Does Money Talk? Market Discipline through Selloffs and Boycotts

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Can market discipline affect corporate environmental and social (E&S) policies? Using international data on corporate E&S news, we show that negative coverage of firms' E&S policies affects negatively E&S-conscious investors' demand for stocks. As a consequence, firms with more E&S-motivated investors experience larger temporary declines in valuations and subsequently improve their E&S policies. Such improvements are concentrated among firms with more informative stock prices and are not due to investor engagements, suggesting that firms learn about shareholders' preferences from stock prices. Sales in E&S-conscious countries also decrease following negative E&S risk, but are not consistently associated with improvements in E&S policies.

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Investors are believed to affect firms' environmental and social (E&S) policies by engaging with management and pressuring for change (Barber, Morse, and Yasuda, 2021; Krueger, Sautner and Starks, 2021). Divestitures are often considered ineffective (Broccardo, Hart, and Zingales, 2020; Oehmke and Opp, 2020), casting doubt on whether passive mandates to invest in E&S-responsible firms can lead to a more sustainable economy. Thus, the only market-based solutions to increase sustainability would hinge upon taxes and subsidies, which lead firms to internalize the negative spillovers of their actions (Nordhaus, 2017; Golosov, Hassler, Krusell, and Tsyvinski, 2014). Free markets alone would be ineffective.

However, firms are known to use information from capital markets to improve their investment decisions (Dow and Gorton, 1997; Chen, Goldstein, and Jiang, 2007; Bakke and Whited, 2010) and could potentially do so also for their E&S policies. If this were the case, market discipline, that is, the investment decisions of even small E&S-conscious investors, could lead to a more sustainable economy. Therefore, it is important to understand whether investors can transmit their E&S preferences to firms through stock prices. At present, such evidence is lacking.

From a theoretical point of view, it is also unclear whether firms have incentives to learn about their investors' E&S preferences from stock prices. On the one hand, if investors vote with their wallets and spurn firms that fall short of their expectations on E&S standards, such firms are expected to experience a higher cost of capital, which would in turn hamper their ability to invest (Heinkel, Kraus, and Zechner, 2001). Thus, managers may have incentives to learn about investors' preferences from stock prices and react by improving corporate E&S policies in order to enhance their firm's reputation and decrease its cost of capital (Pastor, Stambaugh, and Taylor, 2021).

On the other hand, market discipline is only effective if the impact of investors' preferences is large enough to affect firm valuations. If the proportion of agents who are motivated by E&S concerns is small or the demand by other investors is very elastic, the divestitures of E&S-conscious investors are expected to have limited effects on stock prices, and in turn, on corporate policies (Broccardo, Hart, and Zingales, 2020). In addition, even if firm valuations were temporarily affected, managers who are rewarded for long-term profitability may lack incentives to improve corporate E&S policies (Davies and Van Wesep, 2018). Instead, managers may rely on investors' limited attention or memory and expect demand for the firm's stock to quickly recover following a negative shock to its reputation on E&S policies. Thus, a temporary backlash may not result in changes in firm policies, limiting the effects of market discipline.

This paper studies for the first time whether changes in investor demand can discipline firms and trigger changes in corporate behavior. We investigate the consequences of shocks to investor discontent by using a novel dataset, which monitors E&S business risks and company-specific violations of internal policies and international standards for listed companies worldwide. We conjecture that the discontent of E&S-conscious investors increases following media coverage of a firm's violations of internal or external E&S standards. We verify that these shocks to investor discontent indeed translate into lower demand for a firm's stock and then establish that firms learn about their investors' preferences from the stock price reaction to the news and that market discipline is effective in improving firms' E&S policies. Our empirical analysis consists of three steps.

