leaving firms largely in the dark as they plot their responses. From a stakeholder perspective, it is difficult to predict how a firm's actions relate to outcomes of

interest in situations like this (Bingham & Eisenhardt, 2011), making it very hard to assess the sufficiency and sincerity of a firm's response. Stakeholders may want firms to pledge well-intentioned and appropriate disaster aid (Mithani, 2017), but the first is largely unobservable (Cuypers et al., 2016), and the second is very difficult to accurately assess based on a firm's observable actions.

This uncertainty is likely to be greatest in the immediate aftermath of a disaster, when the first corporate aid is being pledged. Information about the nature and scale of devastation caused is provisional and evolving, and there are no obvious referents for stakeholders to use when judging a firm's donation. So, while observers may use donation size to proxy for a firm's motives when judging some types of charity (Cuypers et al., 2015; Madsen & Rodgers, 2015), this cue doesn't offer much help when judging the first corporate gifts after a disaster. Is \$1 million enough to support relief and rebuilding? What about \$10 million? There just is not enough information. Hence, we expect that stakeholders will look to other cues, such as a firm's reputation, to make this judgement.

Reputation reflects a firm's standing relative to its peers in the eyes of stakeholders, and provides a lens through which its actions are viewed (Deephouse & Carter, 2005). Once an impression of an entity is formed, people are much more likely to interpret inconsistent acts in ways that are consistent with the impression, rather than adjusting their impression to fit the behavior (Goldstein & Gigerenzer, 2002). In short, people substitute information about a firm's past behavior to judge its current acts, especially when there is ambiguity about motives and intent (Fombrun & Shanley, 1990). Reflecting this, studies have shown that reputation shapes how stakeholders assess difficult to observe attributes such as a firm's culpability in a scandal (Surroca,

Tribo, & Zahra, 2013), its responsibility for positive earnings shocks (Pfarrer, Pollock, & Rindova, 2010), and whether or not an acquisition is a “good” or a “bad” deal (Campbell, Sirmon, & Schijven, 2016). There is also evidence that firms with poor reputations benefit less when they make charitable donations, since these gifts are more likely to be seen as attempts to buy favor (Bertrand et al., 2020).

Given the uncertainty that surrounds the first corporate response to a disaster, and the lack of information or referents that might be helpful for judging these gifts, we expect that reputation will play an outsized role in shaping stakeholder perceptions (Gigerenzer et al., 1999). Following the logic that good firms are more likely to offer sincere and useful aid, a positive reputation may lead stakeholders to infer that a firm’s response is well-intended and appropriate, leading to loyalty and support that yield positive financial outcomes (Wang et al., 2020). By contrast, an unfavorable reputation may result in stakeholders interpreting a firm’s response as cynical and insufficient, leading to negative perceptions and adverse financial outcomes. As such, the main determinant of rents from disaster giving, especially for the first firm to respond, may not be the amount of aid pledged, but rather the firm’s reputation in the disaster afflicted nation.

Informal evidence about responses to disaster aid align with our argument. For example, after an earthquake and tsunami devastated Chile in 2010, multinational mining firm Anglo American was the first company to offer aid. The firm, which was well-regarded in Chile and had been lauded in 2009 for its work with small farms and rural schools, saw a bump in off-trend revenue, suggesting that local stakeholders responded favorably to its gift. In comparison, Samsung made a large gift to lead the business response to the 2008 earthquake in Sichuan, China. Yet the firm, which had been accused of unethical labor practices in the country in 2007, faced a backlash and

consumer boycott following its gift. In turn, this contributed to negative off-trend revenue in the Chinese market (McGinnis, Pellegrin, Shum, Teo, & Wu, 2009; Useem et al., 2015; Xinhua News Agency, 2008). Based on this, we hypothesize that:

Hypothesis 1 (H1). The first firm to donate following a disaster will realize positive off-trend revenue if it has a favorable pre-disaster reputation in the afflicted nation, and negative off-trend revenue if it has an unfavorable reputation in the afflicted nation.

Responses to Subsequent Aid Pledges

While there are no obvious referents or precedents to help actors evaluate the first corporate gift after a disaster, this is not necessarily true for subsequent donations, since stakeholders will know about how the initial gift was perceived. We expect that this judgement will extend to other firms through a process of similarity judgement (Greve et al., 2016).

A large body of research in psychology and sociology shows that actors look for referents to guide their thinking in judgement and decision tasks (see Kahneman, 2011 for a survey). At base, this involves a process of feature-matching where, when faced with a stimulus, people look for visible cues that link the stimulus to an existing entity or event. When an actor recognizes features that are shared between a target and referent, they transfer the evaluation that they associate with the referent to the target, rather than analyzing the target's actual features (Kahneman, 2003). Tversky (1977) labelled this the "similarity heuristic," and subsequent research has validated the argument that actors regularly substitute their evaluation of another entity when asked to judge similar entities based on incomplete information (Read & Grushka-Cockayne, 2011).

This has two key implications for our argument. First, it implies that when referents are available, stakeholders seek to apply their judgement of existing firms instead of evaluating a focal firm's actual attributes or behavior. Second, it suggests that judgements are most likely to transfer from one organization to another when the two share easily observable features, such as the magnitude of their philanthropy (Barnett & King, 2008). Research on the diffusion of negative judgements nicely illustrates these dynamics: When one organization experiences an adverse event such as a scandal or panic, there is uncertainty about whether other firms are also implicated. This is difficult to assess directly, since culpability is often related to underlying, difficult to observe attributes. As Greve et al (2016: 399) note, because "actors lack the information necessary to accurately judge the relevance of information about one organization for another [they look for] similarity of easily observable characteristics." In turn, firms that are similar to the scandalized organization are generally marred with the same negative evaluation (Barnett & King, 2008). In short, misconduct by one organization puts similar others under suspicion, as stakeholders decouple their judgements from a firm's actual behavior and extend good or bad evaluations to kindred, but non-deserving entities (Jonsson et al., 2009).

Similar dynamics should apply when stakeholders judge disaster aid that comes after the first pledge has been made. Unlike the initial gift, where stakeholders are operating in an information vacuum, the first gift provides a potential anchor that can be used to help judge subsequent donations. Rather than asking "is this a good firm?" stakeholders can assess a firm's aid by asking "does this look like a good or bad donation?" To the extent that a firm and its gift are seen as similar to the first donor, perceptions about the initial gift may be applied to the focal donation, regardless of whether the firm in question has a positive or negative reputation. As such,

judgements about the first corporate donation will likely transfer to firms in the same industry who give aid that is similar to this initial pledge (Greve et al., 2016; Jonsson et al., 2009).

