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Supply Chain Screening Without Certification: The Critical Role of Stakeholder Pressure

Susan A. Kayser
John W. Maxwell
Michael W. Toffel

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Supply chain screening without certification: The critical role of stakeholder pressure

Susan A. Kayser
Kelley School of Business
Indiana University
1309 E. 10th St.
Bloomington IN 47405
skayser@indiana.edu

John W. Maxwell
Kelley School of Business
Indiana University
1309 E. 10th St.
Bloomington IN 47405
jwmax@indiana.edu

Michael W. Toffel
Harvard Business School
Morgan Hall 415
Boston MA 02163
mtoffel@hbs.edu

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To assess and manage reputational risks associated with supply chains, buyers are increasingly seeking information about their suppliers' labor and environmental performance. Several voluntary programs have arisen to encourage suppliers to report this information in a standardized manner, but the information companies report might misrepresent their performance and can thus mislead rather than inform buyers. We hypothesize particular circumstances in which buyers can screen suppliers based on their participation in voluntary programs requiring public commitments and public reporting. In particular, we theorize that stakeholder scrutiny can effectively deter companies with misrepresentative disclosures from participating in such programs, and that this deterrence effect is stronger for smaller companies and in institutional contexts featuring stronger activist pressures and stronger norms of corporate transparency. Examining the decisions of 2,043 firms headquartered in 42 countries of whether to participate in the UN Global Compact, we find support for these hypotheses.

1. Introduction

Companies are increasingly being held accountable for their suppliers' labor and environmental performance and face substantial reputational risk when problems are revealed. For example, Apple's reputation suffered after harsh working conditions were exposed at Foxconn, one of its key suppliers in China. After being accused by Greenpeace campaigns of sourcing from suppliers that were contributing to deforestation, reputational concerns led McDonald's, Unilever, and Proctor & Gamble to implement new policies and procedures to avoid sourcing from such suppliers (Greenpeace International 2009a, 2009b, 2014).

Obtaining a representative portrayal of suppliers' labor and environmental performance can help buyers avoid such surprises and assess the full economic costs of their sourcing options. A supplier offering the lowest prices might not be the lowest-cost supplier in the long run if its poor labor and environmental performance leads to negative publicity for the buyer. Moreover, obtaining this information better enables buyers to respond to the increasing demands they face from customers, regulators, and investors for information about their suppliers' labor and environmental performance.[1] But obtaining this kind of information can be very costly, and it has often been difficult for buyers to discern whether the information disclosed by suppliers is representative of their overall performance or simply a form of greenwashing that disproportionately discloses favorable aspects of their performance (Lyon and Maxwell 2010, Delmas and Burbano 2011, Bowen 2014, Marquis and Toffel 2014).

In this paper, we demonstrate how supplier participation in a particular type of voluntary program can serve as a useful mechanism for buyers to screen suppliers. We show how the risk of attracting stakeholder scrutiny upon joining such a program imposes an indirect cost of participation that is larger for "misrepresentative" suppliers—those whose prior disclosures emphasize relatively benign aspects while cloaking the more harmful aspects. This approach adds to several conventional options buyers face when seeking to assess reputational risk from potential suppliers. For example, buyers can look for suppliers that have become certified to third-party standards governing quality management (e.g., ISO 9001), environmental management (e.g., ISO 14000), occupational health and safety (e.g., OHSAS 18000), and labor issues (e.g., SA8000) (Corbett, Montes-Sancho, and Kirsch 2005, King, Lenox, and Terlaak 2005, Potoski and Prakash 2005, Terlaak and King 2006, Levine and Toffel 2010; Gray, Anand, and Roth forthcoming).[2] Drawbacks of this approach include the expense of engaging external auditors (Darnall and Edwards 2006), the existence of poorly trained and ineffective auditors (O'Rourke 2002,

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[1] For example, customers are increasingly demanding comprehensive environmental information about products to identify which ones have a truly "green" lifecycle and companies publicly traded on U.S. exchanges face regulations requiring them to publicly disclose whether particular minerals they procure might have originated from military conflict zones (Ernst & Young 2010, Lynch and Hurley 2014). After the collapse of Rana Plaza in April 2013, investors at Calvert Investments wrote to the CEOs of several major brands to encourage them "to increase disclosure regarding their supply chains" (Calvert Investment Management 2013).

[2] These studies posit that suppliers (a) adopt these standards to signal to buyers that they have met a particular performance threshold and (b) hire independent auditors to certify to their adherence. Such standards can serve as a signal to buyers because the direct costs of obtaining the certification are larger for "low quality" suppliers, which often do not already possess the skills and management systems required. Just as a third-party certified standard can be used by a supplier as a credible signal of the suppliers' quality, it can also be used in a buyer's procurement policy as a credible screen of the suppliers' quality. Other studies have examined the buyer's perspective and argue, consistent with screening theory, that buyers—uninformed about suppliers' actual behavior and performance—can screen or select suppliers based on the suppliers' adoption of certified management standards (Corbett and Kirsch 2001, Albuquerque, Bronnenberg, and Corbett 2007, Delmas and Montiel 2009, Arimura, Darnall, and Katayama 2011).

Locke, Qin, and Brause 2007, Heras-Saizarbitoria and Boiral 2013), and the disconnect between the standards' focus on management practices and the buyers' desire to screen suppliers based on their performance.

Buyers can also attempt to screen suppliers based on their voluntary self-disclosures of labor and environmental performance. Buyers could, for example, seek to assess reputational risks associated with a particular supplier by using the information in that supplier's corporate sustainability reports, annual reports, and reports submitted to voluntary programs that require public reporting.[3] Such information is challenging to gather and compare (Jira and Toffel 2013). Whereas some suppliers disclose their labor and environmental performance to inform buyers, others strategically disclose relatively benign aspects of their performance to draw attention from what they want to hide. These problems make it difficult for buyers seeking to rely on suppliers' information disclosures to assess the reputational risk of sourcing from them.[4] Suppliers' participation in a voluntary reporting program can be a useful additional screening mechanism for buyers seeking suppliers that make representative disclosures *as long as* suppliers that make misrepresentative disclosures are deterred from participating. But in fact, voluntary reporting programs typically lack precertification requirements and, to foster learning, encourage companies to join irrespective of their prior performance. Previous research has shown that programs lacking a third-party certification requirement tend to attract companies with poor social and environmental performance (e.g., King and Lenox 2000, Lenox and Nash 2003, Rivera and de Leon 2004).

We examine a class of voluntary reporting programs that we refer to as "commit-and-report" programs: those that require participants to *publicly commit* to eventually meet the program's objectives and to *publicly report* their future labor and environmental performance. Examples of commit-and-report programs include the U.S. Environmental Protection Agency's (EPA) 33/50 Program (Arora and Cason 1996; Khanna and Damon 1999), U.S. EPA's Performance Track and state agency versions of that program (Coglianese and Nash 2014), the ski industry's Sustainable Slopes, and the United Nations Global Compact. Upon joining, a participant's public commitment invites scrutiny from stakeholders ranging from activist groups to investors to the general public. Stakeholders may be concerned that companies that join and subsequently submit misrepresentative reports might gain unwarranted benefits (e.g., gaining extra sales, attracting higher quality employees, or generally increasing corporate reputation) by creating a misleadingly positive perception of their performance. To correct that false perception, stakeholders can examine past labor and/or environmental disclosures to expose past misrepresentation so as to undermine the perceived benefits of joining the program.

