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Exploring the Geography of Corporate Philanthropic Disaster Response: A Study of Fortune Global 500 Firms

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ABSTRACT. In recent years, major disasters have figured prominently in the media. While corporate response to disasters may have raised corporate philanthropy to a new level, it remains an understudied phenomenon. This article draws on comparative research on corporate social responsibility (CSR) and corporate philanthropy to explore the geography of corporate philanthropic disaster response. The study analyzes donation announcements made by Fortune Global 500 firms from North America, Europe and Asia to look for regional patterns across three recent disasters: the South Asian Tsunami, Hurricane Katrina, and the Kashmiri earthquake. The results reveal inter-regional differences in the overall likelihood of donations and in their cash value, in addition to the identification of home-region- and local presence effects. Implications for researchers and practitioners are discussed.

KEY WORDS: CSR, disasters, philanthropy, regions

Introduction

In recent years, the world has experienced a number of intense natural disasters such as the South Asian Tsunami in December 2004, the flooding of New Orleans following Hurricane Katrina in August 2005 and remote villages in Kashmir leveled by an earthquake in October 2005. While it is usual for national governments, non-governmental organizations (NGOs), and intergovernmental organizations (IGOs) to take the lead in relief efforts, companies have increasingly emerged as major players in disaster response. Not only do companies donate cash to help fund relief and reconstruction efforts; they also provide goods and services as well as playing key roles in logistics and support activities (Fritz Institute, 2005). While systematic research is only recently beginning to shed light on this type of organizational behavior; data indicate that such behavior is widespread in the global business community.

For instance, recent studies have found that approximately half of the Global Fortune 500 firms collectively contributed cash, goods, and services valued at US$580 million to the Tsunami relief effort (Muller et al., 2006), and that 79 US firms had a mean donation of US$934,600 to Tsunami relief (Patten, 2007). The Network for Consumer Protection (2005) documented the donations of 23 large corporations to the Tsunami, Hurricane Katrina, and the Kashmiri earthquake and reported cumulative donations of over US$263 million. The evidence also suggests that these corporate contributions form a substantial share of total relief donations: immediately following the passage of Hurricane Katrina it was reported that of the US$93 million in aid given by Americans to Katrina victims, more than US$27 million had been donated by corporations (Heher, 2005). In the same article Patrick Rooney, research director at the Center on Philanthropy at Indiana University, indicated that corporations were likely to account for as much as one-third of the total funds received in the Katrina relief effort. Additionally, preliminary research suggests that financial markets value disaster relief donations by firms. In an event study based on 79 Fortune 500 firms, Patten (2007) found that the US financial market reacted positively to announcements of corporate philanthropic donations to Katrina. Thus, not only does this phenomenon of corporate philanthropic disaster response (henceforth 'CPDR') appear to be an increasingly important fact of business life, it appears to form a significant contribution to disaster relief in addition to affecting firms' financial (market) performance.

There are indications that companies vary widely in their donation behavior. The Network for Consumer Protection study cited above (2005) observed donations ranging from a low of US$1,000 to a high of US$35 million. In their study, Muller et al. (2006) reported donations ranging from US$38,000 to US$85 million in the case of the Tsunami among Fortune Global 500 firms. While the role of size and profitability in explaining variation in donation values has been explored for both '9–11' (Crampton and Patten, 2007) as well as the Tsunami (Muller et al., 2006), the latter study also noted some apparent variation in donation amounts across countries and regions. Thus far, however, this growing body of research has not yet explored systematically variation in the likelihood of firms to engage in CPDR as well as variation in the amounts firms give.

The literature on philanthropy and that on corporate social responsibility (CSR) also suggests at a general level that companies from different parts of the world engage in these behaviors in different ways and to varying degrees (Jose and Lee, 2007; Kolk, 2005; Maignan and Ralston, 2002; Pasquero, 1991; Shen, 2004; Welford, 2005; Wokutch, 1990). Much of this comparative research has been conducted at the regional level. For instance, Pasquero (1991) suggests that the US represents 'the mature model' of corporate philanthropy relative to European countries. Further, an exploratory study of 46 Asian and European firms' corporate sponsorship of charitable causes and non-profit organizations indicated differences between the two regions that are rooted in differences in societal pressure and expectations (Shen, 2004). Welford (2005) also showed that managers from different regions pay attention to different social issues.

The literature suggests that these differences in philanthropic behavior are rooted in the differences in pressures originating from the social structures in which organizations are embedded (Galaskiewicz, 1997; Marquis et al., 2007). These institutional forces (DiMaggio and Powell, 1983) are reflected in managerial values (Schlegelmilch and Robertson, 1995), stakeholder expectations (Brammer and Millington, 2004; Kolk, 2005), governance structures (Navarro, 1988; Useem, 1988), and culture (Egri et al., 2004; Katz et al., 2001). Thus far, however, philanthropy has been studied in single-country settings (Adams and Hardwick, 1998; Brammer and Millington, 2004; Navarro, 1988) or in geographically localized communities (Galaskiewicz, 1997; Galaskiewicz and Burt, 1991). As yet no known research has examined potential differences in global patterns of corporate donations to a specific social cause such as an individual natural disaster, nor have conceptual studies explored how different regions may have different institutional or geographic factors that may influence patterns of corporate giving.

