

Mateska, Ivana; Busse, Christian; Kach, Andrew P.; Wagner, Stephan M.

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ORIGINAL ARTICLE

Sustainability-related transgressions in global supply chains: When do legitimacy spillovers hurt buying firms the most?

Ivana Mateska¹  | Christian Busse²  | Andrew P. Kach³  |
Stephan M. Wagner¹ 

¹Department of Management, Technology, and Economics, Swiss Federal Institute of Technology Zurich, Zurich, Switzerland

²Department of Business Administration, Economics and Law, Carl von Ossietzky University of Oldenburg, Oldenburg, Germany

³Atkinson Graduate School of Management, Willamette University, Salem, Oregon, USA

Correspondence

Christian Busse, Department of Business Administration, Economics and Law, Carl von Ossietzky University of Oldenburg, Ammerländer Heerstr. 114-118, 26129 Oldenburg, Germany.
Email: christian.busse@uni-oldenburg.de

Abstract

In a globalized world, buying firms increasingly face criticism regarding sustainability-related transgressions in their supply chains, yet scholarship concerning whether such negative press has any bottom-line effects has only just begun emerging. This study develops and tests theory on the relationship between reported supplier sustainability incidents and the associated stock price impact for the buying firm. An event study comprising 1699 events related to 374 buying firms supports our hypothesis that media coverage of environmental, social, or governance-related transgressions in the supply chain results in decreased market capitalization for the buying firm. A subsequent regression analysis indicates that the influence potential of information intermediaries, the country-level sustainability risk of the supplier, and the industry-level sustainability risk of the buying firm all affect the magnitude of the investors' reaction. Conversely, the severity of the incident does not predict the magnitude of the stock price reaction.

KEYWORDS

complicity, event study, legitimacy spillover, stakeholder theory, supply chain management, sustainability risk

INTRODUCTION

Global sourcing has resulted in a substantive shift of production to states where labor is cheap, yet the enforcement of environmental, social, and governance (ESG)-related regulation in a firm's supply chain remains challenging (Scherer & Palazzo, 2011). Accordingly, stakeholders of renowned branded firms, who often hold strong expectations regarding appropriate ESG-related behavior, have begun scrutinizing not only the firms

selling the branded products but also their entire supply chains, including upstream suppliers (Bregman et al., 2015; Castaldi et al., 2023; Hartmann & Moeller, 2014). When a supplier engages in a transgression, stakeholders often assign responsibility for this action to the respective buying firm (Hajmohammad & Vachon, 2016; Hofmann et al., 2014). Moreover, as deprived workers and the natural environment lack sufficient power to remedy ESG-related transgressions, multiple stakeholders often join forces in making illegitimate

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business conduct publicly known (Busse, 2016; Busse et al., 2017).

The resulting negative press can be quite harmful for buying firms. For example, Amnesty International released a report accusing several European and American manufacturers of consumer goods, including Procter & Gamble, Nestlé, Reckitt Benckiser, Colgate-Palmolive, and Kellogg's of human rights violations. Notably, none of these firms had directly engaged in any of the inhumane violations for which they were criticized. Rather, it was the palm oil refineries operated by Wilmar and its plantation suppliers in Indonesia (i.e., their second- and first-tier suppliers, respectively) that had been relying on child and forced labor, discriminating against female workers, and paying sub-minimum wages (Amnesty International, 2016). Still, the buying firms were portrayed as complicit (Scherer & Palazzo, 2011). In the 3 days following the release of the report, Procter & Gamble's stock price fell by 1.25%, Nestlé's by 1.66%, Reckitt's by 2.27%, Colgate-Palmolive's by 2.32%, and Kellogg's by 3.61%.

Even if, hypothetically speaking, supplier sustainability-related transgressions were overlooked by the buying firms, the same could surely not be said about the aforementioned stock price impacts. Therefore, it is important to understand the immediate financial consequences associated with sustainability-related transgressions. Initial publications on these topics provide mixed results. Jacobs and Singhal (2017), in a study focused specifically on the aftermath of the Rana Plaza disaster, discovered that 39 retailers sourcing from Bangladesh did not suffer from significant stock market punishment. Conversely, Kim et al. (2019) and Kim and Wagner (2021) found that announcements about corruption, as well as product and process-related sustainability transgressions, negatively affect the stock market performance of buying firms. Against that background, our first goal is to evaluate the effect of news on suppliers' sustainability-related transgressions with a comprehensive sample and a rigorous methodology. To this aim, our research considers (i) wide types of ESG-related transgressions, (ii) buying firms from various regional origins, (iii) possible disturbances through confounding events, and (iv) the need to consider various control variables.

Assuming that there is in fact a meaningful stock price effect, it would be theoretically interesting and important to understand the factors that influence its magnitude. We wonder, which news underlining supply chain sustainability-related transgressions becomes relatively more or less detrimental to the buying firm? Some sustainability-related transgressions are certainly more inappropriate from the eye of the beholder than others, certain media can publish the respective information to a global audience whereas others cannot, and some transgressions (e.g., those from "problematic" industries in the

Global South) are less surprising than others. Our comprehensive sample in this research allows us to answer the following two research questions: (1) *Do news reports on supplier sustainability-related transgressions affect the buying firm's stock price? If so, how generalizable and robust is the effect?* (2) *Which roles do the event itself (specifically its severity), the stakeholders (specifically the influence potential of the information intermediary publicizing the news), and the context (specifically the anticipated sustainability risk of the buying firm's and the supplier's country and industry) play in determining the magnitude of the effect?*

Drawing primarily upon stakeholder theory (e.g., Barnett, 2014; Freeman, 1984; Mitchell et al., 1997) and complementing this stream with attribution theory (e.g., Greve et al., 2010; Jones & McGillis, 1976; Kelly & Michela, 1980; Lange & Washburn, 2012), prior research on legitimacy spillovers (e.g., Haack et al., 2014; Kostova & Zaheer, 1999), and supply chain sustainability risks (e.g., Busse et al., 2016; Foerstl et al., 2010; Hofmann et al., 2014), we develop a model that describes how and why supply chain sustainability transgressions are expected to impact buying firms' stock performance. We test our initial hypothesis surrounding the negative stock price effect of sustainability-related transgressions using event study methodology (Brown & Warner, 1985). To this aim, we use a sample of 374 large corporations (who are members of the Stoxx Global 1800 Index) that over a period of 10 years (2007–2016) have been criticized by media outlets for supplier-related sustainability issues, resulting in 1699 events (i.e., news items about a supposed sustainability-related transgression within a specific buying firm's supply chain). Following recommendations by Culot et al. (2023), the sample aggregates data collected specifically for the purpose of this study from diverse sources, including Bloomberg, RepRisk, Lexis Nexis, Thomson Reuters, and Worldscope. The results yield a detrimental effect on the buying firm's stock price with a mean (median) cumulative abnormal return of -0.57% (-0.39%) for 3 days surrounding the event, which is fairly robust given the differentiated sustainability issues and buying firm locations. To test our main hypotheses regarding the stock price reaction magnitude, we conduct a regression analysis with numerous robustness checks, which we also complement with post hoc analyses on counterintuitive findings.

This research makes important academic, societal, and managerial contributions. It integrates the previously distinct bodies of literature on supply chain sustainability-related incidents with a general management stream on legitimacy spillovers. We argue that the notions of supplier transgression and negative legitimacy spillover are closely interlinked in explaining the transfer of responsibility to the buyer for supplier sustainability

transgressions. In doing so, we identify complicity as a new mechanism for legitimacy spillovers. As an *empirical* scholarly contribution, the investigation offers an assessment of the economic impact of supplier sustainability-related transgressions pertaining to what makes negative legitimacy spillovers surrounding ESG transgressions more economically impactful. Moreover, the tested hypotheses investigate the *theoretically* important role of information intermediaries in complicity attribution and their framing of the transgression, as well as the expectation-shaping role of the context in which the transgression occurs. In practical terms, the findings of this study could be applied by managers and purchasing practitioners to strengthen their risk-mitigation strategies and adjust their risk-contingency approaches accordingly. Government bodies can use the findings to motivate buying firms to engage in voluntary efforts towards fostering supply chain sustainability.

THEORY AND HYPOTHESES

Complicity-induced legitimacy spillovers in supply chains

Firms engaging in misconduct are likely to experience unflattering media coverage (Basu & Palazzo, 2008)

followed by increased scrutiny from customers, NGOs, regulators, and other external auditors (Yu et al., 2008). Any transgression can therefore de-legitimize the firm (Suddaby et al., 2017), shattering the “generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate” (Suchman, 1995, p. 574). A firm’s legitimacy is not always an exclusive reflection of its own actions (Surroca et al., 2013) as another firm’s transgression can become a threat to legitimacy beyond the boundaries of the organization (Durand & Vergne, 2015). Specifically, prior studies have found categorization logic to play a role in facilitating such spillovers. First, external audiences tend to “tar entities with the same brush” if they are part of the same organization. For example, spillovers can occur between subunits (e.g., subsidiaries) of an organization, from a subsidiary to a multinational enterprise, or the other way around (Kostova & Zaheer, 1999; Surroca et al., 2013; Yang & Rivers, 2009). Second, legitimacy spillovers (see Table 1 for an overview of the key concepts employed in this research) can transpire between organizations using similar resources, especially when the cause of the de-legitimation originates from a shared resource. For instance, Diestre and Rajagopalan (2014) argue that after an accident caused by a critical input (e.g., toxic material), investors likely consider other (non-responsible) firms that use analogous inputs as equally risky. Similarly, Kang (2008) shows that financial fraud at one firm leads to

TABLE 1 Terminology.

Concept	Definition	Exemplary references
Sustainability-related transgression	Non-compliance with stakeholder expectations regarding legitimate ecological, social/ethical, or governance-related conduct	Hofmann et al. (2014); Kim and Davis (2016); Reuter et al. (2010)
Complicity	The phenomenon that buying firms are accountable for sustainability-related transgressions arising from their supply chains because of their power to shape supply chain conditions	Busse et al. (2016); Hartmann and Moeller (2014); Scherer and Palazzo (2011)
Legitimacy spillover	The transfer of a legitimacy judgment from one party to another, due to, for example, similarity heuristics, affect heuristics, or complicity	Durand and Vergne (2015); Haack et al. (2014); Kostova and Zaheer (1999); Surroca et al. (2013); own amendments
Influence potential of information intermediaries	The extent to which an information intermediary (e.g., media or NGOs) is able to disseminate information to other stakeholders and elicit reactions from them; driven by geographical outreach and reputation	Deephouse (2000); Kölbel et al. (2017); Teegan (2003); Yoon (2005)
Severity of the transgression	Stakeholder perceptions regarding how undesirable the effects resulting from a sustainability-related transgression are, how culpable the criticized firms are for the effect, and to which extent the affected parties were non-complicit	Kölbel et al. (2017); Lange and Washburn (2012); RepRisk (2017)
Contextual sustainability risk	The likelihood with which stakeholders expect sustainability-related transgressions to occur within a certain context (e.g., supplier country, supplier industry, buying firm country, and buying firm industry)	Busse et al. (2016); Reinert et al. (2019); own amendments

market devaluation of firms associated through director interlocks (i.e., inter-organizational membership ties). Finally, there is empirical support that one firm's organizational crisis can de-legitimize other non-responsible firms in the same industrial sector. For example, product recalls (Zavvalova et al., 2012), chemical spills (Barnett & King, 2008), or railroad accidents (Desai, 2011) can change stakeholders' beliefs about the likelihood of similar incidents occurring for other firms in the same industry.

However, categorization does not always capture the existence of the spillover phenomena from suppliers to buyers accurately. Buyers and suppliers are separate and legally independent entities, usually relying on distinct sets of human resources and input materials. Furthermore, they are often members of different industrial sectors that serve different markets. To this end, categorization based on similarity does not reflect the essence of sustainability-driven spillovers in supply chains. Scholars have thus begun to challenge the notion that similarity heuristics alone can explain legitimacy spillover phenomena. Haack et al. (2014) proposed that affect heuristics, that is, the negative feelings experienced by stakeholders when an organization is involved in a scandal, can lead legitimacy evaluators to question the legitimacy of the organization's network. Haack et al.'s (2014) theoretical model is based on a change in the emotional state of the stakeholders, preceding categorization, and assumes a membership relationship between the source and the destination. A firm's engagement in sustainability violations could indeed elicit anger, disappointment, and frustration among different stakeholder groups such as consumers, NGOs, and employees (Chen et al., 2019; Rodgers, 2010; Romani et al., 2013). However, investors' decision-making to devalue a firm is typically not emotionally driven but rather based on signals of the firm's economic instability (Lamin & Zaheer, 2012).

Thus, we argue that the mechanism behind sustainability transgression-related spillovers from suppliers to buyers deserves closer scrutiny. Buying firms, especially well-branded ones, are expected to have power, knowledge, and resources to ensure a sustainable supply network, especially when countries and nations along firms' supply chains cannot enforce effective sustainability-related regulations (Scherer & Palazzo, 2011; Surroca et al., 2013). Thus, "corporations are now asked to assume responsibility for the whole process of value production" (Scherer & Palazzo, 2011, pp. 919–920). Indeed, although the implementation can be quite costly, through a variety of supplier governance mechanisms, firms can control and amend a supplier's sustainability performance (Gimenez & Sierra, 2013). For example, with a stricter supplier selection process, buyers can avoid engaging in exchange relationships with unsustainable suppliers (Ehrgott

et al., 2011). Furthermore, through auditing and monitoring, the buying firm can observe a supplier's practices to gain insight about potential illegitimate activities, and by implementing supplier development programs, firms can help assist the supplier in meeting ESG standards (e.g., Bregman et al., 2015; Foerstl et al., 2010; Huq et al., 2016). Therefore, when a supplier behaves in a manner deemed unacceptable, stakeholders such as the media, NGOs, consumer groups, and regulators often hold the buying firms accountable (e.g., Davis et al., 2013; Hofmann et al., 2014).

