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Does Corporate Social Responsibility Benefit Society?

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In short, it depends on the ownership type. We construct an event-based outcome measure of firm-level environmental, social, and governance (ESG) impact for public and private firms globally from 2007 to 2015 using data from RepRisk. Then, we measure the societal impact of corporate social responsibility (CSR) engagements using participation in the United Nations Global Compact as a proxy. We demonstrate a striking difference between public and private firms: while private firms significantly reduce their negative ESG incident levels after CSR engagements, public firms fail to do so. We attribute this difference to the conflicts of interest between shareholders and stakeholders, which are more pronounced in public firms than private firms. We empirically validate this interpretation through examination of scenarios with varying levels of conflict intensity. We find that for issues types with higher conflict intensity such as collective bargaining, supply-chain-related issues, and controversial products and services, the performance gap between public and private firms is even more severe. For issue types with lower conflict intensity such as tax evasion, executive compensation, and overuse and wasting of resources, the performance gap is smaller and even public companies may do better post-commitment. Moreover, the performance gap is also wider for upstream firms than for downstream firms in supply chains. We also rule out a host of alternative interpretations related to time trends and endogeneity issues. Our results show that existing CSR engagements may not necessarily lead to better societal outcomes, and that policy interventions aimed at aligning the interests of different parties can potentially improve the overall outcome.

1. Introduction

The majority of academic research on corporate social responsibility (CSR) focuses on the link between CSR and corporate financial performance. Many papers examine the impact of CSR engagements on numerous metrics of profitability, cash flow, valuation and risk, while taking their societal impact more or less for granted. By contrast, few papers empirically study the effectiveness of these activities from *society's* perspective; that is, do these social responsibility initiatives actually live up to their name, and create positive impact on society? After all, the primary objective of social responsibility is to generate societal benefits. Without a reliable way to assess CSR's societal impact nor a means of quantifying what externalities it creates in society at large, researchers question the focus of CSR research: if some socially desirable activity is profitable, then it is best described as intelligent operations of the business rather than CSR (Karnani 2011).

The paucity of empirical research in this area can be partially attributed to the scarcity of firm-level *outcome* data on societal impact. CSR activities are multidimensional in nature, spanning

many environment, society, and governance (ESG) domains. A holistic measure of impact across these domains thus requires large-scale data collection over a broad array of ESG issues. Not only is this task time-consuming, it often entails extracting unstructured information such as texts from corporate filings and news media. As a result, quantifiable outcome data so far exist only for a few specific environmental categories such as emissions disclosures (e.g., King and Lenox 2000, Doshi et al. 2013, Toffel and Short 2011, Kim and Lyon 2011) and environmental standards adoptions (e.g., Simcoe and Toffel 2014, Rysman et al. 2016). Comprehensive outcome data typically do not exist for other environmental categories. Moreover, this lack of data is particularly acute for issues in the social and governance domains, such as employment conditions, community impact, bribery, and so forth. These difficulties have prevented the construction of a holistic outcome measure of societal impact at the individual firm level.

In this paper, we eliminate this bottleneck with an event-based measure of firm-level societal impact, constructed from an extensive collection of 548,155 *negative* ESG incidents involving 54,599 firms over nine years from 2007 to 2015, compiled by the RepRisk.[1] This data is uniquely suited for our study for two reasons. First, compared to alternative outcome measures with narrower focuses, our sample is both broader and more granular. As a third-party sustainability consulting and monitoring firm, RepRisk screens both public and private firms on a daily basis for negative ESG incidents, using both structured and unstructured data from over 80,000 media, regulatory, and commercial documents in 15 different languages. These incidents are categorized into 30 categories ranging from environmental (e.g., pollution), social (e.g., labor relations), to governance (e.g., executive compensation) issues. A wide cross section of countries, industries and firm types are represented in the RepRisk sample. Second, alternative multi-category ESG ratings data, such as the widely used annual KLD (now MSCI ESGSTATS) database (Chatterji et al. 2009, Hong and Kostovetsky 2012, Servaes and Tamayo 2013, Kruger 2015), are constructed from criteria-based ratings by MSCI analysts. These ratings are conducted at fixed intervals (annually), and are frequently based on self-reported information (e.g., CSR-related announcements) rather than actual outcomes. Because the ratings system is not publicly available, such measures are more subjective than our event-level RepRisk data, which allows for a higher-frequency and more objective assessment of the societal impact of each firm over time.[2]

Next, we use firms' participation in the UN Global Compact program (also referred to as UNGC or the Compact hereafter) as a proxy of their CSR engagements. UNGC is the world's largest CSR

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[1] Detailed data descriptions can be found in Section 3.

[2] Note that because our event-based data is based on tracking media coverage over time, such data could also be subject to reporting biases and changes in time trends in media coverage. We address these potential issues in our empirical analysis.

initiative, with a diverse set of 22,275 participants as of August 2016, including public and private firms, governments, and NGOs. It offers several unique advantages as our proxy for CSR engagement. First, UNGC is a broad CSR initiative encompassing multiple categories, overlapping nicely with our RepRisk categories. Second, UNGC has a unified set of principles that all participants are expected to commit to and regularly report their progress on (annually in most cases), thereby mitigating issues related to firm-level heterogeneities in CSR standards that are inherent in the voluntary disclosure data, such as press releases. Although UNGC has no formal enforcement provisions, it publicizes firms' progress reports to encourage monitoring from external stakeholders, such as NGOs (Kayser et al. 2016). Moreover, communications are monitored annually by the UN, and failure to engage in continuous communications will result in public expulsion from the program. Third, UNGC has by far the largest number of business participants (6,420 publicly traded and private firms), and many firms in the Compact are also tracked by our RepRisk sample. Finally, firms commit to the Compact at different points in time, providing staggered treatments that offer more robust difference-in-differences comparisons than government-mandated CSR programs (e.g., Noronha et al. 2013, Ioannou and Serafeim 2016) that affect all firms at once.

We find several new results. We demonstrate a significant difference in societal impact between publicly traded and privately owned firms, after their CSR engagements: private firms do seem to make effective efforts that reduce their negative ESG impact after committing to the Compact— the negative monthly incident levels are reduced by 6.3% on average. Public firms, by contrast, do not appear to achieve similar success after their engagements. Their subsequent negative incident levels do not differ statistically, and in some cases even rise. This striking result is robust to a host of alternative interpretations and specifications, such as time trends in media coverage, different prior CSR profiles, sample selection issues, and others that we examine in Section 4.

We argue that this dichotomy between public and private firms' societal impact is consistent with the existence of conflicts of interest between shareholders and other stakeholders, which are more prominent in public firms than private firms. We examine this economic explanation in detail in Section 5. Consistent with this argument, we demonstrate that the performance gap between public and private firms indeed varies significantly under different levels of this conflict intensity. First, in categories where stakeholder welfare improvements can also clearly improve the welfare of shareholders, even public firms may have fewer negative incidents such as tax evasions, excessive executive compensations and wasting of resources after committing to UNGC. By contrast, in categories where conflicts between shareholders and other stakeholders are particularly acute, such as in collective bargaining situations, supply-chain-related issues and controversial products and services, the performance gap is particularly wide: private firms have lower post-participation incidence while public firms have higher incidence.

In addition, the intensity of the shareholder–stakeholder conflict is also related to firms' positions along the supply chain. We demonstrate that, for consumer-facing firms such as retailers and producers of personal and household goods, both public and private firms have significantly fewer negative incidents after committing to the UNGC. For these firms, reducing negative incidents is more likely to positively affect their bottom lines because consumers are likely to be more cognizant of these improvements, and directly reward them with higher sales and greater loyalty. Thus, in a rational framework, their shareholders would be more receptive to CSR-related activities. For upstream manufacturers, however, the performance gap between public and private firms is significantly larger.

Overall, our findings demonstrate that the societal impact of CSR engagements is subject to the conflicts of interest between shareholders and other stakeholders in society. When such conflict is strong, as is often the case for public firms, CSR engagements tend to be symbolic and ineffective. In the following sections, we discuss existing theories in the literature (Section 2), describe our data and methodology (Section 3), present empirical results and ensure their robustness (Section 4), analyze the economic interpretations of these results (Section 5), and discuss the contributions and limitations of our research (Section 6).

2.   Literature and Background

We relate our main empirical finding—that the CSR engagements undertaken by public and private firms lead to significantly different outcomes—to two streams of literature in corporate governance. Literature on the conflicts of interest between shareholders and other stakeholders prescribes an incentive for firms to engage in ineffective, symbolic CSR actions, and literature on corporate control suggests that private firms might face less of this conflict and thus less resistance in engaging in effective CSR. In this section, we discuss these streams of literature, which will serve as the theoretical grounding for our empirical tests in later sections.

2.1.   Shareholder–Stakeholder Conflicts and Greenwashing

Existing research on CSR remains uncertain about whether CSR engagements lead to better societal outcomes. This may be due to two reasons: first, shareholder theory argues that firms' objective is to maximize profits (Friedman 1970) and shareholder value (Jensen 2001). CSR is thus viewed by many as a diversion of resources from the pursuit of profitability and shareholder wealth to the interests of external stakeholders outside the firm's boundary. Efforts to create positive external impact can potentially increase business costs and adversely affect firms' financial positions (e.g., Bromiley and Marcus 1989, Hong and Kacperczyk 2009). Therefore, unless a firm can fully internalize these externalities, it might not have an incentive to voluntarily engage in CSR efforts that generate real, measurable societal benefits.

Second, while early theories predict a negative relationship between CSR and financial performance, subsequent research also finds evidence supporting a positive relationship. In particular, instrumental stakeholder theory (e.g., Jones 1995) argues that engagement in CSR may generate positive cash flows due to new customer acquisition, enhanced customer loyalty, and stronger brand recognition (e.g., Barney 1991, Russo and Fouts 1997, Misani and Pivato 2008, Lev et al. 2010, Servaes and Tamayo 2013, Eccles et al. 2014, Flammer 2015). However, in this scenario, firms may strategically engage in or announce CSR solely to reap the financial benefits that come from such a public commitment, regardless of the social benefits. Therefore, CSR activities might fall short of their *full* societal impact, because this is not really the firm's strategic objective to begin with.