Again, anecdotal evidence supports our theoretical argument. After Anglo American's \$10 million donation to 2010 Chile earthquake relief, its competitor BHP quickly offered the same amount of aid (Useem et al., 2015). Though BHP's reputation in Chile was not nearly as favorable as Anglo American's, the two firms enjoyed a similar bump in off-trend revenue, suggesting that stakeholders extended their positive perceptions of Anglo American's donation to a similar firm that pledged similar aid. On the flipside, after the 2008 Sichuan earthquake, Nokia and Panasonic pledged the same \$8 million in aid that Samsung had given as the initial corporate donor. However, these relatively well-regarded followers were stung by their association with Samsung's "drop in the bucket" donation, and suffered a similar decline in off-trend revenue (Xinhua News Agency, 2008). Based on this, we predict that:

Hypothesis 2 (H2). A firm that donates the same amount as the first donor from its industry will realize off-trend revenue outcomes that mirror the first donor, regardless of the focal firm's own pre-disaster reputation.

A corollary of the above argument is that stakeholders are unlikely to extend their perception of the first corporate donation to all subsequent responses, as judgements are less likely to diffuse among dissimilar organizations. This can be seen most clearly in studies that consider when and why judgements do not transfer between entities. For example, Vergne found that the stigma associated with arms production was less likely to transfer to firms whose attributes differed from other industry participants (Durand & Vergne, 2015; Vergne, 2012). Phung et al (2021) similarly found that differences in industry, technology, and underlying behaviors explained why the stigma of taxi driving did not transfer to Uber drivers in Toronto. Importantly, this research is agnostic

about the nature of the differences that disrupt similarity-based processing. Logically, the same predictions apply if a firm is larger or smaller than a potential referent, more or less profitable, in a different industry, etc. If feature-matching fails to identify a useful referent for any reason, people revert to piecemeal processing, and look to other cues to guide their judgements (Fiske & Pavelchak, 1986). Applied to our context, this suggests that stakeholders may not view the first-donor as a useful referent when judging disaster aid from firms in different industries, or that give different amounts. In these situations, stakeholders will likely fall back on reputation as a cue to judge the sincerity and sufficiency of a firm's disaster aid.

If correct, our argument has potentially counterintuitive implications for the financial outcomes of disaster giving. For instance, if the first donor following a disaster has a bad reputation, negative reactions to its aid may transfer to a similar firm with a good reputation that gives the same amount. Yet this follower-firm might benefit from pledging less aid, if this interrupts similarity-based reasoning and leads stakeholders to base their assessment on the firm's own, pre-existing reputation. Likewise, an ill-reputed firm might be punished for exceeding the donation of a well-regarded first-donor because this deviation leads to piecemeal processing based on reputational considerations, as opposed to similarity-based judgement. However, while these predictions may seem surprising, they align with real-world examples of disaster giving. Keeping with our example of the 2008 Sichuan earthquake, Sony gave less than Samsung, the ill-reputed first-donor, but unlike Samsung—and imitators like Nokia and Panasonic—who suffered negative off-trend revenue following their donations, Sony enjoyed the opposite outcome. By giving a different amount, it appears that Sony's more favorable reputation came into play, leading to positive reactions (McGinnis et al., 2009; Xinhua News Agency, 2008). Formally, we predict:

Hypothesis 3 (H3). A firm that donates a different amount than the first donor from its industry will be judged based on its own pre-disaster reputation in the afflicted nation. A deviator with a good pre-disaster reputation will realize positive off-trend revenue, while a deviator with a bad reputation will observe negative off-trend revenue.

DATA

Full procedural details for data collection, management, and availability, baseline and alternative identification strategies, robustness tests, and analyses of confounders are available in the online Appendix at the Center for Open Science at

https://osf.io/jyt2a/?view_only=47c898bf387145f29e8d16706820039f.

Disaster and Country Panels

We test our predictions with a dataset covering every major epidemic, natural disaster, and terrorist attack worldwide between 2007 and 2019, as reported in the International Disaster Database (EM-DAT). We gather data on human and economic impacts from the United Nations Office for Coordination of Humanitarian Affairs and the reinsurance company Swiss Re.

Despite the differences among the three types of disasters in our sample, we pool them in our analysis based on evidence that each creates considerable uncertainty in an affected nation, as well as market volatility and GDP changes that are several times larger than those associated with normal economic fluctuations (Aghion et al., 2020; Baker, Bloom, & Terry, 2020). Also, while there are exceptions, each of these disasters generally has a clear start, creates an immediate disruption, and has peak-impact within 30 days. These features enable us to test our predictions more cleanly than would be possible for slow-emerging disasters that lack a clear onset, have hard to discern impacts, and are relatively less likely to attract dedicated corporate aid. Our sample comprises 4,273 disaster-country pairs, affecting more than 1.3 billion people in 179 nations.

Country-level variables that may affect the outpouring of aid and local firm performance are from the World Development Indicators (WDI)³ and Worldwide Governance Indicators (WGI).⁴

Firm Panel

Our analysis focuses on the world's 2,000 largest publicly-traded companies based on total revenue, as reported by Orbis. Limiting our sample in this way ensures access to reliable financial data for each firm, while still covering 91.7 percent of all aid dollars pledged during our analysis period.

All company-level variables are based on data from a firm's host nation affiliates (i.e., we test how the provision of disaster aid affects a firm's local market performance). To ensure that these data are reliable, we assess the accuracy of every merger, acquisition, dissolution, and spinoff in our sample using shareholder and legal data from public filings, firm websites, and government reports. To do this, we run three random checks of five percent of the sample to confirm the ownership of selected affiliates together with the financial information reported by Orbis. For missing data, we use a multiple-input bootstrapping algorithm that allows us account for smooth time trends, changes across cross-sectional variables, as well as time and space correlations (Blackwell, Honaker, & King, 2017). This is more efficient than listwise deletion or mean substitution, which can increase the risk of Type II errors when running difference-in-difference models.

³ The WDI database contains internationally compatible statistics on 1,600 time-series indicators for 217 economies and more than 40 country groups. The database is compiled by the World Bank.

⁴ World Governance Indicators (WGI) is a dataset that summarizes views on the quality of governance provided by a large number of enterprise, citizen, and expert survey respondents in a focal country. The six dimensions of governance that comprise the WGI are rule of law, voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, and control of corruption (Kaufmann, Kraay, & Mastruzzi, 2011). The estimates range from -2.5 to 2.5.

Company Disaster Philanthropy Panel

Data on corporate disaster aid is from media reports published within 12 months of each disaster date. We run automated searches using Python and targeting Factiva, Google, and Lexis Nexis. The searches are Boolean combinations of the affected country; type of disaster; disaster name (where applicable), and derivations and synonyms referring to the act of donating.⁵ The resulting 2,310,000 news items form the core of our coding of company philanthropy. For this, we use natural language processing to code information on donor name, donation characteristics (i.e., in-kind, monetary, or both; amount, currency, and timing), and target beneficiary (e.g., a victim's organization, the Red Cross). We convert in-kind donations to monetary values based on prices in the affected country, and non-US dollar aid into US currency based on the exchange rate when the donation was made.⁶ During our analysis period, the average corporate donation of the 18,970 donations is \$1.69 million, with a maximum value of \$54 million and a standard deviation of \$220,000. The online Appendix contains full information on how we collected and coded this data, and also describes independent assessments of our data quality from sources including the United Nations Office for Coordination of Humanitarian Affairs.