Some parts of the world are more disaster prone than others due to, e.g., proximity to fault lines or being located in areas where climatic fluctuations are expected to be the most severe. To some extent, therefore, there is a natural 'geography' of disasters. But is there a geography of corporate philanthropic response? We draw on sociological institutionalism to hypothesize a geography of CPDR in three ways: overall regional effects based on differences in the practice of philanthropy across geographic regions; a 'home region effect' by which firms are more likely to give in response to disasters close to home; and finally a 'local presence effect' by which firms are more likely to give to disasters that occur in distant locations if the firm's own business activities figure prominently in that location.

To this end we explore not only the likelihood of giving versus not giving, but also variations in donation amounts in response to three recent catastrophic events: the 2004 South Asian Tsunami, the 2005 Gulf Coast disaster caused by Hurricane Katrina, and the 2005 earthquake that struck South Asia, principally the Indian-Pakistani border region of Kashmir. The article is organized as follows: the first section reviews the extant research on corporate philanthropy and CSR and develops hypotheses for possible geographic sources of variation in corporate philanthropic disaster response. The next section outlines the methodology used in this study, followed by the results and a discussion of findings. Finally, we conclude with implications for theory and practice.

Literature review and hypothesis development

In the early morning of 26 December, 2004 an earthquake measuring 9.0 on the Richter scale

struck the Indian Ocean near Banda Aceh in Sumatra. The earthquake (and its aftershocks) triggered powerful tsunamis, some 10 m high, which wreaked havoc throughout the region. Horrifying images – many taken by tourists and locals – graphically demonstrated to the world that this was indeed a disaster of epic proportions. With at least 226,000 dead or missing and 1.7 million displaced, the scale of the disaster was unprecedented in recent history (CNN.com, July 6 2005). On August 29, 2005, Hurricane Katrina hit the Gulf coast and became one of the costliest and most deadly hurricanes to hit the United States. When weakened infrastructure caused the levees surrounding New Orleans to break, most of the city was flooded and many people were trapped in their homes, despite an earlier mandatory evacuation order by the New Orleans mayor. A year after the disaster, the death toll was estimated at 1836 plus another 700 still missing (Hunter, 2006) with total damage estimated at US$81.2 billion (US Department of Commerce, 2006). On October 8, 2005, a major earthquake (7.6 on the Richter scale) hit Kashmir during Ramadan affecting both Pakistani and India controlled regions. The Pakistani government reported over 70,000 deaths while Indian officials confirmed an additional 1400 fatalities. The earthquake left over 3 million people homeless, most of whom were living in remote mountainous regions and facing the onset of winter.

While natural disasters such as these are unusual, they are not necessarily uncommon. Research indicates that the propensity of intense tropical storms like Hurricane Katrina will likely increase (Emanuel, 2005; Trenberth, 2005; Webster et al., 2005) and that the aggregate social and economic costs of such events have been rising steadily since the 1960s. A report by reinsurer Munich Re (2005) revealed that natural disasters worldwide during the 1990s caused damage totaling over US$700 billion (based on 91 'events') relative to US$228 billion over the 1980s (based on 63 'events'). Thus the financial and social burden of disaster relief efforts seems likely to grow in the future. Relief efforts are typically initiated by governments of disaster stricken areas, intergovernmental organizations (IGOs) and non-governmental organizations (NGOs). Yet, disaster relief appears to be increasingly in the domain of corporate activity, involving the funding of relief efforts, the channeling of in-kind donations and the management of complex logistic operations (Fritz Institute, 2005; Muller et al., 2006).

We approach CPDR as corporate philanthropy in the broadest sense, comprising a charitable transfer of corporate resources to recipients (Fry et al., 1982) that can include non-financial donations such as employee volunteer work (Burke et al., 1986) as well as matching employee- or customer donations. In order to frame our exploration of patterns of CPDR in terms of existing literature, we begin by reviewing existing comparative research on philanthropy and CSR more generally. In keeping with much of this comparative work, we adopt a regional-level perspective in our hypothesis development.

Sources of global variation in CSR and corporate philanthropy

Corporate philanthropy has been studied extensively (Brammer and Millington, 2004; Galaskiewicz, 1997; Saiia et al., 2003; Seifert et al., 2004) but rarely at the international or regional level. The vast majority of studies are limited to a single country context. While Simon (1995) argues that globalization is driving convergence in corporate philanthropy, there are some indications of the opposite. Pasquero (1991) argues that US companies represent the 'mature model' of corporate philanthropy, and contribute higher values of donations (about 1% of taxable income) than European companies in France, Germany, and the UK, but to date there is no quantitative assessment of this argument. Qualitative research suggests that Asian firms tend to lag behind their Anglo or European counterparts, although Shen (2004) notes that large Japanese and Korean companies appear to be catching up with European firms in their sponsorship of non-profit causes and events.

