

The Value of NGO Activism: Evidence from Sustainability Disclosures

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Abstract

We examine the implications of NGO activism around the world and their role as corporate watchdogs using novel data on NGO allegations about misleading or false corporate environmental and social claims (“E&S-washing”). These NGO campaigns primarily target large, visible firms in the consumer-facing or oil and gas industries, focusing predominantly on statements on how firms impact climate change, consumer health, and waste. NGOs target E&S-washing in customer-focused disclosures like advertisements, product labels, and packaging, which are unaffected by recent sustainability disclosure regulations. Stocks react with negative announcement returns to NGO allegations, especially when the alleged behavior concerns financially-material E&S issues. Negative media reporting also rises. NGO campaigns have real effects: Firms criticized for climate-related claims reduce their Scope 1 emissions, but this effect comes with a simultaneous increase in emissions in the supply chain. The corporate response arises, at least partially, because NGOs catalyze engagement by institutional investors.

Keywords: Sustainability disclosure, Greenwashing, ESG, NGOs, Carbon emissions

JEL Classifications: L31, M40, M41, M48, Q50, Q51

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ABSTRACT

We examine the implications of NGO activism around the world and their role as corporate watchdogs using novel data on NGO allegations about misleading or false corporate environmental and social claims (“E&S-washing”). These NGO campaigns primarily target large, visible firms in the consumer-facing or oil and gas industries, focusing predominantly on statements on how firms impact climate change, consumer health, and waste. NGOs target E&S-washing in customer-focused disclosures like advertisements, product labels, and packaging, which are unaffected by recent sustainability disclosure regulations. Stocks react with negative announcement returns to NGO allegations, especially when the alleged behavior concerns financially-material E&S issues. Negative media reporting also rises. NGO campaigns have real effects: Firms criticized for climate-related claims reduce their Scope 1 emissions, but this effect comes with a simultaneous increase in emissions in the supply chain. The corporate response arises, at least partially, because NGOs catalyze engagement by institutional investors.

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I. INTRODUCTION

With sustainability having emerged as a key theme in financial markets, a large body of research provides insights into whether and how institutional investors, financial intermediaries, regulators, or customers affect corporate environmental and social (E&S) policies, disclosures, and firm valuations (Christensen, Hail, and Leuz 2021; Starks 2023). Relative to this body of evidence, our understanding of the role and effects of activism by Nongovernmental Organizations (NGOs) on firms' sustainability performance and disclosure remains limited.

This dearth of evidence is surprising. In a global survey among sustainability experts, NGOs were identified as the single greatest contributors to sustainable development over the past decades, ranking ahead of financial institutions, institutional investors, or governments (GlobeScan 2019). In this paper, we examine a large international sample of NGO campaigns that target listed firms, shedding light on what the NGOs aim to achieve, whether their actions have financial implications, and whether they trigger changes in corporate behavior. We examine these questions in the context of allegations by advocacy NGOs, such as Greenpeace or Friends of the Earth, over misleading or false corporate claims about their environmental and social performance ("E&S-washing").¹ We use E&S-washing as an umbrella term to refer to the alleged misrepresentation of corporate E&S risks, practices, and impacts, aimed at making firms appear more favorable than they are.

Our focus on E&S-washing has multiple motivations. First, investors, employees, and customers increasingly consider firms' E&S characteristics when making investment, employment, or purchasing decisions (e.g., Balakrishnan, Sprinkle, and Williamson 2011;

¹ Advocacy NGOs typically pressure firms and governments to address market failures, such as negative externalities (e.g., carbon emissions) or information asymmetries (e.g., between firms and their consumers). On the contrary, service NGOs address needs that are not fully met by the market or the government (e.g., counseling, food, shelter, or medical treatment). Service NGOs typically do not campaign against firms and do not appear in our analysis.

Hartzmark and Sussman 2019; Christensen, De George, Joffre, and Macciocchi 2023; Beyer, Chaskel, Euler, Gassen, Grosskopf, and Sellhorn 2024). These decisions may be ill-informed if firms misrepresent their E&S performance. Second, regulators, standard setters, and assurance providers have only recently started to scrutinize E&S-washing, leaving a regulatory vacuum for years (SEC 2021; ESMA 2022; GRI 2022; IAASB 2023). Strikingly, financial market regulators have begun using NGO reports as a source of information to detect corporate E&S-washing (ESMA 2024). This reflects that, unlike most regulators or assurance providers, NGOs have been tracking firms' E&S practices and potential misconduct for decades, having accumulated substantial expertise to scrutinize E&S claims. For example, in 2023, the NGO Climate Action engaged TotalEnergies over misleading claims related to “climate-neutral” heating oil, after which the firm revised its advertising.² Thus, it appears important to provide a systematic analysis of the monitoring role of NGO activism for corporate sustainability disclosure.

Our analysis builds on novel data covering 1,212 allegations made by 329 NGOs against 287 listed firms from 24 countries between 2011 and 2022. Identifying E&S-washing poses challenges for NGOs and researchers alike, given the myriad of claims that firms make across various communication channels. We therefore do *not* aim to verify whether the E&S-washing allegations, as made public by the NGOs, are justified; instead, we focus on their determinants and impacts. That being said, the NGO allegations are likely credible and substantiated, given the near absence of defamation lawsuits against NGOs and their allegations in our sample.³

² NGOs use multiple channels to engage with firms: they discuss perceived corporate wrongdoing privately with firms, conduct public shaming campaigns in which they use the media as a pressure tool, file shareholder proposals, alert regulatory agencies, or sue firms for their wrongdoing (e.g., Hoepner and Li 2021).

³ To assess whether some NGO accusations were false, we examined each allegation by hand—using web searchers, litigation databases, and contacts at NGOs—to identify cases where NGOs have been found wrong or were sued. We identified only one such case. Resolute Forest Products sued Greenpeace for defamation and RICO violations over its criticism of the firm's forestry practices and impact on climate change. In 2019, a court dismissed most of Resolute's claims, finding that the NGO's statements were protected under anti-SLAPP law.

In our first set of analyses, we provide a comprehensive anatomy of NGOs’ allegations. 46 percent of all allegations target firms in the U.S., followed by France (12 percent) and the UK (9 percent). The most frequently identified E&S-washed claims relate to firms’ impacts on climate change (30 percent), consumer health benefits (22 percent), and waste handling (11 percent). More than half of all alleged E&S-washing occurs in disclosure channels targeted at customers and consumers, such as product labels and packaging or advertisements. This is important to document as the switch by customers from less to more sustainable products or firms is viewed as a critical market mechanism through which firms are incentivized to improve E&S performance (Bénabou and Tirole 2010; Darendeli, Fiechter, Hitz, and Lehmann 2022; Christensen et al. 2023; Leonelli, Muhn, Rauter, and Sran 2025; Meier, Servaes, Wei, and Xiao 2025). If customers act on misrepresented information, this mechanism may not work. In addition, customer-focused disclosure channels are not subject to scrutiny under typical sustainability reporting regulations.

According to the NGOs, firms misinform the public most frequently through misleading or outright false statements or actions that contradict previously made promises, such as financing a new coal-fired power plant after a net-zero pledge. Most allegations are genuinely based on NGOs’ own information acquisition, such as laboratory tests or their own investigations (NGOs piggyback on other stakeholders’ public allegations in 11 allegations only).

NGOs are more likely to target firms that are more visible to investors and the public, that is, firms that are larger, have higher valuations, exhibit greater press coverage, and are consumer-facing. The latter finding squares with our evidence that firms often E&S-wash in consumer-focused disclosures. NGOs more frequently target firms whose environmental impacts are salient, such as oil and gas companies or high carbon emitters in general. This selection likely reflects that NGOs try to maximize public attention to their campaigns, but also that highly visible firms—and

those with the largest E&S impacts—have stronger E&S-washing incentives. Consistent with the latter motive, NGOs tend to target firms whose executive pay is tied to E&S metrics.

In the second set of analyses, we examine whether, and when, NGO campaigns trigger stock market reactions at target firms. We document negative abnormal returns when E&S-washing allegations are released, which are particularly pronounced if NGOs allege washing of *financially-material* environmental issues.⁴ Returns decline by a market-adjusted 0.34 percent over the three-day window centered around the announcement of an E&S-washing allegation on average, but are another 50bp more negative for allegations of financially-material E-washing. This market reaction is meaningful. It compares, for example, to market-adjusted returns of -1.58 percent around news that firms were charged over violations of environmental regulations (Karpoff, Lott, and Wehry 2005), which constitute much more severe events.

The valuation declines indicate that investors worry about future reputational and legal costs, or that regulators take actions based on the allegations.⁵ In addition, they may reflect a consumer backlash that is triggered by the NGO allegations. Indicating suggestive evidence in support of this channel, we find a decline in operating performance for firms facing E-washing allegations. Consistent with the financial market reactions, we document an increase in *negative* media coverage after the allegations, which is also more pronounced if the allegations are over financially-material E&S issues.

In the last set of analyses, we examine the corporate response to E&S-washing allegations. As a starting point, we consider press responses. Firms react to the allegations in only 10 percent of

⁴ Financially material are those E&S issues that likely affect future revenues, costs, or risk according to the industry-specific materiality map by the Sustainability Accounting Standards Board (SASB). The SASB's materiality map that we use has also been employed by Serafeim and Yoon (2022) or Bochkay, Hales, and Serafeim (2025), among many others, and can be found on SASB's website (<http://sasb.s3-website-us-east-1.amazonaws.com>).

⁵ A report by ESMA (2024) indicates that concerns over regulatory actions in response to NGO allegations are plausible. An example of reputational and legal costs is Lululemon, which faces a class action lawsuit alleging that its "Be Planet" campaign misleads consumers as the firm's emissions doubled since the campaign launched.

the cases, consistent with a public relations strategy of remaining silent to not raising further attention, a practice that is well-documented for other types of allegations (e.g., Brendel and Ryans 2021). When firms do respond, they are less likely to concede when the accusations involve financially material E&S issues.

We then turn to firms' operational responses, which are more challenging to examine as they require identifying actions related to the source of the allegations (e.g., it is hard to identify actions when claims are over animal welfare). We can conduct such an exercise when firms are criticized for washing their impacts on climate change ("climate-washing").⁶ We examine whether firms reduce their carbon emissions after climate-washing allegations, potentially to better align their real activities with previous sustainability claims. Our estimates suggest that NGO campaigns have real effects: Scope 1 emissions decline by 12 percent, and emission intensities by 7 percent, after NGOs voice their climate-washing allegations (relative to firms without allegations). NGO campaigns also lead to Scope 2 emission declines. Notably, it appears that firms achieve the decrease in Scope 1 and 2 emissions by moving emissions in the supply chain: we estimate that the Scope 1 and 2 reductions in response to NGO allegations are entirely compensated by a simultaneous increase in Scope 3 emissions. These results point to subtle—potentially unintended—consequences of NGO activism. Our effects of NGO activism are related to recent evidence by Duchin, Gao, and Qu (2025), who document that firms that face environmental pressure divest polluting plants to buyers with supply chain or joint venture relationships.

The corporate response we identify seems to arise—at least partially—because NGOs catalyze engagement by institutional investors. Conceptually, climate-washing allegations can trigger engagement action by investors either directly, leading investors to engage portfolio firms in

⁶ Climate-washing allegations make up more than 60% of all E-washing allegation and constitute the single most frequent E&S allegation topic.

response to the allegations, or indirectly, with NGOs pressuring investors to address the alleged issues with their portfolio firms. For example, in 2022, over 100 NGOs have launched the “Vanguard S.O.S.” campaign, which pressures the asset manager to support climate action among portfolio firms in fossil fuels and related industries. NGOs and investor groups may also collaborate to engage firms (Reid and Toffel 2009).

Consistent with these channels, the Scope 1 and 2 emission reductions are stronger among firms with high ownership by climate-conscious institutions. We follow Ilhan et al. (2023) and consider as “climate-conscious” those investors who are subject to sustainable investing stewardship codes in their home countries and have been shown to exhibit more climate-related engagement.⁷ The compensating increase in Scope 3 emissions is also concentrated among firms with high ownership by climate-conscious institutions.⁸

With the limitation that our research setting does not lend itself to exogenous shocks, this study contributes to the nascent E&S-washing literature, which focuses mostly on a specific disclosure medium and examines a particular type of E&S-washing. Hail, Kim, and Zhang (2021), Chava, Du, and Malakar (2021), and Dzielinski, Eugster, Sjöström, and Wagner (2024) examine greenwashing in earnings calls. Marquis, Toffel, and Zhou (2016) and Grewal, Richardson, and Wang (2024) show that firms selectively disclose smaller negative E impacts while omitting larger ones. Other studies focus on the S component by finding, for example, that firms disclose diversity commitments opportunistically or incorrectly (Baker, Larcker, Wang, McClure, Saraph, and Watts 2024; Bailey, Glaeser, Omartian, and Raghunandan 2025). Raghunandan and Rajgopal (2024)

⁷ Ilhan et al. (2023) show that firms with higher ownership by investors subject to stewardship codes provide better climate-related disclosures. Shiraishi, Ikeda, Arikawa, and Inoue (2022) find that stewardship codes enhance the monitoring by investors, and Bonacchi, Klein, Longo, and Strampelli (2022) show how compliance with the UK’s stewardship code improves the sustainability performance of portfolio firms.