Table 1 summarizes our data. As with previous studies, a measure of firm performance (revenue) correlates positively with corporate disaster giving. Still, the average off-trend revenue that firms realize across all aid donations is negative (-\$2.08 million), suggesting that this type of giving often results in short-run losses that are not explained by market operations, nor the unique

⁵ Our search covered newspapers, trade publications, magazines, newswires, press releases, TV and radio transcripts, digital video and audio clips, corporate websites and reports, institutional websites and reports, and government websites and reports.

⁶ Less than one percent of the donations in our sample required converting in-kind goods to monetary values.

characteristics of a specific disaster. We identify and discuss the specific variables used in our analysis in the follow section.

INSERT Table1 1 ABOUT HERE

IDENTIFICATION STRATEGY AND EMPIRICAL METHODS

Our analysis seeks to isolate the *off-trend revenue* that can be attributed to a firm's disaster aid (i.e. post-disaster income that is not explained by the historical determinants of affiliate-level revenues, other types of CSR, contextual factors, or by the impact of the disaster itself). To do this, we start with a firm's annual revenue in a host country, as reflected by the sum of its affiliates' income from Orbis. This variable is well-suited to our purposes, as it is sensitive to changes in local stakeholder support (Mithani, 2017; Rangan & Sengul, 2009). Also, unlike measures that are based on stock prices in international markets, our variable is not shaped by factors beyond the control of a local affiliate.

Still, it is empirically challenging to determine how much of a firm's local revenue is attributable to disaster giving versus other factors. In addition, variables like reputation, fiscal standing, and donation choices are all likely endogenous to firm performance. To address these issues, we use a difference-in-difference approach that applies inverse propensity score weighting to match firms with a comparison set based on underlying factors related to financial performance (Hirano, Imbens, & Ridder, 2003). Our algorithm matches firms based on: 1) financial standing, as reflected in annual *revenue* and *return on assets*; 2) size, measured by number of *employees* and total *assets*, and; 3) public relations via *advertising and administrative expenses*. All matches are within an industry—as reflected in 4-digit SIC codes—for every country-disaster pair. This

approach creates treatment and control groups with statistically similar revenue trajectories up to five years before a disaster, as reported in the online Appendix.

A key advantage of our chosen matching technique as compared to others is that it uses the full sample for constructing the pool of counterfactuals, and does not require the number of controls to be exactly the number of treated firms. This is important in our case given the uniqueness of donation-country-disaster cases, as we detail below. Finding suitable comparisons may affect statistical power. A further benefit of this technique is that it assesses and considers the level of similarity between treatment and control units. We restrict our specification to the common support area, and thus omit units with propensity scores that lie outside the range of scores in the treatment group.

Treatment Variables

As reflected in our theoretical arguments, we use two types of treatment variables in our models: the reputation of first donors (hypothesis 1) and the donation behavior of followers (hypotheses 2 and 3). We compare treated firms to control firms, and calculate difference-in-difference estimates of off-trend revenue one year after the disaster.

Company reputation. Hypothesis 1 predicts that the financial outcomes of being the first in an industry to pledge aid will vary based on a company's pre-disaster reputation. Our *reputation* measure is based on the overall tone, or sentiment, of a firm's media coverage in a nation for 12 months preceding a disaster. This is a good fit for our arguments, as media coverage both reflects and conveys information about a firm's behavior and esteem in a focal market (Henisz et al., 2013; Kuhnen & Niessen-Ruenzi, 2011; Luo, Zhang, & Marquis, 2016). As in prior studies that have

measured reputation using media data, we use Factiva to gather all reports from a given country that discuss a focal firm (non-English reports are translated automatically). We then use Factiva's native computer linguistic software to quantify the overall tone (sentiment) of each news item.

Based on this, we calculate the Janis-Fadner imbalance coefficient of imbalance (JFC) to assess the overall tone of a firm's coverage in the local market. This approach has been widely used in prior studies (see for example Bansal & Clelland, 2004; Carroll & Hannan, 1989; Deephouse, 2000; Wry, Deephouse, & McNamara, 2006; Zhang, 2016), and the validity of the JFC measure has been repeatedly confirmed in the literature (see Zhang, 2016 for a review). The specific formula for calculating the JFC is:

$$JFC = \begin{cases} \frac{e^2 - ec}{t^2} & \text{if } e > c \\ \frac{ec - c^2}{t^2} & \text{if } c > e \\ 0 & \text{otherwise} \end{cases} \quad (1)$$

where, e = annual number of positive media reports pertaining to the firm; c = annual number of negative media reports, and t = total number of reports (positive, negative, and neutral).

To test hypothesis 1, we classify a firm as a *first mover* if it is the first from its industry to pledge aid following a disaster. We include first movers in the treatment group if they have a positive reputation (i.e., their JFC in the year before the disaster is greater than zero). The corresponding pool of control firms are first movers with negative reputations (i.e., their JFC in the year before the disaster is less than zero).

Followers' donation behavior. Our second treatment categorizes firms based on the similarity between their gift and the amount pledged by the first donor in their industry. We code the following categories: *non-donor* is a company with no reported donation; an *imitator* is a firm that

donates the same amount as the first mover; a *deviator* is a firm that gives a different amount (either more or less) than the first mover. To test hypothesis 2, firms in the treatment group are imitators of a first mover with a positive pre-disaster reputation. The control group comprises matched firms that are imitators of a first mover with a negative reputation. To test hypothesis 3, treated firms are deviators with positive pre-disaster reputations and controls are deviators with negative reputations, but otherwise similar.

Control Variables

Time-varying controls. To improve the efficiency of our models, we control for time-varying factors that might affect both affiliate revenue (see Alfaro & Chen, 2012; Bloom & Reenen, 2007; Bloom, Sadun, & Reenen, 2018 for surveys) and the performance implications of corporate philanthropy (see Awaysheh et al., 2020; Krüger, 2015; for surveys List & Momeni, 2021). At the company subsidiary level, we include *Tobin's Q* and *research-and-development intensity* since these may reflect intangible resources that affect the productivity of a firm's philanthropy. We also control for the number of donations a firm has made to previous disasters in the same year to account for *donor fatigue*. We also address the possibility that *media visibility* of a company donation may affect stakeholder responses (Madsen & Rodgers, 2015). Our variable is a count of articles from a disaster-stricken nation that mention a focal firm's donation. To calculate this variable, we use automated searches in a Google API using Python.

At the country level, the motivation to donate may be related to the attractiveness of a focal market (Ballesteros & Magelssen, 2021; Hornstein & Zhao, 2018), as well as institutional factors that affect a firm's ability to execute and benefit from philanthropy (Bertrand et al., 2020; Li &

Lu, 2020). We thus control for country *GDP*, logged *population*, the percent of *urban population*, and an index of *control of corruption* from the WGI.