Indeed, CSR activities have been increasingly criticized as "greenwashing", a form of cheap talk where firms promise to become more responsible but fail to make the effort, or engage only in "symbolic" efforts.[3] Specific references to greenwash in the literature have grown rapidly, especially since 2011 (see Lyon and Montgomery 2015 for a comprehensive review). Some recent works include Delmas and Montes-Sancho (2010), who document that later participants in the Department of Energy's Climate Challenge program are more likely to engage in symbolic rather than substantive actions to reduce their greenhouse gas emissions. Kim and Lyon (2011) use data from the Department of Energy's Voluntary Greenhouse Gas Registry to compare reported reductions to actual emissions and find that participants increase emissions over time but report reductions. Kim and Lyon (2015) further derive a theory explaining when firms may overstate or understate their impacts. Kotchen and Moon (2012) show that firms are more likely to *claim* engagement in CSR activities when they actually *do* more harm than good. Marquis et al. (2016) also show evidence of selective disclosure of benign impact while masking environmental damages.

Moreover, the largely voluntary nature of CSR engagements makes them particularly easy to greenwash. For example, several studies examine the impact of voluntary participation in environmental programs on emissions levels as the outcome measure, and most studies either find no evidence of lower emissions or document evidence of even higher emissions levels (King and Lenox 2000, Rivera and De Leon 2004). Toffel and Short (2011) find that self-regulation coupled with self-policing (self-detected compliance violations) can overcome the limitations of voluntary participation without regulation and induce better outcomes in the form of lower emissions levels.

While mandatory disclosure has been shown to reduce emissions levels effectively (e.g., Doshi et al. 2013), not all CSR engagements can be easily mandated and monitored because outcomes of most types of CSR engagements are difficult to quantify. Some countries have taken a proactive

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[3] For example, Lewin et al. (2006) examine the promises and actual practices of leading food producers Kraft and McDonald's, and demonstrate that, despite extensive campaigns and promises to fight childhood obesity, both firms have systematically and heavily marketed unhealthy food options to minors.

approach to make CSR reporting or CSR spending mandatory (Huang et al. 2013, Ioannou and Serafeim 2016, Dharmapala and Khanna 2016).[4] In these situations, our event-based outcome measures might be particularly informative in assessing the impact of individual firms, as well as the programs as a whole.

2.2. Shareholder–Stakeholder Conflict and Corporate Ownership

While the previous stream of literature projects uncertain outcomes from CSR engagements due to the shareholder–stakeholder conflicts of interest, we build upon another stream of literature to add further granularity to the intensity of these conflicts, as predicted by firms' ownership types. Specifically, we advance several reasons why the conflict between profits and societal goals might be more starker in publicly traded firms than in privately held firms. First, by laws of incorporation, firms have a fiduciary duty to serve shareholders' interests. Public firms, in particular, are more constrained by this duty because they are tightly monitored by equity markets (Holmstrom and Tirole 1993, Dow and Gorton 1997) and the markets of corporate control (Manne 1965). Therefore, they likely face more constraints than private firms if they pursue objectives that diverge from maximizing shareholder value. Private firms, by contrast, typically have a larger percentage of owner-managers and face fewer constraints from external shareholders. As a result, it is easier for them to pursue objectives beyond the bottom line, especially when they identify strongly with certain social values. Lastly, CSR can also be viewed as a shift of resources from shareholders in the short term to eventually benefit the firm in the long run (e.g., Kacperczyk 2009, Slawinski and Bansal 2012, Wang and Bansal 2012, Flammer and Kacperczyk 2016, Jaganathan 2016). A large body of research suggests that managers of public firms are often subject to short-termism due to several forms of incentives for maximizing short-term stock prices (Stein 1989, Shleifer and Vishny 1990, Von Thadden 1995). As a result, managers of public firms are more likely to be driven by short-term performance and engage in symbolic actions, resulting in fewer societal benefits.

We can also form an alternative hypothesis that CSR engagements by public firms are more likely to deliver real societal benefits than private firms' engagements. First, distributed ownership of publicly listed firms make it easier for managers to purse their individual interests. For example, managers might engage in activities that benefit employees, communities, and environment (e.g., Videras and Ann 2006, Cespa and Cestone 2007) as an alternative strategy to strengthen their reputation. Second, publicly traded firms are usually bigger in size and operate under greater public scrutiny, and thus face more pressure from socially focused activist consumers and investors (e.g., Gillan and Starks 2000, David et al. 2007, Kendall et al. 2007, Reid and Toffel 2009). These

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[4] For example, India mandates that large firms spend 2 percent of their three-year average annual net profit on CSR activities starting from fiscal year 2015. A handful of countries such as the UK, France, Denmark, China, and Malaysia require CSR reporting from publicly listed companies.

pressures obligate public firms to deliver on their promises more urgently than private firms, which receive less monitoring.

We disentangle these hypotheses in Sections 4 and 5, where we examine (1) whether CSR engagements indeed lead to better (less negative) societal outcomes and (2) whether such impact is moderated by ownership structure.

3.   Data and Methodology

We derive our main empirical insights by combining unique, event-level outcome data on environmental, social, and corporate governance impact from RepRisk, with firm-level participation data from the United Nations Global Compact. This section describes these data sources, discusses our procedures to process and match these data, describes our empirical specifications, and reviews our construction of key variables.

3.1.   ESG Incident Data from RepRisk

We construct our primary outcome measure using data from RepRisk AG, a Zurich-based data provider and consultant on environment, social, and corporate governance issues.[5] RepRisk employs a dedicated team of analysts to track a universe of over 60,000 firms globally on their ESG performance. On a daily basis, analysts screen over 80,000 media, regulatory, and commercial documents in 15 different languages for *negative* ESG issues ("incidents"). Once an incident is identified, analysts conduct additional screening to (1) verify that the incident is indeed ESG-related, (2) remove possible duplicates, (3) identify the specific nature of the incident, i.e. classify it into one of 30 predefined categories spanning environment, society, and corporate governance. Each incident is also given two proprietary scores based on severity (the magnitude of the perceived impact of the incident) and reach (the influence or the readership of the source). Finally, a risk index (the RPP index), is constructed for each firm based on a proprietary formula of the counts and scores.

We obtain raw data on firm-level incident counts and types for all public and private firms from January 2007 to July 2015 from RepRisk. We do not use the proprietary scores and indices in our main analysis. Rather, we obtain the monthly tabulation of the overall incident count as well as the number of incidents in each of the 30 ESG categories for each firm.[6] In Table 1, we report the summary of incident counts in four broad categories, and breakdowns by public versus nonpublic firms and by broad industry classification (manufacturing, retail, service, and utility). We report the detailed summary of the complete 30 categories and the breakdown by 34 individual sectors in Appendix A1.

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[5] Website: https://www.RepRisk.com/about-RepRisk

[6] RepRisk does not make the raw data available at daily or higher frequencies.

The event-based data is uniquely suited for our analysis for two reasons. First, compared to outcome data in narrower categories (e.g., environmental violations and emissions levels), the RepRisk data has unparalleled breadth and granularity. The entire event sample consists of 54,599 firms and 548,155 events; 18.10% of firms (9,878) are publicly traded, while they account for 52.87% (289,806) of total events. All types of ESG categories are well represented in the sample, with social issues (31.73%) being the largest group. Finally, our sample firms span a broad cross section of industries, with manufacturing (57.36% of total firms and 61.17% of total events) being the biggest sector. Second, compared to rating-based measures such as the KLD indices, which are often based on analysts' subjective annual reviews of self-reported information and have high degrees of persistence (e.g., Bansal et al. (2016) find that the autocorrelation of KLD ratings is as high as 53%–71% at the firm level), our event-based outcome measure allows for a more objective assessment of the societal impact of each firm over time, and at higher frequencies, which is particularly important given the pervasive level of greenwashing found by the existing literature.

Table 1   RepRisk Data Summary

	Public	Non-public	Manufacturing	Retailing	Service	Utility	Total
# Firms	9,878	44,721	31,316	1,820	17,329	3,249	54,599
Environmental issues	69,888	53,575	86,862	2,263	17,871	16,263	123,463
Social issues	90,202	83,754	113,768	10,118	36,440	13,096	173,956
Governance issues	49,971	45,364	46,143	2,763	41,476	3,883	95,335
Cross-cutting issues	79,586	75,578	88,159	9,435	48,629	8,062	155,164
Total	289,806	258,349	335,013	24,595	144,551	41,309	548,155

Notes: RepRisk categorize 30 types of environmental, social, governance, and cross-cutting issues. Cross-cutting issues refer to those spanning multiple categories of ESG issues. Appendix Table A1 provides detailed tabulation of all issue types and their descriptions. Public firms are identified with TICKER, ISIN or SEDOL. When a firm is associated with multiple industries (5% of firms), the classification of manufacturing, retailing, service, and utility are based on the primary industry each firm is associated with. Appendix Table A2 provides the sector classifications. There are 885 firms with unknown sectors, and 237 events with unknown issue types.

Next, we plot the monthly time series of the total number of ESG incidents in Figure 1 below. The figure shows a clear upward trend of captured incidents, which could be due to three reasons: (1) RepRisk has steadily expanded its data collection capability over the years; (2) with rising public awareness and interest in CSR issues, media have paid more attention to ESG issues and increased coverage accordingly; (3) firms have become less responsible over time, leading to a rising number of ESG incidents. To cleanly separate these confounding effects, it is important to properly account for time trends in the empirical analysis.

Furthermore, to assess the breadth and the representativeness of RepRisk firm sample, we develop a comprehensive name-matching algorithm to match RepRisk's firms with firms in Compustat Global, CRSP, and Thomson Reuters Worldscope databases. See Section 3.2.2 for details of the matching process. We are able to match 91.77% (9,065) of public firms in the RepRisk database using our algorithm. After winsorizing at the 1% level, the average public firm in our sample has
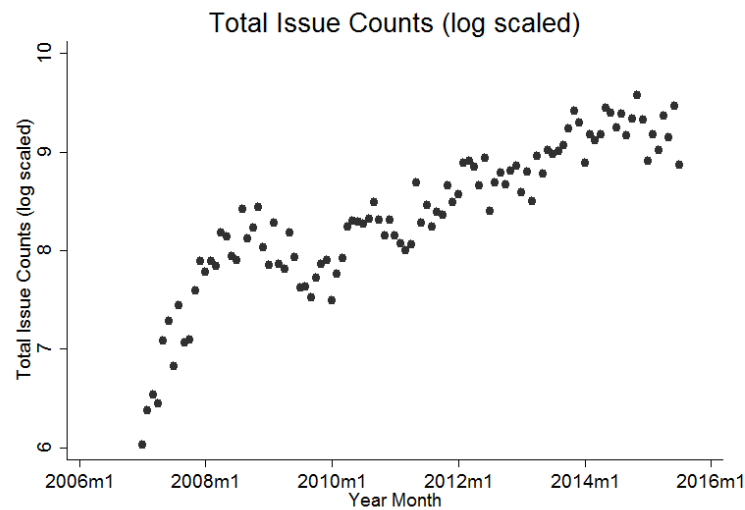
Figure 1   **Total Issue Counts (log scaled)**

a market capitalization of $0.492 billion and a book-to-market ratio of 0.55. The average sales is $0.410 billion and the average dividend yield is 1.99%. The large number of matches, as well as the fact that the similar distribution of key statistics between the RepRisk firms and the rest of the databases, suggest that the RepRisk sample is a good representation of the cross section of firms, at least for publicly traded firms.