⁸ Further corroborating the presence of a catalyst role by NGOs, the negative return response to E&S-washing allegations is amplified among firms with high stewardship ownership. Hence, some climate-sensitive institutions sell their shares in response to the accusations. Hence, catalyst effects of NGO campaigns materialize along the “voice” (engagement) as well as “exit” (divestment) dimension.

show that signatories of the Business Roundtable’s “Statement on the Purpose of a Corporation” do not engage in stakeholder-centric practices. We differ from this literature by providing, from the perspective of NGOs, an anatomy of the specific E&S issues that firms wash, the disclosure outlets in which E&S-washing occurs, the presentation or obfuscation styles through which firms E&S-wash, and the financial and real consequences thereof. NGO scrutiny complements regulatory efforts by targeting a wider range of disclosures (e.g., product labels, advertisements, PR campaigns) than financial regulators typically assess, which is important since customer-focused disclosures influence investor decisions as well (Madsen and Niessner 2019). Second, much E&S-washing appears aimed at customers, undermining market incentives for sustainability, as consumers rely on misleading product labels or ads rather than formal reports. This suggests consumer protection agencies, not just sustainability reporting standards, play a crucial role in combating E&S-washing.

We also contribute to the literature on the forces that shape firms’ E&S practices. Several studies in this area have documented the treatment effects of institutional investors, establishing that greater institutional ownership is related to improvements in E&S performance, measured using ESG ratings (e.g., Dyck, Lins, Roth, and Wagner 2019), carbon emissions (Azar, Duro, Kadach, and Ormazabal 2021), or climate disclosures (e.g., Ilhan, Krueger, Sautner, and Starks 2023; Cohen, Kadach, and Ormazabal 2023). Our study adds to this work by proposing NGO campaigns as a source of information and catalyst for investor engagement.

Finally, we add to the literature on the monitoring role of NGOs. Dyreng, Hoopes and Wilde (2016) show that a campaign by the NGO ActionAid pressured FTSE 100 firms to comply with a tax rule requiring disclosure of subsidiary locations. Bonetti, Leuz, and Michelon (2024) show that fracking operations forced to disclose water pollutants reduce pollution more if they are under greater scrutiny by NGOs. Rauter (2020) finds that natural resources companies forced to disclose

extraction payments to foreign governments increase payments to host governments more if previously targeted by an NGO shaming campaign. We contribute to this work by providing direct and detailed evidence in a large international sample on the anatomy of NGO campaigns that allege corporate E&S washing and how they are related to financial and real outcomes.

II. BACKGROUND AND PREDICTIONS

Determinants of NGO E&S-washing allegations

An NGO's decision to engage a firm over E&S-washing concerns depends on various factors. A typical prerequisite is that information emerges about potential wrongdoing from public sources, consumers, or whistleblowers. Additionally, NGOs may rely on laboratory tests of products or undercover operations. Target selection might also be influenced by economic incentives because an NGO's reputation and visibility help attract donations or labor. How much attention a campaign raises depends on the visibility of the target, which should increase in firm size, market value, and media coverage. Visibility should also be greater if a target serves end customers (Servaes and Tamayo 2013) or operates in an industry with greater and more salient E&S impacts, such as oil and gas (Desai, Lam, Li, and Rajgopal 2023).⁹ Visible firms and those with the most adverse E&S impacts may also have the strongest E&S-washing incentives. This leads to the following confirmatory prediction:

H1: NGOs are more likely to target visible firms.

Stock market response to NGO E&S-washing allegations

If NGO scrutiny of E&S claims is economically important, financial markets should react to the allegations. Investor responses likely depend on the potential impact of the allegation on a

⁹ By targeting firms with large and visible E&S impacts, NGOs may direct their limited resources to areas where they can facilitate the largest societal benefits. NGO criticism of large firms' E&S claims may also incentivize smaller peers to improve their own practices (Rowley and Berman 2000).

firm's financial prospects and reputation. If an allegation shapes the perceptions of customers or employees, future cash flows may be impaired, leading to a lower valuation. In addition, the allegations can trigger regulatory actions or lawsuits that reduce cash flows and increase uncertainty.¹⁰ NGO campaigns are likely more impactful if they address issues that are financially material to the target, that is, issues that significantly affect revenues, costs, or risk. Because they usually link to a firm's core activities, allegations related to financially-material issues should have a greater impact on the perceptions and actions of key stakeholders (e.g., customers and employees). This leads to the following prediction:

H2: Stock returns react negatively to NGO E&S-washing allegations, especially if the allegations are over financially-material issues.

Media response to NGO E&S-washing allegations

Reactions by the media, especially negative ones, are also important for the question of whether NGO scrutiny is effective. Media coverage can provide credibility to NGO allegations, and the media can help disseminate allegations. Media coverage of NGOs has also increased strongly (Yaziji and Doh 2009), with NGOs strategically engaging the media to exert pressure on firms (Dale 1996; Deegan and Islam 2014; Powers 2014; Couttenier and Hatte 2016). NGOs also constitute a news source for the media (Fenton 2009). As with stock return reactions, NGO campaigns are likely to create more negative news if they allege misrepresentation of E&S issues that are financially material. Hence, we predict:

H3: The news media react negatively to NGO E&S-washing allegations, especially if the allegations are over financially-material issues.

Corporate responses to NGO E&S-washing allegations

¹⁰ Businesses that engage in E&S-washing or violate sustainability laws increasingly face fines. Some of the highest fines were paid by Volkswagen (\$34bn) and Toyota (\$150m). Reputation damage can greatly exceed these fines.

The question of whether NGO scrutiny of E&S claims creates value also calls for an examination of corporate reactions. One form of corporate response is through a press release. Targets may reply in a conceding or confrontational manner. Concessions may involve promises to eliminate E&S-washing or actions to improve E&S practices, especially when the allegations cover financially-material issues and are from influential NGOs. Alternatively, targets may ignore the allegations to avoid attracting attention or signaling that the allegation is important (Brendel and Ryans 2021; Wu and Liu 2023).¹¹ Firms likely face greater pressure to respond through a press release if the allegation involves financially-material issues as in such cases investors and other stakeholders likely consider them as more fundamental.

H4: The corporate press response to NGO E&S-washing allegations is stronger for financially-material allegations.

A further response is that targets change their real operations to better align their business activities with the E&S claims. Examining real responses in our setting is challenging as the allegations are over a wide range of E&S issues, many of which are hard to identify and measure using archival data. To still obtain insights into the real effects of NGO activism, we exploit that more than 350 allegations are over climate-washing. Such allegations relate to misleading or false claims over corporate actions concerning climate change, for example, emission pathways that are clearly inconsistent with carbon pledges. Focusing on such climate-washing allegations, we test whether carbon emissions decline after NGO allegations:

H5: Carbon emissions decline after climate-washing allegations by NGOs.

Interplay between NGOs and institutional investors

¹¹ An example for a response was when in 2011 Greenpeace accused Adidas of E&S-washing regarding its commitment to detox the supply chain. The NGO claimed that Adidas failed to provide people with details about the uses and discharges of hazardous chemicals to the environment (at the facility-year level). Additionally, Greenpeace criticized the firm for committing to phasing out only one type of PFC by 2015. Adidas responded directly by acknowledging some of the concerns raised by Greenpeace. However, it disagreed with other claims and emphasized that it had been working for years to reduce and gradually eliminate hazardous chemicals from the supply chain.

Institutional investors and NGOs may engage in intricate relationships, with NGOs advocating for responsible corporate practices and investors responding with “exit” or “voice” to the stated allegations. As institutional investors vary in their background and incentives, we expect that any corporate response is more likely when a firm’s shareholders have stronger E&S preferences. Following Ilhan et al. (2023), we infer such preferences by considering institutional investors that are subject to stewardship codes; such codes are designed to enhance corporate sustainability, and institutional investors bound by them should be more attentive to E&S issues at portfolio firms.

In terms of exit, a prediction is that investors subject to stewardship codes are more likely to divest from firms accused of E&S washing (e.g., because their E&S screens signal exit):

H6a: The stock return reaction to NGO E&S-washing allegations is stronger at firms with higher institutional ownership subject to stewardship codes.

For voice, those stewardship owners who remain invested (e.g., for indexing reasons) may leverage their influence to demand operational changes. To examine this possibility, we consider whether climate-washing allegations trigger second-round effects by institutional investors, whereby the NGO campaigns catalyze engagement by institutional investors. This effect can arise either directly—if attention over climate-washing triggers engagement—or indirectly, through NGO pressure on investors to address climate-washing with their portfolio firms. NGOs and investor groups may also collaborate to engage firms jointly. Hence, we predict:

H6b: Carbon emissions decline more strongly after climate-washing allegations in firms with higher institutional ownership subject to stewardship codes.

III. DATA AND SAMPLE

NGO data and sample

We obtain data on NGOs’ E&S-washing allegations from SigWatch, a data analytics firm specializing in monitoring and analyzing NGO activism campaigns. SigWatch has built a unique

dataset that covers about 11,000 activist groups worldwide in over 75,000 campaigns involving over 20,000 target firms since 2011. The data are sourced from public sources, including NGO websites, their press releases, and research reports. For each NGO campaign, SigWatch provides information on the NGO and the target firm, a summary of the allegations, and web links to the source documents. Clients of SigWatch include institutional investors interested in assessing their (or their portfolio firms') reputation risks related to NGO campaigns, but also audit and consulting firms, the OECD, and academics.¹²

We focus on NGO campaigns that allege E&S-washing, which we define as situations where—according to an NGO—a corporate statement or claim portrays a firm's E&S risk, practice, or impact more favorably than it is. To identify allegations, we search the SigWatch database and read the reported information about the nature of all NGO campaigns. We then classify each identified E&S campaign according to the issue that is arguably E&S-washed.

To construct our sample, we require that the target firms of the campaigns are publicly listed, publish sustainability reports according to the Corporate Register database, and have nonmissing data on control variables. This provides us with 1,212 unique E&S-washing allegations against 287 firms between 2011 and 2022. Figure 1 plots the number of allegations over time. An interesting feature is that E-washing allegations have increased sharply since 2018, whereas S-washing allegations declined.¹³ Figure 2 reveals that 46 percent of the allegations target firms in the U.S., followed by France (12 percent), the UK (8 percent), Switzerland (7.5 percent), and Germany (5 percent). (The U.S. dominance may reflect that the country has the most listed firms and NGOs in the world.)

¹² Koenig (2017) provides a detailed description of the SigWatch data.

¹³ The spike in 2015 is related to the firms' responses to the signing of the Paris Agreement and revelations that oil and gas companies knew about climate change much earlier than they admitted.

Table 1, Panel A, lists firms targeted at least ten times during the sample period. The top-3 include Nestlé (77 allegations or 6.4 percent of the sample), Coca-Cola (70 cases or 5.8 percent), and Mondelez (48 cases or 4 percent). While the top-3 contains only consumer goods firms, the top-10 includes multiple firms in oil and gas, such as ExxonMobil or BP. In Table 1, Panel B, we list NGOs that made at least ten allegations.

Other data sources

To identify financially-material allegations, we rely on the industry-specific materiality map developed by SASB (Bochkay et al. 2025; Matsumura, Prakash, and Vera-Muñoz 2022; Serafeim and Yoon 2022).¹⁴ According to SASB, financially-material issues generate substantial interest from various user groups (e.g., shareholders) and impact a firm’s revenues, costs, or risks. Using a dictionary that identifies material E&S topics by industry (Bochkay et al. 2025), we perform a fuzzy match between allegation topics and keywords of material SASB industry topics. *Material E-Washing Allegation* equals one if an NGO alleges E-washing of a material E topic, and zero otherwise. *Material S-Washing Allegation* is defined accordingly (Appendix A lists definitions).

