DOING GOOD DEEDS IN TIMES OF NEED: A STRATEGIC PERSPECTIVE ON CORPORATE DISASTER DONATIONS

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Major corporations often respond charitably in times of disaster. However, disasters can also impose nontrivial costs on firms themselves, and under adverse conditions, firms typically donate less, not more. This paper takes a strategic perspective on corporate magnanimity in times of crisis by looking at the relationship between firm value, reputation, and donations by U.S. Fortune 500 firms in the case of Hurricane Katrina. In general, we find that Katrina's landfall was associated with significant negative abnormal stock returns. In particular, we find that a reputation for social irresponsibility was associated with both the greatest drop in stock prices and the greatest likelihood of making a subsequent charitable donation in response to the disaster. Copyright © 2011 John Wiley & Sons, Ltd.

INTRODUCTION

Major corporations often respond charitably to humanitarian needs in times of crisis (Patten, 2008; Zhang, Rezaee, and Zhu, 2009). Following the 9/11 attacks in 2001, $203 million were donated by 216 Fortune 500 firms in the United States (Crampton and Patten, 2008), while Fortune Global 500 firms pledged nearly $1.2 billion for disaster relief and reconstruction in response to the South Asian tsunami, Hurricane Katrina, and the Kashmiri earthquake combined (Muller and Whiteman, 2009). While corporate responsiveness in times of need is not new, the scale of the recent corporate attention to disaster has led to claims that corporate philanthropic disaster response has become a part of business life (Fritz Institute, 2005) and that this recent generosity has

raised corporate philanthropy to new levels (Urma, 2005).

However, in addition to being humanitarian events, some disasters[1] may also be negative economic events that lead to nontrivial costs for firms (Godfrey, Merrill, and Hansen, 2009). In 2005, for instance, Hurricane Katrina had economic effects that rippled into the U.S. economy far beyond the Gulf region (Bernick, 2005; Pacyniak, 2005; Daniels, 2005). Some media predicted that the effects of the disaster would be 'widespread,' causing as much as a percentage-point drop in U.S. gross domestic product (e.g., *Dallas Morning News*, 2005), although when it hit, the extent of the hurricane's economic impact was still largely unknown (Neikirk, 2005). In broader terms, Hurricane Katrina was a highly salient, vivid and negative event (Cowen and

[1] We use the term 'disaster' to refer to 'exceptional events which suddenly kill or injure large numbers of people' (IFRC, 1995) and which 'overwhelm local capacity, necessitating a request to a national or international level for external assistance' (EM-DAT, 2007).

Cowen, 2010). Its potential economic impact, overall negativity and salience may have raised the prospect of unforeseen 'deadweight costs' (Godfrey *et al.*, 2009: 427) that caused investors to engage in 'active…reevaluation' of firms (Pfarrer, Pollock, and Rindova, 2010: 1133).

If events like Hurricane Katrina, by virtue of their salience and negativity, lead to an uncertain prospect of unforeseen costs on firms, corporate philanthropy at such a time might seem counterintuitive since firms typically give *less*, not more, under adverse economic conditions (Govekar, Govekar, and Rishi, 2002). Yet research shows that it is the companies with operations in disaster-stricken regions that donate the most to disaster relief efforts (Crampton and Patten, 2008; Muller and Whiteman, 2009), despite the likelihood that such firms are also most negatively afflicted by the disaster. From a firm-value perspective, it would seem 'nonproductive' (Murray and Montanari, 1986: 818) for afflicted firms to respond so generously to the suffering of others when they themselves face nontrivial post-disaster recovery costs.

This seemingly irrational behavior may, in part, reflect strategic motivations. If firms suffer losses in firm value during times of crisis, they may engage in philanthropy in the hope that looking 'socially responsive' (Patten, 2008: 599; Carroll, 1979) will help them recover shareholder value lost during the disaster. Specifically, managers may expect donations to generate the 'reputational capital' (Godfrey, 2005: 779) that will enhance firm value, by strengthening relationships with key stakeholders (Hillman and Keim, 2001; Jones, 1995) and improving firms' access to the critical resources required for post-disaster recovery (Wang, Choi, and Li, 2008). Thus, if disasters lead to losses in shareholder value, firms may respond with donations in the hope that markets will reward them for an improved post-disaster outlook.

However, this potential strategic motive may be contingent upon how much value is lost, and it is known that some firms lose more value during negative events than others (Knight and Pretty, 1999). The 'insurance' perspective suggests that firms with strong reputations for corporate social responsibility (CSR) will be able to preserve firm value in times of crisis better than firms with weak reputations for CSR (Godfrey *et al.*, 2009; Schnietz and Epstein, 2005).

Yet in most studies the measurement of a reputation for CSR remains relatively coarse-grained (Mattingly and Berman, 2006) and, thus, which part of a firm's reputation matters is unclear. In particular, if CSR consists both of responsible behavior ('good deeds') and irresponsible behavior ('bad deeds'), the two may be conceptually distinct and subject to different dynamics (Brammer and Millington, 2008; Clark, 2008; Doh *et al.*, 2010; McGuire, Dow, and Argheyd, 2003).

Distinguishing between good and bad deeds may help us better understand the relationship between social performance and financial performance (Strike, Gao, and Bansal, 2006). For instance, research suggests that irresponsible behavior may be a more important determinant of firm value than responsible behavior (Clark, 2008; Frooman, 1997; McGuire *et al.*, 2003). Research also shows that philanthropy is a tool commonly used by firms that are known for irresponsible behavior (Brammer and Millington, 2005; Williams and Barrett, 2000) and may be part of a strategy of doing good deeds to compensate for prior bad deeds (Kotchen and Moon, 2008). Thus when disaster strikes, it may be that irresponsibility, firm value, and the likelihood of philanthropy are related in predictable, systematic ways. This is the focus of our paper.

We investigate these relationships based on the experience of U.S. Fortune 500 companies during the 2005 Hurricane Katrina disaster. We first consider whether Hurricane Katrina was a 'negative event' with adverse effects on stock prices. Second, we explore how a reputation for irresponsibility is related to how well a firm's stock price was able to 'weather the storm' of Katrina's economic effects. Third, we investigate how a reputation for irresponsibility is related to the likelihood of disaster donations, or 'corporate philanthropic disaster response' (Muller and Whiteman, 2009), in the days and weeks that followed. We find that Hurricane Katrina had a significant negative impact on firms' stock prices. Further, we find that the more a firm was known for bad deeds, the greater the drop in its market value *during* Katrina and the greater the likelihood of engaging in corporate philanthropic disaster response (hereafter 'CPDR') *after* Katrina. We conclude with implications for theory and practice.

THEORY AND HYPOTHESES DEVELOPMENT

Negative events and firm value

Hurricane Katrina was not only an unprecedented human catastrophe in recent U.S. history, causing at least 1,577 known deaths and affecting over half a million people along the Gulf Coast (Hunter, 2006). The storm also damaged oil refineries and knocked out radio and television stations, phone lines, and cell phone masts; ports accounting for 4.5 percent of total U.S. exports and 5.4 percent of total U.S. imports were damaged, and disruptions to commerce and trade caused the loss of thousands of jobs and millions of dollars in tax revenue. According to a report by global reinsurer SwissRe (2007), total economic losses resulting from Hurricane Katrina were assessed at $125 billion, making it the costliest hurricane to ever hit the United States.