Furthermore, a study by Galaskiewicz and Burt (1991) demonstrates that structural similarities across companies will induce isomorphic pressures with respect to philanthropic behavior. This suggests that structural factors embodied in 'business system' approaches to economic organization (Whitley, 1999) will shape corporate philanthropy; that is, companies that are embedded in similar networks and

stakeholder configurations will tend to exhibit similarities in giving behavior, while differences will emerge across companies embedded in different types of networks and stakeholder configurations. Regional integration processes (e.g., the EU and NAFTA) and the regional character of both firms' markets (Rugman and Verbeke, 2004) and their financial structures (Rugman and Verbeke, 2005) suggest that stakeholder pressures are increasingly regional in nature (Gregory and Stuart, 2004; Kolk, 2005; Ruigrok and van Tulder, 1995). A growing body of research also indicates that firms are overwhelmingly regional in the orientation of their sales and marketing activities (Rugman, 2000; Rugman and Verbeke, 2004). Previous research has also demonstrated that there are clear regional differences in managerial perceptions and behavior (e.g., House et al., 2002). This suggests, therefore, that structures at the regional level may increasingly shape organizational behavior, although the regional dimension of corporate philanthropy remains understudied.

Comparative, cross-regional research on the broader phenomenon of corporate social responsibility (CSR) may provide additional direction. Previous studies illustrate that firm behavior in different regions is related to differences in stakeholder configurations, interactions and priorities, culture and managerial values (Chapple and Moon, 2005; Logsdon et al., 2006). Waldman et al. (2006), for instance, have shown that culture can have discernable differences in managerial perceptions and CSR behavior. Maignan and Ralston (2002) argue that managers from the US and UK have different perceptions of the importance of CSR and in the identification of social issues. Schlegelmilch and Robertson (1995) also demonstrate that ethical perceptions of Western managers differ, with US and European managers (from the UK, Germany, and Austria) emphasizing different kinds of ethical issues (e.g., personnel issues versus political or local issues).

Research on stakeholder relations also has considered how differences in CSR are rooted in differences in firms' relationships with other actors. An early study (Wokutch, 1990) suggested that Japanese firms were already more advanced in developing cooperative labor–management–government relations and integrating occupational safety and health concerns in their management practices than US firms. More recent studies (e.g., Welford, 2005) reveal that interest in CSR issues among Asian firms has increased rapidly in recent years, although they emphasize different issues than European or North American firms. Asian companies, for instance, appear less focused on internal CSR matters (e.g., fair wages, non-discrimination, human rights), while North American firms have relatively less attention for certain external issues like fair trade and labor standards. Other research shows that Asian executives have a limited view of stakeholders as being primarily customers and shareholders, and that they pay less attention to more general societal and environmental issues than do their North American and European peers (Lines, 2004).

Governance structures also exhibit regional differences that may affect corporate giving. While the role of tax rates on philanthropy (Galaskiewicz, 1997; Navarro, 1988) has not yet been explored in a comparative setting, reporting on social and environmental performance, another form of CSR, has also been shown to demonstrate significant regional differences in both frequency and content (Fortanier and Kolk, 2007; Jose and Lee, 2007; Kolk, 2005). Reporting characteristics diverge, in part because accounting and tax regulations differ across the Triad regions (Nobes and Parker, 2000). For instance, European MNEs tend to highlight external accountability by third-party verification, while Japanese MNEs prefer to adhere more closely to governmental guidelines (Kolk, 2005). Also, North America, Europe, and Asia tend to exhibit fundamental differences in capital market characteristics, access to financing and other factors (Gregory and Stuart, 2004; Rugman and Verbeke, 2005) that could affect firms' resource 'slack' and hence their capacity to engage in philanthropic activities.

Finally, previous research has shown that philanthropy more generally (as opposed to *corporate* philanthropy) differs across countries and regions. Salamon et al. (2004) show that much higher levels of GDP (1%) are given to charity in the US than in any other country. Similarly, CAF places Canada third on the list of 12 countries ranked by giving as a percentage of GDP, while France ranked last (CAF, 2006).[1] Although neither of these studies isolate the corporate component of that figure, they suggest possible differences in North American expectations

in terms of corporate philanthropy relating to those in European countries like France and Germany.

On the basis of this diverse body of literature that establishes foundations for regional-level differences in CSR and philanthropy, we hypothesize the following in the case of CPDR:

H1a: There are significant differences across regions with respect to the likelihood of firms to engage in CPDR.

H1b: There are significant differences across regions with respect to the cash value of donations made by firms as CPDR.

In addition to regional differences to CPDR in general, we anticipate a specific home region effect to CPDR that relates to the geographic nature of the disaster itself. That is, when a natural disaster strikes close to 'home' we anticipate this will increase both the likelihood and amount of donations as firms respond to media, government, and societal pressures to engage, and this in turn triggers mimetic processes in other firms. There is some preliminary empirical support for this. For instance, in their study of the donation behavior of Fortune Global firms in response to the Asian Tsunami, Muller et al. (2006) identified that firms from Asia/Pacific (although excluding Japan) gave at relatively high levels, *ceteris paribus*; however, this requires further exploration.