Finally, note that our outcome measures focus on negative ESG impact captured through media reporting of negative ESG events. Even though ideally, we would prefer to quantify both negative and positive ESG impact, but positive ESG events are reported less often than negative ones by traditional or social media, more likely to be self-reported and subject to greenwashing biases. As such, positive ESG impact is more difficult to capture and quantify, and to date, we are not aware of the existence of such data. Therefore, in our setting, improvement in CSR outcomes will be defined as reductions in negative impact quantified using our measure. This approach is consistent with previous studies that measure reductions in emissions levels or environmental violations.

3.2. CSR Participation Data from United Nations Global Compact

We use firms' participation in the UN Global Compact program as our indication of a firm's engagement in CSR. The program was launched in 2000 as a global initiative to encourage businesses to adopt socially responsible and environmentally sustainable policies, and to report their progress at regular intervals. It is now the world's largest CSR initiative with 22,275 participants as of August 2016. Of these participants, 6,240 are companies, and 49.21% of the companies (3,071) are from non-OECD countries.

Firms signing up for UNGC are expected to increase their CSR efforts alongside a unified set of ten guidelines (the "ten principles") set forth in the Compact. These guidelines span a wide range

of CSR categories (e.g., environmental, social, and corporate governance) and align well with the categories in the RepRisk data.[7] While the Compact has no formal enforcement provisions, it publishes firms' progress reports to encourage monitoring from external stakeholders and third-party watchdogs. Moreover, firms that fail to report progress are publicly expelled from the program. Similarly, if a firm voluntarily withdraws from the Compact, the UNGC announces the withdrawal publicly. By promoting scrutiny by civil society, programs such as UNGC can also mitigate adverse selection even without third-party certification (Kayser et al. 2016).

We obtain data for all firm participants from the UNGC website. For each firm, we obtain its initial sign-up date and, if applicable, dates of withdrawal or expulsion and the specific reason for the termination. We also obtain the firm's ownership type (public/private/state-owned), number of employees, website URL, and the filing dates and textual contents of the entire history of its progress reports up to August 2016. We report the summary statistics in Table 2. Our firm sample consists of 6,420 firms distributed over firm types and industries very similar to those in the RepRisk sample: 21.44% of firms (1,377) are publicly traded, and again, manufacturing (51.09% of total firms) is the biggest sector.

Table 2   UN Global Compact Data Summary

	Public	Private	State-Owned	Other	Manufacturing	Retailing	Service	Utility	Unknown	Total
# Firms	1,377	4,094	234	535	3,280	283	2,313	336	28	6,240
Duration (in months)	84.4	59.6	61.5	53.6	65.3	67.6	61.5	76.3	67.5	64.6
Number of Entries by Year										
2000	31	7	1	2	21	1	15	2	2	41
2001	42	25	2	4	42	3	21	3	4	73
2002	68	195	0	12	152	24	80	14	5	275
2003	88	137	3	25	151	10	80	11	1	253
2004	101	243	6	14	180	31	121	31	1	364
2005	75	130	5	40	119	19	86	26	0	250
2006	138	311	10	73	294	31	177	30	0	532
2007	88	297	12	86	273	21	161	26	2	483
2008	88	345	20	134	324	30	208	24	1	587
2009	117	245	26	23	220	12	159	20	0	411
2010	107	326	23	18	279	12	157	26	0	474
2011	96	433	30	22	299	22	234	26	0	581
2012	83	339	31	9	243	12	186	21	0	462
2013	59	276	25	16	177	14	156	28	1	376
2014	61	285	15	22	196	15	156	16	0	383
2015	82	302	14	23	178	22	202	19	0	421
2016	53	198	11	12	132	4	114	13	11	274

Notes: Duration is right censored at August, 2016. Other types includes subsidiaries and unknown firm types. The first entries are observed in July, 2000.

3.2.1. *Why Do We Use UNGC Data?*

This subsection discusses our rationale for choosing the UNGC data as our measure of CSR participation. One alternative is to examine firms' voluntary disclosures—public filings and press releases, for example—and look for instances where firms disclose CSR engagements, such as the launching of new CSR initiatives. However, because there is no unified definition of CSR (Rivoli and Waddock 2011), the concept remains "vague and ambiguous" (Schwartz and Carroll 2003) and each firm is

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[7] The complete guidelines can be found at https://www.unglobalcompact.org/what-is-gc/mission/principles.

likely to have its own interpretation. Therefore, one firm's CSR participation might not actually be viewed as CSR by another firm, and using individual disclosures might not yield valid before-versus-after comparisons. In addition, comprehensive disclosure data only exist for public firms, thus potentially limiting the external validity of our tests and hampering our ability to examine the impact from private firms.

The second alternative consists of government-mandated initiatives on CSR engagement and/or disclosure. These data do not suit our purposes for three reasons. First, mandatory CSR programs often impose legal or financial penalties for noncompliance, thus are often labeled as a CSR tax by practitioners, and potentially, their outcomes differ from those of voluntary CSR engagements. They are thus beyond the scope of this paper. Second, government initiatives often only address specific components of CSR, e.g., the Toxics Release Inventory program as in Doshi et al. (2013), while our scope spans the entire CSR spectrum. Third, even the broader government initiatives, such as those enacted by four national governments studied by Ioannou and Serafeim (2016), are mostly launched only once in time, requiring all (or a substantial subset of) companies in the country to participate simultaneously. Therefore, unless perfect foreign matches can be constructed for these domestic firms, one can only conduct before-and-after comparisons, which have more limited causal power than difference-in-difference approaches. Because the UNGC data have a unified standard (the ten principles), staggered participation times, and broad participation by both public and private firms in all industries, it is the most appropriate data for our empirical tests.

We would like to note that our focus is not to criticize the effectiveness of UNGC per se, nor is our objective to argue whether the UNGC itself makes a firm more or less responsible—that is, if a firm is randomly assigned UNGC membership, whether the company will generate more positive societal effects. Our objective is instead to assess, once a firm publicly indicates its intention to behave in a socially responsible fashion (in our case, commitment to the UNGC signals such an intent), does it actually do what it says, and actually make effective efforts to improve its ESG impact?

3.2.2. *Matching UNGC with RepRisk*

We develop a multilayered matching algorithm to link UNGC firms with RepRisk firms through company names, website URLs, and when available, trading symbols cross-referenced with identifiers from Compustat Global, Worldscope, FactSet and Bureau van Dijk. We use a custom-developed approach because many identifiers in the RepRisk sample contain non-standardized data, with potential for misspellings and alternate name conventions. We match the standardized names from both databases by comparing the similarity of strings and only keep the matched name if

the accuracy is above 99%. The name matches are cross-referenced using a series of other available identifiers including trading symbols, International Securities Identification Numbers (ISIN), and Stock Exchange Daily Official List (SEDOL) numbers. Detailed descriptions of our algorithm can be found in Appendix A. Our algorithm is able to successfully link 2,783 RepRisk firms to the Compact participants, with a total of 143,223 incidents (5.1% of all RepRisk firms, but 26.1% of all RepRisk events). We conduct our main analyses on the sample of matched firms. In other words, we study UNGC participants which exhibit some observable level of ESG risks, i.e., at least one negative ESG event in the last ten years as identified by RepRisk.[8] We report the breakdown of firms and events by ownership type and industry in Table 3 below.

Table 3   UN Global Compact Matched with RepRisk

	Public	Private	State-Owned	Other	Manufacturing	Retailing	Service	Utility	Other	Total
# Firms[†]	1,413	1,094	146	130	1,634	101	846	192	10	2,783
Environmental issues	26,492	4,985	1,508	735	25,207	449	4,441	3,518	105	33,720
Social issues	33,788	8,025	1,564	1,097	31,223	1,785	7,977	3,304	185	44,474
Governance issues	19,072	4,969	825	1,139	13,749	525	10,415	1,192	124	26,005
Cross-cutting issues	28,842	7,630	1,009	1,425	23,710	1,623	11,595	1,865	113	38,906
Total	108,287	25,627	4,906	4,403	93,934	4,385	34,496	9,881	527	143,223

Notes: [†]number of RepRisk firms matched. We define a match if we obtain any of the following: (1) an exact match of standardized company names and headquarter countries, (2) an exact match of URLs and/or stock tickers, (3) a fuzzy string match of standardized company names with a match score greater than or equal to 0.99 and an exact match of headquarter countries. Sometimes multiple RepRisk IDs can be matched to the same firm in the UN Global Compact if they are subsidiaries of a parent firm which participated in the UN Global Compact.

3.3.   Empirical Specifications

Our key outcome variable is $C_{i,t}$, the monthly count of ESG incidents for firm i in month t as captured by RepRisk. Because C_{it} is a discrete count variable, we use count data models instead of linear regressions to analyze the data. Specifically, in our basic setup, we assume that the distribution of ESG incidents follows a Poisson distribution, $Poisson(\lambda)$, where the rate λ can be expressed as a function of participation status in the Compact, firm characteristics, and time:

$$\lambda_{i,t} = \exp(\alpha_0 + \alpha_1 After_{i,t} + \alpha_3 Public_i + \alpha_4 Private_i + \alpha_5 StateOwned_i + X_{i,t}\boldsymbol{\alpha_6} + \epsilon_{i,t})$$
$$\equiv \exp(W_{i,t}\boldsymbol{\alpha} + \epsilon_{i,t}). \tag{1}$$

To study the effect of UNGC participation on ESG incidents for firms with different ownership types, we modify the above approach equation by adding additional interaction terms:

$$\lambda_{i,t} = \exp(\beta_0 + \beta_1 Public_i \cdot After_{i,t} + \beta_2 Private_i \cdot After_{i,t} + \beta_3 StateOwned_i \cdot After_{i,t}$$

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[8] We do not include non-UNGC participant firms from RepRisk because there is a large number of firms, primarily private firms, for which there is no available firm characteristics data (e.g., firm size). We performed the nearest neighbor matching on the full sample based on available information, including country, sector, and monthly issue counts in the years prior to participation. Due to the lack of firm characteristics data, the matching led to a very coarsely matched sample with a great level of heterogeneity among matched firms. We therefore restrict our attention to only UNGC participant firms, for which there are more data available and lower heterogeneity.

$$+ \beta_4 Other_i \cdot After_{i,t} + \beta_5 Public_i + \beta_6 Private_i + \beta_7 StateOwned_i + X_{i,t}\boldsymbol{\beta_8} + \epsilon_{i,t})$$

$$\equiv \exp(Z_{i,t}\boldsymbol{\beta} + \epsilon_{i,t}). \tag{2}$$

In these settings, $After_{i,t}$ is an indicator variable that equals one if firm i is a UNGC member at time t (measured in year-month), and zero otherwise; that is, it has joined the Compact before time t and firm i has not been expelled or otherwise discontinued its participation by t. Moreover, we include the following control variables in $X_{i,t}$: (1) $EmployeeCount_i$: the natural logarithm of the firm's number of employees, (2) $TotalNewsCount_{it}$: the natural logarithm of the total number of incidents in the current year and month across all firms in the RepRisk sample (and not just events from RepRisk firms matched to the Compact), (3) time polynomials t, t^2, and t^3, where $t = 0$ for January 2007, the starting month of RepRisk data, and (4) sector and country fixed effects.