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[3] Darnall and Carmin (2005) refer to programs with a reporting requirement as "voluntary reporting programs" and found more than 65 in the United States alone.

[4] The Sustainability Accounting Standards Board (SASB) recognizes the problem that much of the social and/or environmental information disclosed is misrepresentative. The organization has recently begun trying to address this by developing standards to provide "a comprehensive view of a corporation's sustainability risks. However, the standards for many sectors are still being developed and those that have been developed were done so with a focus on the needs of U.S. publicly owned companies (SASB 2014).

We therefore propose that companies that have made misrepresentative disclosures in the past will be especially unlikely to join a commit-and-report program when the institutional and organizational contexts increase the threat of stakeholder scrutiny. Specifically, we hypothesize that firms with a history of misrepresentative disclosures will be especially deterred from joining a commit-and-report program when they are headquartered in countries that feature stronger pressures from civil society and that possess stronger norms of corporate transparency. Moreover, we hypothesize that smaller firms with a history of misrepresentative disclosure will be especially deterred from participating in a commit-and-report program because the resulting scrutiny will have a more pronounced effect on them than it does on larger firms that already tend to be more visible. We test and find empirical support for our hypotheses in the context of 2,043 companies' decisions of whether to join the UN Global Compact, a commit-and-report program that has attracted more than 10,000 participating organizations in 130 countries (UN Global Compact 2014a).

Our findings make several contributions to the literature. While the literature on supply chain screening mechanisms had concluded that only programs with an independent certification requirement could serve as a credible screen, we provide the first empirical evidence that, under certain circumstances, buyers can screen suppliers based on their participation in voluntary programs that lack an independent certification requirement. In particular, we show how the risk of stakeholder scrutiny imposes an indirect cost of participation that can deter misrepresentative suppliers from joining. We also contribute to the literature on information sharing between suppliers and buyers, which highlights the circumstances under which such sharing is more likely to occur (Li 2002, Li and Lin 2006, Li and Zhang 2008, Özer, Zheng, and Chen 2011, Jira and Toffel 2013), but had not examined how buyers might acquire more representative information from their suppliers.

2. Theory and Hypotheses

We posit that certain suppliers face implicit costs of joining commit-and-report programs. Publicly committing to a program's labor and environmental objectives and to future public reporting invite increased stakeholder scrutiny of a firm's labor and environmental performance. This increased scrutiny—when it results in positive public recognition—is a primary incentive for firms to join many voluntary programs (Henriques and Sadorsky 1995, Arora and Cason 1996, Rivera 2002). But such scrutiny poses a more serious risk for companies that had been disclosing misrepresentative information because this behavior provides stakeholders with more opportunities to discover and reveal previously hidden negative information.

Moreover, companies whose prior disclosures are misrepresentative also face the risk of stakeholders discovering and criticizing their prior disclosure strategy as having sought to mislead stakeholders. Moreover, misrepresentative disclosers risk criticism from activists who might attempt to correct the misleadingly positive perception their disclosures created. For example, after activists accused Nike of relying on suppliers with subpar labor conditions, the company released a report that emphasized positive information about the state of the labor conditions but neglected to disclose information on the low wages that had sparked the original criticism. This misrepresentative report drew further criticism and scrutiny from activists, who believed that the report was meant to deflect attention from their concerns (Himelstein 1997). We therefore propose:

H1: Companies with past misrepresentative disclosures are less likely to participate in a commit-and-report program.

2.1 Civil society scrutiny

The deterrence effect hypothesized in H1 will vary depending on the level of scrutiny civil society provides. Many activist groups investigate corporate behavior and criticize subpar environmental, social, or governance performance and have been particularly critical of misleading disclosure (Lyon and Maxwell 2011). Some of the most prominent stakeholder scrutiny triggered by companies joining commit-and-report programs is conducted by NGOs such as Greenpeace and the Center for Research on Multinational Corporations that runs the Global Compact Critics website.[5] Their criticism, often portrayed as exposés, seeks to convince stakeholders that a company's actions are duplicitous, with the ultimate goal of eroding the reputation of such companies to deter duplicitous behavior. Experimental evidence indicates that negative information about a company that is exposed by an external stakeholder (NGOs, in the experiment) elicits a more negative reaction than companies' self-disclosure of the same information (Reimsbach and Hahn forthcoming).

Civil society members tend to focus their scrutiny on companies headquartered in their own country, in part because transnational social movements are difficult to construct and maintain (Tarrow 2001). Not only is it easier to research companies that operate (and release information) in their local language, but civil society actors can more easily educate the local community through public hearings (Billings 1971) and engage with the local regulators (Sine and Lee 2009). This, in turn, amplifies the message to the company's senior management and shareholders, who tend to be concentrated in the headquarters country, and increases the likelihood of changing the company's behavior. Being headquartered in a country with strong pressures from civil society has been shown to deter overall participation in voluntary programs, implying that companies in those countries are especially keen to avoid the heightened scrutiny that participating can trigger (Kim and Lyon 2011, Berliner and Prakash 2012). We therefore propose:

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[5] As of July 2013, Greenpeace International's website (http://www.greenpeace.org/international/en/) included 47 articles highlighting duplicitous actions by members of Responsible Care, the chemical industry's voluntary program. The Global Compact Critics website is http://globalcompactcritics.blogspot.com/.

H2: Being headquartered in a country with strong civil society scrutiny will moderate—by further reducing—the likelihood that companies with past misrepresentative disclosures will participate in a commit-and-report program.

2.2 Institutional norms

Countries differ widely in stakeholder expectations for corporate transparency, and companies headquartered in countries with stronger transparency norms face greater pressure to report more information on their financial, social, and environmental risks (Zarzeski 1996, Newson and Deegan 2002). Stronger norms for transparency, which call for representative disclosure to accurately portray performance, coincide with less tolerance for opportunistic and misleading disclosures that could misinform and harm stakeholders.

A company's key stakeholders—including employees, regulators, and investors—tend to be concentrated in its headquarters country, which makes this institutional environment especially influential on corporate decisions (Guler, Guillén, and Macpherson 2002). Moreover, evidence suggests that companies tend to be more responsive to the disclosure demands of their local stakeholders than to those of the global community (Newson and Deegan 2002). Companies headquartered in countries with stronger financial reporting standards are therefore more likely to have internal and external stakeholders who are especially intolerant of misrepresentative disclosures, posing a heightened risk of criticism should misleading disclosures be revealed. We therefore propose:

H3: Being headquartered in a country with stronger financial reporting standards will moderate—by further reducing—the likelihood that companies with past misrepresentative disclosures will participate in a commit-and-report program.