Using RepRisk data, we calculate the growth rate in the number of *negative* E and S news articles about a target from three days before to three days after an allegation (Δ *Negative E&S News*). We also use RepRisk data on prior negative E&S news coverage (*Prior Negative E&S News*). We bifurcate these E&S measures into E and S dimensions. We proxy for general media coverage (*News Articles*) using data from Ravenpack. Data from SigWatch allows us to measure an NGO’s reach and impact (*NGO Influence*), with higher values indicating more influence through greater and more international operations or coalitions (Hatte and Koenig 2020).

¹⁴ The degree of materiality is assessed based on keyword searches of publicly available corporate documents, which reveals how often a particular E&S issue arises in a certain industry. The economic impact of these issues is then assessed by evaluating whether management (or mismanagement) of them affects analysts’ and investors’ valuations.

From SigWatch and Factiva, we collect data on target firms' PR responses. *Corporate Press Response* equals one for campaigns to which a target responds in the press (within two months), and zero otherwise. We split the measure according to the kind of media response, that is, whether the target denies the allegations (*Press Response Resistance*) or concedes partially (*Press Response Concession*). *Allegation Sentiment* reflects the sentiment of the allegations and is from SigWatch.

We use Trucost data on firms' Scope 1,2, and 3 carbon emissions and emission intensities. Data on the fraction of shares held by institutional investors (*IO*) is from FactSet. Following Ilhan et al. (2023), *Stewardship IO* is the number of a firm's shares owned by institutional investors subject to stewardship codes, scaled by all shares held by institutional owners.

Measures of firm characteristics, such as firm size (*Assets*) or valuation (*Tobin's Q*), are from Worldscope. We identify firms' industries (*Consumer Goods*, *Consumer Services*, *Oil & Gas*) using Industry Classification Benchmark (ICB) codes. Based on data from Corporate Register, we identify whether firms follow Global Reporting Initiative (GRI) standards when preparing sustainability reports (*GRI Standards*), and whether these reports are externally assured (*Assurance*). From Bloomberg, we obtain data on the amount of E&S information that firms disclose (*E Disclosure Score* and *S Disclosure Score*). Using data from Refinitiv, we consider whether firms link executive pay to E&S dimensions (*E&S Comp*). Summary statistics at the allegation level are reported in Internet Appendix A, Panel A.

IV. ANATOMY OF NGOS' E&S-WASHING ALLEGATIONS

E&S issues that NGOs criticize as E&S-washing

We list in Table 2, Panel A, the E&S topics that NGOs claim are E&S-washed, and how many of them are classified as financially material. The 1,212 campaigns in the sample are split evenly between E (49.2 percent) and S (50.8 percent) issues. On the E side, firms are most frequently criticized for E&S-washing their risks, practices, or impacts concerning climate change (30.2

percent of all allegations); most of these allegations (90 percent) cover financially-material topics. Climate-washing allegations are followed by allegations over waste- (11.2 percent) and biodiversity-related (3.4 percent) issues. On the S side, allegations are often related to consumer health (22 percent), but they also cover animal welfare (4.1 percent) or employee rights and safety (3.6 percent). The list of topics shows that many allegations are directly or indirectly linked to consumers, indicating that E&S-washing can undermine consumers switching from less to more sustainable firms (e.g., when firms portray themselves as greener than they are). As argued by Bénabou and Tirole (2010), the sensitivity of consumer action to E&S practices is a key channel through which corporate sustainability practices influence financial performance.

We can identify the precise sources of information underlying the allegations for 41 campaigns only. In six cases, the source is academic research, in one case consumer-submitted data, in three cases independent research, in 23 cases leaked firm-internal documents, in five cases lab tests, in one case NGO supporters and activists, and in two cases undercover film material.¹⁵ In 287 campaigns, two or more NGOs target the same company. NGOs piggyback on others' public allegations in only 11 campaigns. Further, in 218 campaigns, the NGOs announce that they file complaints with regulatory bodies or government agencies, and in 85 campaigns, they announce plans to sue firms. When analyzing enforcement actions based on CapitalIQ data, we can only identify 12 sample firms that faced E&S-related enforcement actions during the sample

¹⁵ An example is GMO Free USA/Toxin Free USA, who sued CoverGirl Cosmetics and Coty Inc. for allegedly making false claims about product safety and sustainability, citing a study that found high levels of organic fluorine, indicative of PFAS, in tested cosmetic products, contradicting CoverGirl's marketing and Coty's sustainability claims. In another example, Amnesty International urged the Nigerian government to re-open investigations into oil spills, presenting evidence of negligence by Shell and Eni, including delays of up to a year and false information about the causes and extent of spills, potentially preventing affected communities from receiving compensation. The underlying data was collected by supporters and analyzed by its Decoder Network. In another campaign, Observatoire des Multinationales and BASIC obtained information through a thorough analysis of public data from the ten major French firms sponsoring the COP21 climate talks, reviewing their sustainability reports and emissions disclosures. They also gathered data from third-party assessments and conducted surveys to evaluate the transparency and coherence of the firms' carbon emission reporting. Additionally, the NGOs analyzed industry practices and benchmarks to assess the firms' compliance with EU carbon reduction objectives and their strategies for managing emissions in the value chain.

period. Only one of these cases relates to an allegation in our sample (the other cases relate to enforcement actions that are either not E&S-related or were not triggered by NGO allegations). Concerning legal action, we observe no significant immediate increase in E&S-related lawsuits in CapitalIQ after NGOs voice their allegations.¹⁶ Given such limited legal action, whether NGO campaigns are effective in influencing investors and target firms is an empirical question which we address later.

Presentation and obfuscation styles that NGOs criticize as E&S-washing

We manually identify the obfuscation styles through which firms allegedly E&S-wash. Table 2, Panel B, shows that NGOs most frequently (36.4 percent of allegations) allege that firms make misleading claims about their E&S risks, practices, or impacts. An example is an energy firm claiming to focus on renewable sources while 95 percent of its investments are in oil and gas exploration. The second-most prominent style (13.8 percent) is “talk vs. action,” which are cases where firms’ practices are arguably inconsistent with public promises. Next, in 13.4 percent of the campaigns, NGOs allege that firms make outright false statements.

Disclosure channels in which NGOs identify E&S-washing

Our analysis of disclosure outlets suggests that most E&S washing is targeted at customers and consumers. Table 2, Panel C, shows that in 25.3 percent of the campaigns, product labels or packaging are identified as containing E&S-washing. A similar category is E&S-washing of other product information (13.3 percent), most of which relates to S issues. Two related categories are advertisements (23.1 percent) and PR campaigns (13.3 percent). Evidence that customers and consumers increasingly base their purchasing decisions on firms’ E&S performance information

¹⁶ However, we note that CapitalIQ collects data only from English-language-based sources, including stock exchanges, company websites, call transcripts, press releases, and articles, which may underreport the number of litigation incidents. To end up in the database, lawsuits and legal issues have to be brought before a court against a company. Firms though have incentives to settle early to avoid having bad news events related to the NGO allegations.

may explain why firms have incentives to E&S-wash in these disclosure outlets (e.g., Darendeli et al. 2022; Christensen et al. 2023). Notably, only 0.5 percent and 0.6 percent of allegations target sustainability and financial reports. Thus, NGO scrutiny of customer-focused E&S disclosures may complement sustainability reporting regulation and assurance, which focuses on sustainability and financial reports but not on product labels and packaging or advertising campaigns.

Determinants of NGOs' E&S-washing allegations

To understand how NGOs select targets, we estimate regressions that identify the antecedents of NGOs' E&S-washing allegations. This allows us to test whether NGOs are more likely to target visible firms (H1). To conduct this test, we create a control group of *potential* NGO targets that are similar to the NGO targets but were not engaged (we use this control group also in other tests). We create the control group in four steps. First, to identify *potential* NGO targets, we use all listed firms in the SigWatch database that have been targets of NGO activism unrelated to E&S-washing. Second, we supplement this set of firms with listed firms that are not in SigWatch but rank among the largest firms in their countries.¹⁷ Third, we restrict the sample to firms that have filed sustainability reports according to the Corporate Register database. This ensures that control firms provide a substantial amount of E&S information, which affects the likelihood of being targeted for E&S-washing. Fourth, we restrict the sample to firms with firm fundamentals in Worldscope.

Together with the treatment group of firms subject to E&S-washing allegations, this leads to an unbalanced panel of 11,020 firm-years from 2011 to 2022 of which 664 firm-years are subject to E&S-washing allegations, while 10,356 are not.¹⁸ The number of firms is 1,653, of which 287

¹⁷ Large firms as they are more likely targets of NGOs (Daubanes and Rochet 2019). To account for differences in NGO activity across countries, we determine the number of firms *per country* based on the proportion of firms in a country targeted by NGOs for any kind of E&S misconduct according to SigWatch data. For example, the proportion of U.S. firms in SigWatch is about 37%, hence 37% of the firms pulled from Worldscope are U.S. firms.

¹⁸ In Internet Appendix A, Panel B, we provide statistics at the firm-year level for firms in the treatment and control group. Some variables differ across firm-years with and without allegations, making it important to control for them in regressions. On the right side of Panel B, the means for *E-Washing* and *S-Washing* do not sum to one because a firm can be subject to different NGO campaigns in a year. *Climate-Washing* is a subset of *E-Washing*.

firms (1,366 firms) are in the treatment (control) group. Sample sizes in the analyses below are smaller than 11,020 due to differences in data availability for specific variables across regressions. We then estimate variants of the following OLS models for firm i in year t among the set of treatment and control group firms (results are almost identical for a logit model):

$$\begin{aligned} Allegation_{i,t} = & \Phi Industry_i + \beta \text{Ln}(\text{Assets})_{i,t-1} + \eta \text{Tobin's } Q_{i,t-1} + \theta \text{Ln}(\text{News Articles})_{i,t-1} \\ & + \Omega \text{Controls}_{i,t-1} + \alpha_{\text{Country}} + \alpha_t + \varepsilon_{i,t} \end{aligned} \quad (1)$$

where *Allegation* indicates different types of E&S-washing allegations. The baseline specification uses *E&S-Washing*, which equals one if a firm experiences any E&S-washing allegation in year t (treatment group), and zero otherwise (control group). In other specifications, we use indicators for *E-Washing*, *S-Washing*, or *Climate-Washing*. To test H1, we include a series of variables in Eq. (1). *Industry* is a vector of three indicators that each equal one if a firm operates in consumer goods, consumer services, or oil and gas, respectively. $\text{Ln}(\text{Assets})$, *Tobin's Q*, and $\text{Ln}(\text{News Articles})$ reflect a firm's size, equity valuation, and media prominence. *Controls* is a vector of control variables at the firm-year level. α_{Country} and α_t represent country and time fixed effects. Industry fixed effects are not included because they are collinear with *Industry*. Standard errors are clustered at the firm level.

The results in Table 3 support H1: the likelihood of E&S-washing allegations is higher for more visible firms, that is, for firms that are consumer-facing (*Consumer Goods*; *Consumer Services*), in oil and gas (*Oil & Gas*), larger ($\text{Ln}(\text{Assets})$), more valuable (*Tobin's Q*), and covered by more news ($\text{Ln}(\text{News Articles})$). In columns 1–2, firms in *Consumer Goods* have a 10pp higher allegations rate, which originates from 4pp more E (columns 3–4) and 8pp more S (columns 5–6) allegations. *Consumer Services* firms, likewise, face 5 to 6pp more E&S-washing allegations (columns 1–2). While *Consumer Goods* firms see more climate-related allegations, this is not the

case for *Consumer Services* firms, presumably because they have a smaller carbon footprint (columns 7–8). The greater incidence of E&S-washing allegations among consumer-facing firms is consistent with the results in Table 2, Panel C, that NGOs identify E&S washing predominantly in disclosures that are targeted at customers and consumers.

In columns 1–2, *Oil & Gas* firms face 7 to 8pp more E&S-washing allegations, originating—as would be expected from the sector’s large carbon footprint—from more climate allegations (columns 7–8). Larger firms and firms with more news face more allegations across all E&S-washing types. A doubling in the number of news articles leads to a 1.2pp increase in the likelihood of an E&S-washing allegation (column 1). Firms with higher valuations are more likely to receive most types of E&S-washing allegations, except climate-related ones.

Turning to the control variables, E&S-washing allegations are less likely in firms with higher ownership by investors subject to stewardship codes, with the effect originating mostly from fewer S allegations.¹⁹ Preparing sustainability reports following the GRI standards, or purchasing assurance for these reports, is unrelated to allegations; this is unsurprising given that NGOs do not focus on such reports.²⁰ In columns 2, 4, 6, and 8—which include additional controls that reduce the sample size—having E&S metrics in executive pay is associated with a 3.5pp increase in the allegation rate.²¹ S-washing allegations are *more* common among firms disclosing more S information, and climate-washing allegations are more likely among high-carbon emitters.