Our rationale for choosing the control variables is as follows: first, $Employee_i$ is a proxy for the size of firm i. Firm size would likely affect the raw level of negative ESG incidents. In addition, incidents involving larger firms are also more likely to be considered newsworthy. Note that employee count is the only variable that we are able to obtain for public, private, and state-owned companies at the same time. Even though we also have size-related information such as market capitalization and sales for public firms, such information is not available for other firm types. We obtain employee count data from the UNGC, which reflects the number of employees reported in the most recent communication between the company and the UNGC. Therefore, it is a static measure and does not account for changes in firm size over time. $NewsCount_{it}$ and time polynomials control for the time trend in RepRisk incidents that we observe in Figure 1—we first use total incident counts to address the increasing number of raw events over time, we then include time controls up to the third polynomial to address any additional nonlinearities in this trend or any differences in trends between the matched UNGC sample and the entire RepRisk sample. Lastly, certain sectors (e.g. mining, and oil & gas) are inherently "dirtier" than other industries, and certain countries, especially developing countries, also tend to exert more negative ESG impact. We account for such variations with sector and country fixed effects.

Next, even though we have accounted for firm size, ownership type, industry, and country in the previous specification, there still might be other, unaccounted-for firm characteristics that may affect both their ESG incidents and their CSR practices. To further capture each firm's potentially different ESG incident levels and CSR practices, we include random intercept μ_i for each firm in the model, which follows gamma distribution, essentially specifying a random effect Poisson model to enhance models (1) and (2):

$$\lambda_{i,t} = \exp(W_{i,t}\boldsymbol{\alpha} + \mu_i + \epsilon_{i,t}), \text{ or}$$

$$\lambda_{i,t} = \exp(Z_{i,t}\boldsymbol{\beta} + \mu_i + \epsilon_{i,t})$$

Given that entries to UNGC are staggered over time, our approach is effectively a Poisson difference-in-differences estimator. The main five coefficients of interest are α_1 and β_1 to β_4, which measure the differences in the change of ESG incidents from UNGC participants after their participation, compared to the change for firms which have not participated in UNGC yet. If, for example, participation in the UNGC, which is our proxy for CSR engagement, is indeed aligned with real, effective CSR efforts, then *ceteris paribus*, participants would have fewer incidents due to these increased efforts, and these coefficients would be significantly negative.

Finally, note that for any given month, the probability of having a newsworthy ESG-related incident might be low for an individual firm, so the observed incident counts can contain many zeros for certain individual firms, thus potentially deviating from the standard Poisson model. To address the potential of excess zeros in the observed incident counts, we also estimate the impact using the zero-inflated Poisson model. The key difference between the zero-inflated Poisson model from the standard model is the additional specification of the probability that the observed incident count in a month is zero, which is governed by two separate regimes: in the first regime, there is truly no ESG incident at the firm, so the observed incident count is zero; in the second regime, the firm exhibits negative ESG impact, but there can be a chance that it is not detected. In this regime, the observed incident count is assumed to follow a Poisson distribution, in which case the count can still be zero with a certain probability:

$$\text{Prob}(C_{it} = 0) = \text{Prob}(\text{Regime 1}) + \text{Prob}(C_{it} = 0|\text{Regime 2})\text{Prob}(\text{Regime 2})$$

$$\text{Prob}(C_{it} = j) = \text{Prob}(C_{it} = j|\text{Regime 2})\text{Prob}(\text{Regime 2}), j = 1, 2, ...$$

The probability of being in Regime 1 (true zero count) instead of Regime 2 (Poisson count) follows the logistic model where

$$\text{Prob}(\text{Regime 1}) = \frac{\exp(W_{it}\gamma)}{1 + \exp(W_{it}\gamma)}, \text{or Prob}(\text{Regime 1}) = \frac{\exp(Z_{it}\delta)}{1 + \exp(Z_{it}\delta)}.$$

This model, similar to the standard Poisson models, can also be estimated using the Maximum Likelihood Estimator with two sets of parameters, one for Regime 1 (the zero regime) and the other for Regime 2 (the Poisson regime). Alternative models to the Poisson include negative binomial count models, which in our setting yield very similar results.

4.   Empirical Results

This section presents our main results and establishes their robustness to a wide range of alternative specifications and interpretations. Specifically, using commitments to the UNGC as a proxy, we

first document whether engaging in CSR initiatives really leads to improvements in firms' societal impact. We pay close attention to the divergent effects on public versus private firms. We then return to our empirical specification and discuss alternative interpretations, such as selection biases and endogenous UNGC participation, and discuss our approach to address these issues. Finally, noting potential problems that could arise from the construction of the RepRisk and UNGC data, we conduct a series of additional robustness tests to assess and address these issues.

4.1. Main Results

Before proceeding to the formal analysis, we provide some preliminary visualizations by plotting the pre- and post-participation trends in the ESG incident rates for firms that participate in the Compact. Specifically, we label the month in which a firm joins the Compact as $t = 0$. We then compute $C_{i,t}$ from 5 years before to 5 years after, i.e. for $t \in [-60 \text{ months}, 60 \text{ months}]$, scaled by the total incident count (from the entire RepRisk sample) for all firms of each month t. We then plot the 12-month moving average for both public and private firms in Figure 2 below.
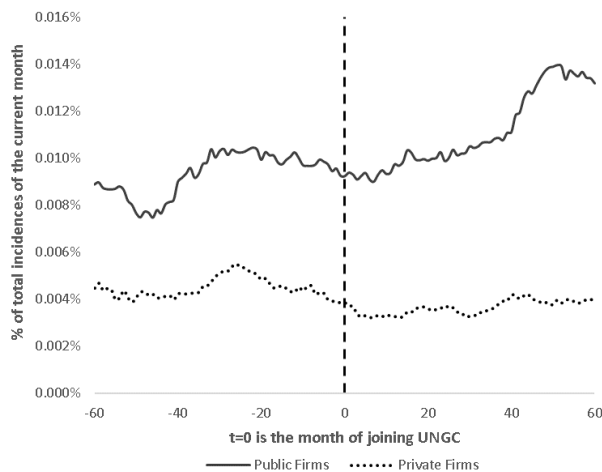

Figure 2   **Evolution of RepRisk Events Around UN Compact Entry**

This figure reveals a striking difference in the observed post-participation ESG incidents between public and private firms. First, prior to UNGC participation, there does not seem to be a difference in trends between public and private firms: both time series are volatile and exhibit similar patterns over time. However, after participation, the incident rate of public firms seems to have increased, while the incident rate of private firms has actually decreased. Based on this figure, private firms on average seem to have effectively reduced their negative societal impact post UNGC participation, while that of public firms does not seem to improve and might have even deteriorated.

We now formalize these findings and provide statistical evidence. The empirical specifications in Section 3.3 yield six models, three without interaction terms and three with interaction terms.

The three models correspond to regular Poisson, zero-inflated Poisson, and random effect Poisson models.[9] We estimate these models using maximum likelihood estimators, and the results are presented in Table 4 below.

Two observations are evident from Table 4. First, based on results from Columns (1) to (3), participation in the UNGC does not seem to lead to significant changes in post-participation incident levels, when we average across the entire sample of public, private, and other firms. However, as we describe in the next sections, this one-size-fits-all approach fails to capture the heterogeneity in firm ownership types.

Indeed, the results are much different if we examine the changes in incident levels by ownership type. Columns (4) to (6) present our main results: voluntary CSR engagement, as evidenced by participation in the Compact, does lead to significantly lower negative ESG incident rates for *private* firms, but not for public firms. The coefficient estimates for $Private \cdot After$ are significantly negative across all specifications, while the coefficient estimates for $Public \cdot After$ are either not statistically different from zero (under the random effect Poisson models), or even positive (under Poisson and zero-inflated Poisson models). We focus on the results from the random effect Poisson model, as they incorporate firm-level heterogeneity through random effects, which are even more important given the scarcity of firm-level controls that are available for both public and private firms. In addition, results from this model are more conservative (larger standard errors), as compared to the other two non-panel data models, due to its ability to better account for unobserved firm characteristics. Based on the estimates shown in Column (6), the average monthly ESG incident rate decreases by 6.3% for private firms after their participation in the Compact, but there is no significant change for public firms.

These results suggest that when a private firm engages in CSR, it seems to make effective efforts to generate positive societal impact. By contrast, public firms do not seem to generate any real impact when they claim CSR engagements—either they fail to make efforts, or their efforts are not as effective. These findings further corroborate the preliminary observations from Figure 2.[10]

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[9] Alternatively, as discussed in the previous section, we also evaluate the results using Negative Binomial models, which yield very similar parameter estimates. We use the Poisson models because over-dispersion does not seem to be a particular issue in our data. As another alternative, we also conduct analysis using zero inflated Poisson models in conjunction with random firm effects. Due to the added computational complexity, which involves two sets of random effects in the Poisson regime as well as in the zero regime, together with all sector and country fixed effects in both regimes, we are able to obtain results on smaller samples (random 10% samples) and find that the results are very similar to those using random effect Poisson models in all cases.

[10] In untabulated results, we also confirm that the performance gap between private and public firms is also robust to various weighting schemes based on issue severity and reach, calculated using RepRisk's proprietary scores. However, because we do not have access to the underlying formula that generates these scores from raw media data, we do not use them in our main analyses.