2.3 Organizational visibility

Companies that are more visible to their stakeholders—generally because they are larger or more well-known—tend to draw more stakeholder scrutiny. Larger companies are often subject to stronger demands from regulators and public interest groups (Pfeffer and Salancik 1978, Scott 1992, Greening and Gray 1994) and are more often targeted by activists (Eesley and Lenox 2006). Smaller companies are less likely to have recognizable brands, and the public is less likely to have formed strong opinions about them (Fombrun, Gardberg, and Barnett 2000). Additional scrutiny brought on by joining a commit-and-report program is therefore less likely to reveal as much new information about a large company as it would about a smaller company. We therefore propose that smaller firms will be less keen to invite the "spotlight" of stakeholder scrutiny by participating in a commit-and-report program:

H4: Being a smaller company will moderate—by further reducing—the likelihood that companies with past misrepresentative disclosures will participate in a commit-and-report program.

3. Data and Measures

3.1 Empirical context

We test our hypotheses by examining participation in the Global Compact, a commit-and-report program launched by the United Nations in 2000 to encourage companies to address social and environmental concerns, especially in countries that lack strong civil and governmental institutions. The Global Compact requires companies to (a) make a public commitment to operate according to 10 principles to protect human rights, worker rights, and the environment and to avoid corruption[6] and (b) to commit to making an annual public report of the company's progress in implementing the principles and its future plans to do so. The United Nations publicly reports the names and progress reports of all participants on the Global Compact website.

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[6] The following are the 10 principles: "Human Rights: (1) Businesses should support and respect the protection of internationally proclaimed human rights; and (2) make sure that they are not complicit in human rights abuses. Labour: (3) Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining; (4) the elimination of all forms of forced and compulsory labour; (5) the effective abolition of child labour; and (6) the elimination of discrimination in respect of employment and occupation. Environment: (7) Businesses should support a precautionary approach to environmental challenges; (8) undertake initiatives to promote greater environmental responsibility; and (9) encourage the development and diffusion of environmentally friendly technologies. Anti-corruption: (10) Businesses should work against corruption in all its forms, including extortion and bribery" (UN Global Compact 2013).

The Global Compact's minimal participation requirements have made it the world's largest voluntary corporate social responsibility program, with more than 10,000 companies participating as of 2013 (Berliner and Prakash 2012, Rasche, Waddock, and McIntosh 2013, UN Global Compact 2014a). But those minimal requirements have also raised concerns that the Compact accepts members that are not truly committed to its principles (Bigge 2004, Nolan 2005, Deva 2006, Waddock and McIntosh 2011). Such companies have been charged with attempting to "bluewash"—that is, to enhance their reputations by association with the prestige of the United Nations (and its blue flag)—in order to distract stakeholders from their social and environmental shortcomings (CorpWatch 2001, Williams 2004, Deva 2006).[7]

Prior research indicates that the Global Compact especially attracts participants from countries that invest heavily abroad, that are more supportive of the United Nations and its missions, and that have fewer NGOs (Bennie, Bernhagen, and Mitchell 2007, Berliner and Prakash 2012). Berliner and Prakash (2012) attribute the latter finding to NGOs having a negative impression of the Global Compact, especially its lax membership requirements. Companies from extractive industries, which are especially dependent on governments and local communities for permitting, are especially likely to participate, as are larger and more profitable companies (Bennie, Bernhagen, and Mitchell 2007).

3.2 Sample

Finding no data sources assessing a large global sample of companies' disclosures across all four of the Global Compact's focal topics (human rights, labor, environment, and corruption), we focus on environmental disclosure using data from Trucost Plc.[8] Our sampling frame is defined by Trucost's coverage, which is the set of 4,819 public companies that were listed on any of the following major stock indices during the five-year period of 2004 through 2008: ASX 200, FTSE All Share (and subsets including FTSE 100 and FTSE 350), MSCI All World Developed (and subsets including MSCI Europe), MSCI Asia ex Japan, MSCI Emerging Markets, Nikkei 225, Russell 1000, S&P 500, and S&P Emerging Markets.

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[7] The activist group CorpWatch defines bluewash as occurring when companies "wrap themselves in the blue flag of the United Nations in order to associate themselves with UN themes of human rights, labor rights and environmental protection. Even companies with practices antithetical to UN values…have attempted to bluewash their image. Bluewash is typically associated with attempts by 'corporate humanitarians' to weaken UN agreements, in favor of voluntary, toothless codes of conduct regarding social and environmental issues" (CorpWatch 2001). For examples of activist blogs that charge some Global Compact participants with bluewashing, see the Global Compact Critics website (http://globalcompactcritics.blogspot.com/) and the Global Compact Compliance website (http://globalcompactcompliance.blogspot.com/).

We exclude the 2,496 companies in service industries, for which environmental reporting is much less of an issue.[9] Because we focus on a firm's decision to participate in the Global Compact, we also exclude the 112 companies that had already made that decision prior to our sample period. Linking the remaining 2,211 companies to our other data sources—the United Nations, Worldscope, the World Economic Forum, the World Values Survey, the Yearbook of International Organizations, and the USDA Economic Research Service—results in an estimation sample of 2,043 companies headquartered in 42 countries, including 109 companies that began participating in the Global Compact during our sample period.

Tables 1 and 2 report the country and industry distributions of our estimation sample.

[Insert Tables 1 and 2 here]

3.3 Variables

We measure *Global Compact participation* as a binary variable coded 1 starting the year a company initially participated in the Global Compact and 0 otherwise (that is, in years prior to a company's participation, and for all years of non-participants). We obtained a comprehensive list of all companies that participated in the Global Compact, including the date they began participating, from the Global Compact website.

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[8] Trucost Plc produces and sells corporate environmental profiles—including environmental performance and disclosure—to socially responsible investors.

[9] Specifically, we excluded banks, financial services, healthcare, insurance, investment instruments, media, real estate, retail, telecommunications, travel and leisure, and the following subsectors: business support services, business training and employment agencies, delivery services, financial administration, marine transportation, railroads, transportation services, trucking, waste and disposal services, software, computer services, and Internet.

Misrepresentative reports are those that disproportionately disclose less-impactful aspects of a company's labor or environmental performance. Our measure of a company's *misrepresentativeness* in its disclosures is calculated for each company-year by subtracting Trucost's "weighted disclosure ratio" from its "absolute disclosure ratio" (Marquis and Toffel 2014).[10] The absolute disclosure ratio is the proportion of a company's relevant environmental indicators for which the company disclosed global quantitative figures. Trucost identified the subset of 464 industries from which each company derived revenues each year, based on the FactSet Fundamentals database, financial disclosures, and company feedback. From a comprehensive list of environmental indicators (such as sulfur dioxide emissions and hydrofluourocarbons), Trucost identified the subset that it deemed relevant to each of these industries, based on lifecycle assessment and economic input-output tables. The total number of these distinct environmental indicators deemed relevant to any of the company's industries is the denominator of the absolute disclosure ratio. Trucost calculated the numerator by identifying the subset of these indicators for which the company had publicly disclosed worldwide quantitative figures (for example, worldwide carbon dioxide emissions) in sources such as its annual report, sustainability report, or company website.