¹⁹ This relation may result from a selection or influence effect. According to the former effects, institutions that are required to address sustainability issues to fulfil their commitments from stewardship codes avoid investing in firms prone to potential E&S-washing. According to the latter effect, such institutions may monitor firms to prevent E&S-washing.

²⁰ That said, the nonresult indicates that the potential benefits from adhering to GRI standards and purchasing assurance may not spill over from sustainability reports to firms’ other E&S communications. In addition, it is inconsistent with the notion that NGOs perceive sustainability report assurance as a credible signal of firms’ commitment to transparent E&S reporting (Simnett, Vanstraelen, and Chua 2009).

²¹ This result is inconsistent with E&S-based executive pay acting as a credible signal of firms’ commitment to their E&S promises (Cohen, Kadach, Ormazabal, and Reichelstein 2023). We relate *E&S Comp* to *E&S-Washing* but not to *E-Washing*, *S-Washing*, or *Climate-Washing* because we are unable to tell which firms use E or S metrics (or both).

V. STOCK MARKET AND MEDIA REACTIONS TO NGO ALLEGATIONS

Stock market reaction to NGOs' E&S-washing allegations

H2 predicts that stock markets react negatively to NGO E&S-washing allegations, especially if these allegations cover financially-material issues. To test this prediction, Table 4, Panel A, reports three-day, buy-and-hold market-adjusted returns from the day before to the day after the publication of an NGO allegation (*Stock Market Reaction*). We observe a negative unconditional return of -0.34 percent over the three-day window centered on the E&S-washing allegation date (t -statistic of 3.82). However, the magnitude of the response is modest, possibly masking variation across allegations in terms of the financial materiality of the allegations, as predicted in H2. Thus, we estimate regressions for allegation a at firm i in year t :

$$\begin{aligned} \text{Stock Market Reaction}_{a,i,t} = & \beta_1 \text{Material E-Washing Allegation}_{a,i,t} + \beta_2 \text{Material S-Washing} \\ & \text{Allegation}_{a,i,t} + \beta_3 \text{Stewardship IO}_{i,t-1} + \Omega \text{Controls}_{a,i,t-1} + \alpha_{\text{Country}} + \alpha_t + \varepsilon_{a,i,t}, \end{aligned} \quad (2)$$

where *Stock Market Reaction* is defined as just explained. *Material E-Washing Allegation* equals one if an NGO alleges E-washing of a financially-material topic, and zero otherwise. *Material S-Washing Allegation* is defined accordingly. *Stewardship IO* is the number of a firm's shares owned by institutional investors subject to stewardship codes, scaled by the outstanding shares held by institutional owners (*Stewardship IO*). We use this variable to test the prediction of H6a. *Controls* is again a vector of control variables at the firm-year or allegation level. We do not control for industry fixed effects because the SASB's definition of financial materiality is based on industry membership. Standard errors are clustered at the firm level.

Supporting H2, Table 4, Panel B, shows that the return reaction is significantly more negative (about 50bp larger) for financially-material allegations, but *only* if the allegations concern E

topics.²² Together with the observation that about 38 percent of all E-washing allegations are material (Internet Appendix A, Panel A), this suggests that NGO scrutiny of E&S claims matters to investors. In Internet Appendix B, we provide tentative evidence that the NGO allegations trigger consumer backlash, causing a decline in operating performance (only for E-washing, not for S-washing allegations). Hence, the return reaction may reflect an anticipation of a performance decline, as well as other adverse firm consequences.

Further, in support of H6a, the reaction is more negative when *Stewardship IO* is higher, presumably because investors subject to stewardship codes are more E&S-sensitive and divest after the allegations, putting pressure on the stock price. The return reaction is insignificant when *Stewardship IO* is 10 percent, but ranges from -0.9 percent to -1 percent when it reaches 90 percent.

We also find some noteworthy results for the control variables. *NGO Influence* is negatively associated with the return response, implying that allegations by more influential NGOs are taken more seriously by investors and lead to more negative market reactions.

Figure 3 visualizes the return result supporting H2 using event study analysis for the [-10, +10] trading-day window around the allegations. Returns of firms facing material E-washing allegations show a significantly steeper negative trend than those of firms with S-washing allegations or non-material E-washing allegations. The effects primarily occur between trading days $t-2$ to $t+2$. Hence, investors react more adversely to material E-washing allegations, resulting in greater declines in stock prices. Importantly, there is little evidence that the decline in stock prices reverses after the allegations.

Media reactions to NGOs' E&S-washing allegations

We next shed light on how the media responds to the allegation news. Table 5, Panel A, shows a 0.053 increase in the number of negative E&S news articles over the three-day window around

²² This finding is robust to double-clustering standard errors by firm and year or by firm and year-month.

an E&S-washing allegation, or 14.6 percent relative to the average article number in the three days before the allegation. This finding supports H3. We explore variation in the media response by estimating a regression for allegation a at firm i in year t :

$$\Delta \text{Negative News}_{a,i,t} = \beta_1 \text{Material E-Washing Allegation}_{a,i,t} + \beta_2 \text{Material S-Washing Allegation}_{a,i,t} + \Omega \text{Controls}_{a,i,t-1} + \alpha_{\text{Country}} + \alpha_t + \varepsilon_{a,i,t}, \quad (3)$$

where $\Delta \text{Negative News}$ refers to one of three variables reflecting the percentage change in negative E&S-related news ($\Delta \text{Negative E\&S News}$, $\Delta \text{Negative E News}$, or $\Delta \text{Negative S News}$). Variables of interest are again *Material E-Washing Allegation*, and *Material S-Washing Allegation*. We include the Eq. (2) controls and add some media-related variables (e.g., past news).

Results are reported in Table 5, Panel B. In columns 1–2, financially-material E-washing allegations (S-washing allegations) are followed by an increase in negative E&S news articles of 0.20 to 0.28 (0.20 to 0.21), relative to the days before and immaterial allegations. This is a meaningful increase as the average number of E&S articles before an allegation is 0.35. In columns 3–4, material E-washing allegations increase negative E-related news between 0.17 and 0.23 (this is large relative to the average pre-event E news coverage of 0.24 articles). In columns 5–6, we find no comparable effects for S allegations. Overall, the support for H3 is mixed. Collectively, these results relate to prior work on the monitoring function of the news media in corporate sustainability (e.g., Heese, Pérez-Cavazos, and Peter 2022). Our results suggest that the media takes cues from NGOs’ campaigns to identify firms with poor environmental or social performance.

VI. CORPORATE REACTIONS TO NGOS’ E&S-WASHING ALLEGATIONS

Press responses following E&S-washing allegations

We start the analysis of the corporate response to the NGO campaigns by evaluating whether—and which—targets neglect the allegations or comment on them in a conceding or resisting way. In Internet Appendix A, Panel A, we observe direct press reactions (*Corporate Press Response*) in just 10 percent of the allegations, typically arising when a journalist asks the target for comments on an article. In 6 percent of the cases, the press response contains a resisting statement (*Press Response Resistance*), and in 4 percent a conceding statement (*Press Response Concession*). To study variation in response types, we estimate for allegation a at firm i in year t :

$$\begin{aligned} \text{Press Response}_{a,i,t} = & \beta_1 \text{Material E-Washing Allegation}_{a,i,t} + \beta_2 \text{Material S-Washing} \\ & \text{Allegation}_{a,i,t} + \Omega \text{Controls}_{a,i,t-1} + \alpha_{\text{Country}} + \alpha_t + \varepsilon_{a,i,t}, \end{aligned} \quad (4)$$

where *Press Response* is one of three indicators, each measured over the two months after an allegation: *Corporate Press Response*, *Press Response Resistance*, or *Press Response Concession*. Other variables are defined as above. The control variables follow the earlier specifications, except that we additionally control in some tests for the stock price and media reaction (the firm's response may depend on the market and media reaction to an allegation).

Table 6 shows in columns 1–2 that the probability of any response is not higher for material allegations. Similarly, in columns 3–4, there are no associations between *Material Allegation* and *Press Response Resistance*. In column 5, *Press Response Concession* is significantly less likely for material E-washing allegations. Hence, firms are more reluctant to admit to E-washing when it concerns material issues, potentially because an admission has worse reputational or financial consequences. The effect size is unchanged in column 6, but it is noisier with the additional controls. Hence, there is little overall support for H4.

Carbon emissions following climate-washing allegations

We next examine whether E&S-washing allegations are followed by real changes in firms' operations. We test for such substantive reactions by investigating whether targets reduce their Scope 1, 2, and 3 carbon emissions after being subject to allegations of climate-washing. We estimate the following model on firm i and year t among firms in the treatment and control groups:

$$Emissions_{i,t} = \beta_1 Treat \times Post_{i,t-1} + \Omega Controls_{i,t-1} + \alpha_{Firm \times Cohort} + \gamma_{Industry \times Year \times Cohort} + \varepsilon_{i,t}, \quad (5)$$

where *Emissions* is the level or intensity of Scope 1, 2, or 3 emissions (all in logs). As NGO allegations occur at different times, we apply stacked difference-in-differences (DiD) regressions where the event window is defined as a five-year period centered around a firm's first climate-washing allegation, covering two years preceding the allegation, the year of the allegation itself (the event year), and the two years following the allegation.²³ For each five-year cohort, *Treat* equals one for firms targeted by climate-washing allegations in the event year of that cohort, and *Post* equals one for the first and second years subsequent to the event year (both variables are zero otherwise).²⁴ The control group consists of firms that never receive climate-washing allegations. For the stacked regressions, we define each cohort window as the five years centered around the treatment year, covering two years before and two years after the first instance of climate-washing allegations. Since 91 out of 102 climate-washing allegations in the regression sample are financially material, we cannot exploit such variation in Eq. (5). *Controls* include firms' financial fundamentals, their past news coverage, measures of E&S disclosure and performance (*GRI Standards* and *Assurance*) as well as *Emissions Estimated*. We include cohort-specific fixed effects

²³ We do not use staggered DiD regressions because of the concerns raised by Baker, Larcker, and Wang (2022) with respect to bias from heterogeneity of treatment effects over time and from using already treated and later-treated observations as controls. They propose stacked DiD regression to address these concerns.

²⁴ The effect of climate allegation on emissions is only significant starting the first year after the event year, suggesting that at least one year is required to implement real changes.

at the firm $\times$ cohort and industry $\times$ year $\times$ cohort level to identify effects from within-firm variation and to control for industry-year shocks.

Regressions are reported in Table 7. In columns 1–2, we consider effects for Scope 1 emissions, which are emissions that are directly produced by a firm as a result of production processes. We find significant negative DiD effects on *Treated* $\times$ *Post*. Specifically, column 1 indicates a 12 percent decline in emissions around climate-washing allegations, relative to the control group. Similarly, in column 2, the emission intensity declines by 8 percent more at firms that are facing NGO allegations, relative to the control group. This suggests that firms respond to NGO allegations with substantive changes in their operations. The economic magnitude is comparable or larger than previous findings on disclosure regulations.²⁵

Next, we estimate effects for Scope 2 emissions in columns 3–4. We also find negative DiD effects for these indirect emissions, which result from the consumption of purchased electricity, heat, or cooling. However, the effects are noisier and only significant for emission levels. Column 3 indicates a 10 percent decline in Scope 2 emissions around climate-washing allegations, relative to the control group. Remarkably, when we consider Scope 3 emissions in columns 5–6, we find *opposite* coefficient signs for the DiD estimator. While Scope 1 and, to some degree, Scope 2 emissions *decrease* in response to NGO activism, the target firms' indirect emissions in the value or supply chain *increase*. Interestingly, the coefficient estimate in column 5 for emission levels closely matches the sum of the coefficients in columns 1 and 3, indicating that the reduction in Scope 1 and 2 emissions is almost fully offset by simultaneous increases in Scope 3 emissions. We obtain similar estimates for Scope 1 and 2 emissions in columns 1–4 if we restrict the sample to observations with non-missing Scope 3 emissions data (as in columns 5–6).

²⁵ For example, Tomar (2023) finds that U.S. facilities reduce emissions by 7.9% following the disclosure requirement by Greenhouse Gas (GHG) Reporting Program. Downar, Ernstberger, Reichelstein, Schwenen, and Zaklan (2021) show that the GHG disclosure mandate in the UK leads to an 8% reduction in carbon emissions of the affected firms.