At the disaster level, we use logged *number of deaths*, *people affected*, and *economic damage*, and *disruption type* (e.g., terrorist attacks, epidemics, floods, earthquakes, etc.) to control for factors known to skew global philanthropy (Stromberg, 2007). We control for the local government expenditure and foreign aid because these factors may affect philanthropic motivations and stakeholder perceptions of its value (Ballesteros & Magelssen, 2021). We include logs of the number of disasters *in the country* and *worldwide* in the year before a focal disaster because these may inversely related with the likelihood of a country to receive aid (Eisensee & Strömberg, 2007). Finally, we use the average of the median number of minutes a news broadcast devotes to the top three news segments in a day over the 40 days after the disaster, as calculated by Eisensee and Strömberg (2007) to control for other *news pressure* that may crowd-out attention to the disaster.⁷

Non-disaster philanthropy. Contemporaneous nonmarket action unrelated to disaster aid may influence a firm's off trend revenue, even if its direct aid has no effect. To address this confounder, we collect data on all of a firm's other donations in our observation period using a Google API via Python.⁸ We identify 23,050 non-disaster donations whose dollar amount by company donor is integrated as controls into our analyses.

⁷ The data are provided by Professor Strömberg at david.stromberg@ne.su.se.

⁸ To check the accuracy of our web scrapping, we gather and code U.S. Internal Revenue Service (IRS) data housed by the Foundation Center. The Foundation Center applies the National Taxonomy of Exempt Entities (NTEE) from the IRS to classify donations of U.S. companies into different nonprofit sectors.

Time-invariant controls. Our most stringent specification applies a battery of single (i.e., firm, industry, country, and year) and joint fixed effects. First, Firm \times Disaster fixed effects are included because disruptions often affect different countries, particularly in some regions of the world. Second, Firm \times Country fixed effects seek to account for the possibility that companies self-select into countries with different likelihoods to receive disaster philanthropy. Consequently, firms with similar profitability may be comparatively prone to donate to specific areas that systematically correlate with stakeholder preferences and, ultimately, rents. This is expected because a country's likelihood of receiving aid rises with its economic importance to a firm (Ballesteros & Magelssen, 2020). Third, the inclusion of Firm \times Disaster fixed effects responds to the argument that some specific events have heterogeneous impacts on specific companies' revenue. For instance, a construction company may observe an increase in revenue following an earthquake, similar to a pharmaceutical company during an epidemic. Similarly, companies that donate frequently to specific disasters types may be better able to read the local environment and target aid more effectively. The performance value of donating is also likely to fluctuate within industries, which makes controlling individually by industry and disaster type insufficient.

We run regressions of the following form:

$$Y_{fcd} = \sum_{t=2007, t \neq d}^{2019} \beta_t \times 1[t = d] \text{donation amount} | \text{timing} | fcd + \beta_0 + \beta_{2,3,4+5+6} \text{ (time-varying covariates)} | f, l, m, r, c, d, y + \mu_f + \kappa_i + \nu_m + \rho_r + \delta_c + \gamma_d + \nu_y + \pi_{cd} + \chi_{cd} + \Gamma_{cd} + \varepsilon_{fimrcdy} \quad (2)$$

where f is firm, i is industry, m is a vector of interchangeable donation characteristics, r is the pre-disaster media reputation of the donor, c is country and d is disaster, and y is year; the Greeks present corresponding time-stable controls. Vectors of joint fixed effects π for Country \times Disaster,

χ for Firm \times Country, and T for Firm \times Disaster. We use robust standard errors clustered at the company level. The panels are naturally nested at the country by disaster level.

RESULTS

First-Mover Rents

Hypothesis 1 predicts that the first company in an industry to pledge aid after a disaster will be rewarded if it has a positive pre-disaster reputation, and punished if has a negative pre-disaster reputation. Consistent with this expectation, Model 1 in Table 2 shows that the difference in off-trend revenue between a first mover with a positive pre-disaster reputation and a similar first mover with negative reputation is over \$61 million. We include the levels of statistical significance for reference, but the most important information is the economic magnitude of this effect: the revenue gain for first movers with a good reputation is 36 times the mean corporate gift of \$1.7 million.

Imitator Rents

Hypothesis 2 argues that judgements of the industry first mover will transfer to others in the industry that match this initial gift. To wit, imitators will benefit from following a first mover with a positive reputation, and should observe a negligible or negative outcome when following a first mover with a negative reputation. Consistent with our expectation, Model 2 in Table 2 shows that the difference in off-trend revenue between these two types of imitators is over \$65 million. Firms that match the aid pledged by a first mover with a positive reputation are much more likely to be rewarded—regardless of their own reputations—than firms that match the aid pledged by a first mover with a negative reputation.

Deviator Rents

Hypothesis 3 predicts that similarity-based judgments will be interrupted if a gift deviates from the first mover's donation, in which case outcomes will again reflect a firm's reputation. Model 3 of Table 3 indicates that simply comparing firms that donate a different amount than a reputable first mover in the industry (i.e., treatment) and companies that donate a different amount than a first mover with a negative reputation (i.e., control) does not yield sizeable differences in off-trend revenue. Consistent with our argument, this suggests that the aid pledged by later donors is indeed evaluated using a similarity heuristic that hinges on matched donations amounts. Beyond this, though, Model 3.1 shows that donations from deviators with good pre-disaster reputations (i.e., treatment) are associated with an excess in off-trend revenue of \$30.4 million vis-à-vis deviators with negative pre-disaster reputations (i.e., control). This provides strong evidence that reputation guides reactions to disaster aid from firms that deviate from the first mover in their industry.

INSERT Table 2 ABOUT HERE

Robustness Checks and Supplementary Analyses

In addition to our reported models, we ran many additional analyses designed to add nuance to our results and rule out alternate explanations. All the differences in treatment and control groups are calculated at the disaster by country level, we want to confirm that the substance of the results is not skewed by a source of disaster risk. For this, we split the sample into epidemics, natural disasters, and terrorist attacks. These separate models replicate the direction and relative sizes of the estimates using the full sample and are reported in Table XVI in the online Appendix.

Alternate modeling approach. Our primary identification strategy is more robust than other methods like coarsened exact matching, which impose the assumption that *ex ante* firm- and context-specific trends apply to *post-shock* conditions. The use of inverse propensity weighting also addresses the risk of running analyses that have low statistical power because they require one-to-one matching. Still, difference-in-difference estimates face two important concerns.

First, Bertrand, Duflo, & Mullainathan (2004) show that using several years of data may generate inconsistent standard errors and, ultimately, underestimate the standard deviation of the estimators. Our reported models address this by collapsing the time-series into a pre-disaster period and a post-disaster period. This also helps to enhance statistical power when the idiosyncrasies of treatment cases make it difficult to find a suitable control. Second, difference-in-difference estimation assumes that unobserved heterogeneity is time-invariant. Among other issues, this assumption is problematic when analyzing cases where the combination of firm, country, and event characteristics is substantially different than the rest of the distribution. To test the robustness of our estimates to the potential effects of this issue, we implement a weighted average combination of cases as suggested by Abadie, Diamond, & Hainmueller (2015) in the synthetic control method (SCM). The online Appendix provides full details about how we applied SCM, and reports the output generated using this approach. Results closely match our reported findings, and add useful nuance that goes beyond what can be identified using a difference-in-difference analysis.