First, we validate our conjecture that negative news coverage of a firm's E&S policies decreases E&S-conscious investors' demand for the firm's stock. We show that investors with pro-E&S attitudes tend to sell firms experiencing heightened E&S risks. We measure investors'

preferences using their portfolios' history of sustainability ratings, or alternatively, cultural attitudes towards E&S issues in the investors' countries of origin. Theoretically, different realizations of E&S risks can either provide information about a firm's fundamentals or reduce E&S-conscious investors' non-pecuniary benefits from holding the firm's stock. To isolate the effects of the latter, we investigate how investors with different E&S preferences trade the stock of the same company at a given point in time. We find that E&S-conscious investors decrease their shareholdings in firms experiencing heightened E&S risks to a larger extent than investors that are less concerned about E&S issues, suggesting that divestitures are not merely driven by expected performance. Ownership by non-E&S-conscious investors actually increases, confirming that E&S preferences matter. In addition, we find no significant decline in demand from E&S-conscious investors following negative corporate news unrelated to E&S policies, supporting our interpretation that changes in investor behavior are primarily driven by preferences rather than by differences in trading strategies.

Second, firms with more E&S-conscious investors should be more affected by negative E&S news coverage because their investors' disutility from holding firms with negative E&S news is higher. Not only are some E&S-conscious investors more likely to exit, but these firms will also have a relatively larger proportion of remaining E&S-conscious investors whose discontent must be compensated with higher expected returns.[1] Accordingly, we show that negative realizations of E&S risks trigger more pronounced negative abnormal returns in firms with more E&S-conscious investors, suggesting that market prices reflect investors' preferences and discontent with firms' E&S policies.

[1] This implies that a larger price drop upon the negative news revelation is needed.

Last but not least, we show that firms learn from the price drops triggered by negative realizations of E&S risks and react to investors' discontent by improving their E&S policies. In particular, firms with more E&S-conscious investors experience larger price drops upon the realization of E&S risks and subsequently encounter fewer negative E&S incidents, improve their ESG ratings, and reduce their carbon emissions.

We provide two additional pieces of evidence to support a causal interpretation of our findings. First, consistent with the mechanism we propose, the changes in E&S policies are concentrated among firms with more informative stock prices, that is, firms that have been shown to learn most from their stock prices about their investment policies (Chen, Goldstein, and Jiang, 2007). Second, we observe no differential trends in the propensity to improve E&S policies between firms with high and low E&S-conscious institutional ownership before the revelation of negative E&S news.

Throughout the analysis, we control for a firm's sales in different countries and sales changes in response to E&S risks. We show that the sales of firms experiencing heightened E&S risks decrease in countries with stronger pro-E&S attitudes. However, we do not find any evidence that stock price reactions to the news reflect customers' preferences and that firms with more E&S-conscious customers adjust their E&S policies following negative realizations of E&S risks. Thus, improvements in corporate E&S policies appear to be driven mostly by investors, indicating that the demand for firms' stocks is the primary driver of market discipline, possibly because customers have limited information on firms' corporate policies, high switching costs or short-term memory.

Finally, we explore alternative explanations and show that our results are not driven by the presence of E&S-conscious blockholders, who may improve firms' E&S policies by directly

engaging with management. Instead, we find that even small investors' demand for a stock affects the firm's behavior through its impact on the stock price.

This paper contributes to a growing literature exploring how institutional investors affect firms' E&S policies. Existing work highlights that blockholders engage with management and pressure for changes in corporate ESG policies (e.g., Dimson et al., 2015 and 2018; Starks et al., 2018; Krueger, Starks, and Sautner, 2021; Chen, Dong, and Lin, 2019; Naaraayanan, Sachdeva, and Sharma, 2020). Heath, Macciocchi, Michaely, and Ringgenberg (2021) show that flow-induced increases in socially-responsible mutual fund ownership do not lead to improvements in corporate policies. Dyck et al. (2019) find that the success of institutional investors' private engagements is largely driven by global institutions with stronger preferences for E&S policies. In contrast, we ask whether investors' stock demand and divestitures have social impact.

To the best of our knowledge, we are the first to document that investors' E&S preferences affect corporate E&S policies even if agents do not have large enough stakes to actively engage with management. Our results indicate that secondary financial markets have real effects not only on investment policies, as shown by a growing literature (Bond, Edmans, and Goldstein, 2012; Chen, Goldstein, and Jiang, 2007; Bakke and Whited, 2010), but also on E&S policies. In particular, firms appear to learn about their investors' preferences and adjust their policies accordingly.