The effects we document are consistent with evidence from Duchin et al. (2025), who show that firms that face environmental pressure divest pollutive plants to buyers with supply chain or joint venture relationships with the sellers. The estimated effects suggest some possibly unintended consequences of NGO activism. While targeted firms reduce Scope 1 and 2 emissions, possibly in response to climate-washing allegations, they simultaneously increase Scope 3 emissions. These results only support H5 if one narrowly focuses on Scope 1 and 2 emissions, and they do not support H5 when all carbon emissions—both direct and indirect—are considered.

Finally, we test whether some of the results in Table 7 originate from second-round effects generated by institutional investors who use NGO allegations as a catalyst for their engagement. To test for such catalyst effects, we re-estimate Eq. (5) by splitting the sample at the median value of *Stewardship IO*. We estimate regressions again for Scope 1 to 3 emissions. The estimates in Table 8, Panel A, show that the decline in Scope 1 emissions after climate-washing allegations is particularly strong among firms with high stewardship ownership. The subgroup with high values of *Stewardship IO* experiences approximately an 11 percent decline in emission intensity, while the subgroup with low stewardship ownership experiences only a 2 percent (and statistically insignificant) decline in the emission intensity. While we obtain these effects for emission intensities, the effects are weaker for emissions levels, possibly because institutional investors typically focus on emissions intensities (e.g., when selecting stocks based on best-in-class criteria or when performing negative screening). In Panel B, however, we find that the reductions in both the levels and intensities of Scope 2 emissions are strongly concentrated among firms where *Stewardship IO* is high. Moreover, Panel C shows that the increase in Scope 3 emissions (both for levels and intensities) is much stronger among firms with high *Stewardship IO*, that is, among the same firms that also responded with a reduction in Scope 1 and 2 emissions. Overall, these results support H6b in the sense that NGOs act as catalysts for institutional investors that engage portfolio

firms in response to NGO allegations. However, these catalyst effects do not prevent or mitigate the unintended consequences of NGO activism on Scope 3 emissions.

VII. CONCLUSION

We use novel data on NGO activism campaigns to examine whether these campaigns can facilitate scrutiny of corporate E&S claims. With the caveat that our setting does not lend itself to exogenous shocks, the results suggest that NGO scrutiny of corporate E&S claims has financial and real effects as reflected in stock market and media reactions, as well as changes in real corporate activities. NGO campaigns seem to work as catalysts for voice (engagement) and exit (divestment) by institutional investors. These results are important given the dearth of research on whether and how NGO activism may create value and on their potential monitoring role regarding firms' behavior. However, the effects seem to arise with unintended consequences. Specifically, while firms respond to climate-washing allegations with a decline in Scope 1 and 2 emissions, they also seem to shift emissions into the supply chain.

Our findings have implications for regulatory efforts to detect and prevent E&S-washing. Specifically, since the results indicate that much E&S-washing targets customers, they call into question the premise that corporate E&S disclosures will incentivize sustainability performance improvements by facilitating customer switching from less to more sustainable firms. NGO scrutiny of firms' E&S claims can help here because NGOs consider a wider range of corporate communications than sustainability assurance providers and regulations like the Corporate Sustainability Reporting Directive (CSRD). Thus, NGO scrutiny can complement E&S disclosure regulation and E&S assurance to increase the probability that customers and investors have access to unbiased information about firms' sustainability performance.

APPENDIX A: VARIABLE DEFINITIONS

Variable Name	Definition	Source
<i>Allegation Level Variables</i>		
<i>Stock Market Reaction</i> _{a,i,t}	Three-day buy-and-hold return of the target firm from the day before to the day after the NGO allegation. The return is adjusted for the buy-and-hold return on the market index for the country where the firm is headquartered.	Worldscope
Δ <i>Negative E&S News</i> _{a,i,t}	Change in the number of <i>negative</i> environmental- and social-related news articles from the three days before to the three days after the NGO allegation.	RepRisk
<i>Prior Negative E&S News</i> _{a,i,t}	Number of <i>negative</i> environmental- and social-related news articles over the three days leading up to the NGO allegation.	RepRisk
Δ <i>Negative E News</i> _{a,i,t}	Change in the number of <i>negative</i> environmental-related news articles from the three days before to three days after the NGO allegation.	RepRisk
<i>Prior Negative E News</i> _{a,i,t}	Number of <i>negative</i> environmental-related news articles over the three days leading up to the NGO allegation.	RepRisk
Δ <i>Negative S News</i> _{a,i,t}	Change in the number of <i>negative</i> social-related news articles from three days before to three days after the NGO allegation.	RepRisk
<i>Prior Negative S News</i> _{a,i,t}	Number of social-related <i>negative</i> news articles over the three days leading up to the NGO allegation.	RepRisk
<i>Corporate Press Response</i> _{a,i,t}	Indicator equal to 1 for campaigns that the firm responds to in the press within two months, equal to 0 for other campaigns.	SigWatch, Factiva
<i>Press Response Resistance</i> _{a,i,t}	Indicator equal to 1 for campaigns that the firm responds in the press within two months by denying or resisting the NGO's allegations, equal to 0 for other campaigns.	SigWatch, Factiva
<i>Press Response Concession</i> _{a,i,t}	Indicator that equals 1 for campaigns that the firm responds in the press within two months by conceding or admitting to (some of) the NGO's allegations, and 0 for other campaigns.	SigWatch, Factiva
<i>Material E-Washing Allegation</i> _{a,i,t}	Indicator that equals 1 if the environmental topic that the E-washing allegation relates to is financially-material for the target firm, and 0 otherwise. Financial materiality is identified using the SASB materiality map. For the classification of the allegation category "Other Environment" in Table 2, we use disaggregated information on the specific environmental topic that the allegation relates to.	SigWatch, SASB, hand collection
<i>Material S-Washing Allegation</i> _{a,i,t}	Indicator that equals 1 if the social topic that the S-washing allegation relates to is financially-material for the target firm, and 0 otherwise. Financial materiality is identified using the SASB materiality map. For the classification of the allegation category "Other Social" in Table 2, we use disaggregated information on the specific social topic that the allegation relates to.	SigWatch, SASB, hand collection
<i>Allegation Sentiment</i> _{a,i,t}	Categorical variable for how negative the NGO's comments about the target firm are. A value of -2 (-1) implies strong (mild) criticism.	SigWatch
<i>NGO Influence</i> _{a,i,t}	Categorical variable for an NGO's reach and influence estimated by SigWatch. Values for this variable range between 0.5 (for local NGOs) and 2.75 (for global coalitions), with higher values indicating broader geographic reach and influence (from local, national, world regional, to global) through greater and more international operations and coalitions.	SigWatch
<i>Piggybacking</i> _{a,i,t}	Indicator equal to 1 if the NGO's allegation was previously already voiced by another party such as a media outlet, equal to 0 otherwise.	Hand collection

<i>Misleading Claim_{a,i,t}</i>	Indicator that equals 1 for campaigns alleging that the firm made a claim or statement about its environmental or social practices or outcomes that is not necessarily incorrect but creates the wrong impression among the audience, and 0 for campaigns with other allegations.	SigWatch, hand collection
<i>False Claim_{a,i,t}</i>	Indicator that equals 1 for campaigns alleging that the firm made an incorrect statement about its environmental or social practices or outcomes, and 0 for campaigns with other allegations.	SigWatch, hand collection
<i>Talk vs Action_{a,i,t}</i>	Indicator that equals 1 for campaigns alleging that firms' practices and outcomes are inconsistent with publicly announced pledges or promises, and 0 for campaigns with other allegations.	SigWatch, hand collection
<i>False Solution_{a,i,t}</i>	Indicator that equals 1 for campaigns alleging that the firm offered a false solution to solve environmental or social problems it encounters, and 0 for campaigns with other allegations.	SigWatch, hand collection
<i>Information Hidden_{a,i,t}</i>	Indicator that equals 1 for campaigns alleging that the firm was hiding information about its E&S activities, and 0 for campaigns with other allegations.	SigWatch, hand collection
<i>Information Omitted_{a,i,t}</i>	Indicator that equals 1 for campaigns alleging that the firm was omitting information about its E&S activities, and 0 for campaigns with other allegations.	SigWatch, hand collection
<i>Other Style_{a,i,t}</i>	Indicator that equals 1 for all remaining campaigns alleging that could not be allocated to <i>Misleading Claim</i> , <i>False Claim</i> , <i>Talk vs. Action</i> , <i>False Solution</i> , <i>Information Hidden</i> , or <i>Information Omitted</i> , and 0 otherwise.	SigWatch, hand collection
<i>Firm-Year Level Variables</i>		
<i>E&S-Washing_{i,t}</i>	Indicator that equals 1 for firm-years with E&S-washing allegations, and 0 otherwise.	SigWatch
<i>E-Washing_{i,t}</i>	Indicator that equals 1 for firm-years with E-washing allegations, and 0 otherwise.	SigWatch
<i>Climate-Washing_{i,t}</i>	Indicator that equals 1 for firm-years with climate-washing allegations, and 0 otherwise. Climate-washing is a subset of the E-washing.	SigWatch
<i>S-Washing_{i,t}</i>	Indicator that equals 1 for firm-years with S-washing allegations, and 0 otherwise.	SigWatch
<i>Treat × Post_{i,t-1}</i>	Indicator that equals 1 for firm-years after a firm receives climate-washing allegations, and 0 otherwise.	SigWatch
<i>Assurance_{i,t}</i>	Indicator that equals 1 for firm-years in which the firm has its sustainability reports assured, and 0 otherwise.	Corporate Register
<i>GRI Standards_{i,t}</i>	Indicator that equals 1 if the firm followed any of the Global Reporting Initiative's sustainability reporting standards in its sustainability report, and 0 otherwise.	Corporate Register
<i>E Disclosure Score_{i,t}</i>	Bloomberg's environmental disclosure score, which ranges from 0.1 (firms that disclose a minimum amount of environmental data) to 100 (firms that disclose every data point that Bloomberg collects). These data points relate to disclosures about the firm's risks, policies, and impacts regarding air quality, climate change, biodiversity, energy, waste, environmental supply chain management, and water consumption.	Bloomberg
<i>S Disclosure Score_{i,t}</i>	Bloomberg's social disclosure score ranges from 0.1 for firms that disclose a minimum amount of social data to 100 for firms that disclose every data point that Bloomberg collects. These data points relate to disclosures about the firm's risks, policies, and impacts regarding community, customers, diversity, ethics, employee safety, human capital development, and employee-related supply chain management.	Bloomberg
<i>E&S Disclosure Score_{i,t}</i>	The average of <i>E Disclosure Score</i> and <i>S Disclosure Score</i> from Bloomberg. See above.	Bloomberg

<i>S1 Emissions_{i,t}</i>	Scope 1 CO ₂ and CO ₂ -equivalent emissions (in million tons).	Trucost
<i>S1 Emissions Intensity_{i,t}</i>	Scope 1 CO ₂ and CO ₂ -equivalent emissions scaled by revenues expressed in US\$ million.	Trucost
<i>S2 Emissions_{i,t}</i>	Scope 2 CO ₂ and CO ₂ -equivalent emissions (in million tons).	Trucost
<i>S2 Emissions Intensity_{i,t}</i>	Scope 2 CO ₂ and CO ₂ -equivalent emissions scaled by revenues expressed in US\$ million.	Trucost
<i>S3 Emissions_{i,t}</i>	Scope 3 CO ₂ and CO ₂ -equivalent emissions (in million tons).	Trucost
<i>S3 Emissions Intensity_{i,t}</i>	Scope 3 CO ₂ and CO ₂ -equivalent emissions scaled by revenues expressed in US\$ million.	Trucost
<i>Emissions Estimated_{i,t}</i>	Indicator equal to 1 if Trucost indicates that it estimated the emissions variable, and 0 if the emission number was obtained from firm disclosures	Trucost
<i>Consumer Goods_{i,t}</i>	Indicator that equals 1 for firms in the ICB consumer goods industry, and 0 otherwise.	Corporate Register
<i>Consumer Services_{i,t}</i>	Indicator that equals 1 for firms in the ICB consumer services industry, and 0 otherwise.	Corporate Register
<i>Oil & Gas_{i,t}</i>	Indicator that equals 1 for firms in the ICB oil and gas industry, and 0 otherwise.	Corporate Register
<i>Stewardship IO_{i,t-1}</i>	Number of the firm's outstanding shares owned by institutional investors that are subject to stewardship codes in their home countries scaled by the firm's total number of outstanding shares held by institutional owners.	FactSet
<i>IO_{i,t-1}</i>	Ratio of the firm's shares owned by institutional owners to total shares outstanding.	FactSet
<i>Assets_{i,t-1}</i>	Book value of total assets (WC02999).	Worldscope
<i>Tobin's Q_{i,t-1}</i>	Ratio of total debt (WC03255) and the market value of equity (WC08001) to the book value of total assets (WC02999).	Worldscope
<i>ROA_{i,t-1}</i>	Earnings before interest and taxes (WC18191) scaled by lagged total assets (WC02999).	Worldscope
<i>News Articles_{i,t-1}</i>	Number of news articles related to the firm during the year.	Ravenpack
<i>E&S Comp_{i,t-1}</i>	Indicator that equals 1 for firm-years in which executive compensation is partly dependent on environmental or social metrics, and 0 otherwise.	Refinitiv ESG

This Appendix provides variable definitions and sources. Continuous variables (except stock returns) are winsorized at 1st and 99th percentiles.