For instance, with regard to hypothesis 1, an advantage of SCM is that we can directly model the financial outcomes that result when aid comes from a first mover with a negative reputation. Difference-in-difference models compare these firms to matched first movers with positive reputations. Table IV in the online Appendix shows that the average first mover with a positive

reputation sees its revenue increase by over \$30 million while a synthetic counterfactual with negative reputation experiences a revenue drop of over \$20 million in the year following its donation. These results are not explained by market or nonmarket actions, nor disaster-related disruptions. This finding provides direct further support for H1.

For hypothesis 2, our reported results suggest that imitators may yield larger rents than a first mover with a positive reputation: SCM offer more precision. Table V in the online Appendix reports that the accrued rent of reputable first movers is 1.6 times larger than for followers that match this initial gift. This suggests that, on average, local stakeholders punish imitation in greater magnitude when the first mover has a negative reputation and reward imitation when the first mover has positive reputation but in lesser magnitude than for the first giver. On average, an imitator of a reputable first mover realizes off-trend revenue of \$19 million, while an imitator of a first-mover with negative reputation has an average off-trend loss of almost \$38 million. Notably, the latter donor is likely to observe a loss in host-country revenue that is 1.81 times larger than the loss of the first-mover with a bad reputation.

Alternate explanations. In addition to running SCM to check the robustness of our findings, we ran a battery of tests to rule out alternate explanations. All results are in the online Appendix.

Is the type of donation what matters? Prior studies have found that the financial benefits of philanthropy are greater when a firm donates in-kind vs. monetary resources (Cuypers et al., 2015; Madsen & Rodgers, 2015). We test for this in the context of disaster aid with a difference-in-difference analysis: treated firms made in-kind donations and control firms made cash donations. We control for media reputation as well as donation amount and timing. Per Table VIII in the

online Appendix, the gap in off-trend revenue between groups is small and statistically insignificant.

Is the size of donation what matter? Studies have also found that firms are most likely to benefit when they make large charitable gifts (Cuypers et al., 2015; Madsen & Rodgers, 2015). We argued that this pattern is unlikely to hold for disaster aid, given the uncertainty that characterizes such situations, and our reported models support this expectation. Still, we ran models to formally rule out this alternate explanation. Table IX in the online Appendix shows the results of a differences-in-difference estimate that compares off-trend revenue for big donors (i.e., firms that donate at least one standard deviation more than the donation mean for the disaster), and small donors (i.e., firms that donate at least one standard deviation below the donation mean). We control for reputation as well as donation timing and type (i.e., cash or in-kind). The probability of gaining off-trend revenue is not meaningfully different for firms that give large versus small amounts.

Is the media visibility of the firm a sufficient determinant of rents? A limitation of our reputation measure is that, while the Janis-Fadner coefficient normalizes the number of news reports and enables comparisons across firms with varying levels of coverage, it does not convey a firm's visibility in the media. We test for the influence of visibility on giving-outcomes with a difference-in-difference analysis where treated firms received media coverage in a focal nation at least one standard deviation above the mean in the year before a disaster (based on article-count), and control firms received coverage at least one standard deviation below the mean. We control for donation amount, timing, and type. A negative coefficient barely misses the 10 percent level of significance and offers additional information regarding the internal validity of our chosen variable of media reputation (see Table X in the online Appendix). This suggests that firms with more media

visibility are somewhat less likely to profit from their disaster giving as compared to firms that are less visible.

Is the media visibility of the company a sufficient determinant of rents? A related concern is that the coverage of non-disaster related philanthropic gifts can vary across firms, potentially affecting our observed outcomes. To address this concern, we run regressions where we split the sample into two groups: firms whose donations received over one standard deviation above the mean amount of corporate philanthropy coverage, and firms whose donations received media coverage one standard deviation below the mean. We find no significance in the gap of off-trend revenue between treated and control firms as reported in Table XI in the online Appendix.

Is pre-disaster media reputation a sufficient determinant of rents? A more consequential potential confound is that well-regarded firms may be rewarded following a disaster, regardless of whether or not they provide aid. For instance, government stakeholders may ally with or support high reputation firms and this may enhance post-disaster revenue growth regardless of a firm's donation (Ahuja & Yayavaram, 2011). We investigate this by restricting our sample to firms with positive media reputations ($JFC > 0$) and running an analysis where we define treated firms as those that donated following a disaster. Here, our algorithm adds reputation as a matching variable to ensure we are comparing similarly regarded firms. The model controls for donation amount, timing, and type. Results show that, on average, donating firms see an off-trend revenue bump of \$45 million, as compared to non-donors. This strongly suggests that our observed results are related to the provision of disaster aid (Table XII).

Do firms with positive reputations make better donation decisions than firms with negative reputations? Another potential issue is that firms with good reputations are better at

reading the environment, and thus offer aid that is better-suited to the needs of the moment as compared to firms with negative reputations. If true, this would suggest that our results can be traced to the underlying quality of a firm's aid, and not heuristic-based judgements. Our reported results suggest that this is not the case, since well-regarded firms that imitate the aid pledged by a first mover with a negative reputation are plagued with the same outcomes as imitators that themselves have bad reputations. Still, to investigate more formally, we compared the average donations from firms with positive and negative reputations adjusted by disaster impacts. We observe that the marginal value of donations from firms with negative reputations relative to economic damage (Table XIII in the online Appendix) the number of victims (Table XIV) and are significantly larger than that of donations from firms with positive reputations. We also observe, in Table XV, that firms with good and bad reputations are equally likely to imitate first movers with negative reputations (who should be more likely to provide ill-suited aid if reputation correlates with thoughtful action). Taken together, these results suggest that well-regarded firms are no better than others at reading and responding to the post-disaster environment.

DISCUSSION AND CONCLUSION

We began this paper by noting that large-scale disasters are striking with increased frequency and ferocity worldwide, creating an urgent need for relief and recovery efforts. Yet, while firms are playing a growing role in disaster responses—often pledging aid that exceeds all of their other yearly philanthropic gifts—it is unclear if and when these efforts will be rewarded by local stakeholders. Some studies report that firms benefit from offering generous aid, but others find that this has no direct financial benefits and may even lead to negative abnormal returns. There are also conflicting findings about donation timing, and whether or not firms benefit from being among

the first to pledge aid following a disaster. To make sense of these findings, and develop a more systematic understanding, we argued that it is necessary to loosen the assumption that stakeholders view behaviors like corporate disaster aid favorably, and develop theory that accounts for when and why such acts might elicit reactions that lead to positive or negative financial outcomes.