A similar type of effect has been explored in prior research on philanthropy that emphasizes the role of inter-organizational relationships between geographically proximate companies and charities (Galaskiewicz, 1997; Marquis et al., 2007; Useem, 1988). Typically this type of research aims at networks of actors in relatively localized communities. Galaskiewicz (1997), for instance, investigated relationships between corporate contributions officers and local charities in the Minneapolis-St. Paul metropolitan area. Marquis et al. (2007) cite examples of local philanthropy among firms in Columbus, Ohio. The examples of philanthropy considered in such approaches are restricted to relatively small scale culture- and arts-based corporate charity programs with a proportionately limited geographic scope. Yet, in the event of larger-scale events like major disasters that sweep across multiple towns, states, and even countries, the 'home town flavor' of these approaches may be extended to larger geographic scopes. That is, the Tsunami was a regional disaster and thus a regional cause, which we expect to trigger regional-level patterns of corporate response.

Moreover, in today's world of 'global corporate philanthropy' (Genest, 2005), these arguments could be extended to the local communities in geographically more distant locations in which firms are active. Shell, for instance, begins its press release dated February 14, 2005[2] not with a reference to the disaster in a general sense, or to the victims' needs, but to its ''long standing links in the region'' based on ''major established businesses and thousands of employees.'' Similarly, Sanofi-Aventis praised its employees in India, Bangladesh, Malaysia, Indonesia, and Thailand for their outstanding personal contributions to disaster relief efforts. In sum, we expect that companies will react more often and with more donations when either the company's headquarters, or company subsidiaries and/or business relations, are located in the disaster-stricken region. These relationships translate into real or perceived sources of stakeholder pressure to respond to the disaster. Thus:

H2a: There is a home region effect in the likelihood of CPDR, such that firms are more likely to donate to disasters that occur in their home region.

H2b: There is a home region effect in the amount of donations, such that firms donate more money to disasters that occur in their home region.

H2c: There is a *host* region effect in the amount of donations, such that a firm donates more money to disasters when its CPDR efforts are linked to the firm's local presence in the disaster-stricken region.

Data and methodology

To explore these potential regional differences, we collected data on donation amounts and donation characteristics for companies on the 2004 Fortune Global 500. We used the Fortune listing in accordance with other studies that have focused on large, visible firms (Muller et al., 2006; Patten, 2007). The listing from 2004 was taken given that this list was in

effect at the time of the 2004 Tsunami and for reasons of consistency we maintained the same group of firms into the 2005 disasters. We selected the Global 500 as opposed to, e.g., the US 500 in order to better explore geographic effects across regions: 204 firms in the 2004 Fortune Global 500 were based in North America, 170 based in Europe, and 116 based in Asia (490 in total). The remaining 10 firms (from Australia, Venezuela, and Brazil) were omitted for subsample size considerations in order to make statistical tests possible.

The investigation centered on firm self-reporting, drawing from information disseminated through corporate websites, and press releases, followed by search queries via Lexis Nexis. Corporate communications that are removed from corporate websites after a time can often be found in press reports, newswire items, or newspaper articles archived by Lexis Nexis. We conducted our research in two rounds. The first phase, April 2005 through June 2005, focused on donation announcements following the 2004 Tsunami, and the second phase, May 2006 through August 2006, focused on announcements in response to Hurricane Katrina and the Kashmiri Earthquake.

The analysis was conducted in two stages. In the first stage we used binomial logistic regression to model the likelihood that a given firm could be expected to donate (Hypotheses 1a and 2a). The binomial (maximum likelihood) logistic regression is similar to a traditional linear regression except that it regresses a dichotomous outcome variable (in this case, donors versus non-donors) and is used to generate odds ratios for the outcome variable instead of coefficients alone (Hair et al., 1998; Hosmer and Lemeshow, 2000). The odds ratio is expressed as:

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

where Y is the dependent variable, equal to the chance that a firm would donate in response to the tsunami, and Z is a linear combination of independent variables, or:

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

The binomial regression thus provides information on which factors significantly affect the likelihood of a given firm to donate: in our case, the firm's home region and the disaster in question. In the second stage we analyzed the regional component of variance in the amount given for the subset of donating firms (Hypotheses 1b, 2b, and 2c) using a General Linear Model (GLM).

We introduce two dependent variables into the analysis. For Hypothesis 1a and 2a, we measure our dependent variable 'likelihood to donate' as a dichotomous (dummy) variable that takes a value of 1 if a given firm donated to a given disaster, and 0 in cases that the firm did not. For Hypotheses 1b, 2b, and 2c, our dependent variable is the amount donated, measured in US dollars and log transformed, as reported by each company. In cases where donation values were not reported in US dollars, we translated to dollars using exchange rates as they stood on the date the announcement was made in order to facilitate comparison.

We test three independent variables in our models. The first is '(Home) Region,' by which we clustered firms in the sample according to their geographic regions of incorporation (North America, Europe, and Asia). The second variable is a categorical variable representing the three disasters, where 1 represents the Tsunami, 2 represents Hurricane Katrina, and 3 represents the Kashmiri earthquake. Our final independent variable ('Local Presence') captures whether donating firms emphasized their local employees or business relations in the disaster-stricken area in their donation announcements, as exemplified by the Shell announcement cited above. 'Local Presence' is a dummy variable taking the value of 1 if local activities, employees and/or business relations in the disaster area are mentioned, and 0 if they are not. Finally, we include total revenues (log transformed) to control for size, since size has been shown to influence philanthropic behavior (Amato and Amato, 2007; Patten, 2007).