To summarize, notwithstanding the fair question where the "limits of upstreaming responsibility" reside (Scherer & Palazzo, 2011, p. 919), we expect that stakeholders perceive buying firms as complicit for the sustainability-related grievances discovered throughout their extant global supply chains. We posit that this complicity is also implicit (or even explicit) in information (e.g., media announcements) that establish connections between suppliers' sustainability-related transgressions and certain buying firms.

Market reactions

Stakeholder theory states that firms are enterprises from which various groups of stakeholders (e.g., customers, employees, NGOs, and media) seek different benefits and thereby have different expectations (Doh & Guay, 2006; Donaldson & Preston, 1995; Freeman, 1984). By assessing compliance with their requests, stakeholders can exert pressure on firms' behavior. Once a supplier engages in unsustainable behavior by violating ESG expectations, the archetypical process of de-legitimation of the buying firms follows several steps, whereby stakeholder groups may react differently contingent upon their expectations, cognitive reasoning, and pragmatic preferences (Bridoux & Stoelhorst, 2014). For a start, information intermediaries are interested in publishing a newsworthy story and framing the narrative to identify the complicit parties, thus ensuring sales while executing their watchdog role (Cottle, 2008). Hence, their main function is to disseminate information and assist other stakeholder groups in judging firms' actions (Rao, 1998). Next, reciprocal stakeholders, that is, stakeholder groups concerned about the fairness of the firm towards others (e.g., employees or consumers), can exert pressure on the firm through different punishment actions, such as organizing demonstrations or boycotting products (Bridoux & Stoelhorst, 2014). Furthermore, regulators act as stakekeepers, meaning that they do not have a direct stake in the firm but enforce external control and impose regulations to ensure sustainable practices (Fassin, 2012).

Finally, investors' decisions to purchase or sell firm equity are affected by the entire observed and expected chain of reactions by other stakeholder groups, which can impact the firm's future cash flows (Godfrey, 2005). For example, supplier actions that are in non-compliance with the social welfare and environmental goals, for which the buying firm is legally liable, could lead to costly lawsuits (Mefford, 2011). Furthermore, violations of ESG expectations often compel regulatory agencies to change legislation for sustainability standards (Lim & Phillips, 2008) and even trade bodies to coerce the enforcement of regulations (Campbell, 2007). Such regulatory changes oblige firms either to switch suppliers or to invest in supplier development programs to ensure a sustainable supply network, both of which signal higher expenses for the buying firm (Ehrgott et al., 2013). Even if the buyer is not a subject of coercive sustainability regulations, a stock price reduction can still be expected due to various stakeholder sanctions. Many consumers, for example, express dissatisfaction with unsustainable behavior by boycotting, which affects the future sales of the buying firm (Klein & Dawar, 2004). Employees, labor unions, and NGOs often engage in protests and demonstrations (Tsoi, 2010), thus pressuring the buying firm to invest in supply chain sustainability governance mechanisms (Gimenez & Sierra, 2013). For all these reasons, the transfer of negative legitimacy due to a supplier's sustainability-related misconduct is likely to deteriorate investors' expected earnings and have a negative effect on the financial evaluations of the buyer. To summarize, we hypothesize:

H1. News concerning ESG-related transgressions originating from suppliers' operations negatively affect the stock price performance of the complicit buying firm.

Contextual contingencies influencing the market reaction

We have argued how sustainability-related transgressions along the supply chain could lead investors to devalue the buying firm. In the following sections, we draw on stakeholder theory and various other streams of literature to hypothesize that the influence potential of the intermediary that disseminates the information (i.e., a stakeholder-specific attribute), the severity of the incident (i.e., an event-specific attribute), and the contextual sustainability risk of the buyer and supplier (i.e., categorization-based attributes) affect the magnitude of the investors' punishment reaction.

Influence potential of information intermediaries

Information intermediaries tend to initiate the attribution of complicity. However, not each intermediary has an equal voice. The extent to which an information intermediary is able to disseminate information to other stakeholders and elicit reactions depends on that intermediary's reputation (Deephouse, 2000) and its geographical outreach (Kölbel et al., 2017). Information intermediaries with a wider geographical outreach have higher availability of financial, human, and technical resources at their disposal, making their capacity to connect with stakeholders and convey information stronger (Tegan, 2003). In contrast, NGOs or media channels operating on a national or regional level have smaller audiences and are thus less capable of generating large-scale reactions (Yang & Rivers, 2009). Similarly, the reputation of the information intermediaries reflects the credibility of the information distributed to other stakeholders (Yoon, 2005). Therefore, international media outlets with an established reputation are considered more reliable sources of information when attributing complicity to the buying firm, thus drawing wider attention to an issue, compared to a regional TV channel searching for "juicy" stories. In addition, sustainability campaigns through popular media sources can be an effective mechanism for engagement with a sustainability agenda by politicians and policy-makers (Barr, 2016). To sum up, institutional intermediaries with greater influence potential attract a wider range of reciprocal stakeholders and regulators and consequently increase stakeholders' willingness to sanction the firms (Kölbel et al., 2017). This leads us to hypothesize:

H2. The greater the influence potential of the information intermediary reporting about supplier sustainability-related transgressions, the more negative the impact on the stock price of the buying firm.

Severity of the transgression

One of the main factors that can influence the magnitude of stakeholders' reactions, as well as investors' decisions to re-evaluate firms after an incident, is the severity of the consequences (Barnett & King, 2008; Desai, 2011). Notably, although real consequences might differ from the consequences portrayed by the media outlets, it is the latter that shape stakeholders' opinions (Yu et al., 2008). This is because stakeholders' time and resource constraints limit their ability to notice and assess behavior

(Cyert & March, 1963). Therefore, they rely on information intermediaries who specialize in collecting and disseminating information (Rao, 1998). By framing firms' actions, information intermediaries guide other stakeholders' initial cognitive information processing in understanding the causes of events and attributing responsibility (Kassin et al., 2010).

Underpinning the findings of attribution studies, Lange and Washburn (2012) developed a framework for the attribution process of corporate social irresponsibility events, which has been used to evaluate the severity of unsustainable firm behavior (Kölbel et al., 2017). In their framework, the attribution of corporate social irresponsibility is a proxy of three elements: *effect undesirability*, *corporate culpability*, and *affected party non-complicity*. *Effect undesirability* refers to the recognition that harm has been done (Lange & Washburn, 2012). In sustainability events, it depends on the types of consequences and the amount of damage (Hoffman & Ocasio, 2001). In general, stakeholders attribute greater responsibility to more serious events, because they are more salient, thus lowering the social approval of the involved party (Tennen & Affleck, 1990). *Corporate culpability* is the amount of responsibility the firm bears for the wrongdoing (Lange & Washburn, 2012). This is contingent upon assessments of causality and moral responsibility based on the presented evidence (Hamilton, 1980).

In events where an entity is perceived to have intentionally engaged in misconduct, the liability attribution is stronger than in events that result from situational and contextual factors (Klein & Dawar, 2004). It also reflects the controllability of the undesired event, implying that parties who have the capacity to monitor and prevent negative events are more liable and thereby less likely to elicit sympathy from stakeholders (Weiner et al., 1988). In supply chains, for instance, if a supplier causes environmental harm, the buying firm can be held accountable for not implementing a mechanism to ensure compliance (Hartmann & Moeller, 2014). Finally, *affected party non-complicity* is the perception of how much responsibility the injured party bears for the incident. A perception of non-complicity of the victim (e.g., employees) motivates stakeholders to assign corporate social irresponsibility to the corporations (Benford & Snow, 2000).

To sum up, by framing the information in the news articles, information intermediaries play an important role in shaping how the audience assigns these attribution elements to the buying firm. More severe events lead to increasingly critical attribution, motivating stakeholders (including investors) to withdraw vested interest. Therefore, we hypothesize:

H3. The greater the severity associated with supplier sustainability-related transgressions, the more negative the impact on the stock price of the buying firm.

Contextual sustainability risk

Cognitive associations are shaped by the institutional environments in which firms operate (Maggioni et al., 2019; Romanelli & Khessina, 2005). These associations not only give audiences expectations about firms' future behavior, contingent upon the behavior of similar firms (Kennedy, 2008; Porac et al., 1995), but also affect attention to stimuli that differ from these expectations (Kiesler & Sproull, 1982). Research on attention, originating in social psychology, argues that the more novel an entity's behavior is compared with other entities in the same category, the more attention it attracts (Fiske, 1980; Jones & McGillis, 1976; Skowronski & Carlston, 1987). For example, when the general risk of wrongdoing in an industry is low, there is a suitable environment for stronger stakeholder reactions towards a firm's misconduct, as this behavior is less expected within that particular industry (Zavyalova et al., 2012).

Following the same logic, the attention to individuals' undesirable stimuli wanes if that behavior is common practice. For instance, although bribery scandals are commonplace in countries with high levels of corruption, they attract less attention as they are to be expected (Lee et al., 2010). Prior research has found that sustainability risk varies substantially from country to country—disaggregated across ESG issues but also overall (Reinerth et al., 2019). Similarly, some industries are perceived as particularly risky from an ESG lens, whereas others are not (Garcia et al., 2017). We therefore postulate that the different contexts (i.e., industrial sector and country of the buying firm, as well as the industrial sector and country of the supplier) are associated with different levels of expected sustainability risk, which in turn facilitate different levels of surprise when sustainability transgressions become known. Accordingly, we hypothesize:

H4a,b. The lower the contextual (a. country; b. industry) sustainability risk of the buying firm, the more negative the impact on the stock price of the buying firm in the case of supplier sustainability-related transgressions.

H4c,d. The lower the contextual (c. country; d. industry) sustainability risk of the supplier involved in the transgression, the more

negative the impact on the stock price of the buying firm in the case of supplier sustainability-related transgressions.

METHODOLOGY

Sample

We compiled a sample of ESG-related transgression events through the RepRisk database, a business intelligence provider specialized in corporate sustainability risks. The database screens media announcements associated with sustainability wrongdoings. At the moment of the compilation of our dataset, RepRisk was monitoring over 100,000 firms across 80,000 media outlets in 16 different languages.¹ Each news item, before being recorded in the database, undergoes a systematic, rule-based, and step-by-step process for selection and evaluation. Beginning with a preliminary algorithm-based filtering technique, news items are screened each day to identify sustainability transgressions. Subsequently, “tags” (i.e., types of issues) are assigned according to RepRisk’s proprietary rules-based system. Trained analysts then read the selected articles and summarize the news stories. Following this process, they then review and approve the automated tagging, relevancy scoring, and news analytics (including severity). Finally, before a media announcement is published in RepRisk’s dataset, it undergoes a quality assurance check and approval by a senior RepRisk analyst to ensure that the overall process is aligned with RepRisk’s methodology. If the same news story appears in several media sources on the same day, the most influential source is recorded. Each media announcement is entered only once in the database unless there is a substantively important new story development, the same story appears in a more influential source, or if it appears in the media again after at least 6 weeks.

Coding pertaining to environmental, social, or governance-related aspects is assigned to each announcement by RepRisk. This categorization coincides with the issues discussed in management studies of sustainability (e.g., Hawn et al., 2018; Xueming et al., 2015). While some events affect only one sustainability dimension, others (“combined issues”) affect several dimensions simultaneously. The sustainability dimensions are stratified in sub-categories, each of which is exemplified in Appendix 1. The scope of these issues resonates strongly

with international sustainability norms and principles such as the UN Global Compact’s Ten Principles, the Universal Declaration of Human Rights, the Conventions of the International Labor Organization, the World Bank Environmental, Health and Safety Guidelines, the UN Convention against Corruption, and the Organization for Economic Co-operation and Development Guidelines for Multinational Enterprises.

We obtained the event data from the RepRisk database for the period from January 2007 to December 2016 for the 1800 firms constituting the Stoxx Global 1800 Index. We selected this index for the following reasons. First, it comprises large firms with well-established brand names, visible to customers. As such, these firms are potential targets for stakeholders’ scrutiny not only for their own unsustainable operations but also for the behavior of their supply chain partners (Parmigiani et al., 2011). Second, the Stoxx Global 1800 Index is composed of firms from the world’s highest GDP regions in Europe, North America, and Asia/Pacific, each represented by 600 firms, covering all industrial sectors (Stoxx, 2017). This composition ensures that our sample contains announcements from local information intermediaries of each country of interest (i.e., the RepRisk database contains media sources in at least one official language of each country). This is an essential prerequisite for testing the association between the influence potential of the media outlet and abnormal stock price behavior.