We also contribute to a strand of the literature exploring how investor preferences affect stock prices. Theoretically, Heinkel, Kraus, and Zechner (2001), Pastor, Stambaugh, and Taylor (2019), and Pedersen, Fitzgibbons, and Pomorski (2019) study how firms' ESG standards are related to stock returns when investors have heterogenous E&S preferences. Theory suggests that if investors have strong E&S preferences, companies with weak E&S policies should have a higher

cost of capital. The empirical evidence is, however, mixed. On the one hand, Edmans (2011) and Albuquerque, Koskinen, and Zhang (2019) show that strong E&S policies increase profitability and stock returns. On the other hand, Hong and Kacperczyk (2009) and Bolton and Kacperczyk (2021) show that companies that violate E&S standards have to provide investors with higher returns, especially in countries with stronger E&S norms, where investors underweight these stocks. Consistent with this evidence, institutional investors with stronger pro-E&S attitudes have been shown to have lower risk-adjusted performance (Riedl and Smeets, 2017; Barber, Morse, and Yasuda, 2021). However, this work is silent on whether companies adjust their policies to meet their investors' preferences.

Finally, a more recent strand of the literature considers the effects of E&S-motivated customers. Dai, Liang, and Ng (2019) find that customers engage with their suppliers to improve their ESG policies. Aghion, Benabou, Martin, and Roulet (2020) show that in competitive markets, firms attempt to attract customers with stronger E&S concerns by adopting greener technologies. We explore how firms' sales in countries with different E&S norms change following negative E&S risk realizations and how these changes are related to subsequent improvements in corporate policies.

1. Data Sources and Variable Definitions

1.1 Measuring Discontent

Investors' expected utility from holding a stock decreases if a company's E&S policies are revealed to conflict with investors' preferences. This reduces E&S-conscious investors' demand for the stock. To capture shocks that may lower E&S-conscious investors' stock demand and prompt divestitures, we use negative news coverage of a company's E&S policies from RepRisk,

a leading business research provider specializing in measuring environmental, social, and governance (ESG)-related risks.

RepRisk serves the world's largest investors and provides its clients with intelligence on any adverse information about companies' business conduct regarding environmental degradation, child labor, corruption, and other similar risks. RepRisk screens daily over 80,000 media, stakeholder, and third-party sources, including print and online media, NGOs, government bodies, regulators, think tanks, newsletters, social media (e.g., Twitter), blogs, etc., for news related to firms' ESG practices. Starting from 2007, RepRisk compiles daily updates of negative news counts of company-specific issues. A given incident is counted only once, and its reach is classified based on the most influential source in which it appears.

Based on primary ISINs, RepRisk covers 10,171 (non-financial) firms around the world.[2] News is classified into 28 distinct issues, including pollution, poor employment conditions, discrimination, child labor, supply chain problems, etc. These issues are further subdivided into 45 topics, such as asbestos, land grabbing, forest burning, negligence, coal-fired power plants, etc. In addition, news is designated as high, medium and low severity, as well as high, medium and low reach, based on whether it has been distributed in specialized blogs, national or international media outlets. The classification into issues and topics is performed following a proprietary methodology that combines artificial intelligence and human analysis in 15 different languages. Table A1 lists the issues and topics of the news covered by RepRisk and their frequency.

News items in RepRisk are seldom about dramatic events, such as the BP Gulf of Mexico oil spill, which are infrequent by their very nature. Rather, RepRisk captures violations of national regulations or international standards, poor employment conditions and discrimination, tax

[2] We do not observe a trend of increased ESG news coverage over our sample period.

evasion, etc. To provide some examples, we search news coverage of the companies and topics corresponding to the news items reported in RepRisk. Table A2 provides examples for companies from a variety of industries and countries. For instance, companies like 3M and Canon are accused of sourcing their inputs from suppliers with poor environmental records. Adidas and Hasbro are accused of violating human rights and having sub-standard employment conditions directly or through their suppliers.