Table 4   ESG Impact of UN Global Compact Participation

	(1) Poisson	(2) Zero Inflated Poisson — Poisson Regime	(2) Zero Inflated Poisson — Zero Regime	(3) Random Effect Poisson	(4) Poisson	(5) Zero Inflated Poisson — Poisson Regime	(5) Zero Inflated Poisson — Zero Regime	(6) Random Effect Poisson
After	0.083 (0.104)	-0.004 (0.058)	-0.587*** (0.026)	0.020* (0.011)				
Public×After					0.297** (0.134)	0.209*** (0.058)	-0.296 (0.238)	0.025 (0.016)
Private×After					-0.423** (0.196)	-0.431*** (0.119)	-0.087 (0.241)	-0.063*** (0.020)
StateOwned×After					0.540** (0.246)	0.056 (0.131)	0.079 (0.275)	0.066 (0.051)
Other×After					-0.130 (0.438)	-0.440** (0.208)	-0.113 (0.098)	0.188*** (0.040)
Public	0.243 (0.305)	0.083 (0.161)	-0.207 (0.172)	0.330** (0.130)	-0.059 (0.483)	-0.371* (0.222)	-0.296 (0.238)	0.281* (0.144)
Private	-0.151 (0.332)	-0.065 (0.183)	0.044 (0.175)	0.051 (0.126)	0.062 (0.532)	-0.058 (0.261)	-0.087 (0.241)	0.062 (0.140)
StateOwned	-0.175 (0.347)	-0.255 (0.181)	-0.078 (0.221)	0.151 (0.170)	-0.663 (0.528)	-0.582** (0.254)	0.079 (0.275)	0.102 (0.188)
ln(EmployeeCount)	0.312*** (0.043)	0.097*** (0.023)	-0.247*** (0.026)	0.244*** (0.017)	0.318*** (0.042)	0.106*** (0.021)	-0.247*** (0.026)	0.253*** (0.018)
ln(TotalNewsCount)	0.944*** (0.028)	0.509*** (0.028)	-0.587*** (0.026)	0.943*** (0.011)	0.947*** (0.028)	0.517*** (0.028)	-0.586*** (0.026)	0.943*** (0.011)
t	-0.007 (0.006)	0.009* (0.005)	0.026*** (0.003)	-0.006*** (0.001)	-0.009 (0.005)	0.008 (0.005)	0.026*** (0.003)	-0.007*** (0.001)
t^2	0.000 (0.000)	-0.000** (0.000)	-0.001*** (0.000)	0.000*** (0.000)	0.000 (0.000)	-0.000** (0.000)	-0.001*** (0.000)	0.000*** (0.000)
t^3	-0.000 (0.000)	0.000*** (0.000)	0.000*** (0.000)	-0.000*** (0.000)	-0.000 (0.000)	0.000*** (0.000)	0.000*** (0.000)	-0.000*** (0.000)
Intercept	-13.398*** (0.715)	-4.380*** (0.430)	10.374*** (0.526)	-12.807*** (0.370)	-13.288*** (0.806)	-4.210*** (0.447)	10.419*** (0.558)	-12.387*** (0.554)
Sector fixed effects	yes	yes	yes	yes	yes	yes	yes	yes
Country fixed effects	yes	yes	yes	yes	yes	yes	yes	yes
N	286,649	286,649		286,649	286,649	286,649		286,649
LL	-340,855.5	-166,021.9		-193,056.0	-339,761.8	-165,211.4		-186,693.5

Notes: Standard errors are clustered by firm. Columns (1) and (4) are Poisson regressions. Columns (2) and (5) are zero-inflated Poisson regressions with zero inflation fully characterized by the same set of predictors as in Poisson. Columns (3) and (6) are random effect Poisson models.

The other coefficient estimates in Table 4 are consistent with our intuition. First, the estimates for *Public* are significantly positive, indicating that public firms tend to receive more media scrutiny in general. Similarly, the estimates for *EmployeeCount* are significantly positive, consistent with the intuition that larger firms are exposed to greater ESG risks and/or receive more coverage. There is no significant change in the negative incident level for state-owned companies, either. We do not put much emphasis on the results for state-owned firms in this study, partially due to its small sample size (only 149 out of 2,783 firms matched are state-owned).

4.2. Ruling Out Alternative Interpretations

While we interpret the above results as private firms making more effective efforts to generate positive societal impact after signaling their engagement, and public firms not doing so, we now perform additional tests to rule out alternative interpretations. First, the easiest alternative explanation is that the results are driven by different media coverage trends for public versus private firms. If, for example, over the years more media attention is devoted to public firms, but less to private firms, then we would observe the results in Table 4 regardless of what these firms do. To examine this issue, we plot the total incident counts (log scaled) for all 9,878 public firms and 44,721 private firms from the RepRisk sample separately. Figure 3 clearly demonstrates that public and private firms have similar trends in ESG incidents over time. Therefore, the results in Table 4 cannot be caused by declining media attention paid to private firms relative to public firms.
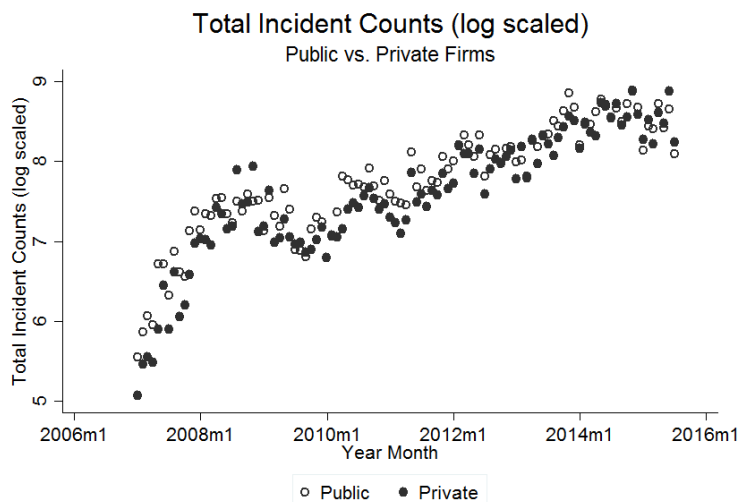

Figure 3 Total Incident Counts (Log Scaled): Public vs. Private Firms

More subtle challenges to our interpretation would involve an endogeneity issue. Recall that an important feature of our UNGC data is that participation and commitment to the Compact are completely *voluntary*. Therefore, the decisions of *whether* to join the UNGC and *when* to join, are

not randomly assigned, but endogenous to the firm. It is possible that some unobservable, CSR-related characteristics, which differ between public and private firms, have led to the different entry decisions by these firms. This in turn would lead to different post-participation incident levels. We group these concerns into three categories and address each category individually.

First, it is possible that private firms in our sample simply have more unfavorable ESG profiles at the time they committed to the Compact, and thus have greater room for improvement after participation. Prior research using emissions data has shown that emissions reduction is especially pronounced among organizations whose initial performance is below average (Blackman et al. 2000, Chatterji and Toffel 2010), and that more environmentally damaging firms are less likely to engage in greenwashing (Marquis et al. 2016). By this argument, if our sample of private firms is overrepresented by such firms, then we could see more improvements for private firms than for public firms.

We examine the validity of this interpretation in several steps. We first identify the sectors with unfavorable ESG profiles based on the average incident counts per firm by sector using the complete RepRisk data with all 54,599 firms and 548,155 incidents. We then examine whether private UNGC participants are more likely to come from these more damaging sectors than public UNGC participants. Based on the average incident counts per firm, mining, utilities, tobacco, banks, general industrials, and oil and gas are among the most damaging sectors (see Figure 4 below). We calculate the percentages of private UNGC participants in each sector and plot them against the average incident counts per firm in Figure 4. If private firms indeed have more unfavorable ESG profiles, we would expect a positive correlation between the percentage of private UNGC participants and average issue counts per sector. In fact, Figure 4 demonstrates the opposite—we observe fewer private participants in the more damaging sectors. It is possible that public firms tend to commit to the Compact when they are under greater media scrutiny, especially if they operate within these more damaging sectors. However, private firms might commit to the Compact due to actual willingness to improve their ESG performance. In sum, the post-engagement performance difference between private and public firms does not seem to be explained by private firms having more unfavorable ESG profiles.

The second alternative interpretation involves the endogenous *timing* of UNGC entry. Specifically, prior research has demonstrated a "late engagers are free riders" effect (Delmas and Montes-Sancho 2010). That is, firms that signal their CSR engagements earlier are more likely to make substantive efforts, but those that signal their engagements later are more likely to make only "symbolic" efforts and "free ride" on the successful improvements of the earlier engagers. To rule out this interpretation, we first examine whether public firms are more likely to be late participants of UNGC and therefore "free-riders." We plot the annual number of UNGC entries by public and
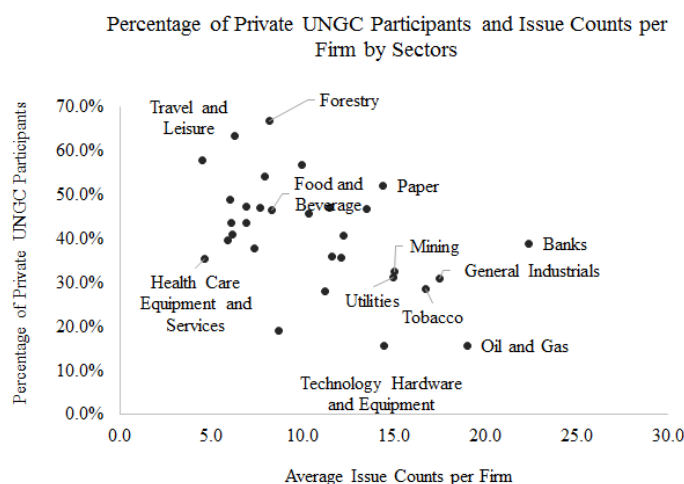
Figure 4   Percentage of Private UNGC Participants and News Counts Per Firm by Sectors

private firms, as well as the ratio of private joiners over public joiners for all 6,240 UNGC partici-
pants from 2000 to 2016 in Figure 5. We observe the opposite trend: on average, public firms have
committed to the UNGC earlier than private firms. Therefore, our results cannot be explained by
public firms being later engagers that free-ride on private firms' success.
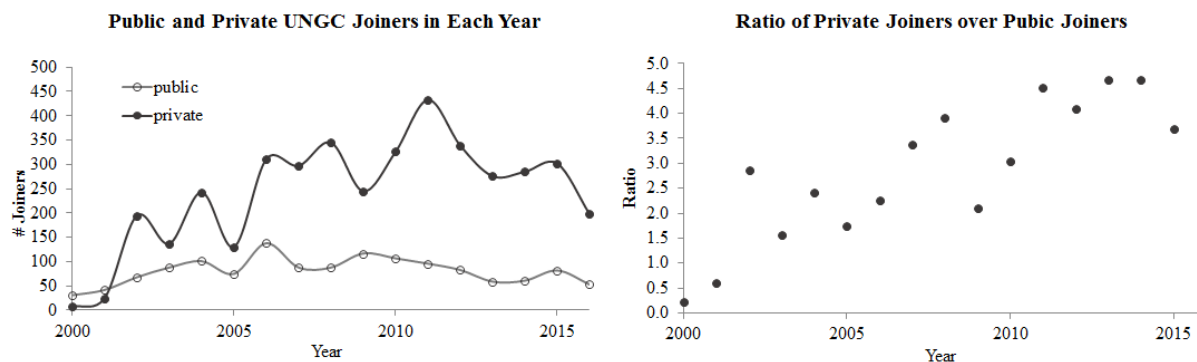
Figure 5   Ratio of Private Joiners over Public Joiners per Year