At the end of August 2005, however, the impact of Hurricane Katrina on the nation's economy was largely unknown (Neikirk, 2005). Importantly, this uncertainty extended well beyond the Gulf Coast region: the *Dallas Morning News* (2005) reported on September 1 that Katrina's effects would be 'widespread,' possibly shaving a percentage point off the U.S. growth rate in the second half of 2005. *Crain's Chicago Business* magazine observed how Illinois-based companies that depend on Mississippi River transport were also affected by supply disruptions at the Port of New Orleans, and that 'countless other local businesses will feel the storm's ripple effects in the form of higher costs for fuel, shipping and a range of commodities,' effects that would take 'weeks or months' to fully assess (Daniels, 2005: 1). For instance, U.S. farmers, who rely on having nearly 50 percent of their fertilizer imports shipped up the Mississippi, did not know if they would have to wait days or months for shipping to resume (Bernick, 2005; cf. also Boone, 2005), and confectioners and other sugar-heavy manufacturers 'scrambled' to secure sugar supplies after the port closure (Pacyniak, 2005: 4).

The uncertainty associated with Hurricane Katrina's economic impact can be linked to concerns of 'deadweight costs' to firms, such as costs associated with diversion of managerial time and attention, employee strain, supplier terms being tightened, or supply chain uncertainties (Godfrey

et al., 2009; Kleindorfer and Saad, 2005). Restaurant chain O'Charley's, for instance, issued a statement on September 6, 2005 that '[d]ue to the uncertain impact of Hurricane Katrina and its aftermath' they would be issuing revised earnings projections for 2005 later on in the year (Business Wire, 2005). This type of uncertainty associated with salient negative events like Katrina can be expected to 'engage investors in active sensemaking and reevaluation of a firm' (Pfarrer *et al.*, 2010: 1133).[2] If such reevaluations led to the anticipation of future deadweight costs to U.S. firms (e.g., Frooman, 1997; Rao and Hamilton, 1996; Schnietz and Epstein, 2005), this may have driven down perceptions of asset value. We hypothesize that:

> *Hypothesis 1: Hurricane Katrina is a 'negative event' associated with negative abnormal stock returns to shareholders of major U.S. firms.*

Irresponsibility and the insurance value of reputation

While negative shocks typically have negative impacts on firms, not all firms are affected to the same degree (Knight and Pretty, 1999). Recent research shows that this variation is to some degree a function of reputation: in times of crisis, firms with strong reputations for CSR suffer less because they are expected to face fewer deadweight costs (Godfrey *et al.*, 2009; Schnietz and Epstein, 2005). However, exactly which behaviors constitute a strong reputation for CSR remains a subject of debate (Mattingly and Berman, 2006). Recent studies have observed that firms not only do good but also bad, and may do both simultaneously (Fombrun, Gardberg, and Barnett, 2000; Mishina *et al.*, 2010). For example, even as Nike donated millions of dollars following the 2004 South Asian tsunami, it faced accusations of exploitative labor practices in developing countries (Strike *et al.*, 2006).

Given the simultaneous occurrence of deeds both good and bad, researchers have increasingly come to consider the two as conceptually distinct

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[2] One study (Roe, 2006) reported that out of 345 *New York Times* and *USA Today* articles on Hurricane Katrina that appeared between 30 August and 7 September 2005, more than 20 percent addressed the hurricane's possible economic effects—more than any other theme identified in the articles, including disaster relief, destruction, displacements, or donation activity. It is this kind of attention, and the uncertainty associated with it, that we expect drives active reevaluation of firms by investors.

phenomena that are subject to different dynamics (Godfrey *et al.*, 2009; Mattingly and Berman, 2006; McGuire *et al.*, 2003; Sharfman and Hart, 2007) instead of collapsing the two into a single measure. Strike *et al.* (2006) note that the failure to disaggregate the positive from the negative in prior research likely explains, in part, the inconclusive findings on the relationship between social performance and financial performance. Hence, we approach social responsibility and social irresponsibility as conceptually distinct dimensions of CSR, and, thus, as conceptually distinct foundations of firms' reputations for CSR.

If reputation is an assessment that allows stakeholders to estimate probabilities of future social behavior based on past behaviors (Pfarrer *et al.*, 2010), the question remains as to which past behaviors are going to preserve firm value during a negative event. While some suggest that good deeds—like corporate philanthropy—form the 'moral reputational capital' that shields firms from negative market repercussions in times of crisis (Godfrey, 2005: 783), much of the empirical evidence suggests bad deeds matter most when it comes to firm value effects (Creyer and Ross, 1996; Frooman, 1997; McGuire *et al.*, 2003; Rao and Hamilton, 1996). The disproportionate emphasis on the 'bad' over the 'good' may be due to 'negativity bias': that is, in a stakeholder's assessment of a firm, negative information generates negative responses that are several orders of magnitude greater than the positive response to positive information, due to the higher salience and assumed importance of negative information as a diagnostic (McGuire *et al.*, 2003; Pfarrer *et al.*, 2010).

If so, the firm value effects of a reputation for CSR may be more closely determined by a company's history of bad deeds than its history of good deeds. For instance, while Schnietz and Epstein (2005) did not explicitly parse out the effects of good versus bad deeds in their analysis of stock price movements following the collapse of the 1999 World Trade Organization (WTO) talks, their theoretical argument suggests bad deeds may have been most important.[3] Thus

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[3] According to Schnietz and Epstein (2005: 328), the central issues behind the WTO meeting's failure were the 'allegedly environmentally and labor abusing practices of multinational firms.' By extension, their industry effects ('irresponsible industries') appear to capture doing less bad, as opposed to doing more good (Schnietz and Epstein, 2005: 331–332).

the future costs associated with the failure to reach an agreement could be expected in the area of reducing bad behavior as opposed to precipitating new good behavior. Based on similar reasoning, Barnett and Salomon (2006) find that mutual funds using a higher number of screens against irresponsible behavior demonstrate superior financial performance (up to a point), and others also suggest that it is investments in the reduction of irresponsible behavior that lead to market value (Dowell, Hart, and Yeung, 2000; McGuire *et al.*, 2003). In a disaster such as Hurricane Katrina, markets might expect firms saddled with associations of irresponsible behavior to incur greater challenges (and higher deadweight costs) in regaining the confidence of their key stakeholders. Thus:

Hypothesis 2: The more a firm is known for social irresponsibility, the greater the negative impact will be of Hurricane Katrina on the firm's stock returns.

Reputations for irresponsibility and the likelihood of CPDR

Corporate philanthropy may be driven by multiple factors, be they financial considerations, stakeholder responsiveness, or the social relationships and positions of managers involved (Brammer and Millington, 2004; Galaskiewicz, 1997; Galaskiewicz and Burt, 1991; Useem, 1988). From a reputational perspective, some firms may engage in CPDR in order to maintain a preexisting reputation for responsibility. Given that reputation is by definition a perception-based imputation of the firm's predictability and reliability in the CSR arena (Rindova and Fombrun, 1999), responsiveness to Katrina should help to sustain those reputations, which require steady, incremental investments in CSR over time but are easily lost (Godfrey, 2005). It is therefore likely that a history of good deeds will drive responsiveness to an emergent situation like Hurricane Katrina, interpreted through the lens of the firm's prior responsiveness (Bansal and Roth, 2000; Dutton and Dukerich, 1991; Sharma, 2000).

We extend beyond these arguments to focus instead on the possibility of CPDR stemming from a history of *irresponsibility*. Our previous reasoning suggests that irresponsible firms will have suffered disproportionate falls in stock returns from

the disaster, and thus from an economic rationality perspective might be expected to avoid discretionary outlays in order to better focus on the road ahead. Yet if firms suffer losses in firm value during times of crisis, they may engage in philanthropy in the hope that looking 'socially responsible' (Carroll, 1979; Patten, 2008) will help them recover shareholder value lost during the disaster. Specifically, managers may expect donations to generate the 'reputational capital' (Godfrey, 2005: 779) that will enhance firm value by strengthening relationships with key stakeholders (Hillman and Keim, 2001; Jones, 1995) and improving firms' access to the critical resources required to overcome the negative effects of the disaster (Wang *et al.*, 2008).