Among the constitutes of the Stoxx Global 1800 Index, 436 firms were accused of sustainability issues in their supply chains at least once in the period between 2007 and 2016. The vast majority of these firms were accused repeatedly, resulting in 3835 events. For a news item to be included in our sample, we applied the following selection and exclusion criteria: First, in accordance with the requirements for event study methodology, the sample should be composed of unique events (McWilliams & Siegel, 1997). Thus, we removed news articles related to a story after the initial announcement. Second, following Meznar et al. (1998), we eliminated observations with confounding events in the event window (i.e., other events for the same firm becoming known on the day of the announcement, the day before, or the day after). These events include but are not limited to declarations of dividends, announcements for expected mergers and acquisitions, engagement in government contracts or public-private partnerships, new product releases, lawsuits, unexpected earnings, changes in key executives, positive sustainability-related announcements (retrieved from the LexisNexis database), and other firm-specific sustainability-related issues (retrieved from the RepRisk database). Third, the stock price data for

¹The data for this study were collected in 2017. As of now (latest update as of August 2023), RepRisk covers over 235,000 firms across 100,000 media outlets in 23 languages.

the firm should be available one full year before the announcement date and 3 days after the announcement date (retrieved from Thomson Reuters Datastream Economics). Fourth, we removed all the observations for which annual firm size or financial figures of interest were not available (retrieved from the Worldscope database). Last, to control for the number of supply chain sustainability transgressions that each buying firm experienced 1 year prior to the event, we excluded events from the year 2007.

After cleaning the data based on these criteria, the final (full) sample included 374 firms and 1699 events. In 54% (914) of the observations, only the social sustainability dimension was violated; events where only environmental and only governance issues were observed account for 10% (172 events) and 5% (78 events), respectively. The remaining 31% (535 events) of the sample represent combined issues. There is a considerable increase of events over time: 13% of the events occurred in the first 3 years (2008–2010), 37% in the second 3 years, and roughly 50% of the events in the last 3 years of the sample (2014–2016). Moreover, in the majority of the events, the criticized firms are headquartered in North America (54%), followed by Europe (36%) and Asia/Pacific (10%). Tables 2 and 3 offer overviews of the distribution of environmental, social, governance, and combined events per year and headquarters' country of the firms. Of the 1699 events in the full sample, the name of the supplier involved in the sustainability misconduct was available for 756 (44% of the full sample, referred to as the condensed sample).

TABLE 2 Number of sustainability-related transgressions by year.

Year	(E)	(S)	(G)	(ESG)	Total	Share
2008	19	38	4	20	81	4.77%
2009	20	61	2	9	92	5.41%
2010	2	28	1	12	43	2.53%
2011	23	80	3	35	141	8.30%
2012	39	123	2	60	224	13.18%
2013	9	137	11	105	262	15.42%
2014	15	199	14	109	337	19.84%
2015	28	108	15	63	214	12.60%
2016	17	140	26	122	305	17.95%
Total	172	914	78	535	1699	100.00%

Note: This table provides the number of events per year. E, S, and G represent the number of environmental, social, and governance issues, respectively. The ESG category comprises events triggering multiple types of sustainability issues.

Model design

To examine H1, we employ event study methodology. Introduced by Fama et al. (1969), the cornerstone of this methodology is the “efficient market hypothesis,” which stipulates that every piece of available information in an efficient market is immediately reflected in the stock price. Importantly, the efficiency assumption relates to the decision-making of the actively information gathering of investors, rather than to the ordinary information processing of other stakeholders such as consumers. Investors will have to consider how widely news on a sustainability-related transgression will affect reciprocal stakeholders, which depends on the influence potential of the information intermediary. Thus, H2 also aligns with the efficient market hypothesis.

Event studies are performed by first estimating a model, which, based on historical data of stock returns of each firm and its relationship to the market portfolio, predicts the normal (expected) returns of stock prices. These estimates are used to evaluate any abnormal behavior of stock price returns in the event window (Brown & Warner, 1985; McWilliams & Siegel, 1997). This method is a powerful tool for detecting the impact on shareholders' wealth from negative event announcements, such as corporate social responsibility wrongdoings (Flammer, 2013), negative legal or regulatory actions (Godfrey et al., 2009; Gunthorpe, 1997), strikes (Davidson et al., 1988), and protests (King & Soule, 2007). As our sample is composed of firms from 21 countries, we apply the world market model, as recommended by Park (2004), and calculate our dependent variable: *cumulative abnormal returns (CAR)* for a 3-day event window $[-1,+1]$. A detailed overview of the world market model and the calculation of the dependent variable is provided in Appendix 2.

Having calculated the dependent variable, we employ a multivariate regression model in order to investigate the impact of the severity of the transgression (H2), the influence potential of information intermediaries (H3), and the contextual sustainability risk (H4a,b and H4c,d) on the stock market reaction:

$$\begin{aligned}
 CAR_{ijt} = & a + b_1 \times Transgression\ severity_{ij} + b_2 \\
 & \times Influence\ potential\ of\ information\ intermediary_{jt} \\
 & + b_3 \times Buyer's\ country\ sustainability\ risk_{it} + b_4 \\
 & \times Buyer's\ industry\ sustainability\ risk_{it} + b_5 \\
 & \times Supplier's\ country\ sustainability\ risk_{it} + b_6 \\
 & \times Supplier's\ industry\ sustainability\ risk_{it} + \gamma' Z_{ijt} \\
 & + \epsilon_{ijt}
 \end{aligned}$$

TABLE 3 Number of sustainability-related transgressions by buying firm country and region.

Origin	(E)	(S)	(G)	(ESG)	Total	Share
Europe	64	314	19	216	613	36.08%
Belgium	0	1	0	1	2	0.12%
Denmark	0	0	0	2	2	0.12%
Finland	1	16	0	11	28	1.65%
France	9	31	3	39	82	4.83%
Germany	6	61	4	49	120	7.06%
Italy	0	4	0	5	9	0.53%
Luxemburg	0	1	0	0	1	0.06%
Netherlands	2	8	2	8	20	1.18%
Norway	0	4	0	6	10	0.59%
Portugal	0	1	0	0	1	0.06%
Switzerland	6	32	1	20	59	3.47%
Spain	1	30	0	10	41	2.41%
Sweden	6	42	2	12	62	3.65%
United Kingdom	33	83	7	53	176	10.36%
North America	94	505	46	278	923	54.33%
Canada	0	4	0	3	7	0.41%
United States	94	501	46	275	916	53.91%
Asia/Pacific	14	95	13	41	163	9.59%
Australia	1	12	1	3	17	1.00%
Hong Kong	1	7	1	2	11	0.65%
Japan	11	76	11	33	131	7.71%
Singapore	1	0	0	3	4	0.24%
Total	172	914	78	535	1699	100.00%

Note: This table provides the number of events stratified by the country and region of the buying firms. E, S, and G represent the number of environmental, social, and governance issues, respectively. The ESG category comprises events triggering multiple types of sustainability issues.

where CAR is the cumulative abnormal return for the event window $[-1, +1]$ for firm i , for an event j at a year t . Z is a vector comprising control variables, and ε denotes the error term.

Variable operationalizations

The first hypothesized factor expected to have an impact on the magnitude of the stock price reaction is the *influence potential* of the media outlet. The influence potential of each media source is based on readership and circulation. Accordingly, RepRisk distinguishes three levels of influence potential: low, medium, and high. Low influence potential includes information publicized in local media, by small NGOs, or on blogs. Medium influential sources include national and regional media and NGOs; information coming from global news outlets with a strong international reputation implies high influence

potential. We treat this measure as categorical in the main regression models and introduce it in the form of dummy variables.

The assessment of the second factor of interest, namely, *severity*, measures the harshness of the transgression. As per RepRisk's guidelines, the severity is determined as a function of three dimensions: the consequences of the event (e.g., were people in danger or not), the extent of the consequences (e.g., how many people were in danger or harmed), and the incident culpability (i.e., negligent or intentional). The evaluation of each component occurs through a qualitative check of the media article. For instance, an event in which the buying firm was aware of but kept silent about its suppliers' misconduct is considered more severe than an accident, as there is less corporate culpability. Furthermore, a transgression that caused injuries incurs harsher consequences, as the undesirable effects are greater than in an incident that did not harm anyone. An issue can be of

low, medium, or high severity. Both the measure for a media outlet's geographical reach and the severity of incidents are operationalized as in Kölbel et al. (2017).

Finally, the *industry and country sustainability risk* proxies originate from the history of sustainability transgressions. Based on collected articles for ESG issues across firms, for each country and industry, the sustainability risk is estimated as a relative measure on a 100-point scale (where 0 is *risk-free* and 100 is *risk-intensive*). For each event, we consider four measures of contextual sustainability risks: buyer's country sustainability risk, buyer's industry sustainability risk, supplier's country sustainability risk, and supplier's industry sustainability risk. For the industry classification, we use the NACE (Nomenclature of Economic Activities), that is, the European statistical classification of economic activities, which groups organizations according to their business activities (see Appendix 3). The buyer's country sustainability risk is defined per the country where the headquarter of the buying firm is located, whereas the supplier's country sustainability risk is estimated based on the country where the transgression occurred, irrespective of the supplier's headquarters.

Controls

Past research applying event study methodology in spill-over and sustainability-related studies suggests several relevant controls. Investors might be more sensitive to firms with a repetitive history of supply chain spillovers. Therefore, similar to the work of Desai (2011), we control for firms' exposure to *prior negative legitimacy spillovers* with a connection to supply chain sustainability (i.e., the cumulative number of sustainability-related transgressions 1 year before the announcement). The *size* of the buying firm (i.e., market capitalization) may influence the market reaction to unsustainable practices (Barnett & King, 2008; Diestre & Rajagopalan, 2014). Larger firms communicate more intensively about sustainability practices, have stronger public relations strategies, and might be more effective in defending their innocence in suppliers' malfeasance (Wickert et al., 2016). Furthermore, the availability of resources to cope with a crisis could also affect stock performance. Therefore, following the practice of Flammer (2013) and Kang (2008), we control for *profitability* (i.e., return on assets) and *financial leverage* (i.e., debt-to-equity ratio). Both return on assets and debt-to-equity ratio are retrieved for the most recent fiscal year end prior to the year of an allegation. Next, we control for the strength of the brand of the firms, as this may influence a firm's vulnerability. Following Eccles et al. (2014), we use *market-to-book ratio* as a proxy for brand

value. Finally, we include fixed effects for *types of sustainability issues* to address unobserved heterogeneity. We partition the issues to environmental, social, governance, and combined. To account for temporal changes, we include year-fixed effects (Greene, 2003; Kang, 2008). In an alternative model, we embed the year effect as a discrete variable to test for possible time trends (Hawn et al., 2018).

Detailed information on the data collection process, the data sources used for each of the variables, and their operationalization is provided in Figure 1.

RESULTS

Event study results

Table 4 presents the daily abnormal returns and CAR for Day 0, the five consecutive days, the five previous days, and the multiple tests statistic for the event window $[-1,1]$. In the full sample, there is an average difference of -0.24% between the expected and observed stock returns on Day -1 ($p < 0.001$), -0.22% difference on Day 0 ($p < 0.001$), and -0.12% difference on Day $+1$ ($p = 0.001$). Four days before and after the event window, the difference between the observed and expected stock returns was minimal. The mean CAR for the event window $[-1,+1]$ is -0.57% ($p < 0.001$). The median abnormal returns follow the same pattern, with the median of the cumulative abnormal return at -0.41% ($p < 0.001$). The proportion of negative abnormal returns is 62%, which suggests that outliers were not decisive in driving the negative abnormal returns.