Even so, one could still be concerned about the potential bias caused by data truncation. Recall
that our RepRisk data start in 2007 while the UNGC program was launched in late 2000. Therefore,
it is possible that public firms that are more serious have joined the Compact long before 2007, and
the bulk of their improvements had already materialized. Private firms, on the other hand, have
had a slower adoption of the UNGC, and there might still be many serious firms participating after
2007. In this case, our outcome sample would be over-represented by non-serious, perhaps even
"free riding" public firms, and "serious" private firms, therefore biasing our results towards better
post-participation performance by private firms. To address this time-variant effect of endogenous

participation, we control for the year of participation, as well as its interactions with firm ownership types. If the bias is significant, then we expect the performance gap between private and public firms to disappear after we include these additional controls. However, the results, presented in Table 5, indicate that inclusion of these controls do not affect our conclusion. We therefore find no evidence of bias due to endogenous timing of participation and data truncation.

Table 5   **Account for Early vs. Late Joiners and Time-variant CSR Effect (Random Effects Poisson)**

	(1)	(2)	(3)	(4)
After	0.008	0.008		
	(0.012)	(0.012)		
Public×After			0.020	0.017
			(0.016)	(0.016)
Private×After			-0.067***	-0.063***
			(0.020)	(0.020)
StateOwned×After			0.061	0.055
			(0.051)	(0.052)
Other×After			0.187***	0.188***
			(0.040)	(0.040)
Public	0.205	0.202	0.272*	0.275*
	(0.142)	(0.149)	(0.143)	(0.151)
Private	-0.048	-0.103	0.074	0.024
	(0.138)	(0.146)	(0.140)	(0.148)
StateOwned	0.112	0.193	0.147	0.230
	(0.182)	(0.201)	(0.187)	(0.208)
ln(EmployeeCount)	0.241***	0.242***	0.242***	0.243***
	(0.018)	(0.018)	(0.018)	(0.018)
ln(TotalNewsCount)	0.943***	0.943***	0.943***	0.943***
	(0.011)	(0.011)	(0.011)	(0.011)
t	-0.007***	-0.007***	-0.007***	-0.007***
	(0.001)	(0.001)	(0.001)	(0.001)
t^2	0.000***	0.000***	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
t^3	-0.000***	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Year Joined	-0.034***	-0.036	-0.035***	-0.034
	(0.007)	(0.038)	(0.007)	(0.038)
Year Joined×Public		-0.017		-0.018
		(0.039)		(0.039)
Year Joined×Private		0.038		0.034
		(0.040)		(0.040)
Year Joined×StateOwned		-0.043		-0.041
		(0.052)		(0.052)
Intercept	-12.188***	-12.180***	-12.274***	-12.272***
	(0.553)	(0.552)	(0.553)	(0.552)
Sector fixed effects	yes	yes	yes	yes
Country fixed effects	yes	yes	yes	yes
N	286,649	286,649	286,649	286,649
LL	-186,700.0	-186,691.6	-186,682.2	-186,674.7

4.3.   Is UNGC a Valid Proxy for CSR Engagements and Efforts?

In this paper, we use UNGC participation as a proxy for CSR engagement. That is, if a firm commits to the Compact, we view this as a public signal that the firm is engaging or ready to engage in efforts that are beneficial to society. However, since firms' actual efforts after the signal are not directly observable, neither by researchers nor by the UNGC, one might be concerned about the quality of

UNGC participation as a proxy for real CSR efforts. Some firms may be less committed than others, and take only symbolic rather than substantive actions. We address this concern by examining the changes in firms' ESG impact for the subsample of active UNGC participants. Specifically, even though participation in the UNGC does not require third-party audits, the program publicizes progress reports to encourage monitoring by other stakeholders such as NGOs. Moreover, those organizations who fail to communicate continued efforts regularly (annually) will be expelled. This gives a natural way to week out less committed participants from more serious ones. We therefore focus our analyses on the active participants who have been regularly updating their progress. We repeat our analysis only for these firms, and report the results in the first two columns in Table 6. Our results are little changed from those using the full sample, indicating that even among the more committed firms, public firms fail to register a real ESG impact after participation, while their private counterparts continue to benefit society.

Similarly, one might worry that UNGC participation cannot serve as a credible signal of CSR *engagement* to begin with. The combination of voluntary participation and lack of formal enforcement might render the UNGC as nothing more than free publicity for all firms. In this case, it would not differ significantly from noise as an indicator of CSR engagement, and any significant result obtained using UNGC data would be by chance. We examine this possibility by measuring the societal impact of firms after they are expelled. If UNGC participation is a poor proxy, then after firms are expelled, we would not observe any significant difference in their post-expulsion ESG incident levels, compared to those from the full sample. However, if expulsion does lead to worse societal outcomes, it would provide more support that the UNGC can be a valid proxy for CSR engagement. Therefore, we define After Expulsion$_{i,t}$ as the indicator that equals one if firm i is expelled from the UNGC at time t, and zero otherwise. We re-estimate the model, and results are reported in the last two columns in Table 6. We find that the number of negative incidents have increased significantly after expulsion, even for private firms, further supporting that UNGC participation is a reasonable proxy for CSR engagement.

5. Economic Explanation

The previous section has demonstrated that after private firms engage in CSR activities such as participation in the UNGC, their societal impact significantly improves. However, the same does not hold for public firms. In this section, we attribute this dichotomy to public firms having more pronounced conflicts of interest between shareholders and stakeholders than private firms. We develop this hypothesis by combining three theory streams: first, by laws of incorporation, all managers have a fiduciary duty to serve the best interests of their shareholders. Tightly monitored by equity markets and the market of corporate control, public firms are particularly confined by this

Table 6   Results on Active Firms and Expelled Firms

| | Active Firms | | | Expulsion | |
	(1)	(2)		(3)	(4)
After	-0.018		After Expulsion	0.244***	
	(0.014)			(0.031)	
Public×After		-0.027	Public×After Expulsion		0.202**
		(0.017)			(0.096)
Private×After		-0.091***	Private×After Expulsion		0.216***
		(0.027)			(0.041)
StateOwned×After		0.041	State-Owned×After Expulsion		0.096
		(0.059)			(0.128)
Other×After		0.636***	Other×After Expulsion		0.349***
		(0.076)			(0.059)
Public	0.379*	0.836***	Public	0.079	0.115
	(0.207)	(0.215)		(0.154)	(0.156)
Private	0.093	0.595***	Private	-0.226	-0.189
	(0.207)	(0.214)		(0.150)	(0.152)
StateOwned	0.184	0.589**	StateOwned	-0.022	0.016
	(0.244)	(0.255)		(0.196)	(0.196)
ln(EmployeeCount)	0.289***	0.290***	ln(EmployeeCount)	0.275***	0.274***
	(0.023)	(0.023)		(0.019)	(0.019)
ln(TotalNewsCount)	0.940***	0.940***	ln(TotalNewsCount)	0.925***	0.925***
	(0.012)	(0.012)		(0.012)	(0.012)
t	-0.004**	-0.004**	t	-0.005***	-0.005***
	(0.001)	(0.001)		(0.002)	(0.002)
t^2	0.000***	0.000***	t^2	0.000**	0.000**
	(0.000)	(0.000)		(0.000)	(0.000)
t^3	-0.000***	-0.000***	t^3	-0.000**	-0.000**
	(0.000)	(0.000)		(0.000)	(0.000)
Intercept	-12.781***	-13.259***	Intercept	-12.020***	-12.049***
	(0.830)	(0.832)		(0.590)	(0.591)
Sector fixed effects	yes	yes	Sector fixed effects	yes	yes
Country fixed effects	yes	yes	Country fixed effects	yes	yes
N	218,051	218,051	N	207,596	207,596

Notes: Columns (1) and (2) estimate the effect of UNGC participation among firms who are still active as of August 2016. Columns (3) and (4) estimate the effect of UNGC expulsion conditional on a firm having already joined the UNGC program, i.e., pre-participation periods are excluded. The results are also consistent without excluding these periods.

duty. Second, managers do not usually hold controlling stakes in public firms. Therefore, when they decide to engage in CSR activities, they might face more constraints from shareholders, potentially hampering their ability to make effective efforts, which in many cases would divert resources away from these shareholders to other stakeholders. By contrast, private firms are more likely to be owner–managed and face less shareholder activism. Therefore, owner-managers of private firms might face fewer constraints from external shareholders, and can redirect resources toward their social goals more freely. Lastly, public firms typically face higher management turnovers than private firms (e.g., Denis et al. 1997, Lel et al. 2014). Therefore, managers of public firms are more likely to focus on short-term rather than long-term performance, which negatively affects their ability to effectively engage in CSR activities, which in many forms represent transfer of resources from the short term to the long term (e.g., sustainable production technologies).

The different intensities of the shareholder–stakeholder conflict imply that, for public firms, their CSR efforts would be on average less impactful due to the additional constraints, and also that they may be less likely to engage in substantive efforts. To further test this argument, the rest of

this section is devoted to identifying scenarios when the interests of shareholders and stakeholders are more or less aligned, and examining whether the performance gap between public and private firms is indeed different under these scenarios.