It is widely accepted that managers can and do engage in philanthropy for strategic reasons like public relations (Carroll, 1979; Saiia, Carroll, and Buchholtz, 2003), and recent research suggests managers use philanthropy as a tool to manage volatility in their economic performance (Lev, Petrovits, and Radhakrishnan, 2010). Additionally, the use of philanthropy as a strategic tool is more common among firms with reputation deficits (Williams and Barrett, 2000) or even those known for irresponsibility (Brammer and Millington, 2005).[4] To this end, managers of irresponsible firms may see a high-profile disaster as a relatively manageable, one-off opportunity to benefit from potential reputational gains. In the short term, managers may expect CPDR to help mitigate some of the deadweight costs associated with reconstituting markets or restoring operations, anticipating the goodwill generated by such charity will improve access to resources and woo back customers. In the longer term, managers may expect CPDR to have a lasting positive impact on their firm's reputation. For instance, after years of allegations of bad labor practices, Wal-Mart was touted as a role model for corporate disaster relief in Katrina's aftermath (Barbaro and Gillis, 2005). Thus:

Hypothesis 3: The more a firm is known for social irresponsibility, the greater the likelihood it will engage in CPDR following Hurricane Katrina.

Finally, if firm value is central to such behavior, it is likely that the strategic motivation to give would be most acute among irresponsible firms whose stock prices had suffered the most from Katrina's impact (Hypothesis 2). We hypothesize the following:

Hypothesis 4: The greater the negative impact of Hurricane Katrina on a firm's stock returns, the stronger the relationship will be between social irresponsibility and the likelihood of engaging in CPDR following Hurricane Katrina.

DATA AND METHODOLOGY

For our initial sample we used the 2004 listing of the U.S. Fortune 500. Of these, 37 firms were not publicly listed, and 21 firms had been acquired, merged, or had gone out of business in the first eight months of 2005, leaving an initial sample of 442 firms.

Katrina-related abnormal returns

Hypotheses 1 and 2 center on the potentially negative economic impacts of Hurricane Katrina. We analyze Katrina's impact on stock price by using standard event study methodology (Brown and Warner, 1985). We calculate the cumulative abnormal returns (CAR) associated with Hurricane Katrina over the period [−1, 0] (with Friday, 26 August as day −1, and Monday, 29 August as day 0), trying to keep the event window as short as possible (McWilliams and Siegel, 1997) while recognizing that negative effects from Katrina were likely already anticipated before it hit the Gulf Coast on 29 August.

Daily returns were calculated using the log-normal formula $R_t = \ln(P_t/P_{t-1})$ over the interval from 20 August 2004 to 21 August 2005 (or 254 trading days). Abnormal returns represent the differences between the *ex post* return of a security over the event window and the normal, expected return for the firm over the event window. We use the market model linking the return of a security to the market portfolio of that security in order

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[4] We note that responsible behavior in some cases may be directly addressed at rectifying irresponsible behavior. If a firm with a reputation for poor employee relations imports work-life initiatives into the workplace (Arthur, 2003), this should ultimately reduce its reputation for irresponsibility. In the case of corporate philanthropy—including CPDR—such a direct relationship is less evident, if not completely absent.

to derive the normal expected return (Brown and Warner, 1985; MacKinlay, 1997), modeled as:

$$R^*_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it},$$

where R^*_{it} is the model return t of security i and R_{mt} is the return of the market portfolio, and ε_{it} is the disturbance term that has a zero mean. To derive the abnormal return, we use the formula:

$$AR^i_t = R_{it} - \hat{\alpha}_i - \hat{\beta}_i R_{mt},$$

where AR^i_t is the abnormal return t of security i, R_{it} and R_{mt} are the returns on t of security i and the market portfolio, respectively. The parameters $\hat{\alpha}_i$ and $\hat{\beta}_i$ are estimated by an ordinary least squares (OLS) regression. By means of substitution, the following measure of an individual stock's abnormal return on a given day t is generated as:

$$AR^i_t = R_{it} - R^*_{it},$$

which is then cumulated over the event window. The S&P 500 Composite Index is used as a benchmark to calculate daily volatility of stock returns. Return data for the S&P 500 composite were taken from the Center for Research in Security Prices (CRSP) database from 1 September 2004 until 28 February 2006. This event study required the identification of potentially contaminating events during the Katrina event window $[-1, 0]$, which reduced our sample by 40 firms as documented in Appendix Table A1 (McWilliams and Siegel, 1997).[5] Given the impact of Hurricane Katrina on the oil industry, we also omitted 19 oil production and refining firms as 'contaminated,' leaving a sample of 383 firms for our Katrina-impact event study.

Likelihood of engaging in CPDR

Hypotheses 2 and 3 are aimed at identifying characteristics that distinguish firms engaging in CPDR

and those that do not. We searched company Web sites, press release archives, and newswires and major U.S. newspapers via Lexis-Nexis for Katrina donation announcements, finding evidence of CPDR for 245 of the initial 442 firms. After elimination of the oil industry firms[6] and firms with contaminating events (as above), we retained 206 donors in our working sample (of 383 firms). To model the difference between donors and nondonors, we use binomial (maximum likelihood) logistic regression, which takes a dichotomous outcome variable and is used to generate odds ratios for the outcome variable instead of coefficients alone (Hair *et al.*, 1995). The odds ratio is expressed as:

$$P(Y) = 1/(1 + e^{-z}),$$

where Y is the dependent variable equal to the chance a firm will donate, and Z is a linear combination of independent variables, or:

$$Z = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots + \beta_n X_n.$$

Binomial regression thus sheds light on factors significantly related to the likelihood a given firm will donate.

Independent variables

Social irresponsibility was measured in line with existing research based on the 'concerns' data from the Kinder, Lydenberg, and Domini (KLD) database (Doh *et al.*, 2010; Strike *et al.*, 2006). These are the most commonly used data on CSR and have been shown to be valid measures (Mattingly and Berman, 2006; Sharfman and Hart, 2007). To reflect the historical aspect of reputation, we used as our base variable the average number of concerns per year per firm, cumulated across all seven dimensions, during the 2000–2004 period (community relations, corporate governance, diversity, employee relations, environment, human rights, and product). We took a longitudinal perspective in accordance with the view that reputation is constructed over time (Pfarrer *et al.*, 2010). A log-transformed measure, shown to most closely approximate the normal

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[5] With respect to contaminating events, we note that there is no reason *ex ante* to assume that such events are going to be positive or negative (Meznar, Nigh, and Kwok, 1998). In the absence of systematic patterns, the inclusion of firms with contaminating events would only introduce noise into the analysis. We report the results of our analyses under the most stringent conditions, that is, excluding firms with contaminating events, but note below that we ran various specifications of the models reported in Table 3, including and excluding firms with contaminating events. The results are materially similar to those reported here, albeit at weaker significance levels for both individual predictors and for the models as a whole.

[6] We eliminate the oil firms here for sample consistency across the two analyses, but note that our logistic regression results below are robust to their inclusion.

distribution requirements in terms of skewness and kurtosis, was seen as preferable to non-transformed or square root transformations (Sharfman and Hart, 2007).[7] More on the measure for social irresponsibility can be found in the Appendix.