We also search for news about the companies' responses to the reported risk incidents, and find that firms take action. Thus, it is relevant to explore how investors and customers react to the news depending on their preferences, and whether their expected reactions affect stock prices, and in turn, firms' E&S policies.

RepRisk provides information on firms' ESG risks in several different ways. First, it counts a firm's ESG news over a month. Since most of our other data sources have quarterly or annual frequency, we use this file in most of our tests. Second, RepRisk also provides daily news about firms' ESG risks, which we use to verify that the news is consequential for firm valuations. Finally, using a moving average of past news, RepRisk computes a RepRisk index that captures the extent to which a company is exposed to ESG risks. The index uses a proprietary algorithm, ranges between 0 and 100, and takes into account news about ESG risks over a maximum of two years.

Panel A of Table 1 provides summary statistics for our measures of E&S risk based on counts of different categories of RepRisk news. In the empirical analysis, we separate E&S news from governance news and control for past governance news to focus explicitly on firms' E&S risk exposure. Since institutional investors' shareholdings are available at the quarterly frequency, we count the E&S news released over a quarter. Severe and high reach news is fairly infrequent,

with over 90% of quarterly firm observations without such risk coverage.[3] Negative coverage of firms' social policies appears to be more frequent than negative coverage of their environmental and governance issues.

Interestingly, similar to the political risk indicator constructed by Hassan, Hollander, van Lent, and Tahoun (2019), the ESG risks captured by RepRisk primarily reflect idiosyncratic firm shocks. If we regress the natural log of the number of firm-level monthly news on interactions of country and time, industry and time, or even interactions of country, industry and time fixed effects, the R-squared remains less than 10 percent. Country factors, with an R-squared of 3 percent, appear somewhat more relevant in explaining RepRisk news realizations than industry factors (whose R-squared is 2 percent).

1.2 Ownership Data and the Classification of Institutional Investors

We obtain institutional ownership data from FactSet LionShares.[4] To capture institutional investors' different preferences for sustainable investments, we rely on a revealed-preference approach, which is inspired by Morningstar's sustainability ratings of mutual fund portfolios. Specifically, we consider institutional investors that over the past two years held at least 50 percent of their portfolio in firms with Thomson Reuters ASSET4 ESG ratings, which are proprietary ESG scores ranging from 0 to 100.[5] Approximately 80% of the institutional investors in our sample fit this description. For these investors, we average the ESG ratings of the rated companies held over

[3] Thus, even if RepRisk were to miss a few news items, the control sample in our empirical analysis overweights firms without any news coverage.

[4] See Ferreira and Matos (2008) and Aggarwal, Erel, Ferreira, and Matos (2011) for a description of the data on international institutional ownership.

[5] Analysts at Thomson Reuters evaluate firms' environmental policies in three subcategories: Emission Reduction, Product Innovation, and Resource Reduction. Social performance is assessed in seven subcategories: Community, Diversity & Opportunity, Employment Quality, Health & Safety, Human Rights, Product Responsibility, and Training & Development.

the previous two years. We set the average ESG rating equal to zero for the remaining investors. Finally, we classify institutions with average portfolio ESG ratings in the top tercile as E&S-conscious and the remaining investors as non-E&S-conscious. By measuring the sustainability of an investor's past asset holdings, this approach does not suffer from the widely-discussed concern that some asset managers brand themselves as sustainable without actually pursuing sustainable investments.[6] In most of our empirical tests, we aggregate institutional ownership by E&S-conscious investors (*High Rating IO %*) and other investors (*Low Rating IO %*) at the firm-quarter level.

We also evaluate the robustness of our results to the use of an alternative classification based on the predominant cultural values in the investors' countries of origin. This proxy assumes that the pressure on institutional investors to take into account E&S issues varies with the domestic E&S norms, largely because clients and beneficiaries tend to be from an investor's country of origin.