To this end, we drew on the heuristics literature to advance a framework that recognizes the role of “attribute substitution” in judgement and decision-making tasks. The key insight is that individuals are cognitive misers who use top-of-mind cues as mental shortcuts to generate reasonable—if not always accurate—assessments of attributes that are otherwise difficult to observe and evaluate. We noted that this aligns with the insight that people often look to other, correlated cues to judge a firm’s observable behaviors (Wang et al., 2016, 2020). Existing studies have addressed this issue in a rather ad-hoc manner, though, and we argued that a heuristics approach provides a more systematic framework that directs attention to: 1) what actors want to judge in a given situation; 2) the uncertainty surrounding this assessment, and; 3) the cues that might reasonably serve as proxies for missing or difficult to observe information. We applied this approach to corporate disaster aid, and argued that perceptions—and thus financial outcomes—will systematically vary based on when a firm gives aid, its similarity to the first corporate donor, and its reputation in the focal nation.

In keeping with previous studies, we assumed that local stakeholders want firms to respond to a disaster by pledging aid that is motivated by genuine concern for the affected parties, and that is sufficient to support relief and recovery. However, we argued that the extreme uncertainty surrounding sudden large-scale disasters makes it very difficult to evaluate these criteria based on cues, like donations size, that are used to judge philanthropy in more mundane contexts. Rather

than trying to generate rational and objectively accurate assessments, we argued that stakeholders will turn to easily accessible, correlated cues to guide their evaluations. For the first corporate gift after a disaster—when uncertainty is very high, and there are no obvious referents to judge a firm’s donation—we reasoned that stakeholders will use a firm’s reputation to judge its gift, based on the insight that people look to past behavior to make inferences about an entity’s current actions (Fombrun & Shanley, 1990). We thus predicted that aid from a well-reputed first donor should be positively viewed, yielding improved financial performance, while similar aid from a first donor with a bad reputation should have the opposite effect.

For later donors, though, we argued that stakeholders will consider whether the first donation is a reasonable proxy for judging subsequent gifts. Our argument here builds on insights about similarity-based processing (Kahneman, 2002; Tversky, 1977), and the observation that judgements often transfer between firms with similar observable characteristics (Greve et al., 2016; Jonsson et al., 2009). Given that donation size is a highly visible and likely very relevant cue, we predicted that judgements about the first firm to pledge aid would transfer to later donors that give similar amounts. Similarity-based judgements should be less relevant if a company deviates from the initial gift, though, making transference less likely. We argued that stakeholders will revert to reputation to judge whether or not the aid pledged by these deviating firms is genuine and sufficient. A difference-in-difference analysis of donations from multinational firms following every disaster worldwide between 2007 and 2019 strongly supported our arguments. Our findings are relevant to for the study of CSR perceptions, the financial outcomes of disaster giving, and for the practice of corporate disaster aid.

Implications for Research on Stakeholder CSR Perceptions

In many existing studies, the link between CSR and financial outcomes is attributed to a causal chain that assumes stakeholders view socially responsible acts favorably, and respond with increased loyalty, cooperation, and support when a firm behaves this way, leading to improved financial performance. Yet as a number of recent reviews have asserted, stakeholder perceptions are rarely theorized or tested directly, leaving important gaps in our understanding of when and why reactions might vary in ways that affect the financial outcomes of CSR initiatives (Aguinis & Glavas, 2012; Awaysheh et al., 2020). Notably, even studies that have directly analyzed stakeholder perceptions have been scattershot, offering interesting but thinly-connected insights that are anchored in different theoretical traditions, as opposed to advancing a cohesive research program. Our approach does not challenge the validity or importance of these studies; however, it does contribute a framework that can usefully integrate prior work, and provide a foundation for more programmatic research going forward.

Rather than building only on theories that are native to organizational research, such as absorptive capacity, the resource-based view, or neo-institutional theory, our heuristics-based approach draws on insights that are directly relevant to understanding how actors engage in judgement and decision tasks. In turn, this yields a general framework that calls attention to the uncertainties associated with specific judgments, and invites theorization about which cues might be useful proxies for assessing data that is missing or difficult to access. From this perspective, it is unsurprising that prior studies have identified such diverse range of factors that shape CSR perceptions, since stakeholders should logically rely on different cues to assess different actions in different contexts at different points of time. Moreover, by highlighting attribute substitution as mechanism that guides stakeholder evaluations, our approach suggests that cues like legitimacy, the generosity of a firm's giving, the nature of its products or services, and its broader reputation

are all cues that can guide stakeholder perceptions in certain situations, and are thus manifestations of a common underlying process.

In addition, by focusing on how uncertainty affects judgement tasks, our approach can help identify the boundaries of prior research findings. For instance, studies have found that stakeholders react more positively to generous and innovative charitable giving, since these cues are seen as proxies for the sincerity of a firm's motives. This finding likely extends to philanthropy that seeks to tackle well-understood problems through more or less accepted means. In other situations, though, there may be considerable uncertainty about the types and levels of giving that are required to meet the needs of the moment, thus making donation size a less useful cue and leading to different attribute substitutions. Such sources of uncertainty are arguably becoming ever more relevant, as ecological trends like global warming, and social trends like political polarization give rise to natural disasters and activism issues that firms are expected to respond to, but for which there are no clear a-priori expectations for what constitutes appropriate action.

As we show in our theory and results, such uncertainty can lead to outcomes that diverge from existing research findings in important ways. For example, it is well-accepted that firms will benefit less from acting in prosocial ways if stakeholders believe that these behaviors are insincere or motivated by instrumental concerns (see for example Wang et al., 2020). However, under the acute uncertainty that follows a sudden large-scale disaster, our results suggest that evaluations are guided almost entirely by a firm's reputation, and have little to do with the amount or type of aid that is pledged. As such, ours is the first study that we know of to identify conditions where corporate philanthropy may be negatively viewed and contribute to adverse financial performance. Given that our approach emphasizes the contextually contingent nature of stakeholder perceptions,

though, we would not expect our findings to generalize to situations where there is more certainty about the appropriateness of a firm's charitable gifts.

Implications for Research on Corporate Disaster Philanthropy

In addition to its general applications, our approach is particularly relevant to the study of corporate disaster aid. As in the broader CSR literature, studies commonly assume that stakeholders will perceive corporate disaster aid positively, and reward firms that engage in this behavior. Empirical results belie this expectation, however, and point to a more complex and contingent relationship (Madsen & Rodgers, 2015; Mithani, 2017; Muller & Kraussl, 2008, 2011; Patten, 2008). To this end, we suggest that insight can be gained by loosening the assumption that stakeholders rely on cues like donation size and speed to judge a firm's disaster aid. Such considerations may be useful for making inferences about the sincerity and sufficiency of philanthropic gifts in more placid contexts, but they are unlikely to be very informative under the acute uncertainty brought-on by a sudden large-scale disaster (Lampel, Shamsie, & Shapira, 2009). If information about the level of devastation caused trickles out over a period of weeks or months, and even experts struggle to plot an effective response (Kunreuther & Useem, 2018), it is unrealistic to think that local stakeholders would have strong a-priori expectations for how much aid is enough to support relief and recovery efforts. Given the extreme difficulty of generating objectively accurate assessments of the sufficiency and sincerity of a firm's aid, we argued that judgements would likely be guided by other, easier to assess cues such as a firm's reputation. In short, our approach suggests that stakeholders will make different types of attribute substitutions when judging disaster aid versus other forms of giving because there are different levels of uncertainty surrounding these behaviors. Moreover, by pointing us toward reputation as a key

evaluative cue, our approach supports predictions that encompass, and potentially reconcile, the varied findings about donation size and response timing found in prior studies of disaster aid.