Control variables

We controlled for *industry,* since previous research has shown it to be related to both corporate philanthropy and reputation (Adams and Hardwick, 1998; Bertels and Peloza, 2008; Brammer and Pavelin, 2005), and is a key factor in determining financial performance (Hansen and Wernerfelt, 1989). We created 12 industry dummies based on Fortune 500 classifications. Our model also controls for both *advertising intensity* (2004 advertising expenditures divided by total sales) and *research and development* (R&D) *intensity* (2004 R&D expenditure divided by total sales) since it has been established that advertising is related to corporate philanthropy (Fry, Keim, and Meiners, 1982) and R&D intensity is related to both intangible assets (including reputation) and financial performance (McWilliams and Siegel, 2000). Given the economic impact of Katrina on the Gulf Coast, we also controlled for the potential effects of having a significant *local presence* in the region. We examined 2004 10-K Security and Exchange Commission filings and looked for evidence of operations in the four federally identified disaster states of Florida, Alabama, Mississippi, and Louisiana under 10-K Item II ('Properties') and the list of 'principal subsidiaries' in the 10-K appendix. In our sample, 290 firms had an identifiable presence in one or more of these four states.

In accordance with the literature on corporate philanthropy, we also controlled for *size* and *profitability*, both of which have known correlations with corporate philanthropy and stock market performance (Adams and Hardwick, 1998; Brammer and Millington, 2004; Fry *et al*., 1982; Galaskiewicz, 1997; Useem, 1988). Size was measured as the natural log of total revenues and profitability as the ratio of net profit to sales, both for 2004. We also controlled for *leverage* measured as the ratio of debt to equity (Schnietz and

Epstein, 2005). Finally, we controlled for *social responsibility* ('good deeds'), to account for the possibility that good deeds may play some role in terms of both reputation and the likelihood of donation. A measure of social responsibility was constructed by counting the average number of strengths reported in the KLD for each firm (per year) over the 2000–2004 period (log transformed).

RESULTS

Social irresponsibility and Katrina-related abnormal returns

We report the results for our event study of Katrina-related abnormal returns in Table 1 (n = 383). The table shows that, overall, Hurricane Katrina's landfall was associated with a 0.27 percent drop in stock prices (Hypothesis 1), which at a median market capitalization of just over $10 billion, translates to a loss of more than $27 million in firm value.[8] Table 1 also presents results for subgroups based on quartiles of social irresponsibility as an initial test of Hypothesis 2. The subgroups analysis provides an initial indication that the degree to which a firm's stock price suffered during the Katrina disaster varied by degree of social irresponsibility. Subgroups 1 (very few concerns) and 4 (very many concerns) are significantly abnormal and negative, while subgroups 2 (few concerns) and 3 (many concerns) are negative but nonsignificant. *Post hoc* pair-wise comparisons reveal that subgroups 1 and 3 differ significantly.[9]

We further tested Hypothesis 2 by regressing Katrina-related abnormal returns on the controls and predictor variables through OLS regressions. Descriptive statistics and bivariate correlations between all measures are reported in Table 2.[10] Of the 383 cases in Table 1, 29 were missing values

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[7] For our log-transformed measure of irresponsibility, skewness and kurtosis statistics were −0.095 and −0.375, respectively.

[8] All results in Table 1 are Winsorized (1%) to counter the potential effects of outliers on the analysis.

[9] For comparison, subgroups based on responsibility (KLD strengths), were all abnormally negative, and exhibited no significant between-group differences.

[10] Descriptions for all measures appear prior to any transformation, while the correlations for transformed variables are reported where relevant. We standardized and normalized Katrina-related abnormal returns in our OLS regressions using Blom's technique (Blom, 1958) to control for possible effects of non-normality on our model specifications. For purposes of visual interpretation, we use untransformed coefficients to plot Figure 1.

Table 1. Abnormal returns during the Hurricane Katrina disaster (CAR [−1, 0])[a]

	Mean	t-stat.	BinomZ[b]
Overall	−0.27%	−4.47**	44%**
Quartiles			
Q1: Very few concerns	−0.38%	−3.56*	36%*
Q2: Few concerns	−0.17%	−1.28	47%*
Q3: Many concerns	−0.02%	−0.30	46%*
Q4: Very many concerns	−0.24%	−2.10*	46%*

n = 383.
* and ** indicate $p < 0.05$ and $p < 0.01$, respectively.
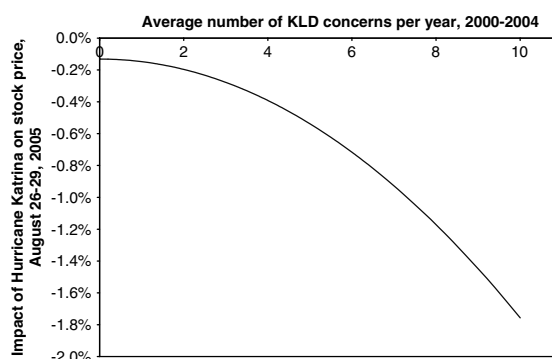[a] All values are Winsorized at 1%.
[b] Tests the significance of differences in proportion of positive to negative CAR values, relative to the market model.

for *R&D intensity, advertising intensity*, or *leverage*. The OLS and logit regression models were run on a sample of 354 firms.

Table 3 reports the OLS regression results of Katrina-related abnormal returns (CAR [−1, 0]) on our controls (Model 1) and our predictor, social irresponsibility (Models 2 and 3). The main effects model (Model 2) in Table 3 shows social irresponsibility to be positive but weakly significant. Based on the results in Table 1, and in keeping with the results of Barnett and Salomon (2006) and Wang *et al*. (2008) who find evidence of curvilinear relationships between social and financial performance, we include a quadratic term for social irresponsibility (mean-centered) in our final specification (Model 3). When the quadratic term for social irresponsibility is introduced in Model 3, the main effect becomes nonsignificant, while the quadratic term is significant and negative. These results indicate that when controlling for other factors, the negative effects of Hurricane Katrina on stock prices are greater (increasingly so) as social irresponsibility increases. This relationship in support of Hypothesis 2 is captured in Figure 1.[11]

*Constructed using coefficients derived from an OLS regression model as in Table 3, Model 3, but specified using the untransformed Katrina CAR measure and untransformed KLD concerns (constraining all controls to their mean values) in order to better visualize the relationship.

Figure 1. Irresponsibility and abnormal returns during Hurricane Katrina

The models in Table 3 are significant overall and the introduction of the quadratic term in Model 3 led to a significant improvement in the model's explanatory power.[12] Examination of scatter plots of the predicted values and residuals revealed no outliers or evidence of heteroskedasticity. The highest variance inflation factor in Model 3 was 2.16 and the condition number was 11.3, well within acceptable bounds (Hair *et al*., 1995). We do observe, however, that the adjusted R^2 values for the models in Table 3 are low, and, thus, that our models only explain a limited portion of the variance in the data. While low R^2 values clearly present limitations, this level of explanatory power is not uncommon in strategy research (see e.g., Godfrey *et al*., 2009 for a recent example).

Reputation for irresponsibility and the likelihood of CPDR

For Hypotheses 3 and 4, we introduce both main effects and interactions into our specified logit model. Given the results in Table 3 above, we continue to use the quadratic term for social irresponsibility, since the relationship between social irresponsibility and donation likelihood may be a

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[11] The subgroup analysis in Table 1 suggests more of an inverted U than the curve depicted in Figure 1. These seemingly contradictory results may be an artifact of the data: ANOVA reveals that the four subgroups differ systematically and significantly in their size, profitability, and R&D expenditure. For instance, with respect to size and profitability, subgroup 1 ('very few concerns') is the smallest and worst performing and subgroup 4 ('very many concerns') is the largest and best performing. Subgroup 4 also has the highest R&D spending and subgroup 1 the lowest. Smaller size, lower performance and lower R&D expenditure may be associated with greater uncertainty and investor skepticism during a time of crisis. The OLS models in Table 3 control for these factors, while the direct comparison in Table 1 does not.