We measure cultural values in different countries using the World Value Survey (WVS), a unique data source for analyzing trends in social, political, and cultural values around the world. The survey currently covers about 80 countries and is updated every five years. It consists of a detailed questionnaire (of about 250 questions) administered in face-to-face interviews to an average of 1,400 respondents per country. Importantly for our purposes, individuals are surveyed about their attitudes towards the environment and their willingness to do volunteer work, make donations, and participate in demonstrations in support of E&S causes.

[6] See, for instance, "EU faces Franco-Dutch call for rules to stop 'greenwashing'", available at https://www.euractiv.com/section/energy-environment/news/eu-faces-franco-dutch-call-for-rules-to-stop-greenwashing/

Attitudes towards E&S issues are effectively summarized by the survival/self-expression factor.[7] Survival values are prevalent in societies that do not support gender equality, human rights, and environmental protection. The opposite is true in countries that value self-expression. We surmise that investors in countries that value self-expression care more about E&S policies.

We consider institutional investors from countries with a WVS self-expression score in the top tercile as having strong preferences in favor of E&S issues. We refer to these investors as E&S-conscious (*High ENV IO %*). We view investors from other countries as less concerned about E&S issues (*Low ENV IO %*). Table A3 lists the self-expression scores of the countries in our sample and our classification of E&S-conscious investors.

Panel B of Table 1 describes our two measures of E&S-conscious institutional ownership. There is a large between-firm variation in E&S-conscious institutional ownership when we use our primary classification based on the sustainability of investors' portfolios. In particular, the extent of E&S-conscious institutional ownership exhibits high variation both between countries and within a country. The majority of investors with high sustainability-rated portfolios hold less than one percent ownership in the firms they invest in, which suggests that they may find it difficult to engage with management.

Ownership by institutions from High ENV countries appears to be much larger on average than ownership by institutions from Low ENV countries. This is expected because affluent countries are more concerned about E&S issues and also have more developed asset management industries. Since this alternative classification has a low correlation with the first definition based on the institutions' portfolio sustainability, it provides a useful robustness test for the role of E&S

[7] While not all questions are asked in each country in all survey rounds, answers to survey questions tend to cluster in coherent patterns (Inglehart,1997; Inglehart and Baker, 2000). For this reason, we rely on the survival/self-expression factor.

preferences. We also note that the specific classification we use to identify High ENV countries does not affect our results.[8]

1.3 Customer Sales Distribution

We also consider how sales to customers with different social preferences are affected by E&S risk. To do so, we use FactSet Revere data on firms' geographical composition of sales. We define sales to countries with high and low sensitivity to E&S issues using the World Value Survey, following the same approach we use to classify institutional ownership based on the countries' culture. Panel C of Table 1 describes the sales to High ENV and Low ENV countries.

Sales are more evenly distributed between High ENV and Low ENV countries than institutional ownership. Also, confirming that the geography of institutional ownership and the market for a firm's products do not fully overlap, the correlation between High (Low) ENV institutional ownership and High (Low) ENV sales is 54% (46%).

1.4 Other Data

We use several data sources to evaluate firms' outcomes. First, we obtain stock prices and other financial data from Datastream/Worldscope. Second, we evaluate changes in firms' E&S policies using annual Thomson Reuters ASSET4 ESG ratings, and carbon emissions and broader direct environmental costs from S&P Trucost. Finally, we use Ravenpack to explore how institutions react to general negative media coverage of a firm. We exclude news on ESG policies[9]

[8] We use the survival/self-expression factor to be able to classify the largest set of countries possible. However, as shown in Table A4, our results are invariant if we focus only on countries with E&S values above and below the median, defined as in Table 5 of Dyck et al. (2019). We are unable to extend their classification to the full set of countries based on the information provided in the paper.

[9] Ravenpack offers limited coverage of corporate social responsibility news (only 459 companies have such coverage).

and count firm-specific negative news, which we define as news with Ravenpack event sentiment scores below 25, i.e., extremely negative sentiment. The correlation between negative news from Ravenpack and E&S News (or Total News) from RepRisk is only 16%.

Panel D of Table 1 summarizes the main variables from Datastream, Ravenpack, and Thomson Reuters ASSET4 ESG.