To examine the behavior of the stock market reaction more closely, in Table 5 we stratified the sample by types of issues (environmental, social, governance, and combined), location of the buying firms' headquarters (Europe, North America, and Asia/Pacific), and timing of the announcements (2008–2010, 2011–2013, and 2014–2016). The stock price devaluation is highest for governance issues with a mean (median) of -0.89% (-0.50%), followed by the environmental issues with a mean (median) of -0.65% (-0.48%), and then social issues with a mean (median) of -0.53% (-0.41%). The subsample of events causing violation of multiple types of sustainability issues has a mean CAR of -0.57% and a median of -0.37% . When stratified by region, the CAR is slightly lower than the sample average for North American firms (-0.68%), while slightly higher than the sample average for Asia/Pacific (-0.50%) and European firms (-0.42%). Furthermore, the magnitude of the reaction is around 15 times stronger in the most recent 3 years (2014–2016) and about 10 times stronger in the middle 3 years of the

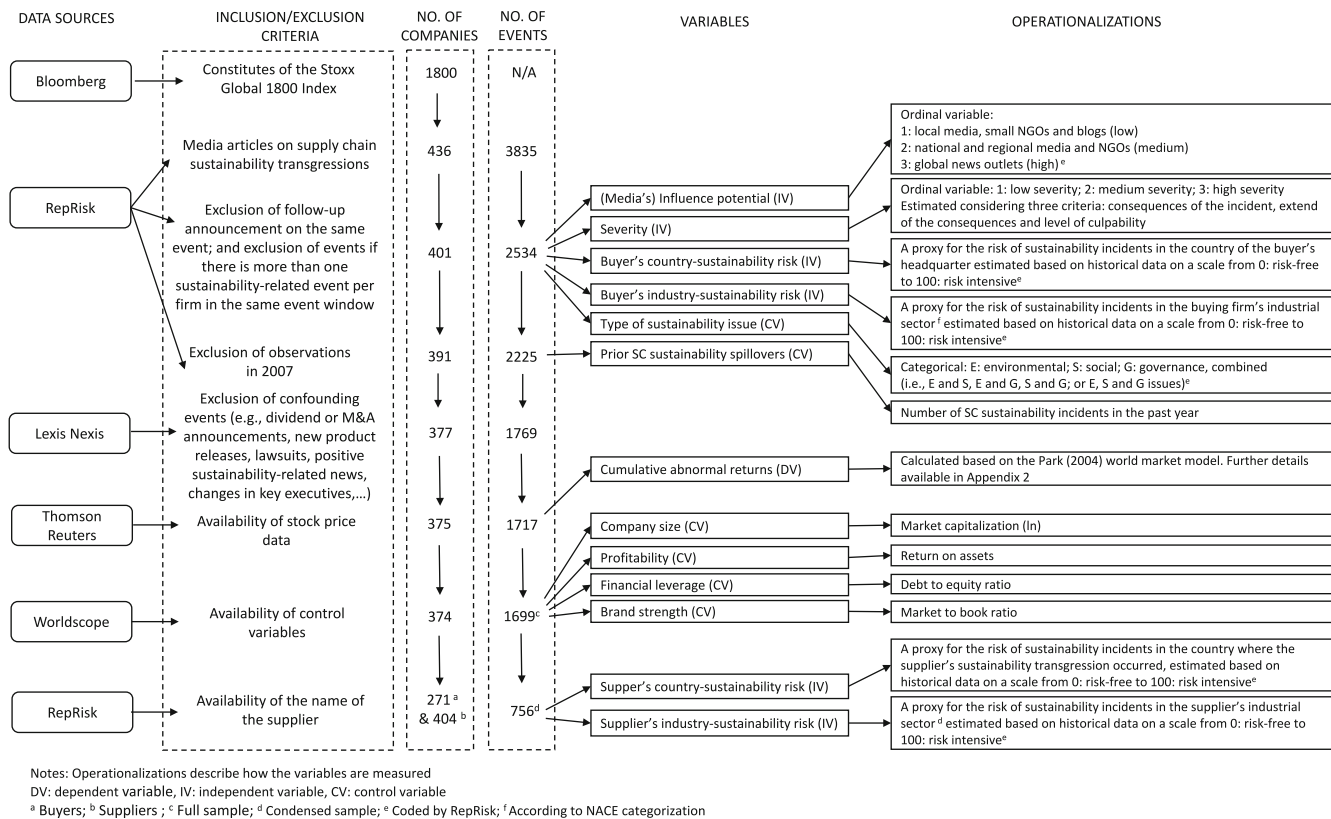


FIGURE 1 Methodological process map.

TABLE 4 Daily abnormal returns and cumulative abnormal returns.

	Mean CAR	Median CAR	% Negative CAR
Event day/window [t]			
Event day [-5]	0.039 (0.315)	0.000 (0.979)	50% (1.000)
Event day [-4]	-0.016 (0.686)	0.012 (0.685)	49% (0.697)
Event day [-3]	-0.055 (0.153)	-0.022 (0.263)	51% (0.383)
Event day [-2]	0.002 (0.955)	-0.023 (0.966)	51% (0.382)
Event day [-1]	-0.238 (0.000)	-0.152 (0.000)	57% (0.000)
Event day [0]	-0.216 (0.000)	-0.175 (0.000)	57% (0.000)
Event day [+1]	-0.116 (0.001)	-0.061 (0.002)	54% (0.003)
Event day [+2]	0.055 (0.146)	0.033 (0.403)	49% (0.308)
Event day [+3]	0.040 (0.109)	0.047 (0.091)	48% (0.051)
Event day [+4]	0.069 (0.073)	0.002 (0.953)	50% (0.923)
Event day [+5]	0.053 (0.168)	0.041 (0.113)	48% (0.146)
Event window [-1,+1]	-0.570 (0.000)	-0.405 (0.000)	62% (0.000)

Note: n = 1699; p-values reported in parentheses (two-tailed); t-test for the mean returns, Wilcoxon's signed-rank test (Wilcoxon, 1945) for the median returns, and generalized sign test (Cowan, 1992) for the % negative CAR.

sample (2011–2013), compared with the events in the first 3 years (2006–2010), signaling a possible time trend.

Finally, we estimate CAR for a subsample of events where the buyer and the supplier belong to different industrial sectors, as well as a subsample where both firms operate in the same industry (based on NACE

classification as shown in Appendix 3). The results are negative (p < 0.001) for both subsamples. However, the market reaction is stronger in the former case (-0.59%) than in the latter (-0.40%), thus excluding the possibility that results are driven by an industry-level categorization.

TABLE 5 Cumulative abnormal returns for the event window $[-1,+1]$ stratified by types of sustainability issues, region, time frame, and dyad characteristics.

	Mean CAR	Median CAR	% Negative CAR
Types of sustainability issues			
Environmental ($n = 172$)	-0.65 (0.000)	-0.48 (0.001)	65% (0.000)
Social ($n = 914$)	-0.53 (0.000)	-0.41 (0.000)	61% (0.000)
Governance ($n = 78$)	-0.89 (0.000)	-0.50 (0.039)	64% (0.017)
Combined sustainability issues ($n = 535$)	-0.57 (0.000)	-0.37 (0.000)	62% (0.000)
Region			
Europe ($n = 613$)	-0.42 (0.000)	-0.35 (0.000)	60% (0.000)
North America ($n = 923$)	-0.68 (0.000)	-0.46 (0.000)	63% (0.000)
Asia/Pacific ($n = 163$)	-0.50 (0.007)	-0.17 (0.192)	58% (0.041)
Time frame			
Years 2008–2010 ($n = 216$)	-0.05 (0.816)	-0.04 (0.811)	51% (0.838)
Years 2011–2013 ($n = 627$)	-0.53 (0.000)	-0.37 (0.000)	62% (0.000)
Years 2014–2016 ($n = 856$)	-0.73 (0.000)	-0.53 (0.000)	65% (0.000)
Dyad characteristics			
Dyad information available ($n = 756$)	-0.51 (0.000)	-0.36 (0.000)	61% (0.000)
Different industry ($n = 458$)	-0.59 (0.000)	-0.47 (0.000)	63% (0.000)
Same industry ($n = 298$)	-0.40 (0.000)	-0.23 (0.029)	57% (0.013)

Note: p -values reported in parentheses (two-tailed); t -test for the mean returns, Wilcoxon's signed-rank test (Wilcoxon, 1945) for the median returns, and generalized sign test (Cowan, 1992) for the % negative CAR. CAR is cumulative abnormal return.

Regression results

Table 6 reports the distributions and the correlations of the variables for the condensed sample, with the highest correlation between market-to-book ratio and return to assets ($r = 0.33$). The variance inflation factor (VIF) is 2.12, indicating no serious threat of multicollinearity (Neter et al., 1996). The correlation table for the full sample is provided in Appendix 4.

Our main results are presented in Table 7. Models 1 and 2 are baselines, which contain only the control variables, Model 1 without and Model 2 with fixed controls. Model 3a extends Model 2 by including our independent variables: the intermediary's influence potential and the transgression severity as categorical variables, as well as the buyer's country and sector sustainability risks as discrete variables. Models 3b and 3c are variations of Model 3a. In Model 3b, we use the year as a variable control instead of a fixed control, and in Model 3c we change the intermediary's influence potential and transgression severity variables from a categorical to a metric form. Among Models 3a–3c, Model 3a represents the best fit for the data because it explains the greatest proportion of variance (nearly 7%). The analysis shows that both supply chain issues published in media with high influence potential and medium influence potential have a greater

effect ($B = -0.88$; $p < 0.001$ and $B = -0.91$; $p < 0.001$, respectively) on the drop of the stock price compared with supply chain issues announced in media with low influence potential, thus supporting H2.

Although the severity of the event exerts a negative effect, there is little difference in CAR between low- and medium-severity events ($B = -0.06$; $p = 0.622$) and little difference between low- and high-severity events ($B = -0.44$; $p = 0.175$). Therefore, the data do not offer support for H3. There is little relationship between buyer's country sustainability risk and the stock price reaction ($B = -0.002$; $p = 0.864$); thus, the results fail to support H4a. However, the results do support H4b ($B = 0.012$; $p = 0.026$), indicating that the lower the sustainability risk of the buyer's industry, the stronger the magnitude of the impact on CAR.

Models 4a–4c are extensions of Models 3a–3c, respectively, by adding supplier's country and sector sustainability risk as explanatory variables. This analysis was applicable to the condensed sample of 756 events, for which the name of the supplier was available from the announcement, allowing us to test the relationship between contextual risk of the suppliers and the CAR of the buying firm. Complementary to the findings from the full sample, the model that best fits our data is Model 4a, accounting for 9.0% of the data variability,

TABLE 6 Descriptive statistics and correlations among variables.

	Mean	SD	Min	Max	1	2	3	4	5	6	7	8	9	10	11
1. CAR	-0.51	2.05	-11.05	10.71											
2. Influence potential	1.49	0.55	1.00	3.00	-0.19 (0.000)										
3. Severity	1.69	0.70	1.00	3.00	-0.01 (0.890)	-0.06 (0.084)									
4. Buyer country sustainability risk	17.00	4.05	1.17	36.17	0.02 (0.640)	0.01 (0.748)	-0.01 (0.858)								
5. Buyer industry sustainability risk	35.71	8.31	14.67	59.17	0.11 (0.003)	0.01 (0.819)	0.03 (0.429)	-0.08 (0.027)							
6. Supplier country sustainability risk	33.91	18.71	5.08	95.17	0.11 (0.002)	-0.09 (0.012)	0.16 (0.000)	-0.04 (0.246)	0.09 (0.013)						
7. Supplier industry sustainability risk	42.05	6.58	15.50	62.42	0.05 (0.174)	0.03 (0.420)	0.14 (0.000)	0.00 (0.895)	0.19 (0.000)	0.03 (0.384)					
8. Prior SC sustainability spillovers	0.99	1.25	0.00	6.00	-0.01 (0.879)	0.01 (0.881)	-0.06 (0.083)	0.09 (0.014)	-0.03 (0.348)	-0.04 (0.279)	0.03 (0.345)				
9. Market capitalization (ln)	24.68	1.28	20.81	27.20	-0.06 (0.093)	0.11 (0.002)	-0.02 (0.660)	0.26 (0.000)	-0.13 (0.001)	0.05 (0.182)	-0.12 (0.001)	0.12 (0.001)			
10. Return on assets (%)	9.16	7.46	-13.61	33.70	-0.00 (0.892)	0.13 (0.001)	-0.01 (0.799)	0.18 (0.000)	-0.05 (0.178)	0.08 (0.021)	-0.11 (0.002)	0.00 (0.934)	0.37 (0.000)		
11. Debt-to-equity ratio	0.98	0.40	-154.81	68.10	-0.04 (0.263)	0.05 (0.188)	0.00 (0.959)	-0.01 (0.848)	0.05 (0.135)	-0.00 (0.134)	-0.08 (0.030)	0.02 (0.556)	-0.08 (0.033)	-0.07 (0.042)	
12. Market-to-book ratio	3.36	2.78	-18.02	14.84	-0.04 (0.270)	0.04 (0.336)	-0.05 (0.148)	0.18 (0.000)	-0.10 (0.001)	0.05 (0.159)	-0.13 (0.000)	0.03 (0.444)	0.23 (0.000)	0.33 (0.000)	0.22 (0.000)

Note: $n = 756$; CAR is cumulative abnormal return; SC stands for supply chain; p -values reported in parentheses (two-tailed).

TABLE 7 Regression on cumulative abnormal return in percent, for event window [-1,+1].