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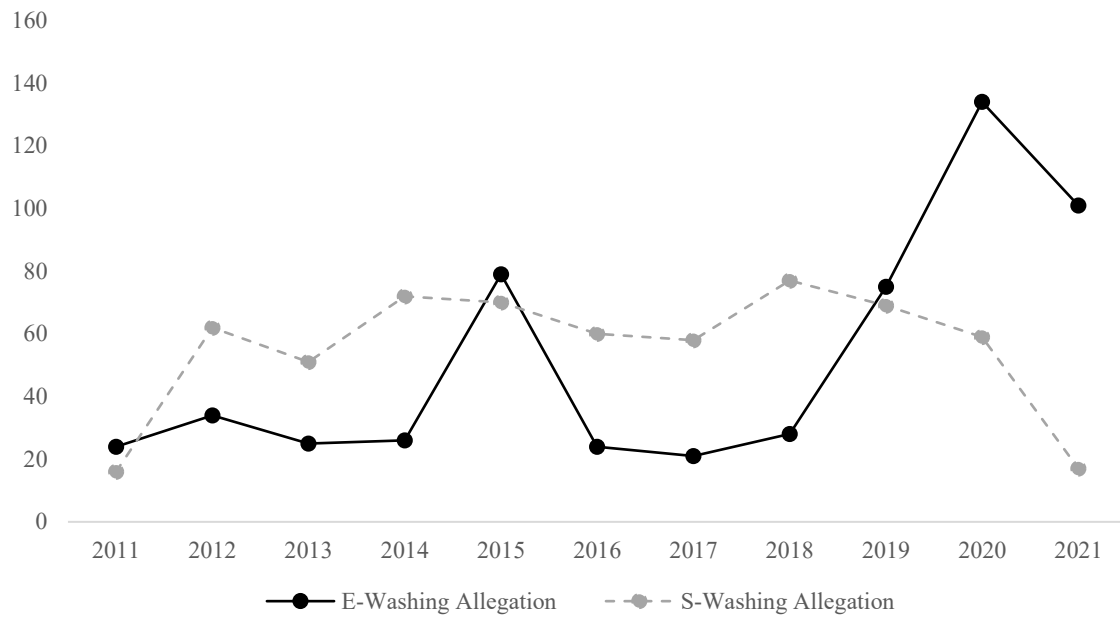
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FIGURE 1

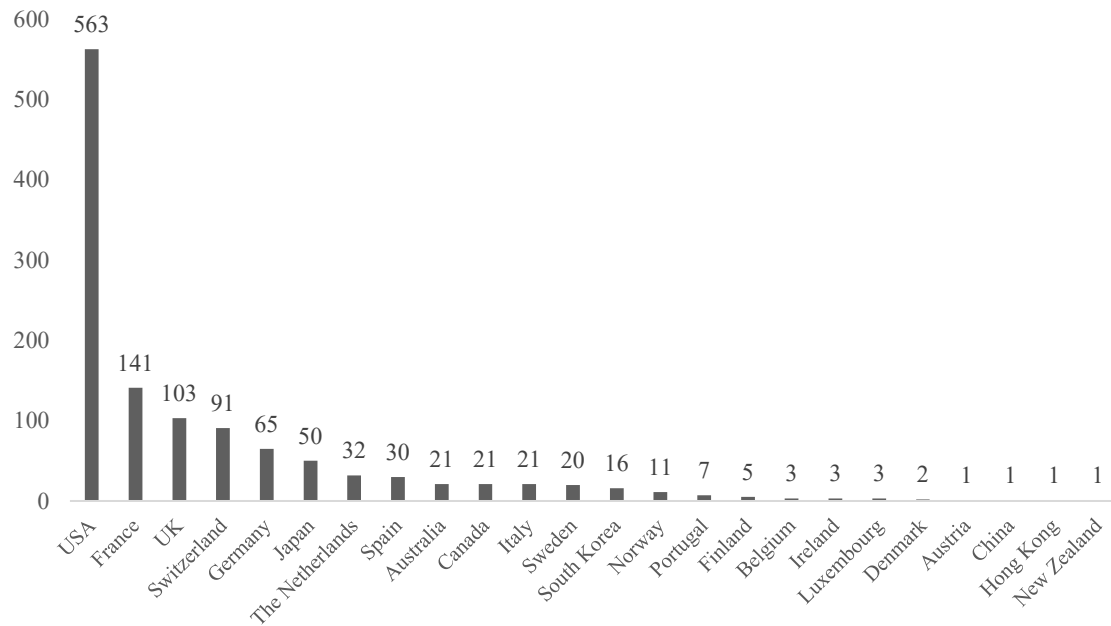
Time-Series Of E&S-Washing Allegations



This figure plots the number of E-washing allegations (solid line) and S-washing allegations (dashed line) over time. We omit the year 2022 for which we only have data for the beginning of the year.

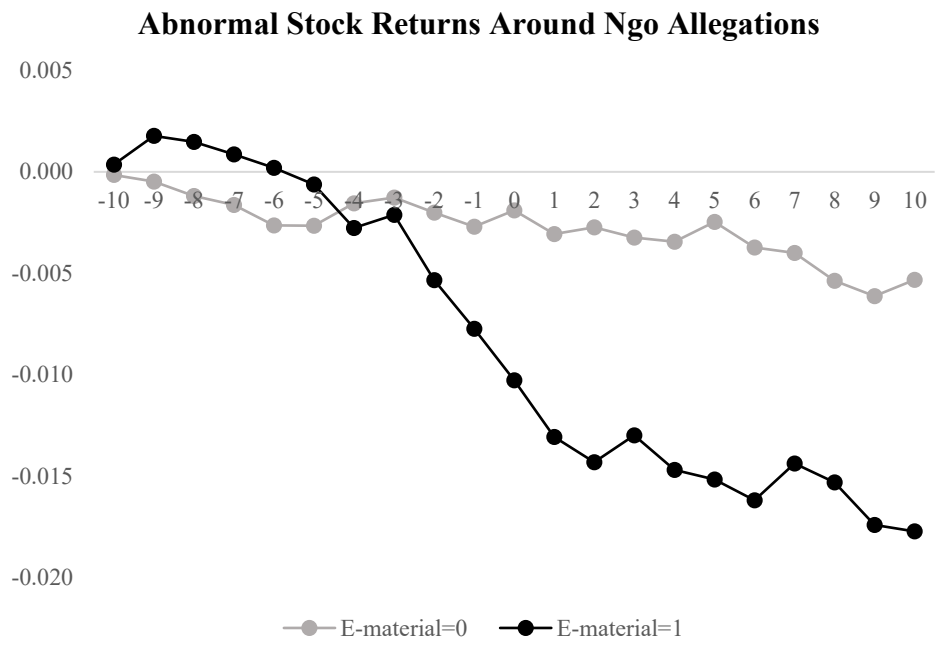
FIGURE 2

E&S Washing Allegations Across Countries



This figure presents the number of NGO E&S-washing campaigns by country of the targeted firms. The total number of campaigns is 1,212.

FIGURE 3



This figure presents daily cumulative abnormal stock returns around material and non-material E-washing allegations in the sample.

TABLE 1

E&S-Washing Allegations by Firm and NGO

Panel A. E&S-Washing Allegations by Firm					
Firm	#	%	Firm	#	%
Nestlé	77	6.4	Engie	15	1.2
Coca Cola	70	5.8	Total Energies	14	1.2
Mondelez	48	4.0	Volkswagen	14	1.2
Danone	36	3.0	Samsung	13	1.1
Kellogg	34	2.8	Amazon	11	0.9
PepsiCo	33	2.7	Bayer	11	0.9
Exxon Mobil	30	2.5	L'Oréal	11	0.9
Chevron	28	2.3	Equinor	10	0.8
Procter & Gamble	26	2.1	H&M	10	0.8
BP	24	2.0	Tyson Foods	10	0.8
Ahold Delhaize	21	1.7	Others	591	48.8
Walmart	21	1.7	Total	1,212	100
General Mills	19	1.6			
McDonalds	19	1.6			
BNP Paribas	16	1.3			
Panel B. E&S-Washing Allegations by NGO					
NGO	#	%	NGO	#	%
Friends of the Earth	120	6.6	Amazon Watch	20	1.1
Greenpeace	93	5.1	Plastic Soup Foundation	20	1.1
Foodwatch	79	4.3	BEUC	19	1.0
Corporate Europe Observatory	54	3.0	Clean Clothes Campaign Int.	17	0.9
Verbraucherzentrale	49	2.7	Divest Invest Protect	16	0.9
Which?	49	2.7	Recycling Netzwerk	16	0.9
Center for Science in the Public Interest	44	2.4	Women's Earth and Climate Act. Net.	16	0.9
Union of Concerned Scientists	38	2.1	Ecologistas en Accion	14	0.8
Rainforest Action Network /RAN	37	2.0	Environmental Working Group	14	0.8
Observatoire des Multinationales	35	1.9	Proteste Brasil	14	0.8
Corporate Accountability International	34	1.9	Consumentenbond	12	0.7
Konsument.at	34	1.9	DECO Proteste	12	0.7
BankTrack	28	1.5	Organic Consumers Association	11	0.6
Resistance a l'Agression Publicite	28	1.5	ChemSec	10	0.6
Changing Markets Found.	25	1.4	Cornucopia Institute	10	0.6
Sierra Club U.S.A.	23	1.3	UFC Que Choisir	10	0.6
Stand.earth (ForestEthics)	23	1.3	Urgewald	10	0.6
350.org	21	1.2	Wakker Dier	10	0.6
Deutsche Umwelthilfe	21	1.2	Others	711	39.1
Transnational Institute	21	1.2	Total	1,818	100.0

Panel A presents the names of the firms that are targeted at least ten times by an E&S-washing allegation in our sample. Panel B provides the names of the NGOs that make at least ten E&S allegations in our sample. The total number of NGO involvement incidents in Panel B (1,818) is higher than the total number of NGO campaigns (1,212) because several NGOs can be involved in / cooperate on the same campaign.

TABLE 2

E&S-Washing Allegations Overview

Panel A. E&S-Washing Allegations by E&S Topic						
E&S Topics	# E&S-Washing Allegations	% Total		# Fin. Material E&S Topics	% Total	
<i>E-Washing Allegations</i>						
Climate Change	366	30.2		329	51.6	
Waste	136	11.2		97	15.2	
Biodiversity	41	3.4		10	1.6	
Other Environment	53	4.4		25	3.9	
<i>S-Washing Allegations</i>						
Consumer Health	267	22.0		100	15.7	
Transparent Pricing	102	8.4		14	2.2	
Other Product Quality	71	5.9		0.0	0.0	
Other Consumer	66	5.5		5	0.8	
Animal Welfare	50	4.1		36	5.6	
Employee Rights, Health and Safety	43	3.6		16	2.5	
Other Social	17	1.4		6	0.9	
Total	1,212	100.0		638	100.0	
Panel B. E&S-Washing Allegations by Presentation or Obfuscation Style						
Style	# E&S- Washing Allegations	% Total	# E-Washing Allegations	% E-Washing Allegations	# S-Washing Allegations	% S-Washing Allegations
Misleading Claim	441	36.4	118	26.8	323	73.2
Talk vs Action	167	13.8	135	80.8	32	19.2
False Claim	163	13.4	76	46.6	87	53.4
False Solution	93	7.7	80	86	13	14
Information Hidden	87	7.2	0	0	87	100
Information Omitted	80	6.6	41	51.3	39	48.8
Other	181	14.9	146	80.7	35	19.3
Total	1,212	100	596	49.2	616	50.8

TABLE 2 (continued)

Panel C. E&S-Washing Allegations by Disclosure Outlet						
Disclosure Outlet	# E&S-Washing Allegations	% Total	# E-Washing Allegations	% E-Washing Allegations	# S-Washing Allegations	% S-Washing Allegations
Label or Packaging	273	25.3	33	12.1	240	87.9
Advertising	249	23.1	96	38.6	153	61.4
PR Campaign	143	13.3	110	76.9	33	23.1
Product Information	143	13.3	16	11.2	127	88.8
Environmental Commitment	91	8.4	91	100.0	0	0.0
Sponsorship	85	7.9	74	87.1	11	12.9
Certification	39	3.6	24	61.5	15	38.5
CSR Commitment	31	2.9	17	54.8	14	45.2
Corporate Website	10	0.9	4	40.0	6	60.0
Financial Report/Presentation	6	0.6	6	100.0	0	0.0
Sustainability Report	5	0.5	2	40.0	3	60.0
Impact Assessment	4	0.4	3	75.0	1	25.0
Total	1,079	100	476	44.1	603	55.9

Panel A presents NGO E&S-washing allegations broken down by the environmental and social (E&S) topics that the allegation refers to and by financial materiality. Panel B presents NGO E&S-washing allegations broken down by the presentation or obfuscation style through which the firm is E&S-washing according to the NGO. Panel C presents NGO E&S-washing allegations broken down by the disclosure outlet in which the firm is E&S-washing. The unit of observation is an NGO allegation. In Panel C the number of cases is less than the total number of E&S-washing allegations in the sample (1,212) because information on the disclosure outlet is not always available.