Beyond this, our argument suggests that stakeholders judge disaster aid differently over time, rather relying on a static set of cues. When the first corporate aid is pledged, stakeholders have very little information to inform their evaluations: the destruction caused by a disaster is still unclear, and there are no clear referents for judging a firm's donation. Thus, for these early gifts, we reason that stakeholders will substitute their evaluation of the firm for their evaluation of its particular donation. Our results align with this argument, and suggest that reactions to the initial aid pledged after a disaster are strongly shaped by the donating firm's reputation. After this, however, stakeholders can consider whether or not their assessment of the initial gift is meaningful for judging firms that donate later. Consistent with insights about similarity-based processing (Greve et al., 2016; Tversky, 1977), our results suggest that judgements readily transfer within an industry to firms that donate the same amount as the first donor, but not to firms that deviate from this amount. For the latter, we find evidence that evaluations are once again guided by a firm's reputation. Our approach thus adds nuance and dynamism beyond what is found in existing studies.

Managerial Implications

The insights that emerge from our study offer practical guidance to managers about how to overcome the reputational bias and uncertainty constraints on outcomes associated with disaster giving. As compared to studies that offer blanket advice about the provision of aid, we suggest that different firms should take different approaches, and that managers would be well-advised to be aware of how their firm is perceived in a disaster-afflicted nation before plotting their response.

Our approach suggests that firms with good and bad reputations can both benefit financially from providing disaster aid, but that different approaches are required. If a firm is well-regarded, it will benefit from having its aid judged through a reputational lens. The surest way to do this is to move quickly and lead the corporate response to a focal disaster. Our results show that, in this situation, a firm is likely to benefit regardless of the amount that it gives. Cynically, this might create an opportunity for managers to generate returns without offering a large donation or taking the time to plot a well-considered response. That said, if a manager feels compelled to wait for more information to emerge and offer a later donation that is better tailored to the needs of moment, their firm will likely still benefit as long as the resulting gift deviates from what was pledged by the first mover. For a firm with a bad reputation, though, our results clearly show the peril of moving quickly to provide aid. Regardless of how generous a firm's gift is, stakeholders will likely have negative reactions that contribute to lower off-trend revenue. As such, providing quick and lavish aid following a disaster is bad strategy for building favor and repairing a poor reputation, and is much more likely to backfire than benefit the firm (c.f., Brammer & Millington, 2005). For managers in these companies, the best move is to wait and follow the lead of a first-donor with a good reputation, as the positive views of this initial gift will likely transfer to their own donation.

The managerial implications of our study are particularly important because they deviate radically from what has been observed following most disasters. In the vast majority of cases, the initial corporate disaster aid comes from a firm that is unfavorably viewed in the local market; assumedly in an attempt to atone for its poor reputation (Madsen & Rodgers, 2015; Muller & Kraussl, 2011). We see a similar pattern in our data: across all large-scale disasters worldwide between 2007 and 2019, almost 60 percent of first movers have negative reputations. We also see that, rather than taking the time to plot a well-considered response, most later donors match the

amount pledged by the first mover in their industry. Strikingly, firms with good and bad reputations almost equally likely to match this initial gift (53 percent versus 51 percent). This suggests that managers of well-regarded firms are arguably not taking time to read the environment and tailor their responses. Rather, the most common response seems to be to mimetic. This is not wholly surprising given the uncertainty that surrounds disasters and disaster responses (Baker et al., 2020), but it does result in a pattern where the leaders of well-regarded firms systematically make decisions that undermine the benefits they would otherwise receive from pledging aid. As a result, almost 52 percent of company disaster donations result in negative off-trend revenue that is not explained by historical revenue-determinants, other types of CSR, contextual factors, or by the impact of the disaster itself.

In short, our data and findings suggest that most managers should completely revamp their approach for dealing with uncertainty as they plot their responses to large-scale disasters. The data show that this endeavor has important performance implications. Not only is disaster philanthropy becoming ubiquitous among multinational firms, but the rents traditionally exceed the size of donations by several times.

Looking beyond our findings, our theoretical approach points to other potentially interesting implications. For example, to the extent that stakeholder evaluations under conditions of high uncertainty follow an attribute substitution process, there may be opportunities for managers to influence which cues are used to evaluate their firm's actions. For example, a firm with a poor reputation might benefit from partnering with well-regarded non-profits, local governments, or community groups when responding to a disaster (Ballesteros & Gatignon, 2019), as this may offer a more proximate cue for judging the sincerity and sufficiency its aid. Poorly

regarded multinational firms may also benefit from delegating decisions about disaster aid to their local subsidiaries, as stakeholders might interpret this as an attempt to target on-the-ground needs, as opposed to throwing money from afar. Similarly, if a firm is offering genuinely thoughtful aid, it may benefit from actively communicating the rationale behind the donation, and how it is expected to aid in relief and recovery. While such prosocial claims may be insufficient to overcome a poor reputation, they nonetheless address key uncertainties that our theory associates with stakeholders relying on a firm's reputation to judge its aid.

Limitations

Our study has limitations that point to future research opportunities. Most notably, we do not have data to test all of the mechanisms that we theorized. While our approach follows the precedent set in published work (Bertrand et al., 2020; Cuypers et al., 2015; Lins et al., 2017; Madsen & Rodgers, 2015), we are unable to model stakeholder perceptions directly. Thus, while results are consistent with our theoretical argument and provide broad and generalizable evidence about the financial outcomes of corporate disaster aid, we are unable to test the underlying mechanism. Future studies should examine how stakeholders perceive a firm's actions under uncertainty, and try to more cleanly isolate the attribute substitutions that guide these evaluations.

The literature on heuristics provides useful methodological guidance for how to undertake such study. Likewise, we are unable to directly observe the changes in the stakeholder cooperation, support, and loyalty that we argue explain how perceptions of disaster aid affect firm financial performance. Here again, our argument-logic stays close to prior studies, and we follow the typical approach of inferring stakeholders' behavioral responses from financial outcomes. Still, it would be useful for future studies to provide direct evidence in support of this mechanism.