Results

Our results show that Fortune Global 500 firms donated in excess of US$1.2 billion to the three disasters collectively. The Tsunami received the greatest overall donations at US$595 million, with US$545 million going to Katrina and just over US$70 million going to the Kashmiri earthquake. Moreover, the data show that firms from around the globe were broadly engaged in CPDR. Table I, for

TABLE I

Observations by home country, home region and disaster targeted

	Firms in sample	Tsunami		Katrina		Kashmir	
		Yes	No	Yes	No	Yes	No
N. America							
Canada	13	10	3	8	5	1	12
Mexico	1	0	1	0	1	0	1
USA	190	138	52	116	74	46	144
Regional subtotal	214	148	56	124	80	47	157
Europe							
Belgium	4	3	1	0	4	0	4
Denmark	2	1	1	0	2	0	2
Finland	4	4	0	1	3	0	4
France	37	30	7	7	30	2	35
Germany	34	27	7	14	20	6	28
Ireland	1	1	0	0	1	0	1
Italy	8	3	5	0	8	0	8
Lux	1	0	1	0	1	0	1
Neth	14	11	3	7	7	6	8
Norway	2	2	0	0	2	0	2
Russia	3	0	3	0	3	0	3
Spain	7	3	4	0	7	0	7
Sweden	6	5	1	3	3	2	4
Switz	12	12	0	5	7	2	10
UK	35	32	3	13	22	10	25
Regional subtotal	170	134	36	50	120	28	142
Asia							
China	14	2	12	0	14	0	14
Hong Kong	1	1	0	0	1	1	0
India	4	3	1	0	4	1	3
Japan	82	34	48	22	60	16	66
S. Korea	11	3	8	1	10	0	11
Malaysia	1	0	1	0	1	0	1
Singapore	1	1	0	0	1	0	1
Taiwan	1	0	1	0	1	0	1
Thailand	1	1	0	0	1	0	1
Regional subtotal	116	45	71	23	93	18	98
Total	490	327	163	197	293	93	397

instance, shows the breakdown of donating firms by home region (North America, Europe or Asia), and then broken down by country. It shows that firms from countries region-wide were active in CPDR following one or more disaster. The firms from Russia (3), Mexico (1), Malaysia (1), Taiwan (1), and Luxembourg (1) are the only exceptions.

The correlation matrix for the regression and GLM variables is shown in Table II. The bivariate correlations between the disaster dummies, the regional dummies and the donation variables (donation and donation value) already suggest that significant differences exist across regions and disasters. The following binomial regression and GLM models will allow us to examine these relationships more carefully.

Table III shows the results of the binomial logistic regression model. As explained above, the logistic

TABLE II

Correlation matrix

	1	2	3	4	5	6	7	8	9
1 Tsunami	1.000								
2 Katrina	−0.500★	1.000							
3 Kashmir	−0.500★	−0.500★	1.000						
4 North America	0.000	0.000	0.000	1.000					
5 Europe	0.000	0.000	0.000	−0.616★	1.000				
6 Asia	0.000	0.000	0.000	−0.470★	−0.406★	1.000			
7 Donation	0.355★	−0.025	−0.329★	0.174★	−0.006	−0.195★	1.000		
8 Donation value (log)	0.012	0.194★	−0.272★	0.211★	−0.053	−0.231★	0.013	1.000	
9 Size (log)	0.000	0.000	0.000	−0.028	0.126★	−0.109★	0.241★	0.315★	1.000

★$p < 0.001$.

NB: Variables 1–7 are dummies.

TABLE III

Binomial logistic regression for likelihood of donating[a]

	B	SE	Wald	df	Exp(*B*)	Sig.
Constant	−12.35	1.15	116.23	1	0.00	0.000
Size	1.06	0.11	93.35	1	2.89	0.000
Disasters			19.71	2		0.000
Tsunami	1.34	0.33	16.27	1	3.81	0.000
Katrina	0.32	0.36	0.79	1	1.38	0.374
Regions			4.99	2		0.083
N. America	0.40	0.32	1.62	1	1.50	0.203
Europe	−0.20	0.34	0.33	1	0.82	0.565
Disaster × region			41.81	4		0.000
N. America × Tsunami	1.03	0.41	6.44	1	2.81	0.011
Europe × Tsunami	1.87	0.44	17.99	1	6.48	0.000
N. America × Katrina	1.48	0.43	12.12	1	4.41	0.000
Europe × Katrina	0.50	0.45	1.21	1	1.65	0.270
−2 Log likelihood					1532.56	
Cox & Snell R^2					0.272	
Nagelkerke R^2					0.366	
Hosmer & Lemeshow goodness-of-fit					0.412	
ROC					0.801	

[a]The reference region is Asia; the reference disaster is the Kashmiri earthquake.

regression technique generates odds ratios for a given outcome (donating versus not donating) given the presence of certain factors. These odds ratios are captured in the column 'Exp(B)', and the factors are the variables in the left-hand column. The odds ratios are always relative to a reference category; in this case Asian firms and the Kashmiri earthquake.