2. Do Investors and Customers React to Environmental and Social Risk?

Our objective is to establish whether firms learn about their investors' E&S preferences from divestitures and stock prices and adapt their E&S policies accordingly. In this section, we study how investors and customers respond to the revelation of firms' heightened E&S risks.

2.1 Institutional Ownership

If negative news coverage of firms' E&S policies led to higher discontent of E&S-conscious investors, we should observe that these investors' shareholdings decrease when negative news is revealed.

We face the challenge that negative realizations of E&S risk can also affect firm fundamentals, not least because – as we also posit – E&S risk can hurt firms' product market. Hence, E&S risk may matter for investment decisions, independently from investors' non-pecuniary preferences. However, as in the theoretical model of Goldstein, Kopytov, Shen, and Xian (2021), any effects of E&S risk through firm fundamentals should affect all investors similarly, irrespective of their preferences. In contrast, if shareholders' non-pecuniary preferences matter, we should observe a disproportionate decrease in the holdings of E&S-conscious investors in a given firm following negative realizations of E&S risk. The trades of investors that only care

about performance should have the opposite sign. Thus, to evaluate whether E&S preferences matter, we compare changes in ownership by investors with different E&S preferences.

We explore how the composition of institutional ownership changes following negative news about a firm's E&S policies by regressing the percentage of shares owned by institutions with different E&S preferences in firm *f* at the end of quarter *t* on the (natural log of one plus the) number of news about E&S risk issues covered during that quarter:

$$IO_{ft}^{type} = \alpha + \beta \times E\&S\ Risk_{ft} + \gamma \boldsymbol{X_{ft-1}} + \boldsymbol{\delta_f} + \boldsymbol{\xi}_t + \varepsilon_{ft},$$

where *type* refers to our different definitions of E&S-conscious and other investors. In all regressions, we include firm ($\boldsymbol{\delta_f}$) and time ($\boldsymbol{\xi}_t$) fixed effects, and a host of firm controls measured at the beginning of the quarter ($\boldsymbol{X_{ft-1}}$), including market value, cash holdings, dividend yield, asset tangibility, return on assets, leverage, average return over the previous year, concentration of institutional ownership, Thompson Reuters ESG rating, and an indicator variable for whether the firm has such a rating.

Thus, a negative coefficient on $E\&S\ Risk_{ft}$ captures whether in quarter *t*, in which a firm experiences more negative E&S coverage, ownership by E&S-conscious or other investors falls below the firm's average ownership by that investor type over the sample period. This timing implicitly assumes that investors' divestitures occur in the same quarter as the negative news coverage.[10]

In Table 2, we separately consider the ownership of institutional investors with high and low sustainability-rated portfolios. In columns 1 and 2, the dependent variable is the percentage of

[10] The interpretation of our findings would not change if some E&S-conscious investors sold in anticipation of heightened E&S risk during the quarter, as the results would still imply that discontent due to E&S risk leads E&S-conscious investors to sell.

shares outstanding held by institutional investors with average past portfolio ESG ratings in the top tercile – *High Rating IO %*. The percentage of institutional ownership by E&S-conscious investors in a firm decreases in quarters in which there is more negative news coverage of its E&S-related activities. This result is robust when we use different proxies for E&S risk, such as *Total News* or just *E&S News*, and does not depend on concurrent governance news, for which we control throughout. The effect is not only statistically but also highly economically significant. For example, in column 1, an average number of news is associated with a drop in ownership by E&S-conscious investors of 18.74%, relative to the within-firm standard deviation of *High Rating IO %* (3.18). The effect is also robust when we focus on *High Reach News* and *Severe News* in the first two columns of Table A5, indicating that E&S-conscious investors do not sell more just because they face news of different intensity and reach.[11]

In addition, as shown in columns 1 and 2 of Table A6, the effect of E&S risk on E&S-conscious investor ownership persists in the following quarter. The magnitude of the coefficients on the different measures of E&S risk is slightly smaller, but the coefficients are still highly statistically significant, confirming that E&S-conscious investors sell following the realization of negative E&S risk.