Also, while we find strong support for our predictions, our arguments are intentionally broad and may thus overlook underlying variance in how particular firms, offering particular types of aid, are judged in particular contexts. For instance, we do not have data on how firms rationalize their gifts or portray their motives for giving. Such impression management has been shown to affect perceptions of a firm's behavior in other contexts (Marquis, Toffel, & Zhou, 2016), and it is reasonable to think that it might also create variance in perceptions of disaster giving. Lastly, while our approach and findings are consistent with what Gigerenzer and Gaissmaier (2014) call “one-reason decision making”—where individuals base their judgements on a single useful cue—some stakeholders might plausibly consider multiple cues when assessing a firm's disaster aid. Even if a person's evaluation starts with reputation and similarity to the first donor, they may move on to consider other cues and arrive at a more fine-grained assessment. Future studies should directly investigate these potential nuances.

Conclusion

Our study examined the varied financial outcomes of corporate disaster giving. In so doing, we developed a novel theoretical approach based in the literature on heuristics that focuses on the attribute substitutions that people use to make judgements under uncertainty. Based on this, we argued that disaster aid will be perceived differently based on the timing of a firm's donation, its similarity to the first donor, and its reputation in the affected country. Specifically, we predicted that firms will be rewarded when they are the first to donate following a disaster, but only if they have a positive reputation. In turn, we reasoned that perceptions of this first gift would be extended to firms that moved later but pledged similar amounts. An analysis of donations to every large-scale disaster worldwide over a 12-year period supported our arguments. Our results suggest that

it is important to attend to the uncertainties that surround judgments of corporate behavior, and the cues that stakeholders look to when key information is missing or difficult to access and evaluate.

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TABLES

Table 1. Descriptive Statistics

Variables	Observations	Mean	SD	Min	Max
Return on Assets	1,891	4.21	4.14	-16.84	32.05
Tobin's Q	1,891	0.85	0.82	0.01	6.47
Total Assets	1,891	82,800,000	249,300,000	246,034	2,899,000,000
Total Revenue	1,891	19,940,000	30,530,000	1,346,000	471,900,000
Number of Employees	1,891	57,695	83,246	214	2,202,000
R&D Intensity	1,891	2.97	4.14	-0.06	35.56
Advertising & Admin Expenses	1,891	8,603,000	15,730,000	20,275	119,800,000
Donor Fatigue	1,891	0.06	0.26	0.00	2.69
Panel B. Country					
GDP (PPP current)	129	740,600,000,000	2,274,000,000,000	198,200,000	18,050,000,000,000
Population	129	50,000,000	170,100,000	52,045	1,351,000,000
Trade (% of GDP)	129	87.20	54.98	0.00	391.00
Urban Population (%)	129	54.10	23.43	10.50	100.00
Control of Corruption	129	-0.09	1.00	-2.00	2.00
Disruptions in Country	129	0.74	0.14	0.69	1.50
Panel C. Disaster					
Public Expenditure	4,273	2,271,000,000,000	5,307,000,000,000	244,200,000	20,660,000,000,000
Foreign Public Aid	4,273	336,600,000	526,400,000	0	2,997,000,000
Earthquake	4,273	0.11	0.32	0.00	1.00
Epidemic	4,273	0.02	0.15	0.00	1.00
Extreme Temperature	4,273	0.03	0.18	0.00	1.00
Flood	4,273	0.40	0.49	0.00	1.00
Forest Fire	4,273	0.01	0.09	0.00	1.00
Landslide	4,273	0.01	0.11	0.00	1.00
Mass Movement	4,273	0.01	0.11	0.00	1.00
Storm	4,273	0.35	0.48	0.00	1.00
Terrorist Attack	4,273	0.01	0.11	0.00	1.00
Volcanic Activity	4,273	0.01	0.09	0.00	1.00
Wildfire	4,273	0.03	0.17	0.00	1.00
Number of Deaths	4,273	2,105	16,983	0	222,570
Number of People Affected	4,273	2,033,000	8,842,000	0	85,000,000
Econ Damage (USD M)	4,273	5,515	18,732	0	210,000
Disruptions Worldwide	4,273	29.06	12.25	14.00	57.00
News Pressure	4,273	9.24	3.56	0.00	18.50
Panel D. Combined					
Off-trend Revenue	2,927,268	-2,084,994.11	14,276,140.96	-98,307,157	278,713,403.72
Donation	18,970	1,697,227.00	11,900,000.00	0	54,000,000
Media Reputation	2,927,268	0.03	.37	-1	1

Notes: Panel A provides summary statistics for our analyses based on the dataset of the 2,000 largest multinational enterprises (MNEs) at the international level across the 2007-2019 period. Panel B summarizes data when of disaster-stricken countries. Panel C shows large epidemics, natural disasters, and terrorist attacks. Panel D shows the dependent variable of off-trend revenue, this shows the differential effect of donating toward the relief and recovery fund of disasters. Media reputation is calculated with the net pre-event media coverage sentiment score in the year previous to the donation. These two variables are combinations of firm \times year \times disaster-country. We log-transform large covariates in the analyses. See the text for variable definitions and construction.

Table 2.
The Revenue Impacts of Company Disaster Philanthropy

	(1) First Donors	(2) Imitators	(3) Deviators	(3.1) Deviators and their Reputations
Off-Trend Revenue (USD MM)	61.158*** (0.005)	65.882*** (0.009)	3.537 (.414)	30.463** (0.039)
Adjusted R ²	0.616	0.704	0.714	0.892
Observations	4,313	8,457	6,380	6,380
Firm Controls	Yes	Yes	Yes	Yes
Country Controls	Yes	Yes	Yes	Yes
Disaster Controls	Yes	Yes	Yes	Yes
Follower's Reputation Control	No	Yes	Yes	Yes
Donation Amount and Type Controls	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Country × Disaster FE	Yes	Yes	Yes	Yes
Firm × Country FE	Yes	Yes	Yes	Yes
Firm × Disaster FE	Yes	Yes	Yes	Yes

Notes: The table reports difference-in-differences regression results. The coefficient estimate of Off-Trend Revenue shows the differential effect of donating toward the relief and recovery fund of 4,273 epidemics, natural disasters, terrorist attacks on country affiliate revenue of the 2,000 largest multinational firms at the international level. These disasters affected 129 countries. Media reputation is calculated with the net pre-event media coverage sentiment score in the year previous to the donation.

In model 1, treatment firms are those that donated first in a four-digit SIC industry and whose media reputation was positive. Control firms are first donors whose media reputation was negative.

In model 2, treatment firms are those that donated the same dollar amount than a first donor with positive media reputation in a four-digit SIC industry. Control firms donated the same amount than a first donor with negative media reputation in the same industry.

In model 3, treatment firms are those that donated a different dollar amount than a first donor with positive reputation in a four-digit SIC industry. Control firms donated a different amount than a first donor with negative media reputation in the same industry.

In model 3.1., treatment firms are those that donated a different dollar amount than a first donor in a four-digit SIC industry and had negative media reputation. Control firms donated a different amount than a first donor in the same industry and had positive media reputation.

All right-hand variables are lagged by one year. See text for variable definitions and calculations. Standard errors are clustered by firm and p-values are reported in parentheses. For causal inference: *** p<0.01, ** p<0.05, * p<0.1.