The main effects of 'Disasters' show for instance that the likelihood of donating versus not donating for all firms was significantly higher (3.8 times higher) in the case of the Tsunami than the case of the Kashmiri earthquake. The odds ratio for Hurricane Katrina is 1.4 times greater than for Kashmiri earthquake, but this value is not significant

($p = 0.374$). The 'Regions' variable is not significant, indicating that the odds ratios for North American firms and European firms in the case of the reference category (Kashmiri Earthquake) are not significantly different from the odds ratios for Asian firms in that case ($p = 0.203$ and $p = 0.565$, respectively). However, the interaction effects of 'Disaster × Region' are significant, implying that regional differences in donation likelihood depend on the disaster in question.

The interaction effects in Table III show that the greatest likelihood of donating was for European firms to the Tsunami. This odds ratio was 6.8 times higher than that for the reference category, Asian firms donating to the Kashmiri earthquake, and also more than twice as high as the odds ratio for North American firms in the case of the Tsunami. Still, North American firms were more than two times as likely to donate to the Tsunami as Asian firms were to donate to Kashmir, and more than four times as likely to donate in response to Hurricane Katrina. In contrast, the non-significant odds ratio for 'Europe × Katrina' shows that European firms were no more or less likely to donate in response to Katrina than Asian firms were in response to the Kashmiri earthquake. In sum, there are significant differences across home regions (Hypothesis 1a) in half the cases: significant differences among North America, Europe, and Asia in the case of the Tsunami; between North America and Asia in the case of Katrina but not between Europe and Asia; and no significant differences among North America, Europe, and Asia in the case of the Kashmiri earthquake.

Logistic regression models employ a different set of diagnostic statistics than regression models based on continuous dependent variables. For instance, the Hosmer & Lemeshow goodness of fit statistic is non-significant, indicating that the model fits the data well (Hosmer and Lemeshow, 2000). The Cox & Snell and Nagelkerke psuedo *R*-squared values, developed to approximate OLS-type *R*-square functions, show that the model captures a good proportion of the variance in the data, and the area under the Receiver Operating Curve (ROC), at 0.801, demonstrates that the model distinguishes well between donating versus not donating. ROC values over 0.700 indicate good discriminatory validity, with validity improving as the area under the ROC curve approaches 1.000 (Hosmer and Lemeshow, 2000).

Table IV reports the results of the General Linear Model (GLM). The GLM model essentially reports partial correlations (controlling for other factors in the model), is convenient in the case of categorical variables ('Disaster' and 'Region') and is less sensitive to non-normality. We report main effects for both factors, and interactions between them, as well as main effects for 'Local Presence' and interaction effects with 'Region', when controlling for size.

TABLE IV

General Linear Model of donation values

Source	Type III SS	df	Mean Square	*F*	Sig.
Corrected model	392.938(a)	12	32.745	20.209	0.000
Intercept	62.079	1	62.079	38.313	0.000
Region	51.094	2	25.547	15.767	0.000
Disaster	70.466	2	35.233	21.745	0.013
Region × disaster	51.947	4	12.987	8.015	0.000
Presence	9.959	1	9.959	6.146	0.000
Region × presence	1.762	2	.881	.544	0.000
Size	157.823	1	157.823	97.404	0.581
Error	837.690	517	1.620		
Total	99057.021	530			
Corrected total	1230.628	529			
R^2 (adj.)	0.303				

Table IV reveals a number of insights. First, the main effects of 'Region' are significant, even across disasters. This means that overall, differences in donation value *between* regions are significantly greater than differences *within* regions, across multiple disasters. Second, the main effects of 'Local Presence' are also significant, revealing that firms that referred to local activities, employees and/or business relations in the disaster zone in their donation announcements gave significantly more than firms that made no mention of such concerns. Third, the interaction between 'Region' and 'Disaster' is also significant, indicating that between-region differences, although themselves all significant, do not point in the same direction across all combinations of regions and disasters. Finally, the interaction between 'Region' and 'Local Presence' is not significant, revealing that the local presence effect hypothesized above (Hypothesis 2c) holds across firms from all three regions.

To visualize these effects, the estimated marginal means for the interactions are reported below (Figures 1 and 2). Figure 1 shows that donation amounts in the case of the Tsunami were identical across North American and European firms, and significantly higher than donation amounts for Asian firms. The highest donation values overall were made by North American firms donating to Hurricane Katrina, which were significantly higher than those made by European firms, which in turn donated

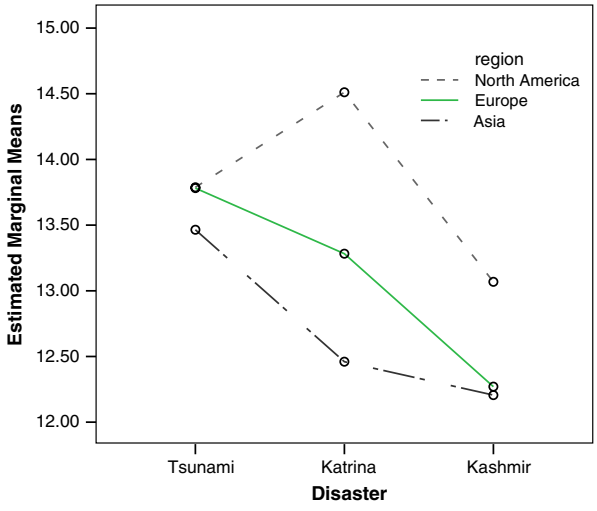

Figure 1. Estimated marginal means of donation value (log) by region and disaster.