The weighted disclosure ratio is similar to the absolute disclosure ratio except that it also takes into account the cost of the environmental damage associated with the disclosed and undisclosed environmental indicators. Trucost uses economic input-output data and lifecycle assessment data to estimate the natural resources consumed and pollution emitted per dollar of revenue for each of 464 industries. Each quantity of resource consumption and pollution emission is multiplied by an environmental damage cost factor, such as $31 per ton of greenhouse gas emitted, which Trucost obtains from the environmental economics literature (Trucost Plc 2008). This enables Trucost to estimate the environmental damage cost per revenue dollar in each industry. Trucost applies these environmental cost factors to each company's annual revenue stream from each industry. The sum of these products is the denominator of the weighted disclosure ratio, which is also referred to as the company's *environmental damage*. The numerator of the weighted disclosure ratio is the environmental damage cost for the subset of these indicators that the company publicly disclosed. Thus, a company that disclosed indicators associated with its less damaging indicators but did not disclose its more damaging indicators will have an absolute disclosure ratio larger than its weighted disclosure ratio and therefore a positive *misrepresentativeness* score. This measure assesses the extent to which the environmental information a company discloses is representative of its environmental impacts.[11] Disclosing many minor indicators but few if any major ones (higher *misrepresentativeness*) can yield a false impression of transparency, a tactic that companies can use to misdirect stakeholders' attention (Marquis and Toffel 2014).

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[10] For a detailed description and examples, see Marquis and Toffel (2014).

The Global Compact notes that civil society organizations can participate in the Global Compact to hold participants accountable to their commitments to implement the Global Compact's principles, which provides us with an indicator of the extent to which company participants will be subject to civil society scrutiny. We measure *civil society scrutiny* as the number of global civil society organizations that were members of the Global Compact in each company's headquarters country in a given year. We obtained this measure from the Global Compact website, which defines civil society organizations as NGOs and nonprofit entities that pursue positive social and environmental changes (UN Global Compact 2014b).

We measure the strength of *financial reporting standards* for a company's headquarters country based on data from the World Economic Forum's Global Competitiveness annual survey (Johnson,

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[11] For example, suppose a company has just three relevant environmental indicators (greenhouse gas and sulfur dioxide emissions and arsenic effluent), releases 1000 tons of each, and discloses just the first two. Its absolute disclosure ratio would be 2/3 (0.66). Supposing the environmental damage cost factors for these three indicators were \$31, \$50, and \$900 per ton, respectively, the company's weighted disclosure ratio would be 0.08, calculated as (1000*31+1000*50)/(1000*31+1000*50+1000*900). Thus its *misrepresentativeness* value would be 0.58 (that is, 0.66-0.08), a high score indicating that the company disproportionately disclosed its less-impactful indicators and hid its most-impactful indicators.

Kaufmann and Zoido-Lobatón 1998, Aggarwal and Goodell 2014).[12] In these surveys, business leaders were asked, “In your country, how would you assess financial auditing and reporting standards regarding company financial performance?” Responses ranged from 1 (“extremely weak”) to 7 (“extremely strong”).

Annual company sales is a common way to capture a company’s visibility to its stakeholders (e.g., Hackston and Milne 1996, Patten 2002, Cho and Patten 2007, Elsayed and Hoque 2010). We measure *sales* in millions of U.S. dollars based on data from Worldscope and we standardize by country to take into account that the average firm size and the variation in firm size differ substantially by country.[13]

We measure the extent to which a company’s activities result in *environmental damage* using estimated values obtained from Trucost, described above, reported in millions of U.S. dollars. As with our *sales* measure, we standardize *environmental damage* by country to take into account that the average of and variation in firm environmental damage differs substantially by country.

We created a series of dummies to denote each company’s primary industry using the 19 Industry Classification Benchmark (ICB) supersectors based on data from Trucost. For each company, we created *peer participation* as the number of companies sharing the firm’s headquarters country and industry classification (ICB supersector) that were already participating in the Global Compact by the prior year.

We measure a country’s connectedness to the global community as the annual number of *intergovernmental organizations* in which a company’s headquarters country participates, based on data from the annual *Yearbook of International Organizations*.[14] We measure the extent to which each company headquarters country’s population generally supports the United Nations and its mission, using data from the World Values Survey.[15] *UN support* is the percentage of survey respondents from each country that respond “a great deal” or “quite a lot” to the following World Values Survey question: “Could you tell me how much confidence you have in [the United Nations]: is it a great deal of confidence, quite a lot of confidence, not very much confidence, or none at all?” Because it takes the World Values Survey several years to collect the interviews from over 100 countries, the surveys are compiled into “waves” which use the same set of survey questions. We use data from the 2005-2008 survey wave.[16]

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[12] We used the 2003 through 2007 Global Competitiveness surveys because we lag all independent variables one year. These surveys are available at http://www.weforum.org/issues/global-competitiveness (last accessed May 2013).

[13] For example, a $500-million-dollar-a-year company in Malaysia is large relative to its peers and will attract more scrutiny from its stakeholders than a company in the United States with the same revenues.

[14] The *Yearbook of International Organizations* is available at http://www.uia.org/yearbook (last accessed August 2013). We used the 2003 through 2007 editions because we lag all independent and control variables one year.

We measure the size and economic development of each company's headquarters country by obtaining data on annual *population* and annual *GDP per capita* from the USDA Economic Research Service[17] and take the log of each to reduce skew.

Summary statistics and correlations are reported in Table 3.

[Insert Table 3 about here]

4. Empirical Model

We estimate the following model:

$$y_{i,j,c,t} = \mathrm{F}(\beta_1 \gamma_{i,c,t-1}, \beta_2 X_{i,j,c,t-1}, \lambda_j, \tau_t, \mu_{i,\mathrm{j,c},t}),$$

where $y_{i,j,c,t}$ refers to whether company *i* in industry *j* headquartered in country *c* participated in the Global Compact in year *t (Global Compact participation)*. The function F(·) refers to the logistic function and the term $\gamma_{i,c,t-1}$ refers to our key explanatory variables: *misrepresentativeness*, *civil society scrutiny*, *financial reporting standards*, and *sales*.

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[15] The World Values Survey is available at http://www.worldvaluessurvey.org/WVSDocumentationWV5.jsp (last accessed May 2014).

[16] The World Values Survey does not collect data from Hong Kong, Israel, Singapore, and Sri Lanka. Rather than drop the observations from these countries, we recode missing values to 0 and included a corresponding dichotomous variables coded 1 to denote observations that had been recoded to 0 (Maddala 1977: 202, Greene 2007: 62). This common econometric approach is algebraically equivalent to recoding missing values with the variable’s mean (Greene 2007: 62).

[17] The USDA Economic Research Service’s GDP per capita metric is available at http://www.ers.usda.gov/data-products/international-macroeconomic-data-set.aspx (last accessed May 2013).