	Model 1	Model 2	Model 3a	Model 3b	Model 3c	Model 4a	Model 4b	Model 4c
Main effects								
Severity					-0.098 (0.097) 0.312			-0.154 (0.155) 0.319
Medium severity			-0.056 (0.114) 0.622	-0.064 (0.114) 0.575		-0.104 (0.166) 0.529	-0.094 (0.160) 0.557	
High severity			-0.440 (0.324) 0.175	-0.445 (0.324) 0.170		-0.748 (0.657) 0.256	-0.693 (0.651) 0.287	
Intermediary influence potential					-0.568 (0.080) 0.000			-0.555 (0.107) 0.000
Medium influence potential			-0.877 (0.120) 0.000	-0.874 (0.120) 0.000		-0.903 (0.138) 0.000	-0.897 (0.140) 0.000	
High influence potential			-0.906 (0.168) 0.000	-0.910 (0.166) 0.000		-0.844 (0.251) 0.001	-0.790 (0.260) 0.002	
Contextual sustainability risk								
Buyer country sustainability risk			-0.002 (0.012) 0.864	-0.005 (0.006) 0.654	-0.001 (0.012) 0.940	0.021 (0.018) 0.239	0.020 (0.018) 0.263	0.021 (0.018) 0.231
Buyer industry sustainability risk			0.012 (0.005) 0.016	0.010 (0.005) 0.044	0.013 (0.006) 0.031	0.022 (0.009) 0.018	0.022 (0.009) 0.012	0.021 (0.009) 0.023
Supplier country sustainability risk						0.012 (0.006) 0.045	0.011 (0.005) 0.028	0.011 (0.005) 0.027
Supplier industry sustainability risk						0.017 (0.015) 0.264	0.013 (0.04) 0.346	0.015 (0.015) 0.307
Control variables								
Prior SC spillovers	-0.016 (0.052) 0.759	0.023 (0.052) 0.622	0.013 (0.050) 0.798	0.010 (0.050) 0.843	0.022 (0.049) 0.649	0.021 (0.006) 0.001	0.023 (0.006) 0.000	0.036 (0.006) 0.000
Market cap (ln)	-0.017 (0.048) 0.728	-0.002 (0.048) 0.959	0.021 (0.049) 0.666	0.023 (0.049) 0.647	0.019 (0.049) 0.706	-0.085 (0.072) 0.242	-0.079 (0.076) 0.294	-0.093 (0.073) 0.205
Return on assets	0.013 (0.006) 0.069	0.018 (0.007) 0.014	0.013 (0.006) 0.068	0.011 (0.006) 0.095	0.013 (0.007) 0.059	0.010 (0.010) 0.349	0.010 (0.010) 0.321	0.012 (0.010) 0.232

(Continues)

TABLE 7 (Continued)

	Model 1	Model 2	Model 3a	Model 3b	Model 3c	Model 4a	Model 4b	Model 4c
Debt-to-equity ratio	−0.001 (0.005)	0.001 (0.004)	0.002 (0.004)	0.001 (0.005)	0.002 (0.004)	−0.002 (0.005)	−0.005 (0.005)	−0.002 (0.005)
Market-to-book ratio	0.800 (0.019)	0.820 (0.018)	0.587 (0.017)	0.815 (0.017)	0.566 (0.018)	0.698 (0.028)	0.325 (0.026)	0.697 (0.030)
Year				−0.061 (0.031)			−0.045 (0.016)	
				0.049			0.000	
Fixed controls								
Type of issue	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year	No	Yes	Yes	No	Yes	Yes	No	Yes
Constant	−0.154 (1.187)	−0.054 (1.279)	−0.618 (1.342)	121.618 (62.186)	−0.015 (1.384)	−0.228 (2.101)	31.997 (90.265)	0.591 (2.101)
	0.897	0.967	0.645	0.051	0.992	0.913	0.723	0.778
Overall R^2	0.7%	1.6%	6.9%	5.4%	5.1%	9.0%	8.0%	7.9%
n	1699	1699	1699	1699	1699	756	756	756

Note: Models depict unstandardized regression coefficients with standard errors in parentheses and p -values (two-tailed) provided below the standard error values. The estimated standard errors for Models 1–3c are clustered at the buying firm level, whereas for Models 4a–4c, they are clustered at both the buying firm level and the supplying firm level (Cameron & Miller, 2015). SC stands for supply chain.

compared with approximately 8.0% and 7.9% in Models 4b and 4c respectively. Our findings support H4c on the relationship between suppliers' country sustainability risk and market reaction ($B = 0.012$; $p = 0.036$); however, they fail to support H4d ($B = 0.017$; $p = 0.264$) on the relationship between suppliers' industry sustainability risk and market reaction. The interpretation of the results for H4a,b remained unchanged in the condensed sample, thus providing robustness for the initial findings.

Robustness checks

To enhance confidence in our results and to address potential concerns, we conducted a series of robustness checks.

Different global market portfolio index

Following the practice of previous studies, we use the Morgan Stanley Capital International (MSCI) global index in the CAR estimation model, as an alternative to the Stoxx Global 1800 Index (Lundgren & Olsson, 2010).

Alteration of the estimation window

Given the absence of consensus in the literature on the length and timing of the estimation window, we conduct robustness checks for alternative estimation windows: $[-140, -41]$ and $[-210, -11]$.

Alternative measurement for firm size

Firm size is frequently measured as market capitalization. To ensure the reliability of our findings, we recompute the estimations using the number of employees as another commonly used measurement for firm size (Diestre & Rajagopalan, 2014).

Elimination of top and bottom CAR values

To strengthen the validity of the study, we conduct several robustness checks by removing part of the events: (1) eliminating the events with the highest (i.e., most positive or least negative) 3% CAR; (2) eliminating the events with the lowest (i.e., most negative) 3% CAR; and (3) eliminating both the highest 1.5% and lowest 1.5% CAR of the events.

TABLE 8 Robustness checks for the effect size of cumulative abnormal returns.

Robustness check description	Mean CAR	Median CAR	% Negative CAR
(1) Different global market portfolio index	−0.54 (0.000)	−0.41 (0.000)	62% (0.000)
(2) Alteration of the estimation window			
Estimation window [−140, −41]	−0.59 (0.000)	−0.42 (0.000)	61% (0.000)
Estimation window [−210, −11]	−0.62 (0.000)	−0.44 (0.000)	61% (0.000)
(3) Exclusion of			
Bottom 3% CAR	−0.38 (0.000)	−0.36 (0.000)	61% (0.000)
Top 3% CAR	−0.75 (0.000)	−0.46 (0.000)	64% (0.000)
Top and bottom 1.5% CAR	−0.57 (0.000)	−0.40 (0.000)	62% (0.000)

Note: p -values reported in parentheses (two-tailed); t -test for the mean returns, Wilcoxon's signed-rank test (Wilcoxon, 1945) for the median returns, and generalized sign test (Cowan, 1992) for the % negative CAR. CAR is cumulative abnormal return.

The first three robustness checks are relevant for both the calculation of the effect size of CAR (Table 8) and the regression estimation (Table 9), but the last one is relevant only for the latter (Table 9). We found that all robustness checks yield abnormal stock returns with mean values ranging from -0.38% ($p < 0.001$) to -0.75% ($p < 0.001$) and median values between -0.36% ($p < 0.001$) and -0.46% ($p < 0.001$). The share of negative CAR was at least 61% ($p < 0.001$) and up to 64% ($p < 0.001$).

The regression robustness checks show that the results from the alternative estimations are consistent with the main model. Similar to the findings in the primary specification, all alternative models provide supporting evidence for H3, H4b, and H4c.

DISCUSSION

Implications, post hoc analyses, and contributions

Market reaction

Our study joins a conversation on the impact of supply chain sustainability transgressions on buyers' stock prices. Some previously published studies did not find an effect of the transgressions (Jacobs & Singhal, 2017), whereas others did (Kim et al., 2019; Kim & Wagner, 2021). Utilizing the largest sample in terms of the number of transgressions (see Appendix 5) from three continents and the largest set of sustainability issue types (see Appendix 1), applying careful filtering techniques comprising various exclusion criteria, controlling for various potentially confounding influences, and conducting a large amount of robustness tests, we arrive at a rigorous estimation of the economic impact of supply chain

sustainability transgressions. The mean CAR of -0.57% ($p < 0.001$) that we find across a sample of 1699 events in support of our first hypothesis thus represents a first large-scale *empirical contribution* of this research.

Our rigorous measurement of the effect size is informative to future research on sustainable supply chain management as it highlights the average price that buying firms have to pay *each time* they are connected publicly to new supplier sustainability-related transgressions, thereby quantifying the value of avoiding supplier unsustainability. This finding is also highly relevant for practitioners, ranging from supply chain risk executives all the way to CEOs. With an average loss of \$65 million in market capitalization over a 3-day event window, the findings provide managers with a reason for closer scrutiny of their global supply chains. Thus, this study highlights an incentive for improving the frequently dire conditions in global supply chains, thereby also contributing indirectly to the mitigation of a societal grand challenge (George et al., 2016).

It should be noted that the mean CAR value is lower in magnitude compared with supply chain disruption risks. For example, production issues, quality issues, order changes, engineering changes, and other types of supply chain glitches are associated with 2%–10% loss in value (Hendricks & Singhal, 2003; Zsidisin et al., 2016). Still, the aforementioned drop in market capitalization per event suggests that large corporations can suffer significant financial losses arising from seemingly “soft” supply chain sustainability-related issues.

Our breakdown of sustainability issues (see Table 5) facilitates additional interesting insights. It reveals that all types of issues (i.e., environmental, social, governance, and combined ones) lead to substantively meaningful mean effects ranging from -0.53% to -0.89% (with all p -values < 0.001), implying that investors reacting to such news anticipate financially meaningful direct (e.g., fines)

TABLE 9 Robustness checks for the regression models.

	Different market portfolio index	Alteration of the estimation window		Alternative measure for firm size	Exclusion of extreme values			Top and bottom 1.5% CAR					
		[−140, −41]	[−210, −11]		Bottom 3% CAR	Top 3% CAR	Top and bottom 1.5% CAR						
Main effects													
Severity													
Medium severity	−0.078 (0.114)	−0.149 (0.165)	−0.065 (0.118)	−0.071 (0.147)	−0.060 (0.170)	−0.056 (0.114)	−0.102 (0.166)	−0.030 (0.102)	−0.025 (0.136)	0.084 (0.100)	0.065 (0.096)	0.095 (0.130)	
High severity	−0.476 (0.322)	−0.847 (0.658)	−0.428 (0.339)	−0.263 (0.276)	−0.492 (0.460)	−0.452 (0.322)	−0.748 (0.655)	−0.372 (0.266)	−0.300 (0.426)	−0.308 (0.303)	−0.938 (0.426)	−0.131 (0.248)	−0.022 (0.403)
Intermediary influence potential													
Medium influence potential	−0.883 (0.119)	−0.913 (0.134)	−0.912 (0.124)	−0.909 (0.164)	−0.810 (0.143)	−0.876 (0.120)	−0.918 (0.137)	−0.829 (0.107)	−0.800 (0.140)	−0.515 (0.101)	−0.599 (0.149)	−0.636 (0.133)	
High influence potential	0.000 (0.166)	−0.852 (0.251)	−0.951 (0.169)	−0.865 (0.175)	−0.540 (0.257)	−0.907 (0.168)	−0.858 (0.251)	−0.648 (0.132)	−0.422 (0.211)	−0.553 (0.161)	−0.528 (0.220)	−0.353 (0.124)	−0.341 (0.198)
Contextual sustainability risk													
Buyer country sustainability risk	−0.000 (0.012)	0.027 (0.018)	−0.001 (0.012)	−0.012 (0.017)	0.028 (0.018)	−0.002 (0.012)	0.016 (0.018)	−0.000 (0.010)	−0.013 (0.017)	0.007 (0.009)	0.028 (0.018)	0.012 (0.010)	0.021 (0.016)
Buyer industry sustainability risk	0.985 (0.006)	0.135 (0.009)	0.958 (0.006)	0.469 (0.007)	0.118 (0.009)	0.855 (0.007)	0.374 (0.009)	0.995 (0.006)	0.431 (0.008)	0.384 (0.005)	0.115 (0.008)	0.204 (0.005)	0.182 (0.008)
Supplier country sustainability risk	0.049 (0.006)	0.026 (0.013)	0.008 (0.010)	0.062 (0.010)	0.024 (0.010)	0.037 (0.011)	0.017 (0.011)	0.031 (0.008)	0.005 (0.008)	0.046 (0.003)	0.021 (0.008)	0.028 (0.006)	0.012 (0.006)
Supplier industry sustainability risk	0.526 (0.015)	0.315 (0.015)	0.315 (0.014)	0.406 (0.014)	0.406 (0.014)	0.229 (0.015)	0.229 (0.015)	0.646 (0.011)	0.341 (0.011)	0.341 (0.011)	0.341 (0.011)	0.539 (0.010)	0.539 (0.010)

TABLE 9 (Continued)

	Alteration of the estimation window			Alternative measure for firm size	Exclusion of extreme values									
	Different market portfolio index	[-140, -41]			Bottom 3% CAR	Top 3% CAR	Top and bottom 1.5% CAR							
			[-210, -11]											
Control variables														
Prior SC spillovers	0.019 (0.047)	0.027 (0.008)	0.035 (0.048)	0.017 (0.010)	-0.028 (0.056)	0.027 (0.010)	0.022 (0.008)	0.010 (0.050)	0.023 (0.008)	0.000 (0.043)	0.024 (0.007)	0.006 (0.040)	0.029 (0.005)	
Market cap (ln)	0.688 (0.050)	0.001 (0.076)	0.464 (0.051)	0.089 (0.083)	0.625 (0.047)	0.007 (0.072)	0.003 (0.040)	0.849 (0.040)	0.004 (0.058)	0.008 (0.043)	-0.083 (0.061)	0.878 (0.038)	0.000 (0.054)	
Return on assets	0.939 (0.004)	0.132 (0.012)	0.793 (0.006)	0.284 (0.011)	0.890 (0.009)	0.176 (0.011)	0.005 (0.010)	0.014 (0.007)	0.975 (0.006)	0.501 (0.010)	0.117 (0.010)	0.892 (0.005)	0.320 (0.009)	
Debt-to-equity ratio	0.046 (0.003)	0.822 (0.005)	0.045 (0.003)	0.378 (0.005)	0.038 (0.005)	0.659 (0.007)	0.587 (0.005)	0.040 (0.004)	0.922 (0.001)	0.045 (0.001)	0.865 (0.007)	0.028 (0.004)	0.795 (0.007)	
Market-to-book ratio	0.561 (0.013)	0.665 (0.031)	0.395 (0.017)	0.728 (0.030)	0.719 (0.019)	0.699 (0.026)	0.810 (0.027)	0.591 (0.017)	0.916 (0.015)	0.984 (0.015)	0.580 (0.027)	0.540 (0.014)	0.890 (0.024)	
Employees (ln)	-0.036 (0.201)	-0.009 (0.779)	-0.038 (0.028)	-0.022 (0.462)	-0.022 (0.255)	-0.021 (0.419)	0.037 (0.041)	0.037 (0.049)	0.294 (0.082)	0.485 (0.001)	0.308 (0.001)	0.044 (0.001)	0.338 (0.001)	
Fixed controls														
Type of issue	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Constant	-0.237 (1.367)	-0.727 (2.202)	-0.674 (1.391)	-0.240 (2.287)	-0.799 (1.354)	-0.257 (2.092)	-0.647 (0.891)	-2.236 (1.597)	-0.500 (1.152)	-0.468 (1.549)	-1.653 (1.121)	-0.835 (1.619)	0.684 (0.997)	-1.030 (1.451)
Overall R ²	6.9%	9.3%	6.9%	7.8%	3.8%	7.5%	6.8%	8.8%	6.6%	9.5%	3.9%	6.8%	3.9%	
n	1699	756	1699	756	1699	756	1699	756	1647	733	1647	733	1647	

Note: Models depict unstandardized regression coefficients with standard errors in parentheses and *p*-values (two-tailed) provided below the standard errors. The estimated standard errors are clustered at the buying firm level for the regression models utilizing the full sample (*n* = 1699), whereas they are clustered at both the buying firm level and the supplying firm level for regressions using the condensed sample (*n* = 756) (Cameron & Miller, 2015). CAR is cumulative abnormal return; SC stands for supply chain.

or indirect (e.g., consumer boycotts) damage for buying firms from all these issues. Given that all these issues are effective in the same manner, this research supports the established operationalization of the holistic sustainability concept in corporate practice through the tripartite ESG dimensions (e.g., Berg et al., 2022).