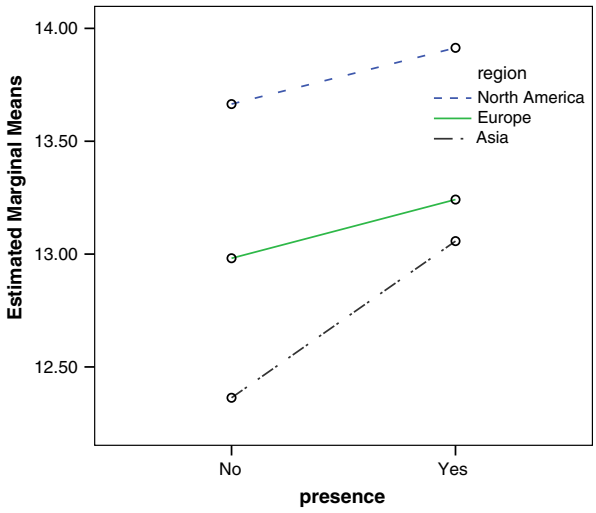

Figure 2. Estimated marginal means of donation value (log) by local presence.

more than Asian firms. Finally, North American firms donated significantly more than both European and Asian firms in the Kashmir case. Figure 2 shows as reported above that the local presence effect holds for firms from all three regions.

Discussion

Recent evidence suggests that corporate contributions to disaster relief and reconstruction are an emerging fact of business life (Fritz Institute, 2005; Heher, 2005). While the response to recent disasters like the Tsunami has been described as 'global', it has also been suggested that there are regional differences in CPDR (Muller et al., 2006). The objective of this article was to contribute to the literature on corporate philanthropy by conducting a global comparative study of corporate responses to three recent disasters, hypothesizing that variations in institutional contexts through geographic space will lead to differences in patterns of CPDR across that space. More than 10 years after Simon's (1995) claim of convergence in philanthropy due to globalization, our investigation shows the opposite: inter-regional differences in CPDR exist and persist. Firms from different regions demonstrated significant differences in the likelihood and cash value of CPDR that lend partial support to our hypotheses on patterns in CPDR.

For instance, our initial hypotheses (1a and 1b) proposed inter-regional differences in CPDR based on extant, largely conceptual claims on comparative philanthropy. Pasquero (1991), for instance, suggests that US firms are more likely to give, and give more, than European and Asian firms while Shen (2004) shows that European firms are more likely to engage in corporate sponsorship than Asian firms. Our results lend general support to these hypotheses, but do not support them in all cases. Specifically, the binomial logistic regression model reveals that Europeans showed the highest incidence of donations in the case of the Tsunami, but were not significantly more likely than Asian firms to donate to either Katrina or the Kashmiri earthquake. North American firms, in contrast, showed incidences of donations in both the Tsunami and Katrina cases that were higher than those of European and Asian firms, but not in the case of the Kashmiri earthquake. This suggests that, when considering all three disasters together, North American firms were the most likely to donate, followed by European firms and then Asian firms. The estimated marginal means reported in Figure 1 also indicate that inter-regional differences exist in the cash value of donations, but not in every case. That is, North American and European firms gave significantly more than Asian firms in response to the Tsunami; all three regions produced significantly different values in the case of Katrina; and North American firms gave significantly more than both European and Asian firms in the case of Kashmir.

The relatively low cash value of donations by Asian firms could imply that Asian firms are subjected to specific factors that constrain how much they give. Given that shareholders are the most important stakeholders to Asian executives (Lines, 2004), Asian executives may perceive agency constraints when considering the degree to which they should engage in CPDR. Lines (2004) also showed that Asian firms are less geared towards general social and environmental issues than European and North American firms. In the case of environmental reporting Kolk (2005) drew similar conclusions, arguing that Asian firms tend to focus their environmental reporting strategies on internal dimensions of environmental accounting, while European and US firms see their reporting as part of the broader international debate on sustainability. If companies perceive CPDR to be a form of social responsibility, the leading role of North American and, to a lesser extent, European firms in this type of CSR is in accordance with previous research.

This partial support for Hypotheses 1a and 1b already points in the direction of Hypotheses 2a and 2b on 'home region effects.' In other words, the results for 1a and 1b show that regions matter – but that it depends on the disaster. The home region effect is quite apparent in the case of Katrina, with North American firms giving significantly more often and at significantly greater values than both European and Asian firms. For Asian firms the home region effect is less evident, although we observe that Asian firms gave nearly as much to the Kashmiri earthquake as they gave to Hurricane Katrina, while North American and European firms' donations dropped off considerably in response to the Kashmiri earthquake (Figure 1).