The term $X_{i,j,c,t-1}$ refers to several additional factors we control for that might affect a company's decision to participate in the Global Compact. We control for *environmental damage* because companies that pollute more might face more pressure to appease stakeholders and therefore may be more likely to join voluntary programs (e.g., Arora and Cason 1995, King and Lenox 2000). We include *peer participation* to account for the possibility that peer pressure (mimetic institutional forces) might influence a company's decision to participate in the Global Compact (Bennie, Bernhagen, and Mitchell 2007, Perez-Batres, Miller, and Pisani 2011). We also control for the annual number of *intergovernmental organizations* in each company's headquarters country because countries that are more connected to the global community tend to have stronger support for corporate social responsibility norms, including those embodied in the Global Compact (Berliner and Prakash 2012, Lim and Tsutsui 2012). Consistent with Berliner and Prakash (2012), we control for a country's size and the scale of its economy by including *population* and annual *GDP per capita*, respectively.

The term λ_j represents industry dummies (ICB supersector) to control for time-invariant industry differences in the propensity to participate in the Global Compact. Year dummies (τ_t) control for overall temporal trends that might affect participation, such as the Global Compact becoming more recognizable over time.

5. Results

We estimate our models using logistic regression. Because our model predicts a company's decision to initially participate in the Global Compact, we omit from the sample participants' observations in the years after they joined. We lag all independent variables, moderators, and control variables by one year to avoid reverse causality concerns. To ease interpretation, all interacted variables are standardized, *sales* and *environmental damage* are standardized by country, as noted above. Because several of our variables are measured at the country level, we report heteroskedasticity-robust standard errors clustered by country.[18]

Results are reported in Table 4. Focusing first on the control variables from our primary model (Model 1), the significant positive coefficient on *sales* ($\beta = 0.26$; $p < 0.01$) suggests that less visibility discourages joining, which is consistent with prior research finding larger firms more likely to participate in commit-and-report programs (Bennie, Bernhagen, and Mitchell 2007). We also find that companies with more *environmental damage* are significantly more likely to participate in the Global Compact ($\beta = 0.20$; $p < 0.01$), a finding consistent with prior research on commit-and-report program participation (King and Lenox 2000). Companies headquartered in countries with more *intergovernmental organizations* are significantly more likely to participate in the Global Compact ($\beta = 0.48$; $p < 0.01$), a finding in accordance with Berliner and Prakash's (2012) country-level analysis. *Peer participation* is a significant positive predictor ($\beta = 0.05$; $p < 0.01$), suggesting that mimetic pressure might encourage companies to participate. Point estimates of the coefficient on *GDP per capita* are negative in all of our models, suggesting that firms headquartered in poor countries are more likely to participate, but the relationship is not consistently significant. We find no evidence that *UN support* or *population* significantly influence companies' decisions to participate.

[Insert Table 4 and Figure 1 about here]

Turning to our hypothesized variables, our results indicate that companies exhibiting greater *misrepresentativeness* in their disclosures are significantly less likely to participate in the Global Compact (Model 1: $\beta = -0.39$; $p < 0.01$), lending support to H1. The average marginal effect indicates that a one-standard-deviation increase in *misrepresentativeness* corresponds to a 25% decrease in the probability of participation in the Global Compact from the 1.74% baseline probability to 1.13%.

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[18] As a robustness test, we run a hierarchical model (also known as a mixed logistic regression) with companies nested within countries. This yields results similar to those of our primary model (in terms of effect sizes and significance levels) with the exception that the coefficient on the interaction between *misrepresentativeness* and *civil society scrutiny* (H2) is significant at the 5% level in the pooled logistic regression, but only significant at the 10% level in the hierarchical model.

The negative significant coefficient on the interaction between *misrepresentativeness* and *civil society scrutiny* in Model 2 ($\beta = -0.14$; $p < 0.05$) supports our hypothesis that *misrepresentativeness* is an especially strong deterrent from participation among companies headquartered in countries with more civil society engagement in the Global Compact (H2). The lines in Figure 1 depict the average predicted probability of participating in the Global Compact along varying levels of *misrepresentativeness* for countries with low versus high civil society scrutiny. Specifically, the solid line refers to the fifth percentile of our sample countries' average civil society scrutiny (that is, no civil society organizations participating in the Global Compact) and the dashed line refers to the 95th percentile (that is, eight civil society organizations participating in the Global Compact). Both lines slope downwards, indicating a consistent negative relationship irrespective of the number of civil society members in the Global Compact, but the significant interaction term in Model 2 indicates that the negative relationship is significantly more pronounced (steeper) for companies in countries with more civil society members in the Global Compact.

The significant negative coefficient on the interaction between *misrepresentativeness* and *financial reporting standards* in Model 3 ($\beta = -0.14$; $p < 0.05$) indicates that companies with misrepresentative disclosures are especially deterred from participating in the Global Compact in countries with stronger reporting standards, which supports H3. The dashed line in Figure 2 represents the average predicted probability of participation for companies headquartered in countries with very strong financial reporting standards (the 95th percentile in our sample corresponds to companies with headquarters in the United Kingdom). The negative slope of this line indicates that for these companies, there is a negative relationship between *misrepresentativeness* and the probability of participating in the Global Compact. The nearly flat solid line indicates that for companies headquartered in countries with very weak financial reporting standards (the fifth percentile corresponds to companies with headquarters in China or Russia), there appears to be no relationship between *misrepresentativeness* and the probability of participating.

[Insert Figures 2 and 3 about here]

The positive significant coefficient on the interaction between *misrepresentativeness* and *sales* ($\beta = 0.12$; $p < 0.01$) in Model 4 yields support for H4. This indicates that *misrepresentativeness* is an especially strong deterrent to Global Compact participation for less visible companies. The solid line in Figure 3 depicts the average predicted probability of participating in the Global Compact along varying levels of *misrepresentativeness* for low-visibility companies (*sales* at the fifth percentile in a country). The dashed line refers to high-visibility companies (*sales* at the 95th percentile in a country). The significant interaction term indicates that the negative relationship between *misrepresentativeness* and participation is more pronounced (steeper) for less-visible companies than for more-visible companies.

6. Discussion and Conclusion

We find that companies that had previously made misrepresentative disclosures are deterred from joining a commit-and-report program. We attribute this effect to the heightened stakeholder scrutiny which may be brought on by joining, a serious risk for companies that have already made misrepresentative disclosures. This explanation is further supported by our finding that factors that enhance the impact of stakeholder scrutiny further diminish the likelihood that such companies join.

6.1 Contributions

Prior research indicates that buyers can use voluntary programs as a screening mechanism to identify suppliers that have implemented a particular set of labor or environmental management practices as long as those programs include independent verification audits (Potoski and Prakash 2005), but not when the programs lack explicit sanctions (King and Lenox 2000). More recent work has revealed that programs that lack such audits and sanctions—but instead convey the implicit threat of inspection by a regulator—can also serve as a reliable screening mechanism (Short and Toffel 2010). Our study reveals certain circumstances under which voluntary programs that lack all of these conditions—independent verification audits, explicit sanctions, and implicit regulatory penalties—can nonetheless serve as a reliable screening mechanism. In doing so, we reveal a critical role for stakeholder scrutiny to support the credibility of a supplier screening mechanism.