Juxtaposing the mean effects of different ESG issues, governance-related transgressions have by far the largest impact (-0.89%), whereas the impact of social transgressions is the smallest (-0.53%). The difference is smaller when we consider the median CAR (see Table 5), suggesting that our sample contained some particularly impactful stock market reactions to governance issues, possibly with particularly heavy fines. Although we are hesitant in interpreting the number of issues in our sample as such, which could theoretically represent an artifact of the data collection, we do note that the sample contains nearly 12 times as many pure social issues ($n = 914$) as pure governance issues ($n = 78$). We tentatively interpret this such that social issues, which ultimately refer to the violation of human rights, are particularly likely to attract media attention, whereas governance issues may represent red flags to investors as these types of issues may be particularly likely to trigger heavy fines from regulators.

Looking at the three different stock market regions, which quite likely correlate strongly with the regional origin of the buying firms and thereby suggest certain home bases (see Table 5), we see again that all regions are affected, with the highest mean (-0.68% ; $p < 0.001$) and median (-0.46% ; $p < 0.001$) CAR values in North America. This makes sense insofar as the North American media are particularly sensitive (Hersel, 2022), and the stock market is highly professional (Barnett, 2007).

Our findings also reveal a substantive intensification of the market reaction over time (see Table 5). Whereas the transgressions from 2008 to 2010 triggered a mean loss of -0.05% ($p = 0.816$), the transgressions in the following period from 2011 to 2013 led to a mean loss of -0.53% ($p < 0.001$) and the ones in the latest period from 2014 to 2016 generated a mean loss of -0.73% ($p < 0.001$). As the news reports were publicized in each period, the stock market reaction apparently became stronger over time. We interpret this temporal dynamic as an expression of growing importance of sustainability to stakeholders who are increasingly willing to act on their convictions. For example, consumers may become more inclined to engage in boycotts, employees to leave their jobs, and activists to start campaigning, whereas governments may become less receptive to a firm's lobbying (Busse et al., 2016). The harsher the punishments become over time, the more investors have to discount the future cash flows of a firm, explaining the increasing effect size.

In the condensed subset of our entire database, the name of the supplier was available, allowing us to juxtapose events in which the supplier comes from the same industry as the buyer with those where the supplier belongs to another industry (see Table 5). The mean (-0.59% ; $p < 0.001$) and median CAR (-0.47% ; $p < 0.001$) values for events where the background is the same industry are even higher than the mean (-0.51% ; $p < 0.001$) and median CAR (-0.36% ; $p < 0.001$) values for transgressions where the firms belong to different industries. This finding implies that an industry-level categorization effect (which one might have deduced from the current legitimacy spillover literature) is insufficient for explaining our findings. Viewed together with our conceptual arguments on the inappropriateness of the similarity heuristics and the insufficiency of the affect heuristics for understanding the effect of sustainability-related transgressions, we believe that our arguments for viewing the complicity heuristic as a new mechanism behind legitimacy spillovers are sound and represent a theoretical contribution to the related stream of general management.

Influence potential of information intermediaries

Having found support in the data for our second hypothesis, that the increasing influence potential of the information intermediary reporting about a supplier's transgression augments the negative impact on the stock price of the buying firm, we expound upon the implications of this finding. Our study adds to the empirical literature that investigates the role of information intermediaries in the de-legitimation process of firms. In general, these studies consider media outlets to be an important source of information, which shape issues' salience and trigger stakeholders' reactions (McCombs & Shaw, 1972; Tang & Tang, 2016). Essentially, this means that the decision regarding which non-responsible firms should be de-legitimated is subject to either categorization logic or affective responses from reciprocal stakeholders and/or investors. In this study, we consider the information intermediaries to be a powerful factor not only for information dissemination but also in complicity attribution, by identifying and revealing entities that hold indirect responsibility for the misbehavior of the transgressor. By utilizing a database that processes information from 80,000 information intermediaries in 16 languages, this study is one of the most comprehensive studies in this field, thus answering the call for assessment of the impact of heterogeneous information sources (Lamin & Zaheer, 2012; Yu et al., 2008).

Although modern communication technologies allow for an easy and rapid ripple effect by the proliferation of such information, thereby increasing the awareness about the issue among other stakeholder groups (Bansal, 2005; Park-Poaps & Rees, 2010), not all voices carry the same weight. Rather, their impact depends on geographical outreach and reputation. This means that future research within and beyond the domain of sustainable supply chain management should subsequently dedicate more attention to who criticizes supplier misconduct, where and when.

Severity of the transgression

Our results do not confirm the third hypothesis, that the severity of the supplier's transgression affects the buyer's stock price. Moreover, the findings in this study contrast with prior vignette-based experimental research that found severity to affect stakeholders' responsibility attribution (Hartmann & Moeller, 2014). Experimenter demand effects (Zizzo, 2010) may possibly explain the measured effectiveness of severity in prior research, whereas the lack of influence in this study may be explained by the media's framing (Benford & Snow, 2000) of the news. That is, the fact that the media tell an unflattering story may already largely determine the stakeholders' reaction, whereas the portrayed severity of the transgression does not matter. Indeed, in evaluating legitimacy, stakeholders often act in a passive (i.e., intuitive) rather than active (i.e., deliberate) manner (Tost, 2011).

Another post hoc explanation lies in the execution of crisis management strategies. Institutional work on defense strategies describes how organizations purposively engage in actions aiming to influence a media discourse regarding an issue (Elsbach & Kramer, 1996) and neutralize the effect of disruptions (Maguire & Hardy, 2009). For example, Goldberg and Harzog (1996), who compared the stock price effect of Ashland Oil and Exxon after major oil spills, found that Ashland's financial performance was far less affected due to its rapid and proactive communication strategy with the media. Given that stakeholders are exposed to numerous information sources, the debates in the aftermath of the transgression might be a cumulative evaluation of not only the gravity of the scandal but also how the firm handles the criticism. In this sense, firms that have long-term defense strategies in place might be more adept at providing immediate responses within the event window, thus balancing out the effects on their stock price performance. It thus appears commendable for future event studies to systematically evaluate firms' reactions and to control for them empirically.

Contextual sustainability risk

Based on arguments from attention research in social psychology, we provide insights into industry and country dynamics' influence on investors' reactions. Consistent with our expectations, low sustainability risk levels associated with the buyer's industrial sector and the supplier's country augment investors' penalties when a supplier engages in sustainability misconduct. Contrary to our expectations, the empirical results did not provide evidence of an association between the sustainability reputation of the buyer's country and the supplier's industrial sector with the magnitude of the investors' reaction. We conjecture that the former finding could be attributed to the limited variability of the country sustainability risk level of the buying firms in this study. Our sample of buying firms concentrates on economies in the Global North, and thus, the variation of country sustainability risk is low across countries (Table 6). As these economies typically have more advanced corporate sustainability practices compared with those in the Global South (Newbury, 2012), it is probable that expectations of the stakeholder groups in general and the investors in particular do not differ sufficiently to trigger an empirically visible effect.

A post hoc explanation for the latter incongruity is that the supplier's country is a better representation for the supplier's contextual sustainability risk than the supplier's industrial sector. This is because national legal requirements vary substantially across countries (Rodríguez et al., 2014) and because institutional voids in parts of the Global South render the respective regulations ineffective (Mair et al., 2012; Scherer & Palazzo, 2011).

From a risk-contingency point of view, it is important for firms to be able to control and reduce the effects arising from their supply chains (Tomlin, 2006). Sustainability misconducts or illegitimate actions represent lurid stories for the media, and therefore, their public dissemination is usually beyond corporate control. However, on many occasions, buying firms can proactively disclose suppliers' sustainability in-compliances. We cannot assess any downsides associated with fostering such transparency from within this study, yet this research points to a previously undetected upside, namely, the mitigation of the impact of supplier sustainability transgressions through the stakeholders who seem to anticipate a certain level of contextual risk and tailor their reactions to news on transgression to the level of surprise that they experience for news from that context. We conjecture that unsolicited reporting of problematic supplier sustainability concerns allows buying firms to set the agenda before information intermediaries, so as to render them

more controllable and reduce the attractiveness of scandalizing the story for the press.

Given the finding associated with sector-specific risk for buying firms, managers should be aware that operating in lower risk sectors increases the propensity of negative impact when a supplier transgression is discovered. Moreover, as risk within sectors can change over time (Reprisk, 2017), this is also a warning call to managers operating in higher risk sectors not to become complacent in their due diligence towards supplier sustainability-related risks—given that a reduction in sector risk can then leave those firms in a position to receive greater scrutiny.

Similarly, when managers choose to onboard and engage with suppliers operating in countries with lower sustainability risk profiles, they should be aware that the impact from discovering a supplier incident originating from those countries will be greater. Thereby, firms should be increasingly careful when selecting suppliers from those locations, regardless of industry sector. Alternatively, when country sustainability risk is greater, managers should understand that they should not utilize this as an opportunity to be increasingly “risk prone,” given that media attention still plays a vital role in the negative consequences associated with the supplier incident. Moreover, similar to sector-level sustainability risk, country-level risk can also change over time (Reprisk, 2017), particularly when egregious supplier incidents arise, and in some cases quite quickly due to government interventions (see, e.g., Wilhelm et al., 2020).

Our findings on contextual sustainability risk contribute to a debate contending whether being associated with a category that bears a negative reputation is a burden or a benefit for the members after negative events. The premise of the burden perspective is that organizations are enduring the “commons” problem (King et al., 2002), which manifests especially when firms belong to stigmatized categories and, as such, are perceived as risky, irrespective of the source of the problem (Vergne, 2012). For example, Huang and Li (2009) found that after the Enron document shredding scandal, the firms closest in geographical proximity and the firms in the same industry experienced the strongest spillover market punishment. Our study supports a diverging research stream that follows the principle of “safety-in-numbers” (Zavyalova et al., 2012). The underlying argument is that a transgression conducted by an organization that belongs to a category that engages regularly in wrongdoing attracts less attention and less adverse reactions from stakeholders because its behavior is considered common practice (Rhee & Haunschild, 2006; Zavyalova et al., 2016). Our findings imply that an association of the complicit entity

with an industry containing many sustainability issues might allow the firm some relief from severe sanctions after the transgression, as in these circumstances breaking social norms is customary. However, when sourcing from a country with a good sustainability record, buying firms are exposed to stronger punishments if suppliers engage in malfeasance.

Overall, this study can be utilized to construct a more comprehensive set of strategies for managing supplier sustainability-related incidents. From a supply chain risk-mitigation point of view, it is important for firms to invest in supplier monitoring and collaboration programs (Trkman & McCormack, 2009). Having systematic auditing in place could ensure real-time overview of sustainability compliance at the supplier’s side, while the supplier sustainability collaboration programs provide support in developing suppliers’ ESG performance (Awaysheh & Klassen, 2010). In this respect, an investment in supplier sustainability programs is the primary step towards satisfying stakeholders’ expectations and mitigation of future incidents.

Limitations and directions for future research

This study leaves some unanswered questions that provide opportunities for future research. First and most fundamentally, in this large-scale secondary data analysis, we adopted a macro-level perspective on sustainability-related transgressions, inferring from the presence of the stock market reactions that the theorized causal mechanisms must have been effective. There is clearly room to complement this macro-level perspective with micro-level accounts of how the complicity attribution takes place, in the tradition of similar micro-level and cross-level studies (e.g., Bitektine & Haack, 2015; Tost, 2011). How exactly the media frame transgression news and implicitly or explicitly hold buying firms complicit should be investigated in more depth in future research (e.g., Hersel, 2022). Another opportunity for a deep dive lies in differentiating between stakeholders. We analyzed investors’ reactions on a cumulative level, without distinguishing between types of investors and their priorities. However, former studies have provided evidence that some information intermediaries are more accessible and attention-grabbing to institutional investors than individual investors (Barber & Odean, 2008). Furthermore, investment institutions, institutional investors, and private investors have exhibited different motives when factoring environmental, social, and ethical concerns into their investment decisions (Jansson & Biel, 2011). Future research could aim to understand the socio-cognitive

processes of different types of investors that associate specific information attributes with specific behavioral outcomes.