These two salient observations lend some support to Hypotheses 2a and 2b. However, we recognize the limitation of having no 'European' disaster in the analysis, which makes it difficult to draw conclusions on a possible home region effect for European firms. From this perspective, the extremely high propensity of European firms to donate to the Tsunami is particularly striking, witnessed by the highest odds ratio in Table III ($\mathrm{Exp}(B) = 6.48$). While we did not explore this in our hypotheses, an alternate and intuitive institutional explanation for this result is the relatively high number of casualties among European nationals vacationing in the region. For instance, over 500 Swedes died in the Tsunami, and at least 60 German deaths were noted with an additional 1000 missing and presumed dead. We may, therefore, have found evidence of an additional form of 'local presence effect.' That is, European firms may have engaged in CPDR following the Tsunami to the extent that they did at least in part out of a normative obligation to help their suffering countryfolk in the disaster-stricken region. This possibility requires additional research.

The possibility of a local presence effect for vacationing nationals is reinforced by the evidence of a local presence effect for business activities and relationships in the disaster-stricken region (Figure 2). The data clearly show that firms donated more in instances when they referred to their local activities and relations in their donation announce-

ment, lending solid support for Hypothesis 2c. These results suggest that firms are sensitive to pressures arising through their local presence in the disaster-stricken area, implying that a 'local' understanding of corporate philanthropy (Galaskiewicz, 1997; Marquis et al., 2007) remains important even in a setting of international giving.

Conclusion

While corporate responses to disasters may have raised corporate philanthropy to a new level, it has until recently remained an understudied phenomenon. This article is the first to explore patterns of CPDR by investigating corporate responses to three recent disasters – the South Asian Tsunami (2004), Hurricane Katrina (2005), and the Kashmiri earthquake (2005). We consider the role of global variations in institutional contexts as sources of differences in patterns, frequency, and elements of that response. This study reveals evidence of 'regionalization' in corporate philanthropic disaster response, meaning that organizational behavior in response to major disasters appears to vary systematically across regions. An additional contribution of this study is the finding of a 'home region effect' and a 'local presence effect' in corporate philanthropic disaster response, by which firms pay more attention to disasters that are closer to home, or in locations where they have a local presence, possibly out of a sense of responsibility or a greater degree of tangibility. The results also add nuance to the concept of 'global corporate citizenship' (Post, 2000). Future research may wish to explore the contours of 'regional corporate citizenship' in more depth and to further examine the interplay between geography and institutions that may drive CPDR and other corporate citizenship behaviors.

The results described in this study have implications for research and practice alike. First, our research adds a new dimension to the body of comparative research that explicitly adopts a regional-level perspective. Our study suggests that CPDR is the outcome of a mix of general regional differences in the institutional context as well as institutional forces that vary according to the geographic relationship between the disaster and the firm or its foreign subsidiaries. Katz et al. (2001) observe that inquiry into the social behavior of firms tends to overemphasize firms' domestic environments as opposed to international environments and international issues, leading to 'islands' of understanding that cannot be easily related to one another. For researchers interested in CSR in general and the drivers of social behaviors of firms, our results suggest that regional patterns in CPDR are similar to regional patterns identified in CSR and philanthropy, yet have additional home- or local-presence effects related to the geographic proximity of a disaster to a firm's interests. Results of this study emphasize the need for additional comparative international research in corporate philanthropy, in particular because our study does not isolate the specific institutional forces that drive global variation in CPDR.

Our results also have implications for practice. Most importantly, evidence of regional-level patterns of behavior suggests that the international networks that are currently underway to address disaster response (and the role of companies in it) may be well served by the pursuit of regional-level initiatives. Industry or multilateral groups like World Economic Forum's (WEF) disaster relief network or the European Foundation Centre (EFC), may usefully build upon our findings and tailor their approach to fit the regional focus of firms. Our findings suggest that there are regional differences in what firms seem to pay attention to and in how they respond. Therefore, these organizations should look at having regional subfoci and how to build the regional capacity of firms as a collective. One example of this is the US Business Roundtable's Partnership for Disaster Relief: ''Our new Partnership for Disaster Relief will lay the groundwork to advance the private sector's role in disaster preparedness and will reap immeasurable benefits when a natural disaster occurs,'' said Hank McKinnell, Chairman of the [US] Business Roundtable and Chairman and CEO of Pfizer Inc. ''Through this unique collaboration – across sectors, industries, and borders – US companies will play a coordinated and pivotal role in supporting humanitarian agencies' outstanding relief work on the ground and national governments' ongoing recovery efforts.''[3] We encourage the US Business Roundtable to include other North American firms and for European and Asian regions to establish similar collective initiatives.

Notes

[1] It should be observed that no definitive data is available in this regard, and that figures vary greatly across studies. For instance, while Salamon et al. (2004) mention 1% for the US, the CAF (2006) study reports 1.5%. The CAF study also reports a figure of 0.7% for Canada, while the AFP Canada claims that Canada is a country where "philanthropy represents 6.8% of GDP" (AFP website, http://www.afpnet.org/ka/ka-3.cfm?content_item_id=22610&folder_id=2486, accessed June 13, 2007.

[2] http://www.shell.com/home/Framework?siteId=media-en&FC2=&FC3=/media-en/html/iwgen/news_and_library/press_releases/2005/tsunami_shellresponse_14022005.html

[3] http://usinfo.state.gov/xarchives/display.html?p=washfile-english&y=2005&m=May&x=20050511131006cmretrop0.1108362

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