Our work also extends the literature on information sharing in supply chains. This literature has primarily focused on the value created by information sharing among supply chain partners (Cachon and Fisher 2000, Özer, Zheng, and Chen 2011, Kurtulus, Ülkü, and Toktay 2012) and the conditions under which buyers and suppliers share operational metrics (Li 2002, Li and Lin 2006, Li and Zhang 2008, Özer, Zheng, and Chen 2011) and environmental-risk and risk-management efforts (Jira and Toffel 2013). Prior work has found supply chain partners to be more likely to share information—and to share higher-quality information—when the relationship is characterized by trust, a shared vision, and a commitment to keeping the information confidential (Li 2002, Li and Lin 2006, Li and Zhang 2008, Özer, Zheng, and Chen 2011). Our research reveals several circumstances under which buyers can be more confident that the disclosed information is representative of the supplier's environmental performance. This allows buyers to be more effective at screening suppliers, assessing the full expected economic cost of sourcing from a supplier, and managing brand risk.

Our work also relates to the literature that examines companies' public reporting of information about their labor or environmental performance, which has implications beyond supply chain management. This literature has found more reporting from larger and more profitable firms and from firms more dependent on capital markets and foreign sales (Patten 1991, Cormier and Magnan 2003, Stanny and Ely 2008). A few studies have focused on selective disclosure, where firms reveal the more benign aspects of their labor or environmental performance while cloaking the more harmful aspects (Lyon and Maxwell 2011, Marquis and Toffel 2014). These studies suggest that companies with worse environmental performance—especially when subjected to more scrutiny from civil society—are more likely to disclose representative information. While this literature on corporate sustainability reporting has identified some antecedents of greater transparency and, to a lesser degree, antecedents of the representativeness of environmental disclosure, it has provided little guidance on how buyers and other stakeholders can identify companies that make representative disclosures. We begin to fill this gap by identifying several circumstances under which participation in a commit-and-report program indicates more representative disclosures, and can thus enhance buyers' efforts to screen suppliers.

6.2 Limitations and future research

Our work has several limitations. While commit-and-report programs require both public commitments to the program's principles and public progress reports, they differ in several ways that call into question the generalizability of our results to all such programs. For example, some including the Global Compact seek participants from all industries, but others such as the ski industry's Sustainable Slopes program focus on a specific industry. Programs also differ based on whether they are operated by a multigovernment agency, a regulator, an industry association, or a consortium. The Global Compact is a particularly large, well-known commit-and-report program launched and operated by an unusually prominent organization and has attracted considerable criticism from researchers, the media, and activists (e.g., Bigge 2004, Nolan 2005, Deva 2006, Waddock and McIntosh 2011). Moreover, some commit-and-report programs such as the Global Compact are open to all participants irrespective of their prior performance, whereas others such as EPA's Performance Track and similar state programs require participants to exceed a pre-existing minimum performance threshold. Because programs with pre-existing performance thresholds might elicit less stakeholder scrutiny, future research is needed to examine whether they also provide a useful screening mechanism. All of these differences highlight the need for additional research to determine whether the relationships we uncovered vary by the characteristics of commit-and-report programs.

Another question of generalizability arises from our analysis. Data constraints led us to analyze relatively large, publicly listed companies, whereas many voluntary programs also attract small and/or privately held companies. Privately held companies are not subject to pressure from public investors or socially-responsible-investment rating agencies, which are important sources of institutional pressure. Upon joining commit-and-report programs, such companies might not experience an increase in overall stakeholder scrutiny that activates the screening mechanism we find for public companies.

In terms of firm size, we do find that smaller companies with misrepresentative disclosures are especially deterred from joining a commit-and-report program, which we attribute to smaller firms facing an especially acute risk of increased visibility upon joining. This suggests that our results may well apply to even smaller companies that we could not include in our analysis. Very small companies, however, may attract no additional scrutiny at all upon joining a commit-and-report program, which would imply that our results might not apply to them. Future research is needed to know how big a company needs to be to incur a threat of scrutiny after joining a commit-and-report program.

Constraints on data availability also confined us to environmental disclosures, although the Global Compact is also concerned with human rights, labor, and corruption issues. While companies' environmental performance has garnered much attention from buyers, investors, and other stakeholders, future work should examine the circumstances under which commit-and-report programs might provide useful screening mechanisms for these other aspects of company operations.

6.3 Conclusion

Our study aimed to reveal the circumstances under which voluntary programs that lack third-party certification requirements can still serve as a reliable screening mechanism for buyers. We extend theory of signaling and screening mechanisms in supply chains by demonstrating how the "spotlight effect" can deter suppliers that have made misrepresentative disclosures from joining a commit-and-report program. Our study thus emphasizes how important stakeholder scrutiny is to the credibility of a screening mechanism.

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Table 1. Headquarters Composition of Sample

Country	Firms	Percent
Australia	103	5.0%
Austria	11	0.5%
Belgium	10	0.5%
Brazil	23	1.1%
Canada	88	4.3%
Chile	5	0.2%
China	49	2.4%
Denmark	11	0.5%
Finland	26	1.3%
France	27	1.3%
Germany	51	2.5%
Greece	10	0.5%
Hong Kong	48	2.4%
Hungary	1	0.1%
India	41	2.0%
Indonesia	16	0.8%
Ireland	11	0.5%
Israel	14	0.7%
Italy	23	1.1%
Japan	288	14.1%
Luxembourg	5	0.2%
Malaysia	31	1.5%
Mexico	10	0.5%
Netherla	29	1.4%
New Zeal	4	0.2%
Norway	37	1.8%
Pakistan	10	0.5%
Philippines	7	0.3%
Poland	3	0.2%
Portugal	4	0.2%
Russia	13	0.6%
Singapore	15	0.7%
South Africa	16	0.8%
South Korea	67	3.3%
Spain	12	0.6%
Sri Lanka	1	0.1%
Sweden	27	1.3%
Switzerland	22	1.1%
Thailand	17	0.8%
Turkey	4	0.2%
United Kingdom	242	11.9%
United States	611	29.9%
Total	**2,043**	

Table 2. Industry Composition of Sample

ICB supersector	Firms	Percent
Automobiles & Parts	68	3%
Basic Resources	212	10%
Chemicals	138	7%
Construction & Materials	165	8%
Food & Beverage	164	8%
Industrial Goods & Services	431	21%
Oil & Gas	285	14%
Personal & Household Goods	220	11%
Technology	176	9%
Utilities	184	9%
Total	**2,043**	