[12] Although our analysis is aimed at uncovering the link between a history of bad deeds and firm value in times of crisis, we ran specifications with a quadratic term for social responsibility ('good deeds') in isolation and in conjunction with social irresponsibility in order to control for any alternate explanation of the insurance value of reputation. We found no evidence of any relationship between social responsibility and Katrina-related abnormal returns, linear or curvilinear. Additional information is available from the authors on request.

Table 2. Descriptive statistics and bivariate correlations

	Mean	StDev	1	2	3	4	5	6	7	8	9
1 Katrina CAR (%)[a]	−0.32	0.01	1								
2 Donated Y/N	0.54	0.50	0.044	1							
3 Size (sales, $mln)[a]	$12,503	$17,548	0.018	0.314**	1						
4 Profits[a]	$703	$1,573	0.087	0.302**	0.493**	1					
5 Adv intensity[a]	0.01	0.03	−0.025	0.128*	0.039	0.158**	1				
6 R&D intensity[a]	0.02	0.05	0.163**	0.104*	−0.004	0.019	0.026	1			
7 Leverage[a]	1.25	5.41	0.033	0.007	−0.01	−0.051	−0.049	0.032	1		
8 Gulf Coast presence	0.65	0.48	−0.026	−0.071	0.155**	0.050	−0.103	−0.243	−0.017	1	
9 Responsibility[a]	2.41	2.09	0.059	0.296**	0.390**	0.316**	0.126*	0.198**	0.027	0.004	1
10 Irresponsibility[a]	3.19	1.73	0.097	0.278**	0.441**	0.196**	−0.022	0.102*	0.010	0.101*	0.324**

n = 354.
[a] Descriptives are prior to transformation; $ values in US millions.
* and ** indicate p < 0.05 and p < 0.01, respectively.

Table 3. OLS regressions of Katrina-related cumulative abnormal returns

	Model 1		Model 2		Model 3	
	B	SE	*B*	SE	*B*	SE
(Constant)	−0.22	0.21	−0.29	0.21	−0.19	0.22
Aero/Auto	0.12	0.10	0.11	0.10	0.10	0.10
Chem/Pharma	0.42	0.27	0.37	0.27	0.41	0.27
Comp/Electr	0.31	0.25	0.32	0.25	0.29	0.25
FMCG	0.70	0.25***	0.70	0.25***	0.74	0.25***
Indust/Constr	0.26	0.21	0.27	0.21	0.26	0.21
Media/Leisure	0.35	0.25	0.37	0.25	0.37	0.25
Mining/Materials	0.95	0.33***	0.90	0.33***	0.95	0.33***
Retail	0.44	0.20**	0.49	0.20**	0.51	0.20**
Services	0.23	0.20	0.26	0.20	0.26	0.20
Telco/Transport	0.01	0.26	0.02	0.26	0.07	0.26
Utilities	0.44	0.22**	0.35	0.23	0.40	0.23*
Size	−0.07	0.08	−0.12	0.09	−0.10	0.09
Profitability	0.17	0.07**	0.17	0.07**	0.16	0.07**
Advertising intensity	−0.10	0.07	−0.11	0.07	−0.11	0.07
R&D intensity	0.20	0.09**	0.19	0.09**	0.20	0.09**
Leverage	0.02	0.05	0.02	0.05	0.01	0.05
Gulf Coast presence	0.07	0.11	0.04	0.11	0.04	0.11
Responsibility	0.00	0.08	−0.02	0.08	−0.01	0.08
Irresponsibility			0.19	0.12*	0.13	0.12
Irresponsibility^2					−0.29	0.14**
R^2	0.09		0.10		0.11	
R^2 adj	0.04		0.05		0.06	
F-statistic	1.828**		1.891**		2.047***	
F change	1.828**		2.833**		4.629***	

n = 354.
*, **, and *** indicate p < 0.10, p < 0.05, and p < 0.01, respectively.

curvilinear one. As a result, we are introducing not only main-effects interactions but interactions between quadratic and linear terms. To do so, we follow the sequence of interactions recommended by Hair *et al.* (1995) and executed by Janssen (2001), as follows:

$$Y = b_1 X + b_2 X^2 + b_3 Z + b_4 XZ + b_5 X^2 Z + c_0,$$

where X is social irresponsibility and Z represents Katrina-related abnormal returns (Katrina CAR [−1, 0]). The results of the binomial logistic regressions are reported in Table 4.

Table 4. Logistic regression models predicting donation likelihood (n = 354)

|	Model 1			Model 2			Model 3			Model 4			Model 5		
	B	SE	O.R.	B	SE	O.R.	B	SE	O.R.	B	SE	O.R.	B	SE	O.R.
Constant	−1.19	0.59**	0.30	−1.56	0.62**	0.21	−1.60	0.63**	0.20	−1.56	0.62**	0.21	−1.57	0.62**	0.21
Aero/Auto	−1.03	0.81	0.36	−1.02	0.82	0.36	−1.02	0.82	0.36	−1.05	0.82	0.35	−1.04	0.82	0.35
Chem/Pharma	−0.25	0.81	0.78	−0.21	0.81	0.81	−0.21	0.81	0.81	−0.26	0.81	0.77	−0.25	0.82	0.78
Comp/Electr	−1.36	0.72*	0.26	−1.31	0.73*	0.27	−1.32	0.73*	0.27	−1.35	0.73*	0.26	−1.33	0.73*	0.26
FMCG	−0.94	0.65	0.39	−1.09	0.66	0.34	−1.10	0.66	0.33	−1.10	0.66	0.33	−1.09	0.66*	0.34
Indust/Constr	−1.42	0.62**	0.24	−1.40	0.62**	0.25	−1.40	0.62**	0.25	−1.43	0.62**	0.24	−1.44	0.62**	0.24
Media/Leisure	−0.04	0.62	0.97	−0.02	0.62	0.98	−0.03	0.62	0.98	−0.04	0.62	0.97	−0.04	0.62	0.97
Mining/Materials	−0.98	0.85	0.38	−1.16	0.86	0.31	−1.14	0.86	0.32	−1.19	0.86	0.31	−1.15	0.87	0.32
Retail	0.06	0.55	1.06	0.01	0.54	1.01	0.01	0.54	1.01	0.02	0.54	1.02	0.02	0.55	1.02
Services	−0.94	0.55*	0.39	−0.93	0.55*	0.39	−0.93	0.55*	0.40	−0.94	0.55*	0.39	−0.98	0.55*	0.38
Telco/Transport	0.50	0.69	1.64	0.38	0.69	1.46	0.37	0.69	1.44	0.38	0.69	1.46	0.36	0.69	1.43
Utilities	−0.54	0.58	0.58	−0.72	0.59	0.49	−0.70	0.60	0.50	−0.70	0.60	0.50	−0.71	0.60	0.49
Size	0.55	0.23**	1.73	0.51	0.23**	1.66	0.49	0.23**	1.64	0.50	0.23**	1.65	0.50	0.23**	1.65
Profitability	0.31	0.17*	1.37	0.36	0.17**	1.43	0.36	0.17**	1.43	0.35	0.17**	1.42	0.36	0.17**	1.43
Advertising intensity	0.08	0.18	1.08	0.09	0.18	1.10	0.10	0.18	1.10	0.10	0.18	1.11	0.10	0.18	1.11
R&D intensity	0.51	0.26*	1.66	0.47	0.26*	1.61	0.47	0.27*	1.60	0.49	0.27*	1.63	0.48	0.27*	1.62
Leverage	0.07	0.13	1.08	0.09	0.13	1.10	0.09	0.13	1.10	0.08	0.13	1.09	0.09	0.13	1.10
Gulf Coast presence	−0.66	0.28**	0.52	−0.68	0.28**	0.51	−0.68	0.28**	0.51	−0.68	0.28**	0.51	−0.67	0.28**	0.51
Responsibility	0.52	0.20**	1.68	0.53	0.20**	1.70	0.54	0.21**	1.71	0.53	0.21**	1.70	0.53	0.21**	1.69
Irresponsibility	0.72	0.29**	2.05	0.98	0.32***	2.65	0.97	0.32***	2.64	0.99	0.33***	2.69	1.01	0.33***	2.73
Irresponsibility²				0.83	0.40**	2.29	0.82	0.40*	2.26	0.77	0.41*	2.17	0.73	0.41*	2.08
Katrina CAR							0.09	0.13	1.10	0.13	0.14	1.14	0.09	0.15	1.09
Irresponsibility × Katrina CAR										0.16	0.26	1.17	0.00	0.33	1.00
Irresponsibility² × Katrina CAR													−0.29	0.39	0.75
X²	95.925***			100.123***			100.630***			101.017***			101.579***		
Cox & Snell	0.237			0.246			0.247			0.248			0.249		
Nagelkerke	0.316			0.328			0.330			0.331			0.333		
Hosmer and Lemeshow	0.585			0.911			0.944			0.972			0.985		