5.1. Issue Types

First, recall that each RepRisk issue is classified into one of 30 ESG issue types. We exploit this feature by examining the post-participation incident levels in categories where the conflicts between shareholders and other stakeholders are particularly acute, as well as those where they are less severe. Then, if our above arguments hold, we would observe significantly different post-participation performance gaps between public and private firms. Specifically, shareholders' and other stakeholders' interests should be more aligned, both in the short and the long terms, in categories where stakeholder improvements can also clearly improve the welfare of shareholders. While we cannot project all CSR categories onto a continuous scale of conflict intensity, it is easy to identify the obvious cases. Among the 30 issue types, tax evasion, executive compensation, and overuse and waste of resources stand out as the most obvious:[11] tax evasion is a serious, often criminal offense that directly calls into question the integrity of the management; excessive executive compensation negatively affect investor wealth and creates managerial entrenchment motives; overuse and waste of resources such as energy, water, and input commodities directly affect production efficiency and profitability of a firm. Therefore, managers of public firms would face less constraints from shareholders in engaging CSR activities to reduce these types of negative impacts, and we expect public firms' post-UNGC performance in these areas to be better than in other areas.

Conversely, we can also identify categories where the misalignment of shareholder and stakeholder's interests are apparently high. Such categories include freedom of association and collective bargaining, supply chain ESG issues, and controversial products and services.[12] First, higher unionization directly shifts bargaining power from shareholders to labor unions. Second, imposing ESG requirements on suppliers increases firms' procurement costs and directly affects profits, at least in

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[11] The three issue types are defined as follows: (1) Tax evasion refers to general efforts to not pay taxes by illegal means, which includes tax fraud, use of tax havens, etc. (2) Executive compensation refers to the compensation (salary, bonuses and other remuneration) of top management regardless of their performance, which includes, for example, excessive bonuses, salaries, pensions, termination settlements, benefits, etc. (3) Overuse and waste of resources refers to a company's overuse, inefficient use, or waste of renewable and non-renewable resources, such as energy, water, commodities, etc.

[12] The three issue types are defined as follows. (1) Freedom of association and collective bargaining refers to violations of workers' rights to organize and collectively bargain, which includes, for example, interfering with union formation and participation, retaliation against striking workers, refusal to comply with union agreements, etc. (2) Supply chain ESG issues refers to situations where companies are held accountable for their suppliers', vendors', or subcontractors' ESG violations. (3) Controversial products and services refers to the sale of products or services, such as alcohol, tobacco and gambling, that provoke strong social and religious disagreement or disapproval.

the short term. Finally, firms in controversial industries such as alcohol, tobacco and gambling are directly at odds with consumers who view these products as "sins" that corrupt society. Therefore, for these issue types, we expect that public firms would face the most resistance from their shareholders, and their post-UNGC performance in these areas should be worse than private firms and worse than other issue types.

Table 7   Effects of UNGC Participation by Issue Types

	(1)	(2)	(3)	(4)	(5)	(6)
		Lower Apparent Conflict			**Higher Apparent Conflict**	
	Tax Evasion	Executive Compensation	Overuse and Wasting of Resources	Collective Bargaining	Supply Chain Issues	Controversial Products and Services
Public×After	-0.533***	-0.184	-0.073	0.120	0.182**	0.350***
	(0.150)	(0.125)	(0.127)	(0.129)	(0.091)	(0.064)
Private×After	-0.572***	-0.247	-0.110	-0.469***	-0.208**	-0.113
	(0.176)	(0.209)	(0.163)	(0.149)	(0.098)	(0.091)
Controls	yes	yes	yes	yes	yes	yes
Sector Fixed Effects	yes	yes	yes	yes	yes	yes
Country Fixed Effects	yes	yes	yes	yes	yes	yes
N	286,649	286,649	286,649	286,649	286,649	286,649
LL	-6,494.2	-5,947.8	-7,081.3	-8,082.9	-13,085.3	-18,056.6
			Performance Gap			
Private×After − Public×After	-0.038	-0.064	-0.037	-0.589***	-0.390***	-0.462***
	(0.226)	(0.240)	(0.202)	(0.194)	(0.132)	(0.110)

Note: the set of controls included here is the same as in all previous tables.

We therefore re-estimate our model using outcome data from these issue types separately. Table 7 reports the estimation results for issue types with low conflicts (Columns 1 to 3) and issue types with high conflicts (Columns 4 to 7). We observe that performance gaps between public and private firms indeed differ significantly when we segment the sample according to shareholder–stakeholder conflict intensity. For categories where the interests of these parties are relatively aligned, the performance gap between public and private firms is much smaller, while sometimes even public firms have significantly fewer incidents after committing to the UNGC. However, for categories where two parties' interests are particularly at odds, the performance gap is much wider, while sometimes public firms' performance have even worsened. For these issue types, it seems that the conflicts of interest are so intense for public firms that they might be engaged in "blue-washing", i.e., using the UNGC commitment as a shield to disguise negative activities in these CSR areas. To sum up, while it is not possible for us to completely and continuously map each incident category to a conflict intensity level, the case studies from apparently opposite ends of the intensity spectrum corroborate our main economic explanation.

5.2. Supply Chain Positions

In addition to issue types, we posit that the intensity of the shareholder–stakeholder conflict can also vary according to firms' positions along the supply chain, particularly by how close the firms are to the final consumer. The logic here is simple. Consider two firms located on the opposite ends of the supply chain: a downstream firm directly facing final consumers (e.g., a retailer or a consumer product manufacturer), and an upstream raw material producer (e.g., a mining or logging firm). Because media coverage on ESG issues and incidents is mostly consumed by final consumers, they are more likely to reward the downstream firm for its effective reduction of negative societal impact with increased sales and loyalty (e.g., shopping more at Whole Foods to support sustainable farming practices or at Patagonia to support safe, fair, legal, and humane working conditions). The situation is different for the upstream firm, which sells to intermediate goods producers rather than final consumers. Due to the many layers of firms standing between the upstream firm and the final consumer, it can take much longer for any direct reward of effective CSR engagement to propagate upstream along the supply chain. Therefore, CSR engagement is more likely to positively affect the downstream firm's bottom line than that of the upstream firm. Therefore, the downstream firm's shareholders would be more receptive toward CSR activities, which can then translate into more improvements in societal impact after engagement through UNGC participation.

We test this implication with firm-level, intra-industry studies. While there is no research that continuously quantifies how close each industry is to the final consumer, we again examine sectors that are more obviously located at opposite ends of the chain. First, in general, retailers by nature are closer to final consumers than manufacturers. Second, within the manufacturing sector, producers of consumer and household goods are closer to consumers than producers of industrial goods. Therefore, in Table 8 below, we separately examine the performance gap between public and private firms in retail and manufacturing industries (Columns 1 and 4) as well as apparent downstream manufacturers (i.e., food & beverage and personal & household goods, Column 3) and upstream manufacturers (mining and logging, Column 2).

Here again, the results are consistent with our economic story. First, both public and private retailers have significantly fewer ESG incidents after committing to the UNGC. For manufacturers, however, we only observe the performance improvement for private firms but not for public firms. This pattern is also true when we examine the upstream manufacturers alone. However, for downstream manufacturers, both public and private firms have significantly fewer ESG incidents after committing to the UNGC, similar to what we observe for retailers. These results corroborate our story that firms closer to final consumers along the supply chain face less shareholder resistance to CSR engagement, leading to better societal impact.

Table 8   Effects of UNGC Participation Manufacturing vs. Retailing

	(1)	(2)	(3)	(4)
		Manufacturing		**Retail**
	Overall	Upstream	Downstream	Overall
Public×After	0.025	0.073	-0.318**	-0.272***
	(0.019)	(0.045)	(0.124)	(0.085)
Private×After	-0.199***	-0.352***	-0.291***	-0.246**
	(0.024)	(0.067)	(0.079)	(0.113)
Controls	yes	yes	yes	yes
Sector Fixed effects	yes	yes	yes	yes
Country Fixed effects	yes	yes	yes	yes
N	168,302	10,300	15,656	10,403
LL	-113,450.0	-11,003.0	-9,606.0	-7,744.7
Performance Gap				
Private×After - Public×After	-0.224***	-0.425***	0.027	0.027
	(0.030)	(0.076)	(0.149)	(0.139)

Note: the set of controls included here is the same as in all previous tables. Upstream manufacturers include manufacturers in mining and logging sectors. Downstream manufacturers include manufacturers in food & beverage and personal & household goods sectors.

6.   Discussion and Conclusion

We address the key question of whether CSR engagements generate real societal benefits using an event-based outcome data across a broad array of environmental, social, and corporate governance issues. We track negative ESG incidents across 30 categories and over 9 years, and we find that the answer to the question differs significantly by corporate ownership type. Private firms significantly reduce their negative ESG incident levels after CSR engagements such as UNGC participation, but public firms fail to do so. Ruling out several alternative explanations, we argue that this dichotomy can be attributed to conflicts of interest between shareholders and stakeholders, which is more pronounced in public firms than private firms.

We further support this argument by showing that the post-engagement performance gap indeed differs at different levels of shareholder–stakeholder conflict intensity. For example, on issue types where the interests of shareholders and stakeholders are particularly at odds, such as collective bargaining, supply chain ESG issues, and controversial products and services, the post-engagement performance gap between public and private firms are particularly large. However, in cases where the interests of shareholders and stakeholders are more aligned, such as on problems of tax evasion, executive compensation, and waste of resources, both public and private firms improve through CSR engagement. Moreover, the performance gap also differs by a firm's position on the supply chain. For downstream consumer facing firms, i.e., retailers and consumer and household goods manufacturers, both public and private firms create societal benefits after engagement, because their CSR efforts are more likely to be directly rewarded with consumers' patronage and loyalty. For upstream manufacturers, which are less likely to see immediate benefits of their CSR engagements, we again see a significant performance gap between public and private firms.

Our findings contribute primarily to two streams of literature. First, to the best of our knowledge, this study is the first to systematically examine the broad societal impact of CSR engagements. While an impressive body of the CSR literature has been devoted to establishing the link between firms' CSR activities and their financial performance, the societal impact is rarely examined systematically. As Karnani (2011) points out, "Empirical research on CSR is weak and it focuses on the wrong variables: inputs rather than outcomes." With the increasing availability of data and text-mining techniques, we are better equipped to assess the outcomes of, and thus the real societal impact of, alleged CSR activities. In this study, we examine such questions with breadth and depth using the monthly incident levels of ESG-related events and demonstrate that CSR engagements—in particular voluntary engagements, might not necessarily lead to real, measurable societal benefits. Future projects related to this topic would further harness the richness of the unstructured information from raw incident reports at a granular level, and further expand our understanding of the effectiveness of CSR engagements beyond environmental issues (e.g., King and Lenox 2000, Blackman et al. 2000, Chatterji and Toffel 2010, Marquis et al. 2016, Doshi et al. 2013, etc.). We hope this project can also lead to further analyses of the motivation behind CSR engagements, as well as the underlying economic mechanisms and factors that affect their success.