TABLE 3

Determinants of E&S-Washing Allegations

	<i>E&S Washing_{i,t}</i>		<i>E-Washing_{i,t}</i>		<i>S-Washing_{i,t}</i>		<i>Climate-Washing_{i,t}</i>	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Consumer Goods_{i,t}</i>	0.094*** (6.02)	0.101*** (5.72)	0.036*** (4.39)	0.040*** (4.76)	0.079*** (5.29)	0.085*** (5.29)	0.007* (1.76)	0.010** (2.40)
<i>Consumer Services_{i,t}</i>	0.056*** (4.11)	0.060*** (4.01)	0.019*** (2.92)	0.022*** (3.19)	0.047*** (3.99)	0.051*** (4.15)	0.005 (1.11)	0.006 (1.41)
<i>Oil & Gas_{i,t}</i>	0.076*** (3.21)	0.073*** (3.01)	0.077*** (3.26)	0.081*** (3.36)	0.010 (1.29)	0.008 (0.96)	0.070*** (3.08)	0.065*** (3.13)
<i>Ln(Assets)_{i,t-1}</i>	0.029*** (10.76)	0.029*** (9.78)	0.020*** (9.57)	-0.009 (-0.79)	0.013*** (6.71)	-0.033*** (-2.81)	0.015*** (8.48)	0.011*** (5.93)
<i>Tobin's Q_{i,t-1}</i>	0.015*** (4.23)	0.015*** (4.16)	0.006*** (2.70)	-0.040** (-2.32)	0.013*** (4.43)	-0.081*** (-3.27)	0.000 (0.30)	-0.001 (-0.53)
<i>Ln(News Articles)_{i,t-1}</i>	0.012*** (4.51)	0.013*** (4.29)	0.008*** (3.85)	0.021*** (9.35)	0.007*** (3.59)	0.013*** (6.16)	0.005*** (2.81)	0.009*** (4.53)
<i>Stewardship IO_{i,t-1}</i>	-0.037*** (-2.70)	-0.031** (-2.01)	-0.004 (-0.37)	0.006*** (2.71)	-0.029*** (-2.78)	0.014*** (4.34)	-0.011 (-1.25)	-0.012 (-1.61)
<i>IO_{i,t-1}</i>	-0.101*** (-3.68)	-0.116*** (-3.90)	-0.042** (-2.52)	-0.016 (-0.50)	-0.079*** (-3.33)	0.027 (0.73)	-0.023* (-1.85)	-0.006 (-0.46)
<i>ROA_{i,t-1}</i>	0.019 (0.44)	0.032 (0.67)	-0.014 (-0.44)	0.009*** (3.73)	0.021 (0.59)	0.006*** (3.29)	-0.018 (-0.76)	0.009 (0.46)
<i>GRI Standards_{i,t-1}</i>	0.008 (1.11)	0.010 (1.43)	0.002 (0.52)	0.004 (0.68)	0.004 (0.67)	0.001 (0.09)	0.001 (0.17)	0.001 (0.15)
<i>Assurance_{i,t-1}</i>	0.009 (1.11)	0.002 (0.23)	0.010* (1.76)	0.012** (1.96)	0.001 (0.21)	-0.000 (-0.06)	0.004 (0.95)	-0.000 (-0.07)
<i>E&S Comp_{i,t-1}</i>		0.035*** (4.01)						
<i>Ln(E Disclosure Score)_{i,t-1}</i>				-0.002 (-0.85)				
<i>Ln(S Disclosure Score)_{i,t-1}</i>						0.014** (2.26)		
<i>Ln(Emissions)_{i,t-1}</i>								0.010*** (3.20)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	10,957	9,612	10,957	10,218	10,957	10,218	10,957	9,635
Adj. R ²	0.109	0.116	0.080	0.080	0.079	0.082	0.070	0.074

This table presents OLS regressions at the firm-year level examining the determinants of firms being subject to an E&S-washing allegation. Variables with the subscript $t-1$ are measured in the year prior to the dependent variable. We include *E&S Comp* only when the dependent variable is *E&S-Washing* because we cannot separate between E and S compensation metrics. Industry fixed effects are not included because they are collinear with the industry variables. t -statistics, reported in parentheses, are based on standard errors clustered by firm. Variables are defined in Appendix A. *, **, *** indicate statistical significance at the 10, 5, 1% level, respectively.

TABLE 4

Stock Market Reaction to E&S-Washing Allegations

Panel A. Univariate Analysis of Stock Market Reaction							
	Mean	Std. Error	Obs.	<i>t</i> -value	<i>p</i> -value		
	-0.0034***	0.0009	1122	-3.818	0.000		
Panel B. Regression Analyses							
	Stock Market Reaction _{a,i,t}						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Material E-Washing Allegation _{a,i,t}	-0.008*** (-3.77)			-0.005** (-2.36)	-0.006** (-2.37)		
Material S-Washing Allegation _{a,i,t}	0.001 (0.34)			0.000 (0.19)	-0.001 (-0.26)		
NGO Influence _{a,i,t}		-0.003* (-1.89)		-0.003* (-1.72)	-0.003 (-1.64)	-0.003** (-2.05)	-0.003* (-1.93)
Stewardship IO _{i,t-1}			-0.017** (-2.10)	-0.016* (-1.87)	-0.016 (-1.61)	-0.016* (-1.95)	-0.018* (-1.69)
IO _{i,t-1}				0.006 (0.88)	0.008 (1.03)	0.010 (1.21)	0.013 (1.42)
Ln(Assets) _{i,t-1}				-0.000 (-0.10)	-0.000 (-0.27)	0.001 (0.47)	0.000 (0.17)
Tobin's Q _{i,t-1}				0.001 (0.66)	0.000 (0.25)	0.001 (0.41)	-0.000 (-0.05)
ROA _{i,t-1}				0.003 (0.13)	-0.000 (-0.02)	0.008 (0.35)	0.006 (0.25)
Ln(News Articles) _{i,t-1}				0.000 (0.42)	0.001 (0.67)	0.000 (0.15)	0.000 (0.42)
GRI Standards _{i,t-1}				-0.004* (-1.97)	-0.006** (-2.05)	-0.004* (-1.84)	-0.006* (-1.97)
Assurance _{i,t-1}				-0.002 (-1.03)	-0.002 (-0.74)	-0.002 (-1.09)	-0.002 (-0.71)
Allegation Sentiment _{a,i,t}				0.001 (0.27)	-0.000 (-0.02)	0.001 (0.31)	-0.000 (-0.10)
Piggybacking _{a,i,t}				0.002 (0.75)	0.003 (0.95)	0.001 (0.31)	0.001 (0.39)
Ln(E&S Disclosure Score) _{i,t-1}					0.002 (0.45)		0.005 (0.87)
Prior E&S Negative News _{a,i,t}					0.000 (0.19)		0.000 (0.13)
E&S Comp _{i,t-1}					-0.000 (-0.05)		0.000 (0.03)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	No	No	No	No	No	Yes	Yes
(Note: materiality definition based on industry membership, hence no industry fixed effects in columns 1, 4, 5)							
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	1,118	1,118	1,105	1,040	919	1,040	919
Adj. R ²	0.036	0.025	0.024	0.037	0.024	0.028	0.019

This table presents analyses examining the stock market reaction in the three days around the E&S-washing allegations. Panel A shows a test of whether the average stock market reaction is different from 0. Panel B provides OLS regressions at the allegation level examining the determinants of the stock market reaction. Variables with the subscript t-1 are measured in the year prior to the dependent variable. Variables with the subscript t are measured contemporaneously with the dependent variable because these are allegation-specific. We omit industry fixed effects in columns 1-5 because these would be collinear with the Material E-Washing Allegation and Material S-Washing Allegation variables, as the SASB's definition of financial materiality is based on industry membership. T-statistics, reported in parentheses, are based on standard errors clustered by firm. Variables are defined in Appendix A. *, **, *** indicate statistical significance at the 10, 5, 1% level, respectively.

TABLE 5

Negative News Reaction to E&S-Washing Allegations

Panel A. Univariate Analysis of Δ Negative E&S News						
	Mean	Std. Error	Obs.	t-value	p-value	
	0.0525**	0.0255	1,182	2.056	0.040	
Panel B. Regression Analyses						
	Δ Negative E&S News $_{a,i,t}$		Δ Negative E News $_{a,i,t}$		Δ Negative S News $_{a,i,t}$	
	(1)	(2)	(3)	(4)	(5)	(6)
Material E-Washing Allegation $_{a,i,t}$	0.279*** (4.05)	0.198*** (3.01)	0.233*** (5.32)	0.174*** (3.74)		
Material S-Washing Allegation $_{a,i,t}$	0.206** (2.40)	0.210** (2.14)			0.087 (1.12)	0.100 (1.12)
NGO Influence $_{a,i,t}$	0.026 (0.61)	0.026 (0.59)	-0.025 (-1.01)	-0.022 (-0.79)	0.041 (1.07)	0.017 (0.40)
Prior Negative E&S News $_{a,i,t}$	-0.748*** (-15.54)	-0.837*** (-17.16)				
Prior Negative E News $_{a,i,t}$			-0.703*** (-16.22)	-0.760*** (-16.17)		
Prior Negative S News $_{a,i,t}$					-0.822*** (-16.94)	-0.919*** (-18.41)
Stewardship IO $_{i,t-1}$	-0.116 (-0.53)	-0.308 (-1.33)	-0.027 (-0.18)	-0.161 (-1.04)	-0.146 (-0.83)	-0.347* (-1.89)
IO $_{i,t-1}$		-0.249 (-1.24)		-0.002 (-0.01)		-0.350** (-2.00)
Ln(Assets) $_{i,t-1}$		0.111*** (4.05)		0.045** (2.54)		0.101*** (4.29)
Tobin's Q $_{i,t-1}$		0.068 (1.49)		0.003 (0.14)		0.074* (1.85)
ROA $_{i,t-1}$		0.322 (0.53)		0.002 (0.01)		0.015 (0.03)
Ln(News Articles) $_{i,t-1}$		0.008 (0.32)		-0.003 (-0.18)		0.016 (0.71)
GRI Standards $_{i,t-1}$		-0.098 (-1.10)		-0.045 (-0.82)		-0.101 (-1.47)
Assurance $_{i,t-1}$		0.082 (1.27)		0.033 (0.71)		0.082 (1.53)
Allegation Sentiment $_{a,i,t}$		-0.117** (-2.13)		-0.136*** (-3.93)		-0.074 (-1.51)
Piggybacking $_{a,i,t}$		0.373* (1.94)		0.148 (0.94)		0.296* (1.77)
E&S Comp $_{i,t-1}$		0.019 (0.30)		0.040 (0.79)		-0.023 (-0.40)
Ln(E&S Disclosure Score) $_{i,t-1}$		-0.022 (-0.21)				
Ln(E Disclosure Score) $_{i,t-1}$				0.012 (0.28)		
Ln(S Disclosure Score) $_{i,t-1}$						0.088 (0.86)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
(Note: materiality definition based on industry membership, hence no industry fixed effects)						
Obs.	1,170	981	1,170	981	1,170	981
Adj. R ²	0.326	0.371	0.335	0.364	0.317	0.361

Panel A shows a test of whether the average change in the number of negative E&S news articles in the three days around E&S-washing allegations is positive and statistically different from 0 (calculated from the day before to the day after the publication of the NGO allegation). Panel B presents OLS regression at the allegation level examining the determinants of the change in the number of E&S news articles. Variables with the subscript t-1 are measured in the year prior to the dependent variable. Variables with the subscript t are measured contemporaneously with the dependent variable because these are allegation-specific. t-statistics, reported in parentheses, are based on standard errors clustered by firm. We omit industry fixed effects because these would be collinear with the Material E-Washing Allegation and Material S-Washing Allegation variables, as the SASB's definition of financial materiality is based on industry membership. Variables are defined in Appendix A. *, **, *** indicate statistical significance at the 10, 5, 1% level, respectively.