*, **, and *** indicate $p < 0.10$, $p < 0.05$, and $p < 0.01$, respectively.

Table 4 introduces predictors and interactions step by step as seen in Models 1 through 5. Model 1 shows that the main effect for social irresponsibility is significant and positive, with an odds ratio of 2.05, indicating that an increase in social irresponsibility by one standard deviation equates to a doubling of the odds ratio (the chance of donating over the chance of not donating). In Model 2 we introduce the quadratic term for social irresponsibility, which is also positive and significant with an odds ratio of 2.29. The change in the X^2 statistic from Model 1 to Model 2 is significant (4.198, $p < 0.05$). These results show that the likelihood of donating in response to the Hurricane Katrina disaster increased in a positive, nonlinear fashion as a firm's past record of social irresponsibility increased, providing support for Hypothesis 3.

Model 3 introduces the main effect for Katrina-related abnormal returns (Katrina CAR $[-1, 0]$), which is nonsignificant and does not lead to a significant improvement in the model. Models 4 and 5 introduce the interactions between Katrina-related abnormal returns and the linear and quadratic terms for social irresponsibility, respectively (Hypothesis 4). Both interactions are nonsignificant and have no bearing on the model. Therefore, Models 4 and 5 provide no evidence that the loss of firm value during the Hurricane Katrina disaster moderated the role of social irresponsibility in driving CPDR, and thus Hypothesis 4 is not supported. We do observe that firms with a local presence were about half as likely to donate as firms without a local presence, a result consistent with our assumption that CPDR would be less likely when firms are preoccupied with dealing with the disaster itself. All models were significant, fit the data well, and demonstrate good explanatory power, as evidenced by the pseudo-R^2 values, Hosmer and Lemeshow statistics, and predictive power.[13]

The results for Hypothesis 3 are presented visually in Figure 2, which reports the effect of irresponsibility on the odds ratio of donating versus not donating (since the coefficients for both linear and curvilinear measures of social irresponsibility are significant, the curve in Figure 2 incorporates both the linear and curvilinear effects). To
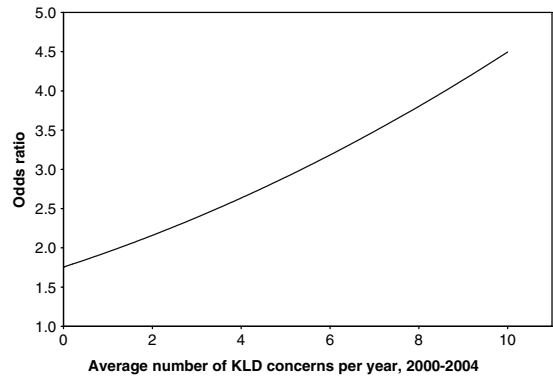
*Constructed using exponentiated coefficients derived from a logit model specified as in Model 2 of Table 4, but specified with untransformed measures of the linear and quadratic terms for irresponsibility (constraining all control variables to their mean values) in order to better visualize the relationship.

Figure 2.   Irresponsibility and likelihood of CPDR in response to Hurricane Katrina

produce the curve, we calculated the probabilities for the full range of values of irresponsibility and irresponsibility^2, added the marginal effect at the mean values of the controls alone (0 on the x-axis), and exponentiated the results. The figure indicates that, for instance, the odds ratio based on the control variables alone is 1.75, while at the average level of irresponsibility (3.19 concerns on average per year) the likelihood of donating is 2.44 times greater than the likelihood of not donating. By comparison, at a very high level of irresponsibility (10 concerns per year on average) the odds ratio rises to 4.49.

To check the generalizability of our results, we reran the OLS and logistic regression models reported in Table 3 and Table 4 including the 40 firms with contaminating events, and again with the 19 oil firms, and also using all 442 cases (replacing missing variables with the mean). Our results were robust to these alternate specifications, although, as might be expected, doing such tests introduces more noise into our models, affecting significance levels as well as the models' overall R^2 values.[14] It could be argued that

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[13] As with the OLS regressions above, we also ran all logit model specifications including quadratic terms for social responsibility, both in isolation and in conjunction with social irresponsibility. The quadratic term was nonsignificant and had no further effect on the model.

[14] We also ran a number of additional specifications, not reported here, in order to address additional explanations, such as the notion that good deeds may offset bad deeds (cf. Kotchen and Moon, 2008) in terms of both the insurance value of reputation and the 'need' to donate. To test this, we introduced an interaction between responsibility and irresponsibility in the OLS and logistic regressions, but found no significant effect. We also considered the possibility that a local presence might negatively moderate the relationship between reputation and firm value, since local presence and reputation could have an impact on

social responsibility and irresponsibility are relatively broad measures given our paper's focus on corporate philanthropy. To conduct a more targeted analysis of reputation, we ran our regression models using a more stringent measure of social irresponsibility, namely, a firm's concerns in the area of 'community relations' (in which philanthropic activity falls) as reported in the KLD. In this specification (not reported here), the dummy variable for community relations concerns was a significant and positive predictor of donation likelihood, lending credence to the results reported above. We conducted the same analysis using a dummy for community relations 'strengths' and found no significant relationship, which again reinforces our initial findings based on the broader KLD variables.[15]

Post hoc analysis: the market's response to CPDR announcements

Our results support the notion that the value of CSR during times of crisis comes from a history of doing less bad, as opposed to more good. If so, there is no reason to expect markets would react positively to Katrina donations. As a robustness check, we investigate whether CPDR announcements were themselves associated with abnormal returns. We follow the same event study procedure presented above. For the event day, we used whichever day a company issued a press release or publicly announced its donation in response to the Hurricane Katrina disaster. We calculated abnormal returns for day 0 and the days prior to ($t = -1$) and after ($t = +1$) the announcement.