Second, our study contributes to the literature on corporate ownership and control, and to the emerging literature on the behavior of private firms. Since Berle and Means (1932), a rich body of literature analyzes the presence of agency conflicts, as well as their impact on firm decisions and financial performance. The intensity of the conflict is often affected by ownership type and concentration. In particular, public firms are subject to more intense agency conflicts due to distributed ownership and separation of ownership and control. Even though data on private firms are limited, several recent papers compare the extent of agency conflicts between public and private firms using data from certain countries or industries (e.g., Akguc et al. 2014, Lel et al. 2014, Sheen 2016, Gilje and Tallard 2016), and link these intensities to corporate financial performance. In this study, we extend the scope beyond financial performance to the social arena, and show that private and public firms also differ in their incentives to engage in *social* causes. In particular, in public firms, due to a diffused ownership structure and high management turnover, managers are more likely to engage in symbolic rather than substantive CSR efforts. By contrast, the intensity of the conflicts is lower in private firms, and owner–managers are more able to undertake substantive efforts that lead to measurable societal benefits. Due to the lack of firm characteristics data for privately-held, non-UNGC participants, our analyses focus on the sample of UNGC participants. However, in-depth analyses of UNGC participant firms reveal striking differences among public versus private firms.

Nevertheless, one should note an important caveat of our data: we compile incident levels from only negative incidents, but positive events are not captured. This is due to the fact that positive ESG events are much less likely to be reported by the media and more likely to be self-reported, and thus subject to greenwashing biases. For example, Bansal et al. (2016) show that positive CSR announcements have limited market reaction. Nevertheless, a measure that encompasses both positive and negative outcomes, and one that separately analyzes positive and negative outcomes, would further enhance our understanding of the societal impact of CSR engagements. Another caveat of the dataset is that, because it is based on media coverage, it could be subject to reporting biases. However, aggregate media reporting bias is typically easier to control for than heterogeneous firm-level bias in self-reporting. In our analysis, we carefully rule out the potential confounding effects of media reporting using a variety of specifications. Despite these potential caveats, the event-based outcome measure represents a significant improvement from the existing CSR ratings, both in terms of its breadth and granularity.

Our study has several important implications for managers, investors, and policymakers. First, our event-based measures can be easily aggregated into peer or industry-level CSR outcome benchmarks, allowing managers to better evaluate the effectiveness of their CSR efforts against peer firms. Moreover, managers evaluating sustainable and responsible sourcing strategies would care more about actual outcomes than promises. Therefore, they can utilize the event-based metric to evaluate existing and potential supply chain partners (i.e., suppliers, vendors, contractors, and subcontractors) on their ESG practices to lower their supply chain risks, reduce their dependencies on supplier misconduct, and build truly responsible supply chains. Our findings indicate that outcome-based evaluation is particularly essential for upstream supply chain partners, who are more vulnerable to symbolic actions because they do not realize the immediate rewards of CSR engagement.

Second, for portfolio managers and investors, the event-based measure provides an effective metric in their socially responsible screening strategies. The practice of socially responsible investing or impact investing has been growing significantly since the 1990s, but practitioners often question the transparency of existing ratings, e.g., KLD. Therefore, an outcome-based measure can lead to more robust screens that are both objective and cost-effective. As we show in this study, such data can be especially informative for investments in publicly listed firms, which are more subject to greenwashing due to more intense conflict between shareholder and stakeholder interests.

For policymakers, our findings highlight the importance of monitoring the actual outcome of CSR engagements rather than self-reported efforts, as firms often lack the incentive to take real efforts that benefit society. Lack of monitoring only exacerbates the issue. Our findings can help policymakers identify areas where shareholder–stakeholder conflict is particularly intense, enabling

them to design targeted policy interventions that align the interests of different parties in order
to reduce the negative externalities imposed on society. In sum, outcome-based monitoring by all
parties, e.g., policymakers, investors, business partners, NGOs, and media, will help soften the
agency conflict and provide incentive for all firms to engage in substantive CSR efforts that benefit
society as a whole.

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Appendix A: Description of Name-Matching Algorithm

We develop a multilayered matching algorithm to link UNGC firms with RepRisk firms. In addition, this algorithm also matches RepRisk and UNGC firms to other databases of publicly traded firms such as Compustat, FactSet, etc., in order to retrieve accounting data which we use as control variables for regressions using public firm data. The RepRisk firms are identified by a (supposedly unique) RepRisk ID, and a series of current and former names. Our algorithm is implemented in the Python programming language and proceeds as follows:

1. Pre-process name strings by parsing them into relevant sub-components, i.e., separate meaningful names from prefixes and suffixes (*inc.*, *AG*, etc.)

2. Standardize common words, characters, and prefixes. Trim white spaces and special characters. This step increases match quality in subsequent steps.

3. Note that in the RepRisk data, the firm name field often contains additional identifiers such as "formerly known" names, "also known as" names, "doing business as" names, etc. We parse the entity type and alternate names into separate fields and standardize these fields to ensure format consistency.

4. We match the standardized names from both databases by comparing the similarity of characters. We define a match if we obtain any of the following: (1) an exact match of the already-standardized company name(s) and headquarter countries, (2) an exact match of URLs, (3) a fuzzy string match of the already-standardized company names with a match score greater than or equal to 0.99 and an exact match of headquarter countries. We choose the 0.99 threshold based on clerical review of a 20% random sample of the machine-generated matched pairs. We adopt these very conservative criteria to ensure a high degree of confidence for the matched sample and the subsequent results we obtain.

5. For all the names we are not able to match directly, we use a recursive procedure where we attempt to find a match first to other databases including Compustat Global, Worldscope, FactSet, and Bureau van Dijk using other available fields such as trading symbols, ISIN, and SEDOL. We then match these matched firms by name with the UNGC names using Steps 1–4.

6. Note that sometimes multiple RepRisk IDs can be matched to the same firm in the UNGC if they are subsidiaries of a parent firm which has committed to the Compact. We treat these firms as separate observations in our subsequent analyses. An alternative is to consolidate all RepRisk IDs that belong to the same parent company and then match with UNGC data, which produces virtually identical results. We do not use this approach because it is not always clear based on the name alone whether a company is surely a subsidiary of some other company, especially for unmatched RepRisk firms.

Appendix B: RepRisk Issue Types and Sector Descriptions

Table A1   Issue Types and Descriptions

Type	ESG Issues	Issue Counts
Environmental	Impact on ecosystems/landscapes	53,651
Environmental	Local pollution	34,986
Environmental	Global pollution (including climate change and GHG emissions)	15,639
Environmental	Waste issues	12,359
Environmental	Overuse and wasting of resources	5,218
Environmental	Animal mistreatment	1,492
Environmental	Other environmental issues	118
	Subtotal	**123,463**
Social	Impact on communities	57,323
Social	Human rights abuses and corporate complicity	35,409
Social	Poor employment conditions	21,619
Social	Occupational health and safety issues	20,813
Social	Local participation issues	13,375
Social	Freedom of association and collective bargaining	7,389
Social	Forced labor	6,854
Social	Child labor	5,157
Social	Discrimination in employment	4,187
Social	Social discrimination	1,770
Social	Other social issues	60
	Subtotal	**173,956**
Governance	Corruption, bribery, extortion, and money laundering	31,425
Governance	Fraud	29,072
Governance	Anti-competitive practices	17,401
Governance	Misleading communication	8,410
Governance	Tax evasion	5,841
Governance	Executive compensation issues	3,186
	Subtotal	**95,335**
Cross-cutting	Violation of national legislation	93,063
Cross-cutting	Controversial products and services	23,517
Cross-cutting	Supply chain (ESG issues)	17,032
Cross-cutting	Products and services (health and environmental issues)	12,057
Cross-cutting	Violation of international standards	9,495
	Subtotal	**155,164**
Other	Other issues	237
	Total	**548,155**

Table A2   RepRisk Sector Types

Sector Type	Sector	Issue Counts	Num of Firms	Counts per Firm
Manufacturing	Oil and Gas	60,121	3,160	19.0
Manufacturing	General Industrials	13,204	754	17.5
Manufacturing	Tobacco	2,813	168	16.7
Manufacturing	Mining	48,739	3,245	15.0
Manufacturing	Technology Hardware and Equipment	8,770	605	14.5
Manufacturing	Paper	5,383	373	14.4
Manufacturing	Automobiles and Parts	10,281	840	12.2
Manufacturing	Industrial Metals	16,266	1,339	12.1
Manufacturing	Electronic and Electrical Equipment	9,166	787	11.6
Manufacturing	Aerospace and Defense	8,739	759	11.5
Manufacturing	Chemicals	19,468	1,730	11.3
Manufacturing	Pharmaceuticals and Biotechnology	9,901	1,137	8.7
Manufacturing	Food and Beverage	46,823	5,627	8.3
Manufacturing	Forestry	7,834	959	8.2
Manufacturing	Personal and Household Goods	26,706	3,363	7.9
Manufacturing	Industrial Engineering	9,091	1,181	7.7
Manufacturing	Industrial Transportation	9,807	1,597	6.1
Manufacturing	Construction and Materials	21,901	3,692	5.9
	Subtotal	**335,013**	**31,316**	10.7
Retailing	Retail	24,595	1,820	13.5
Service	Development Banks, Central Banks and Export Credit Agencies	8,272	151	54.8
Service	Banks	45,524	2,034	22.4
Service	Telecommunications	7,018	678	10.4
Service	Airlines	3,567	357	10.0
Service	Insurance	4,944	672	7.4
Service	Software and Computer Services	4,326	626	6.9
Service	Gambling	751	114	6.6
Service	Travel and Leisure	8,608	1,367	6.3
Service	Financial Services	33,413	5,465	6.1
Service	Media	5,571	920	6.1
Service	Health Care Equipment and Services	3,715	794	4.7
Service	Support Services (Industrial Goods and Services)	18,842	4,151	4.5
	Subtotal	**144,551**	**17,329**	8.3
Utility	Utilities	34,930	2,330	15.0
Utility	Alternative Energy	6,379	919	6.9
	Subtotal	**41,309**	**3,249**	12.7
	Unspecified	2,687	869	3.1
Total		**548,155**	**54,583**	10.0