Second, although this study informs a long-standing debate on the relationship between a firm's sustainability performance and its economic performance (Busse, 2016; McWilliams & Siegel, 2000; Orlitzky et al., 2003; Vishwanathan et al., 2020), it evaluates only short-term financial losses over a few days surrounding the event. Investigating the impact of sustainability transgressions on long-term firm performance measures (e.g., return on assets) or long-term financial risk (e.g., bond spreads) represents an excellent opportunity to extend the empirical scope of our findings.

Third, the study has revealed interesting similarities and differences among the different ESG-related issues aggregated in our database. In accordance with recent calls for looking under the broad umbrella of supply chain sustainability (Busse & Mollenkopf, 2017), there seems to be room for future research explaining in more depth why, for example, social sustainability issues are prone to attract the media's attention whereas news on governance-related issues result in rather severe devaluations. Moreover, recent research indicates that there are connections to supply chain unsustainability that are not affiliated with reputational loss (e.g., wildlife trafficking through supply chain infiltration as an important facilitator of biodiversity loss; see Duensing et al., 2023) whose reporting in the media may therefore not attract stock market punishments.

Fourth, following the reasoning that brand-owning firms are more attractive for the media and thus prone to more criticism about their suppliers' unsustainable behavior (Hartmann & Moeller, 2014), we selected a sample of large buying firms headquartered in the Global North (i.e., constituting the Stoxx Global 1800 Index). In this regard, the empirical setting of this study could affect the generalizability of our results, not only in terms of geographical coverage but also in terms of firm size. Prior studies have shown that small market capitalization firms are even more sensitive than large firms are to stock market reactions, due to the difference in credit risk premium that investors take when purchasing stocks (Fama & French, 1993; Ferguson & Shockley, 2003). Thereby, future research could investigate how suppliers' unsustainable behavior impacts small- and medium-sized buyers.

Fifth, our theoretical model assumes that stakeholders will punish the buying firm for the unsustainable behavior of its supplier when there is a clear link of assigned complicity. This implies that the media announcement clearly identifies the destination of the legitimacy spillover, that is, the buying firm that is criticized for not being able to ensure sustainable practices at its suppliers. However, prior research

suggests that legitimacy spillovers can transpire even when the association between the source and the destination is not highlighted in the storyline (Diestre & Rajagopalan, 2014). In addition, legitimacy spillovers can transpire in the opposite direction (i.e., from the buyer to the supplier; Kim & Wagner, 2021). Future research could explore whether there is a systematic effect from a party's sustainability misconduct to upstream or downstream value chain partners, irrespective of whether they are revealed or not.

Finally, based on the literature on sustainable supply chain management, we recognize that the reason for viewing buying firms as complicit for the sustainability-related conditions in their supply chains is built upon a socio-cognitive stakeholder perception of buying firm's availability of resources and knowledge for controlling, monitoring, and developing a sustainable supplier base. While examining the effect of governance mechanisms for ensuring supply chain sustainability on stakeholder reactions is beyond the scope of our study, we believe that this question provides fruitful avenues for future research. Thereby, future studies could investigate whether specific ESG-related practices in supply chain management lessen the punishment reactions of the various stakeholders. To summarize, this study takes an important step towards better understanding sustainability-related transgressions in global supply chains.

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ORCID

Ivana Mateska  <https://orcid.org/0000-0001-7588-2392>
Christian Busse  <https://orcid.org/0000-0001-9927-6944>
Andrew P. Kach  <https://orcid.org/0000-0002-8365-7483>
Stephan M. Wagner  <https://orcid.org/0000-0003-0471-5663>

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APPENDIX 1: SUB-CATEGORIES AND EXAMPLES OF ENVIRONMENTAL, SOCIAL, AND GOVERNANCE-RELATED TRANSGRESSIONS

Type of issue	Example
Environmental	
Global/local pollution	RWE received harsh criticism for sourcing stone coal from Colombia. The main coal distributors in Colombia, Drummond and Glencore, were linked to the funding of paramilitary groups and to ecological destruction. Residents near the mines were complaining about the enormous impacts stemming from coal mining, with coal dust impeding upon the health of the population, polluting waterways, and impinging on agriculture (PAX for Peace, 2014).
Impacts on ecosystems	Rainforest Action Network (RAN) indicted General Mills' for their sourcing and use of palm oil [...]. Their supplier, Cargill, sourced their palm oil from Sinar Mas who was responsible for the deforestation of rainforest in Indonesia, Malaysia, and Papua New Guinea. Palm oil cultivation is believed to have severe impacts on the environment, forest indigenes, and the climate (Rainforest Action Network, 2010).
Overuse and wasting resources	A Greenpeace report on the state of seafood stocks has criticized Canadian retail chains Costco and Wal-Mart for selling fish species that are on the NGO's Redlist. The report emphasized that fish and seafood stocks are in decline and investigated the purchasing practices of the retail chains. Greenpeace urged the chains to stop selling Redlist species and provide customers with adequate labeling or information about the source of their seafood (Hunter & King, 2008).
Waste issues	Greenpeace International's report entitled "Toxic Threads: Polluting Paradise" in April 2013 highlighted Gap, Banana Republic, Old Navy, Brook Brothers, Marubeni, Adidas Group, and H&M for their supply chain links to Gistex Group. Gistex Group has been dumping untreated industrial waste into the Citarum

(Continues)

Type of issue	Example
Animal mistreatment	<p>River in West Java for many years. Reportedly, a number of toxic and highly persistent substances were detected in the samples taken from the Gistex facility's discharge outfalls, including nonylphenol and tributyl phosphate, which can affect human health and disrupt aquatic life, among other potential impacts (Greenpeace, 2013).</p> <p>The animal protection organization Compassion Over Killing has released undercover video footage filmed at a pig breeding factory in Iowa. The footage shows major cases of animal abuse and mistreatment inside Hawkeye Sow Centers, such as pregnant and nursing pigs locked in tiny enclosures; piglets screaming while they are gelded without any pain relief; forced cannibalism; and no veterinary or hygiene care provided for the animals. Hawkeye Sow Centers is known as a major supplier of pork for the Hormel brand, which recently claimed it stopped using gestation crates at firm-owned facilities (Compassion Over Killing, 2012).</p>
Social	
Child labor	<p>Workers at two separate factories making Disney toys employed children between the ages of 14 and 16 in breach of local labor laws and Disney's own code of conduct, according to China Labor Watch (CLW), a US NGO. Similar to other employees, the children worked 12-h days in 'unacceptable conditions' (Hickman, 2010).</p>
Impact on communities	<p>According to Oxfam's report, "Nothing Sweet About It," in which Coca-Cola and PepsiCo stand accused of sourcing from the controversial Usina Trapiche sugar mill. A local community in the islands of Sirinhaém near Pernambuco, Brazil, was violently evicted from their homes to make way for the Usina Trapiche sugar mill, which supplies sugar to Coca-Cola and PepsiCo (Oxfam, 2013).</p>
Local participation issues	<p>Conflict arose between PT Gistex and the local community of Margaasih District: "The community was seeking compensation in the form of health insurance for the construction of a chimney without consultation, complaining that people were suffering respiratory effects, such as painful coughing, due to thick dust and odor from the chimney." In particular, Gap, Banana Republic, Old Navy, Brook Brothers, Marubeni, Adidas Group, and H&M were highlighted for their alleged supply chain links to the firm (Greenpeace, 2013).</p>
Social discrimination/discrimination in employment	<p>NGOs International Brotherhood of Teamsters and United Students Against Sweatshops began an international leaflet campaign, which demanded that New Era Cap, a major Foot Locker supplier, stop discriminating against Black workers in their American factories (Left in Alabama, 2007).</p>
Human rights abuses	<p>Fair Action's "A Short-Term Solution" report in September 2015 has criticized H&M for allegedly using fixed duration contracts (FDCs) in its supplier factories in Cambodia, which deprive workers from joining unions, protest against violations, and exercise their human rights. Apparently, one third of H&M's supplier factories in Cambodia employ a majority of their workers on FDCs, while one of its suppliers had its entire workforce on FDCs at the time of the interviews conducted by the Community Legal Education Center in May and June 2015. Workers under FDCs are susceptible to forced and excessive overtime and health problems such as mass fainting and urinary problems as the workers do not take necessary breaks or ask for sick leaves for fear of not meeting the production quota or not having their contracts renewed. Moreover, female workers are reportedly subjected to pregnancy pre-screening prior to contract signing, in breach of Cambodian laws and ILO conventions (Fair Action, 2015).</p>
Forced labor	<p>The television program Four Corners has revealed widespread labor exploitation of Asian foreign workers on holiday visas in Australia. Workers at poultry producer Baiada reportedly toil for 18 h a day for less than half the Meatworkers Union rate and reside in crowded accommodations with excessive rents amounting to AUD 100 per week. In May 2015, a Senate inquiry was launched into the firm, which supplies poultry to Woolworths and Kentucky Fried Chicken (Meldrum-Hanna et al., 2015).</p>

Type of issue	Example
Obstructing collective bargaining	TopiTop, a textile supplier for clothing firms such as Zara, received criticism for firing 35 trade union organizers and for having a history of slave-like working conditions. In response, the International Workers Association has called for a worldwide boycott of Zara outlets. According to a 2008 audit of TopiTop's factories, workers were afraid to join the union due to fear of retaliation (Ray, 2010).
Occupational health and safety issues	China Labor Watch and I shop fair – Network Ethical Consumption have conducted investigations at two factories supplying to Walt Disney and summarized their findings in the report “Investigation Report of Two Walt Disney Factories.” In both Hong Kong-based factories (Hengtai Factory and Champion Crown Industries), investigators have found poor working conditions and uncovered a series of Chinese labor law violations, including child labor, lack of safety training, exposure to harmful chemicals, discrimination of workers based on gender and geographic origin, and stifled trade union activity. Criticism of Disney revolved around the firm maintaining a “corrupt” self-audit system that has failed to uncover worker abuses in its supply chain (China Labor Watch, 2010).
Poor employment conditions	A report by the organization Students and Scholars Against Corporate Misbehavior (SACOM) has highlighted alleged severe labor violations at three Pegatron factories manufacturing Apple iPhone 6 units in China. The Pegatron subsidiaries named are Maintek Computer (Suzhou), Cotek Electronics (Suzhou), and Casetek Computer (Suzhou). Allegations in the report include excessive working hours for 10 weeks with no rest days, verbal abuse, absence of protective equipment for workers placed in hazardous environments, illegal charges for health check-ups, use of temporary workers above the legal limit to avoid giving out regular benefits, and ineffective trade unions (SACOM, 2013).
Governance	
Corruption, bribery, money laundering, fraud	Balfour Beatty has suspended three managers following an investigation into alleged inappropriate actions surrounding a GBP 480 million contract awarded by National Grid. As part of the contract, Balfour Beatty is conducting gas pipeline works in the West Midlands and the North East of the United Kingdom. According to Britain's General Union, the investigation is looking into allegations of corruption, fraud, and bullying (Macalister, 2014).
Compensation issues	Adidas has been criticized for paying compensation to workers from its bankrupt Indonesian supplier PT Kizone International more than 2 years after the workers were dismissed without pay. More than 2800 factory workers reportedly did not receive severance payments, and PT Kizone ended up owing the workers a total of US\$3.4 million (Clean Cloths Campaign, 2012).
Misleading communication	Critics allege that H&M's recent clothing recycling initiative is for the sake of profits, not sustainability. Together with its partner I Collect, the firm reportedly encourages its clients to hand in their old clothes in exchange for shopping vouchers. Critics not only doubt the environmental good the initiative claims to bring about but also fear that recycled garments are being shipped to Africa where they could negatively affect the business of local textile producers (Bian, 2016).
Anti-competitive practices	Bribery-related scandal of Apple's supplier Foxconn: former Foxconn employees accepted over US\$5 million in bribes from suppliers. In return, they promised that those suppliers would be awarded contracts, get better prices, and receive higher volumes (IndustryWeek, 2014).
Tax evasion, tax optimization	The Peruvian tax agency, Sunat, has announced that it is investigating Engelhard (bought by BASF) for tax evasion by buying gold from “wildcatters,” which are small individual miners who operate without permits (Henao & Velez, 2010).

(Continues)

Type of issue	Example
Combined issues	
Environmental: impact on ecosystems, governance: misleading communication	Activists have gathered outside 3M's headquarters to protest against the firm's alleged involvement in forest destruction and greenwashing. According to the protesters, 3M sources fiber from Domtar's mill in Dryden, Ontario, for which the supplier clears large areas of boreal forest, thereby threatening the endangered caribou. Critics further claim that the firm is using the Sustainable Forestry Initiative to greenwash the logging.
Social: poor employment conditions, governance: compensation issues	An Australian television program has documented several cases of alleged labor abuses by Bangladeshi suppliers of large Australian retailers such as Rivers, Coles, Target, and Kmart. According to two workers at a Rivers' supply factory in Bangladesh, workers were paid just US\$3 per day, expected to meet unrealistic production quotas, and faced with physical and verbal abuse if they failed (ABC News, 2013).