Of the original 245 donor firms identified, 31 cases had contaminating events during their respective three-day event windows, and 58 cases had no identifiable date associated with their CPDR

announcement (e.g., undated Web site communiqués), meaning no abnormal returns could be calculated. We also omitted eight donors from the oil industry to be certain that any Katrina-related effects would not contaminate our results, leaving a final sample for our *post hoc* event study of 148 firms. The results of this analysis (not reported here) show no overall significant market response to CPDR announcements. While abnormal returns were negative on all three days and the proportion of positive to negative cases for each day significantly lower than the model would predict, the magnitude of the negative returns was not significant for any individual day overall or cumulated over the window. This *post hoc* check lends additional support to our initial interpretation, namely that the market would be unlikely to reward firms for donations, since the value of CSR in times of crisis apparently stems from a track record of less social irresponsibility, as opposed to more social responsibility.[16]

DISCUSSION

The high profile disasters of recent years have drawn attention to the role of companies in disaster relief and reconstruction. While the drivers of corporate philanthropy in general are relatively well understood, negative events like Hurricane Katrina could be expected to reduce corporate giving, since firms must face more immediate business-related challenges. Our paper explores the recent surge in highly visible giving. Specifically, we postulate a possible relationship between a firm's reputation for social irresponsibility, the negative effects of the disaster, and a subsequent likelihood of CPDR. This paper has generated a number of findings that contribute to the literature on the value of CSR, reputation, and corporate philanthropy.

First of all, we extend research that considers good deeds and bad deeds as conceptually distinct (Clark, 2008; Doh *et al*., 2010; Mattingly and

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post-crisis recovery. Consequently, a local presence might be expected to moderate the relationship between reputation and donation likelihood (note that in Table 4 we observe a significant and negative relationship between Gulf Coast presence and a firm's donation likelihood). However, interactions between Gulf Coast presence and social irresponsibility proved nonsignificant in the OLS and logistic regressions. Interactions between Gulf Coast presence and social responsibility also returned nonsignificant results.

[15] Given that community relations concerns form only a subset of a firm's overall concerns, its values in the dataset are relatively low and in many cases equal zero. Lacking the properties of a continuous variable, 'community relations concerns' took the form of a dummy variable that equaled 1 if a firm had any community relations concerns during 2000–2004 and 0 if it had none.

[16] The negative but nonsignificant abnormal returns in our *post hoc* event study of returns to CPDR announcements could indicate that donors were punished by no more than the price of the donation, which, at a median donation value of $1 million, would be too small of a shift to generate significant abnormal returns. It may also reflect investor skepticism as to the sincerity of CPDR (cf. Godfrey, 2005), especially given the role of irresponsibility in our analysis.

Berman, 2006) in order to explore the insurance value of a reputation for CSR. Our data on abnormal returns as they relate to Hurricane Katrina suggest that stock prices fall, and increasingly so the more a firm is known for social irresponsibility. This negative curvilinear effect is neither offset nor mitigated by an established record of social responsibility. This result is in line with existing research showing that bad deeds matter more than good deeds to both markets and consumers (Dean, 2003; Frooman, 1997; McGuire *et al.*, 2003; Rao and Hamilton, 1996). Further, our findings imply that good 'chits' (Godfrey, 2005: 777) from CPDR—to the extent they are earned at all—should not be expected to offset or compensate for a company's prior bad deeds, since it is fewer bad deeds, and not more good deeds, that appear to underlie the insurance value of reputation (Godfrey *et al.*, 2009).

Our findings thus provide some indication that the insurance value of reputation comes from committing fewer bad deeds, not more good ones. The disaggregation of good deeds from bad, and the identification of a curvilinear relationship between bad deeds and Katrina-related abnormal returns, shed additional light on the relationship between social performance and financial performance (cf. Barnett and Salomon, 2006; Strike *et al.*, 2006; Wang *et al.*, 2008). Our results add to the work of Schnietz and Epstein (2005), whose study of stock market responses to the collapse of the WTO talks in Seattle found that a reputation for CSR mattered both for industries categorized as 'responsible' and for industries considered 'irresponsible.' Our different findings might be explained by the finer-grained classification of industry adopted by our study and the disaggregation of good deeds from bad ones. Our findings also are similar to the observation of Godfrey *et al.* (2009: 439) that 'any insurance effect appears limited to firms with lower levels of negative social impact.'[17]

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[17] At the same time, we observe that Godfrey *et al.* (2009) find significant insurance effects associated with good deeds. While good deeds are not the focus of our paper, it may be that the difference in context accounts for the different findings: their search is for the effects of firm-specific negative events on firm value; ours is on the effects of events not attributable to firms themselves, like Hurricane Katrina, on firm value. Additionally, it may be that our general measure of social responsibility obscures any relationship that would potentially exist for 'institutional' or 'technical' CSR alone. We refer to the Appendix, however, to emphasize that our KLD items did not load on the same factors as Mattingly and Berman (2006) and thus we had no *a priori* justification for subdividing good or bad deeds into smaller categories.

Our paper's second contribution lies in showing that social irresponsibility is an important predictor for highly visible donations made in response to the Hurricane Katrina disaster. Significantly, the quadratic term in our logistic regression model shows the rate of increase in the likelihood for donating rises in both speed and degree the more a firm is known for irresponsible behavior. This finding is in line with arguments that reputation management considerations driving corporate philanthropy may be strongest among companies with the worst reputations (Brammer and Millington, 2005; Williams and Barrett, 2000). In the case of disasters, the effect of social irresponsibility on donation likelihood is striking since the firms known for social irresponsibility also lost the most value when the hurricane struck. Moreover, as revealed by our *post hoc* analysis, their announcements of CPDR triggered no significant market response.

Taken together, the negative curvilinear relationship between social irresponsibility and Katrina-related abnormal returns, along with the positive curvilinear relationship between social irresponsibility and donation likelihood, lend some support to our 'reputation management' hypothesis. At the same time, no significant empirical relationship was found in our logistic regression models to connect Katrina-related abnormal returns directly to the likelihood of donating (Hypothesis 4). One possible explanation is that managers may erroneously assume that the insurance value of reputation stems from *good* deeds. If so, our findings suggest that any expectations that good deeds will produce short-term economic recovery may be misplaced. An alternate explanation is that managers of irresponsible firms, while aware of the nuances of reputation and firm value, donate for different, potentially long-term strategic reasons. Future research may endeavor to explore the management perspective more directly in terms of longer-term benefits accruing from CPDR. Lastly, we observe that a history of *good* deeds is also a significant predictor of CPDR. While our endeavor was to explore agonistic motives while accounting for other explanations, it is reasonable to assume that behaviors like CPDR can reasonably stem from both altruistic and agonistic motives, much in the same way that firms do both good and bad deeds simultaneously.

Our paper is also subject to a number of limitations. First, we focus on a U.S. disaster with

significant wealth effects for domestic firms. While research shows that firms respond to overseas disasters in regions where they have ties, it may be that motivations differ when firms themselves are not negatively affected by the disaster. Moreover, this may explain why Patten (2008) found a positive market response to U.S. firms' tsunami donations, while in our *post hoc* test we found no response to U.S. firms' Katrina donations: the stock market may have seen tsunami donations as 'sincere' and Katrina donations as 'ingratiating' (Godfrey, 2005: 786, 789). Second, although we control for the potential mitigating effects of social responsibility, we do not fully explore theoretical arguments for the 'different dynamics' (McGuire *et al.*, 2003: 353) of the two. Future research may delve more deeply into the distinctions between good and bad deeds in terms of their meaning to society and investors (cf. Clark, 2008). Third, the boundary conditions of our findings require further exploration: much of the literature on bad deeds focuses on the relationship between reputation and firm value in the wake of firm-specific accidents and scandals, while we focus on negative and salient 'acts of God' which have economy-wide effects and are not attributable to any individual firm. Future research may endeavor to explore these distinctions more directly. Finally, we did not find a significant interaction effect between Katrina-related abnormal returns and irresponsibility, suggesting that while irresponsibility is related to both abnormal returns and donation likelihood, managers' donation decisions may be more complex than those hypothesized here. This further underscores the need to research the interplay between agonistic and altruistic drivers of CPDR and other forms of CSR.