TABLE 6
Corporate Media Responses to E&S-Washing Allegations

	<i>Corporate Press Response_{a,i,t}</i>		<i>Press Response Resistance_{a,i,t}</i>		<i>Press Response Concession_{a,i,t}</i>	
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Material E-Washing Allegation_{a,i,t}</i>	-0.032 (-1.28)	-0.030 (-1.12)	-0.011 (-0.48)	-0.010 (-0.44)	-0.021* (-1.67)	-0.020 (-1.37)
<i>Material S-Washing Allegation_{a,i,t}</i>	-0.014 (-0.54)	0.025 (0.82)	-0.005 (-0.21)	0.023 (0.91)	-0.009 (-0.51)	0.001 (0.07)
<i>NGO Influence_{a,i,t}</i>	0.066*** (3.40)	0.050** (2.38)	0.026 (1.61)	0.013 (0.77)	0.040*** (2.99)	0.037** (2.54)
<i>Stewardship IO_{i,t-1}</i>	-0.050 (-0.62)	-0.017 (-0.18)	-0.038 (-0.63)	-0.046 (-0.68)	-0.012 (-0.21)	0.030 (0.46)
<i>IO_{i,t-1}</i>	-0.086 (-1.14)	-0.129 (-1.36)	-0.030 (-0.40)	-0.064 (-0.76)	-0.057* (-1.93)	-0.065* (-1.82)
<i>Ln(Assets)_{i,t-1}</i>	-0.013 (-1.46)	-0.022** (-2.02)	-0.010 (-1.14)	-0.019* (-1.80)	-0.003 (-0.58)	-0.003 (-0.43)
<i>Tobin's Q_{i,t-1}</i>	0.030** (2.12)	0.020 (1.39)	0.014 (1.20)	0.009 (0.82)	0.016** (2.16)	0.011 (1.45)
<i>ROA_{i,t-1}</i>	-0.371* (-1.93)	-0.338* (-1.70)	-0.269 (-1.50)	-0.310* (-1.82)	-0.102 (-1.04)	-0.027 (-0.27)
<i>Ln(News Articles)_{i,t-1}</i>	0.012* (1.79)	0.022** (2.37)	0.008 (1.12)	0.017* (1.95)	0.005* (1.82)	0.005 (1.36)
<i>GRI Standards_{i,t-1}</i>	-0.012 (-0.65)	-0.028 (-1.36)	-0.006 (-0.37)	-0.017 (-0.93)	-0.006 (-0.71)	-0.011 (-1.11)
<i>Assurance_{i,t-1}</i>	0.007 (0.39)	0.018 (0.88)	-0.008 (-0.52)	-0.001 (-0.07)	0.016 (1.56)	0.019* (1.67)
<i>Allegation Sentiment_{a,i,t}</i>	0.008 (0.42)	0.015 (0.76)	-0.048*** (-3.58)	-0.048*** (-3.40)	0.055*** (4.04)	0.064*** (4.31)
<i>Piggybacking_{a,i,t}</i>	-0.124*** (-3.87)	-0.134*** (-4.05)	-0.050** (-2.13)	-0.047* (-1.71)	-0.075*** (-3.05)	-0.087*** (-3.51)
<i>Stock Market Reaction_{a,i,t}</i>		0.393 (0.93)		0.649 (1.60)		-0.256 (-1.60)
<i>Δ Negative E News_{a,i,t}</i>		-0.012 (-0.52)		0.002 (0.07)		-0.014 (-0.91)
<i>Δ S Negative News_{a,i,t}</i>		-0.010 (-0.61)		-0.024** (-2.03)		0.014 (1.21)
<i>E&S Comp_{i,t-1}</i>		0.010 (0.44)		-0.007 (-0.38)		0.017* (1.71)
<i>Ln(E&S Disclosure Score)_{i,t-1}</i>		0.030 (0.87)		0.051* (1.69)		-0.022 (-1.21)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
<i>(Note: materiality definition based on industry membership, hence no industry fixed effects)</i>						
Obs.	1,115	919	1,115	919	1,115	919
Adj. R ²	0.037	0.052	0.032	0.063	0.038	0.031

This table presents OLS regressions at the allegation level examining target firm PR responses in the two months following E&S-washing allegations. Variables with the subscript t-1 are measured in the year prior to the dependent variable. Variables with the subscript t are measured contemporaneously with the dependent variable because these are allegation-specific. t-statistics, reported in parentheses, are based on standard errors clustered by firm. We omit industry fixed effects because these would be collinear with the Material E-Washing Allegation and Material S-Washing Allegation variables, as the SASB's definition of financial materiality is based on industry membership. Variables are defined in Appendix A. *, **, *** indicate statistical significance at the 10, 5, 1% level, respectively.

TABLE 7

Climate-Washing Allegations and Future Carbon Emissions

	Ln(<i>S1</i> <i>Emissions</i>) _{<i>i,t</i>}	Ln(<i>S1</i> <i>Emissions</i> <i>Intensity</i>) _{<i>i,t</i>}	Ln(<i>S2</i> <i>Emissions</i>) _{<i>i,t</i>}	Ln(<i>S2</i> <i>Emissions</i> <i>Intensity</i>) _{<i>i,t</i>}	Ln(<i>S3</i> <i>Emissions</i>) _{<i>i,t</i>}	Ln(<i>S3</i> <i>Emissions</i> <i>Intensity</i>) _{<i>i,t</i>}
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Treat</i> × <i>Post</i> _{<i>i,t-1</i>}	-0.123*** (-2.70)	-0.082** (-2.09)	-0.101* (-1.79)	-0.058 (-1.30)	0.226** (2.40)	0.221** (2.23)
Ln(<i>Assets</i>) _{<i>i,t-1</i>}	0.411*** (15.74)	-0.047** (-2.36)	0.519*** (21.07)	0.033 (1.46)	0.380*** (10.22)	-0.041 (-1.47)
<i>Tobin's Q</i> _{<i>i,t-1</i>}	0.001 (0.05)	-0.024*** (-2.92)	-0.026*** (-3.22)	-0.048*** (-7.49)	0.002 (0.18)	-0.002 (-0.14)
<i>ROA</i> _{<i>i,t-1</i>}	-0.094 (-0.76)	-0.239** (-2.48)	0.095 (1.17)	-0.055 (-0.79)	0.321*** (2.68)	0.080 (0.95)
<i>Stewardship IO</i> _{<i>i,t-1</i>}	0.017 (0.57)	0.007 (0.29)	0.083*** (3.66)	0.033 (1.35)	0.121*** (3.73)	0.041 (1.29)
<i>IO</i> _{<i>i,t-1</i>}	0.174* (1.76)	0.028 (0.38)	-0.085 (-0.89)	-0.121 (-1.54)	-0.132 (-0.87)	-0.130 (-0.98)
Ln(<i>News Articles</i>) _{<i>i,t-1</i>}	-0.003 (-0.48)	-0.004 (-0.79)	-0.005 (-0.85)	-0.004 (-0.83)	0.016 (1.32)	0.023** (1.99)
<i>GRI Standards</i> _{<i>i,t-1</i>}	0.007 (0.60)	-0.005 (-0.55)	0.019 (1.50)	0.001 (0.05)	0.046** (2.13)	0.018 (0.92)
<i>Assurance</i> _{<i>i,t-1</i>}	0.010 (0.61)	0.002 (0.19)	-0.039*** (-3.39)	-0.036*** (-3.78)	0.003 (0.19)	0.001 (0.04)
<i>Emissions Estimated</i> _{<i>i,t</i>}	0.567*** (13.13)	0.418*** (10.53)	0.085 (1.64)	0.075* (1.81)	0.071*** (2.87)	0.089*** (3.91)
Firm × Cohort Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry × Year × Cohort Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	34,017	34,017	34,017	34,017	19,074	19,074
Adj. <i>R</i> ²	0.972	0.970	0.949	0.924	0.946	0.913

This table presents stacked difference-in-differences OLS regressions at the firm-year level examining the relation between climate-washing allegations and carbon emission reductions. Variables with the subscript $t-1$ are measured in the year prior to the dependent variable. t -statistics, reported in parentheses, are based on standard errors clustered by Industry × Year × Cohort. A cohort is defined as a five-year event period with the first two years preceding the event, the event year, and the two years after the event year. *Treat* equals one for firms targeted by climate-washing allegations in the event year of that cohort, and *Post* equals one for the first and second years subsequent to the event year. Firms that never faced any climate-washing allegations during the sample period serve as the control group. This approach allows for a difference-in-differences comparison between treated and untreated firms while accounting for heterogeneity of treatment effects over time. All the fixed effects and standard error clustering are constructed within the same cohort. Variables are defined in Appendix A. *, **, *** indicate statistical significance at the 10, 5, 1% level, respectively.

TABLE 8

E&S-Washing Allegations as Catalysts for Institutional Investors

Panel A. Scope 1 Carbon Emissions				
Dependent variable:	Ln(<i>S1 Emissions</i>) _{<i>i,t</i>}		Ln(<i>S1 Emissions Intensity</i>) _{<i>i,t</i>}	
Sample split based on:	<i>Stewardship IO</i> _{<i>i,t</i>}			
	> median	≤ median	> median	≤ median
	(1)	(2)	(3)	(4)
<i>Treat</i> × <i>Post</i> _{<i>i,t-1</i>}	-0.086* (-1.95)	-0.086 (-1.34)	-0.109*** (-3.98)	-0.030 (-0.72)
Controls as in Table 7	Yes	Yes	Yes	Yes
Firm × Cohort Fixed Effects	Yes	Yes	Yes	Yes
Industry × Year × Cohort FE	Yes	Yes	Yes	Yes
Obs.	17,040	16,977	17,040	16,977
Adj. <i>R</i> ²	0.978	0.972	0.974	0.972
Panel B. Scope 2 Carbon Emissions				
Dependent variable:	Ln(<i>S2 Emissions</i>) _{<i>i,t</i>}		Ln(<i>S2 Emissions Intensity</i>) _{<i>i,t</i>}	
Sample split based on:	<i>Stewardship IO</i> _{<i>i,t</i>}			
	> median	≤ median	> median	≤ median
	(1)	(2)	(3)	(4)
<i>Treat</i> × <i>Post</i> _{<i>i,t-1</i>}	-0.167** (-2.05)	0.021 (0.32)	-0.119** (-2.34)	0.040 (0.75)
Controls as in Table 7	Yes	Yes	Yes	Yes
Firm × Cohort Fixed Effects	Yes	Yes	Yes	Yes
Industry × Year × Cohort FE	Yes	Yes	Yes	Yes
Obs.	17,040	16,977	17,040	16,977
Adj. <i>R</i> ²	0.953	0.958	0.931	0.939
Panel C. Scope 3 Carbon Emissions				
Dependent variable:	Ln(<i>S3 Emissions</i>) _{<i>i,t</i>}		Ln(<i>S3 Emissions Intensity</i>) _{<i>i,t</i>}	
Sample split based on:	<i>Stewardship IO</i> _{<i>i,t</i>}			
	> median	≤ median	> median	≤ median
	(1)	(2)	(3)	(4)
<i>Treat</i> × <i>Post</i> _{<i>i,t-1</i>}	0.332*** (3.44)	0.059 (0.42)	0.292*** (3.06)	0.105 (0.65)
Controls as in Table 7	Yes	Yes	Yes	Yes
Firm × Cohort Fixed Effects	Yes	Yes	Yes	Yes
Industry × Year × Cohort FE	Yes	Yes	Yes	Yes
Obs.	9,578	9,496	9,578	9,496
Adj. <i>R</i> ²	0.950	0.946	0.926	0.907

This table presents stacked difference-in-differences OLS regressions at the firm-year level examining in subsample splits whether the relation between climate-washing allegations and carbon emission reductions is stronger when holdings by stewardship institutional investors are greater. Panel A reports results for Scope 1 emissions, Panel B for Scope 2 emissions, and Panel C for Scope 3 emissions. Variables with the subscript *t-1* are measured in the year prior to the dependent variable. *t*-statistics, reported in parentheses, are based on standard errors clustered by Industry × Year × Cohort. Variables are defined in Appendix A. *, **, *** indicate statistical significance at the 10, 5, 1% level, respectively.

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