Table 3. Summary Statistics

	Variable	**Mean**	**SD**	**Min**	**Max**	**Correlations**										
						1.	*2.*	*3.*	*4.*	*5.*	*6.*	*7.*	*8.*	*9.*	*10.*	*11.*
1.	Global Compact participation	0.02	0.13	0	1	1.00										
2.	Misrepresentativeness	-0.15	0.27	-0.94	0.55	-0.09	1.00									
3.	Civil society scrutiny	3.42	3.78	0	9	-0.05	0.06	1.00								
4.	Financial reporting standards	5.86	0.64	3.48	6.65	-0.04	-0.02	0.49	1.00							
5.	Sales (in US$ thousands)	6,738	16,324	0.01	358,600	0.06	-0.20	0.04	-0.08	1.00						
6.	Environmental damage (in US$ millions)	233	771	0	11,035	0.07	-0.30	0.02	-0.08	0.29	1.00					
7.	Intergovernmental organizations	739	245	64	1,323	0.04	-0.04	0.37	0.43	-0.03	-0.03	1.00				
8.	Peer participation	2.34	4.82	0	55	0.03	0.07	0.24	0.06	0.01	-0.10	0.15	1.00			
9.	UN support	0.48	0.14	0.19	0.85	0.05	-0.06	-0.76	-0.41	-0.02	-0.04	-0.16	-0.13	1.00		
10.	GDP per capita (log)	10.25	0.88	6.40	11.33	-0.03	-0.03	0.37	0.55	0.04	-0.06	0.37	0.04	-0.21	1.00	
11.	Population (log)	18.29	1.36	13.03	20.99	-0.02	0.04	0.50	-0.22	0.11	0.08	-0.08	0.20	-0.35	-0.22	1.00

N = 6,593 company-year observations from 2,043 companies. The standardized variables in the regression have a mean of 0, a standard deviation of 1, and the following minimum and maximum values: *misrepresentativeness* (-2.97, 2.60), *civil society scrutiny* (-0.90, 1.48), *financial reporting standards* (-3.74, 1.24), *sales* (-1.44, 14.86), *environmental damage* (-1.85, 10.17), and *intergovernmental organizations* (-2.76, 2.38).

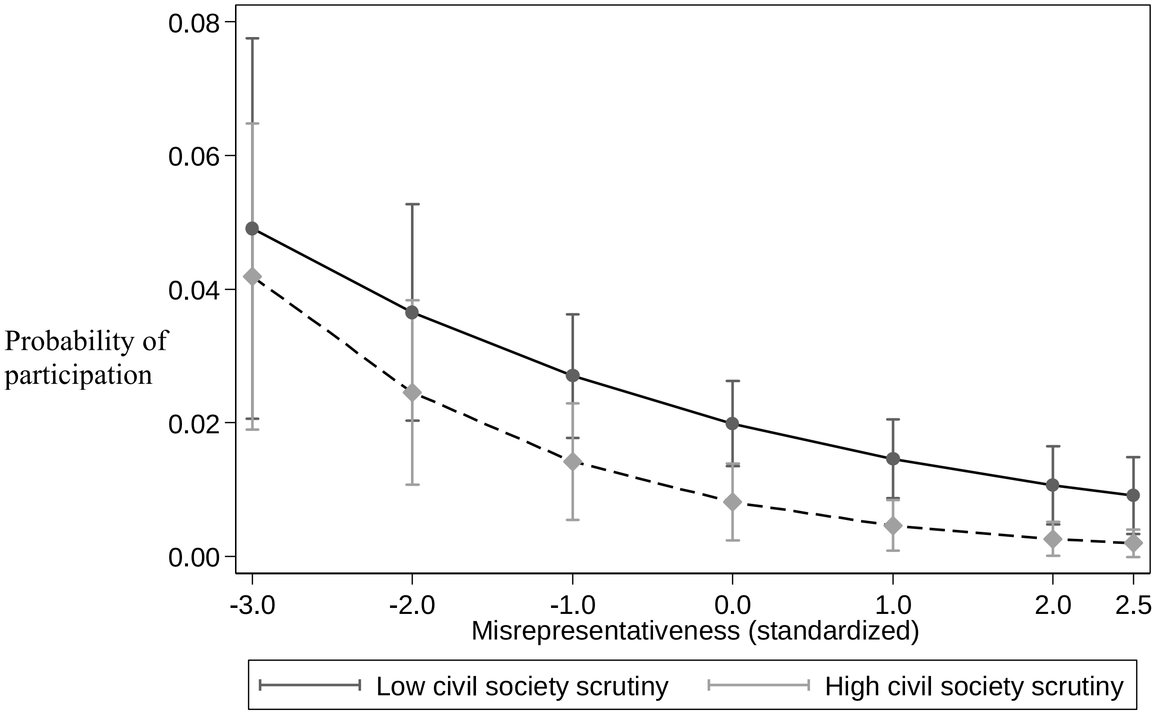
Table 4. Logistic Regression Results

Dependent variable: Global Compact participation

		(1)		(2)	(3)	(4)
		Coef.	AME	Coef.	Coef.	Coef.
H1	Misrepresentativeness †	-0.387**	-0.61%	-0.446**	-0.427**	-0.430**
		[0.104]		[0.072]	[0.093]	[0.093]
	Civil society scrutiny †	-0.401	-0.63%	-0.500+	-0.418	-0.382
		[0.257]		[0.279]	[0.270]	[0.259]
H2	Misrepresentativeness † × Civil society scrutiny †			-0.135*		
				[0.068]		
	Financial reporting standards †	-0.213	-0.34%	-0.205	-0.264+	-0.208
		[0.141]		[0.141]	[0.143]	[0.142]
H3	Misrepresentativeness † × Financial reporting standards †				-0.137*	
					[0.066]	
	Sales ◊	0.255**	0.40%	0.239**	0.241**	0.405**
		[0.066]		[0.066]	[0.065]	[0.067]
H4	Misrepresentativeness † × Sales ◊					0.122**
						[0.038]
	Environmental damage ◊	0.202**	0.32%	0.203**	0.205**	0.220**
		[0.073]		[0.075]	[0.076]	[0.067]
	Intergovernmental organizations †	0.478**	0.76%	0.475**	0.476**	0.476**
		[0.091]		[0.090]	[0.089]	[0.094]
	Peer participation	0.050**	0.08%	0.050**	0.050**	0.051**
		[0.018]		[0.019]	[0.018]	[0.019]
	UN support	0.568	0.90%	0.547	0.564	0.490
		[0.907]		[0.898]	[0.929]	[0.927]
	GDP per capita (log)	-0.196+	-0.31%	-0.190+	-0.173	-0.179
		[0.112]		[0.112]	[0.121]	[0.116]
	Population (log)	-0.030	-0.05%	-0.027	-0.023	-0.020
		[0.109]		[0.109]	[0.111]	[0.112]
	Industry dummies	Yes		Yes	Yes	Yes
	Year dummies	Yes		Yes	Yes	Yes
	Observations	6,593		6,593	6,593	6,593
	Companies	2,043		2,043	2,043	2,043
	Participants	109		109	109	109
	Countries	42		42	42	42