APPENDIX 2: THE WORLD MARKET MODEL

The world market model posits a linear relationship between the stock returns of a firm and the local market return, the world market portfolio return, and the exchange rate change, over a given estimation period, as shown in the ordinary least squares (OLS) regression equation (Park, 2004):

$$R_{ijt} = \alpha_i + \beta_i R_{mjt} + \gamma_i R_{wmt} + \delta_i X_{jt} + \varepsilon_{ijt} \quad (\text{A1})$$

where R_{ijt} is the stock return of a firm i in its home country j on day t , R_{mjt} is the market index return of country j on day t , R_{wmt} is the world market return on day t , and X_{jt} is the index of the foreign currency exchange rates in country j on day t . α_i is the intercept of the relationship; β_i , γ_i , and δ_i are specific parameters of firm i ; and the error term ε_{ijt} is the part of the return to stock of a firm i on day t , which cannot be explained by market stock movements. Following prior practice, we selected the largest and most widely quoted local indexes in international media outlets (Brown & Warner, 1980), to develop the following list:

Country	Index
Australia	ASX All Ordinaries Price Index
Austria	Austrian Traded Price Index
Belgium	Belgium 20 Price Index
Canada	S&P/TSX Composite Index
Denmark	OMX Copenhagen
Finland	OMX Helsinki
France	France CAC 40 Price Index
Germany	DAX 30 Price Index
Hong Kong	Hang Seng Price Index
Italy	FTSE MIB Index Price Index
Japan	Nikkei Average Index 225
Luxemburg	Luxx Price Index
Netherlands	Amsterdam Exchange Index
Norway	OSLO Stock Exchange OBX Price Index
Portugal	Portugal PSI-20 Price Index

Country	Index
Singapore	Stratis Times Index L Price Index
Spain	IBEX 35 Price Index
Sweden	OMX Stockholm
Switzerland	Swiss Performance Index
United Kingdom	FTSE All-Share Price Index
United States	MSCI Value Weighted USA Index

Given that our sample is composed of constituents of the Stoxx Global 1800 Index, we use this index as a proxy for the market portfolio R_{wmt} . As suggested by Park (2004), we ensure that the returns of the world market index are orthogonal to the local market indexes for all 21 countries, by subtracting the influence of the local market index from the world market index. Finally, following the practice of other studies, for the exchange rate, we use JP Morgan's nominal trade-weighted exchange rate indexes, which are calculated as a weighted average of foreign currencies where the weights reflect the foreign currencies' share in the export and import of the domestic country (Lundgren & Olsson, 2010).

To estimate the expected return for each firm, we calculate the predicted values $\hat{\alpha}_i$, $\hat{\beta}_i$, $\hat{\gamma}_i$, and $\hat{\delta}$, over the estimation period (A2). There is no consensus in the literature about the length and exact timing of the estimation window. Some studies use 100 days (Cox & Peterson, 1994), some use 200 (Flammer, 2013; Klassen & McLaughlin, 1996), and still others use 500 (Litvak, 2007). We use an event window of 200 days, starting from the 240th to the 41st day before the event $[-240, -41]$. To adjust for countries in different time zones, we lag the stock returns, the local and global market returns, and the changes in currency for 1 day for firms from Australia, Singapore, Hong Kong, and Japan, as recommended by Park (2004). Furthermore, to account for missing stock price data due to holidays, we remove the missing period and the succeeding day from the regression estimation, as recommended by prior studies (Brown & Warner, 1985; Park, 2004).

Based on the values $\hat{\alpha}_i$, $\hat{\beta}_i$, $\hat{\gamma}_i$, and $\hat{\delta}_i$, we then estimate the predicted return \hat{R}_{ijt} (A2). The difference between the predicted return and the actual return represents daily abnormal return AR_{ijt} (A3).

$$\hat{R}_{ijt} = \hat{\alpha}_i + \hat{\beta}_i R_{mjt} + \hat{\gamma}_i R_{wmt} + \hat{\delta}_i X_{jt} + \varepsilon_{ijt} \quad (\text{A2})$$

$$AR_{ijt} = R_{ijt} - \hat{R}_{ijt} \quad (\text{A3})$$

The common practice in event studies is to set the event date the same as the announcement date (Day 0). To capture possible leakage of information prior to and dissemination after the event announcement, which jointly constitute the event-date uncertainty (Brown & Warner, 1985), we chose a 3-day event window $[-1, +1]$. A narrow event window is desirable because it reduces the impact of confounding events (McWilliams & Siegel, 1997). We calculate the cumulative abnormal return CAR_{ij} for this event window as the sum of differences between the actual return of the firm and the predicted return for the event window (A4).

$$CAR_{ij} = \sum_{t=-1}^1 AR_{ijt} \quad (\text{A4})$$

To test the statistical significance of the difference between the expected and actual abnormal returns for a specific day, as well as the difference between cumulative actual and cumulative expected returns, we follow Brown and Warner (1985). To demonstrate the validity of the results, we also calculate the significance of the median abnormal return with the Wilcoxon signed-rank test (Wilcoxon, 1945) and the proportion of negative observations with the generalized sign test (Cowan, 1992).

APPENDIX 3: NACE CLASSIFICATION OF INDUSTRIAL SECTORS

NACE code	Sector
A1–A3	Agriculture, forestry, and fishing
B5–B9	Mining and quarrying
C10–C12	Manufacturing of food, beverages, and tobacco products
C13–C15	Manufacturing of textiles, wearing apparel, leather, and related products
C16–C18; C22; C31	Manufacturing of wood, paper, rubber, and glass materials and products
C20–C21	Manufacturing of chemicals and pharmaceutical products
C24–C25	Manufacturing of metal and metal products
C26–C28	Manufacturing of electronics, machinery, and equipment
C29–C30	Manufacturing of motor vehicles and transportation equipment
D35	Electricity, gas, steam, and air conditioning supply
F41–F43	Construction
G45	Wholesale, retail, and repair of motor vehicles and motorcycles
G46–G47	Wholesale and retail trade, except motor vehicles and motorcycles
H49–H53	Transportation and storage
I55–I56	Accommodation and food service activities
J58–J63	Information and communication
K64–K66	Financial and insurance activities
M74; N78–N82	Administrative and support service activities

Abbreviation: NACE, Nomenclature of Economic Activities.

APPENDIX 4: DESCRIPTIVE STATISTICS AND CORRELATIONS AMONG VARIABLES FOR THE FULL SAMPLE

	Mean	SD	Min	Max	1	2	3	4	5	6	7	8	9
1. CAR	-0.57	2.14	-12.90	10.71									
2. Influence potential	1.49	0.56	1.00	3.00	-0.19 (0.000)								
3. Severity	1.67	0.69	1.00	3.00	-0.02 (0.529)	-0.02 (0.307)							
4. Buyer country sustainability risk	16.64	4.46	1.00	36.33	-0.02 (0.479)	0.02 (0.399)	-0.04 (0.107)						
5. Buyer industry sustainability risk	35.71	8.47	10.25	59.17	0.06 (0.018)	-0.02 (0.331)	0.01 (0.681)	-0.02 (0.404)					
6. Prior SC sustainability spillovers	0.96	1.23	0.00	7.00	-0.01 (0.667)	0.01 (0.667)	-0.02 (0.437)	0.11 (0.000)	-0.09 (0.000)				
7. Market capitalization (ln)	24.58	1.26	20.82	27.20	0.00 (0.856)	0.06 (0.013)	-0.02 (0.326)	0.18 (0.000)	-0.14 (0.000)	0.13 (0.000)			
8. Return on assets (%)	9.69	7.61	-19.08	35.95	0.02 (0.344)	0.05 (0.039)	-0.02 (0.353)	0.03 (0.219)	-0.07 (0.003)	0.07 (0.004)	0.03 (0.000)		
9. Debt-to-equity ratio	0.87	10.42	-154.81	264.72	-0.01 (0.627)	0.02 (0.306)	-0.01 (0.742)	0.00 (0.904)	-0.03 (0.289)	0.00 (0.922)	-0.06 (0.009)	-0.01 (0.618)	
10. Market-to-book ratio	3.49	2.92	-24.26	14.84	-0.03 (0.272)	0.00 (0.964)	-0.05 (0.062)	0.03 (0.166)	-0.12 (0.000)	0.07 (0.003)	0.17 (0.000)	0.45 (0.000)	0.14 (0.000)

Note: $n = 1699$; CAR is cumulative abnormal return; SC stands for supply chain; p -values (two-tailed) are displayed within parentheses.

APPENDIX 5: JUXTAPOSITION WITH PREVIOUSLY PUBLISHED EVENT STUDIES ON THE IMPACT OF SUSTAINABILITY-RELATED TRANSGRESSIONS IN THE SUPPLY CHAIN

Criterion/ study	Jacobs and Singhal (2017)	Kim et al. (2019)	Kim and Wagner (2021)	This investigation
Type of events	The Rana Plaza disaster and announcements of the Accord on Fire and Building Safety in Bangladesh (AFBSB) and the Alliance for Bangladesh Worker Safety (ABWS)	Process- and product-related supplier sustainability transgressions	Process- and product-related supplier sustainability transgressions related to corruption	Process- and product-related supplier sustainability transgressions related to various environmental, social, and governance issues (see Table 2)
Hypotheses	<p>H1: The stock market reaction to the Rana Plaza disaster is negative for firms that source garments in Bangladesh.</p> <p>H2: The stock market reactions to announcements of AFBSB and ABWS are positive for AFBSB and ABWS signees.</p>	<p>H1: The stock market will react negatively to the announcement of supplier sustainability risks.</p> <p>H2: The stock market will react more negatively to the announcement of product-related risks than of process-related risks.</p> <p>H3: A firm's social performance will attenuate the market's negative reaction to the announcement of SSRs.</p> <p>H4: A firm's social performance will attenuate the market's negative reaction to the announcement of process-related risks more than of product-related risks.</p>	<p>H1: CRs in supply chains are associated with a negative stock market reaction.</p> <p>H2: Most of the negative stock market reaction will be captured close to the onset of CRs.</p> <p>H3: Upstream CRs are associated with a more negative stock market reaction than downstream CRs.</p> <p>N/A</p>	<p>H1: News concerning ESG-related transgressions originating from suppliers' operations negatively affect the stock price performance of the complicit buying firm.</p> <p>H2: The greater the influence potential of the information intermediary reporting about supplier sustainability-related transgressions, the more negative the impact on the stock price of the buying firm.</p> <p>H3: The greater the severity associated with supplier sustainability-related transgressions, the more negative the impact on the stock price of the buying firm.</p> <p>H4a,b: The lower the contextual (a. country; b. industry) sustainability risk of the buying firm, the more negative the impact on the stock price of the buying firm in the case of supplier sustainability-related transgressions.</p> <p>H4c,d: The lower the contextual (c. country; d. industry)</p>

Criterion/ study	Jacobs and Singhal (2017)	Kim et al. (2019)	Kim and Wagner (2021)	This investigation
				sustainability risk of the supplier involved in the transgression, the more negative the impact on the stock price of the buying firm in the case of supplier -sustainability-related transgressions.
Source of event data	Undisclosed	Wall Street Journal	Wall Street Journal	80,000 different news outlets
Language	English	English	English	English + 15 other languages
Time period	All three events took place in 2013	70% of events between 2005 and 2014	1984–2014	100% between 2008 and 2016; year 2007 used to control for the number of supply chain sustainability transgressions that each buying firm experienced 1 year prior to the event
Origin of firms	Publicly traded firms that signed the AFBSB and publicly traded firms that signed the ABWS within 60 days of April 24, 2023	Firms traded on US (New York, American, or Nasdaq) stock exchanges	Firms traded on US (New York, American, or Nasdaq) stock exchanges	North American, European, and Asian firms (members of the Stoxx Global 1800 Index)
Selection and exclusion criteria	25 firms that signed the AFBSB and 14 firms that signed the ABWS within 60 days of April 24, 2023.	18 confounding events during 2-day event window removed; subsequent events removed.	Only included events in which the government acts as a customer of goods or services. Concurrent events were eliminated but the number is unclear.	Exclusion of news articles related to a story after the initial announcement; elimination of events with confounding events becoming known on the day of the announcement, the day before, or the day after (e.g., declarations of dividends, announcements for expected mergers and acquisitions, engagement in government contracts or public-private partnerships, new product releases, lawsuits, unexpected earnings, changes in key executives, and other firm-specific sustainability-related issues); stock price data

(Continues)

Criterion/ study	Jacobs and Singhal (2017)	Kim et al. (2019)	Kim and Wagner (2021)	This investigation
				for the firm were available one full year before the announcement date and 3 days after the announcement date (retrieved from Thomson Reuters Datastream Economics); firm size and other financial figures of interest should be available (retrieved from the Worldscope database); to control for the number of supply chain sustainability transgressions that each buying firm experienced 1 year prior to the event, announcements from the year 2007 were excluded.
Number of firms with events	39 firms	196 firms	146 firms	374 firms
Number of events	3 events	156 announcements	285 announcements (315 events)	1699 events

Abbreviations: CRs, corruption risks; N/A, not applicable; SSRs, supplier sustainability risks.