CONCLUSION

The high profile disasters of recent years have drawn attention to the role of companies in disaster relief and reconstruction. From a pure economic perspective, this CPDR behavior is curious because adverse economic conditions typically *reduce* levels of corporate giving, as firms face more immediate, business-related challenges. Our paper explores one chapter in this recent spate of highly visible giving and postulates a relationship between firms' reputation for social irresponsibility, the negative effects of the Hurricane Katrina

disaster, and the likelihood of CPDR in response to the hurricane. In so doing, we have generated a number of findings that contribute to the literature on the value of CSR, reputation, and corporate philanthropy.

Our overarching conclusion is this: if managers are interested in securing the value-preserving effects of CSR, they should place more emphasis on curbing their firms' social irresponsibility rather than investing in prominent displays of corporate philanthropy. A firm's track record of minimizing its negative impacts appears to be a more genuine signal of trustworthiness that gives investors confidence in short-term recovery, not the accumulation of good deeds they do. This is an important conclusion for thinking about the value of CPDR: while such giving may be useful to the beneficiaries, our results suggest that in times of crisis, CPDR will not lead to the value-enhancing good 'chits' hypothesized by Godfrey (2005: 777)—perhaps because it is seen as ingratiating.

What do these results tell us about disasters, firm value and philanthropy? Given the negative effect of Hurricane Katrina on stock prices, one could argue that these firms should have directed available resources to post-disaster recovery as opposed to 'nonproductive' efforts like philanthropic disaster response. If firms engage in good deeds in order to offset their reputation for bad deeds, the results of our study raise questions about what they hope to achieve. Such behaviors appear unlikely to contribute to a future insurance value of reputation, nor do they elicit a short-term stock price response of any significance. While other, less strategic (and possibly even altruistic) motives may also exist for disaster response, our results suggest that if irresponsible firms entertain value-enhancing motives for CPDR, they may need to rethink their overall approach to CSR.

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APPENDIX: MEASURING A REPUTATION FOR CSR

Initially we replicated the approach of Schnietz and Epstein (2005), who used a dummy variable in their event study analysis to reflect inclusion in/exclusion from the DSI. This dummy variable was not significant in either our event study analysis or the OLS or logit regressions. We used nonparametric tests to investigate whether the firms in our sample in the DSI exhibited 'concern' (and 'strength') scores significantly different from those *not* in the DSI. Based on this approach, we found only eight of the 14 categories (strengths and concerns combined) were significantly different. Thus, in our sample, using a DSI-inclusion dummy was not sufficiently fine-grained to fully discriminate between firms known for more (ir)responsibility and those known for less.

We also tried the approach of Mattingly and Berman (2006) of running a factor analysis on the 14 KLD dimensions. Like Sharfman and Hart (2007), we found this problematic, since in some cases strengths and concerns loaded on the same factors and the factors we found were different from Mattingly and Berman's (but similar to Sharfman and Hart's). Even when forcing strengths and concerns to load separately, only six of the 14 items loaded well (some cross-loaded, while others loaded as individual factors). As a result, we did not feel confident in identifying meaningful constructs and thus chose not to use the factor analysis measures or Mattingly and Berman's (2006) constructs. Hence we averaged concerns over our five-year period (and strengths for our 'social responsibility' control) and opted for log transformation as recommended by Sharfman and Hart (2007). More information is available from the authors on request.

Table A1. Contaminating events during Hurricane Katrina (bears on Table 1)

Company	Date	Event
American Standard	8/26/2005	Share price up 2.5%
Apple Computer	8/28/2005	Japanese competitor D&M closes for business in the MP3 market
Best Buy	8/26/2005	Reported share price increase of 2.9%
Boeing Company	8/29/2005	Strike possibility looms
Cendant Corp.	8/29/2005	Recent investments in online travel agent
Citigroup Inc	8/29/2005	CEO opts to build hedge fund operation internally instead of through M&A
Dell Inc.	8/29/2005	Fiasco after UK Web site allowed customers to buy desktop computers for as little as £3.64
Dollar General	8/26/2005	Second quarter net income rose 5.9% to $75.6 million as sales rose 13% to $2.07 billion
Eastman Kodak	8/26/2005	Amazon.com drops Kodak's photo processing services in favor of Shutterfly
Eaton	8/27/2005	Eaton Corp launches a bid for Domnick Hunter Group PLC valued at $12.15 a share
Ford	8/29/2005	Ford plans major restructuring that could eliminate thousands of jobs
General Electric	8/27/2005	Alliance to build engine for the U.S. defense department
General Mills	8/26/2005	Diageo plans to dispose of its remaining stake in General Mills
General Motors	8/29/2005	M Holden, the Australian unit of General Motors, plans to cut 15% of its workforce
Goldman Sachs	8/27/2005	Wins bid to advise BoC on its overseas listing
Guidant	8/26/2005	Product recall of heart devices casts cloud over takeover bid
Hewlett-Packard	8/27/2005	Announces $150 million investment in radio frequency identification technology
Hilton Hotels	8/26/2005	Hilton reports that hotels business has been hit by falling demand
Hormel Foods	8/26/2005	Reports fiscal third quarter net income fell 8.7% to $51.4 million
Intel Corp.	8/26/2005	Plans expansion into technology that brings it head-to-head with Sony and Toshiba

Table A1. (*Continued*).

Company	Date	Event
Johnson & Johnson	8/26/2005	EC gives formal approval to Johnson & Johnson's takeover bid for Guidant
Johnson Controls	8/27/2005	Share price up 5.9% following takeover bid
Kimberly-Clark	8/29/2005	Expands distribution to so-called hard discounters such as Lidl, Aldi, and Ed
Lehman Brothers	8/26/2005	Former broker pleads guilty to drug money laundering conspiracy
Lockheed Martin	8/27/2005	New contract with Metro Transportation Authority announced worth $212 million
Lowe's Companies	8/26/2005	Oil price climb pushes share price up 1.5%
Marsh & McLennan	8/29/2005	CEO announces far-reaching refocusing in the wake of high-profile investigation
McDonalds Corp.	8/26/2005	McDonald's is testing deli-style sandwiches at about 400 of its stores
Merck	8/29/2005	Considering settling lawsuits from Vioxx patients
Merrill Lynch	8/27/2005	Loses bid to advise Bank of China on its overseas despite investing $700 million
Microsoft	8/29/2005	Must change 'more-is-more' strategy; growing threat from Linux, Apple, and Google
Morgan Stanley	8/29/2005	Announces plans to spend 3 billion euros this year on European real estate
Northwest Airlines	8/29/2005	Substitute workers easing strike pressures
NTL	8/29/2005	NTL is in merger talks with rival UK cable group Telewest
Pulte Homes	8/27/2005	Homebuilders fell overall this week, with Pulte Homes dropping 1.7%
Sara Lee Corp.	8/29/2005	Expands distribution to so-called hard discounters such as Lidl, Aldi, and Ed
Smithfield Foods	8/26/2005	Reports fiscal first quarter net income fell 11% despite rise in sales
Verizon	8/29/2005	Verizon Wireless cuts prices of its wireless-broadband service by 25%
Visteon Corp.	8/29/2005	Plans job cuts as part of restructuring
Wyeth	8/29/2005	No longer a defendant in California lawsuit alleging drug pricing fraud scheme