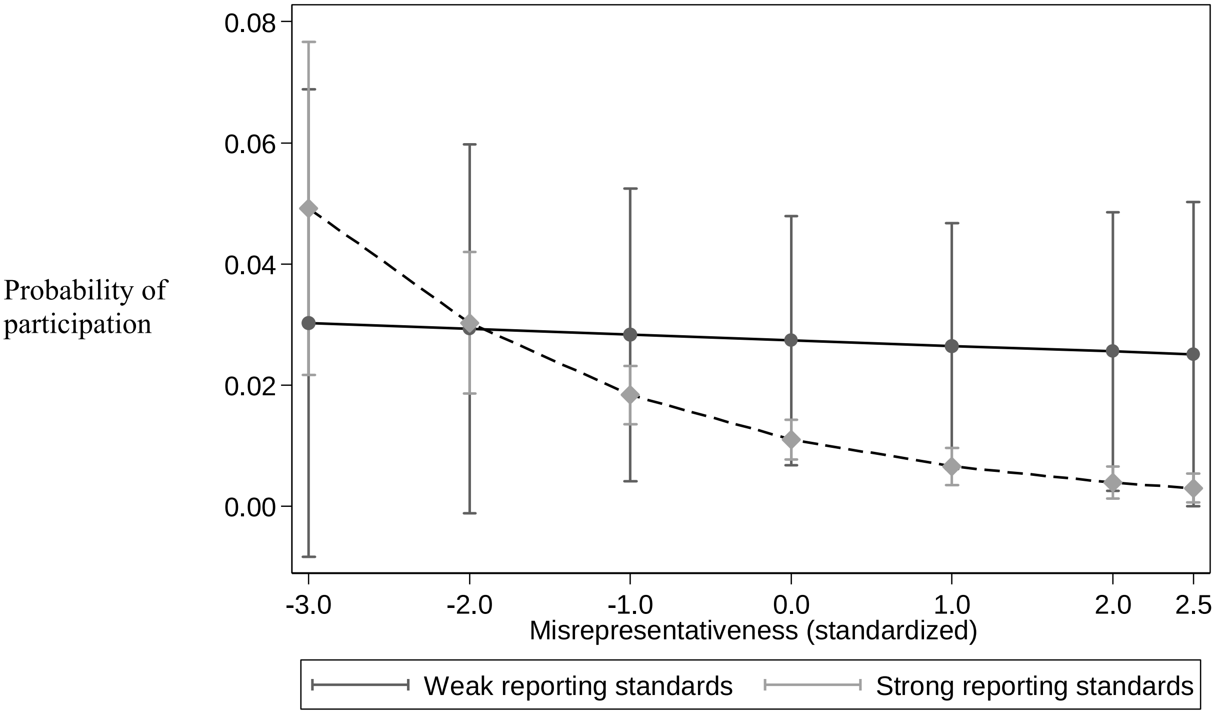
Logistic regression coefficients and average marginal effects (AME) with standard errors clustered by country in brackets. ** p<0.01, * p<0.05, + p<0.10. † indicates variables that are standardized and ◊ indicates variables standardized by country. All models also include year dummies, industry dummies, and a dummy variable denoting instances in which *UN support* was coded to 0 to replace missing values.

Figure 1. Companies with misrepresentative disclosures are especially deterred from joining the Global Compact when headquartered in countries with high civil society scrutiny.



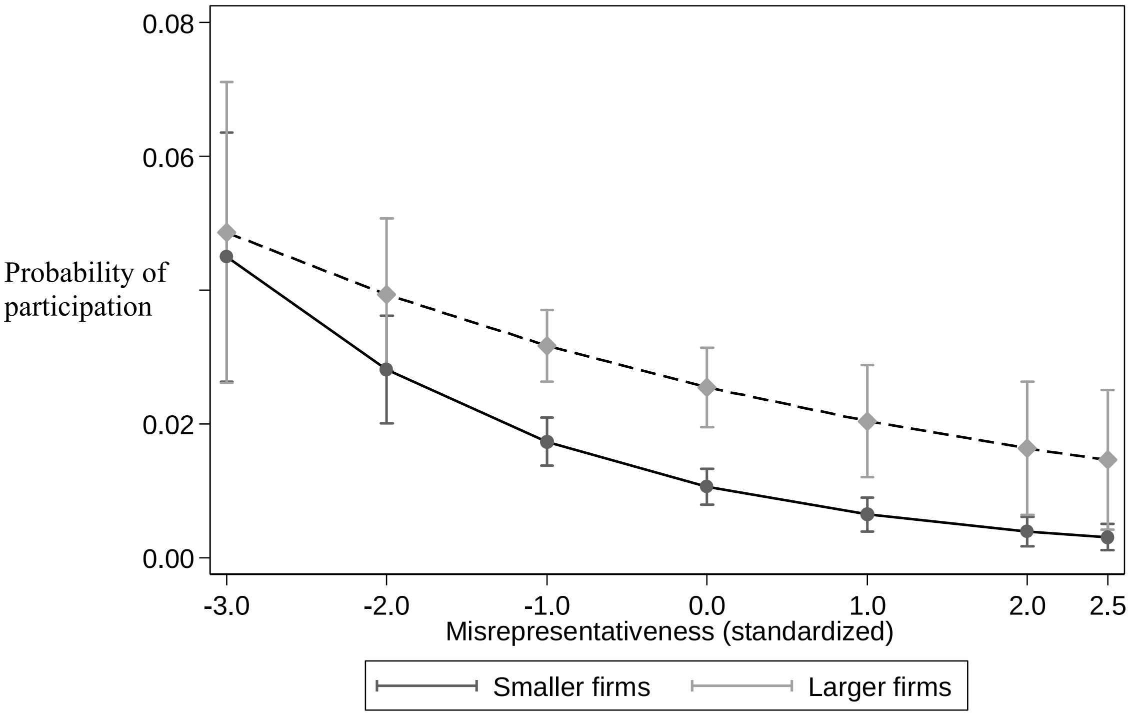
The solid line represents low *civil society scrutiny,* corresponding to the fifth percentile of our sample countries' average civil society scrutiny (that is, no civil society organizations participating in the Global Compact). The dashed line represents high *civil society scrutiny,* corresponding to the 95th percentile (that is, eight civil society organizations participating in the Global Compact).

Figure 2. Companies with misrepresentative disclosures are especially deterred from joining the Global Compact when headquartered in countries with strong financial reporting institutions.



The solid line represents weak *financial reporting standards*; it corresponding to the fifth percentile of our sample countries' average financial reporting standards (that is, at the level of companies with headquarters in either China or Russia). The dashed line represents strong *financial reporting standards,* corresponding to the 95th percentile in our sample (that is, at the level of companies with headquarters in the United Kingdom).

Figure 3. Companies with misrepresentative disclosures that are smaller in size are especially deterred from joining the Global Compact.



The solid line represents smaller firms: those with sales at the fifth percentile in their headquarters country. The dashed line represents larger firms: those with sales at the 95th percentile in their headquarters country.