Columns 3 and 4 of Table 2 show that investors that we classify as having weaker E&S preferences – labeled as *Low Rating IO %* – increase their shareholdings in companies experiencing heightened E&S risk.[12] This evidence indicates that investor discontent, rather than firm fundamentals, is more likely to explain the drop in ownership by E&S-conscious investors.

[11] If anything, companies held to a larger extent by *High Rating IO %* investors experience fewer severe and high reach news than other companies.

[12] Note that this effect is not mechanical because firms' shares are also held by other shareholders that we do not observe. Thus, a negative realization of E&S risk results in an overall drop in institutional ownership, which is only partially offset by the increase in the ownership of non-E&S-conscious investors.

The net effect of heightened E&S risk is a drop in overall institutional ownership, which persists in the following quarter (Table A7).

Table 3 repeats the tests in Table 2 using our second definition of E&S-conscious investors based on the cultural values in the investors' countries of origin (*High ENV IO %*). Consistent with our earlier results, columns 1 and 2 show that investors from E&S-conscious countries react to heightened E&S risk by reducing their shareholdings. This effect is highly significant, both statistically and economically. In column 1, an average number of *Total News* is associated with a drop in institutional ownership by E&S-conscious investors of 10.6%, relative to the within-firm standard deviation of *High ENV IO %* (4.0).

The opposite is true for investors from less E&S-conscious countries, although this result is statistically significant only in the case of *E&S News*, as shown in column 4. Importantly, these findings do not depend on the particular ranking we use to classify countries as more or less E&S-conscious. As shown in Table A4, results are qualitatively similar if we rely on the classification of Dyck et al. (2019). Thus, non-E&S-conscious investors increase their holdings in firms that experience higher E&S risk, partially offsetting the decrease in institutional ownership by investors from countries with pro-E&S attitudes. The differential effects of E&S risk on investors with different E&S preferences suggest that divestitures are driven by discontent with firms' E&S policies rather than negative expectations about the firms' future performance.

Overall, the empirical evidence indicates that heightened E&S risk translates into a decline in ownership by E&S-conscious investors. Such a drop is partially offset by an increase in ownership by non-E&S-conscious investors, resulting in a relatively small decrease in total institutional ownership.[13] It is an empirical question whether the drop in demand by E&S-

[13] As shown in column 1 of Table A7, an average number of *Total News* is associated with a drop in institutional ownership of slightly less than half a percentage point (0.41=ln(1+45)*0.108).

conscious investors is sufficient for the market to revise downward firms' valuations and for firms to change their subsequent E&S policies.

2.2 Sales Composition

E&S-conscious customers are also likely to care about the policies of the firms that produce the goods they purchase. Customers' preferences can affect not only firms that sell final products but also firms that sell intermediate goods. Since firms' ESG ratings and reputation are affected by the E&S policies of their suppliers (Dai, Liang, and Ng, 2019), firms in E&S-conscious countries, having E&S-conscious investors and customers[14], may reduce their dependence on suppliers with higher E&S risk.

For this reason, we explore how a firm's sales in countries with different E&S preferences vary with negative news coverage of the firm's E&S policies, using an empirical model analogous to the one we use to study changes in institutional ownership.

Table 4 shows that sales to E&S-conscious countries decrease in years with heightened E&S risk.[15] For example, in column 2, an average number of *E&S News* (81) is associated with a drop in sales to E&S-conscious countries by 14.8%, relative to the within-firm standard deviation of *High ENV Sales* (4.6). Consistent with the conjecture that customers' preferences matter, in columns 3 and 4, we do not find any effect of negative E&S risk on firm sales to less E&S-conscious countries.

[14] Local biases shape the geography of investment and sales (see Bernard, Moxnes, and Saito, 2019).
[15] The unit of observation in these models is firm-year.

2.3 Investors' and Customers' Response to General Negative Firm News

We also consider whether our classification of E&S-conscious investors may be reflecting differences in the investors' trading styles in reaction to negative news. Changes in sales in different countries could similarly capture different responses to negative news.

Columns 1 and 2 of Table 5 consider investors' reactions to general negative news. If we were just capturing that some investors are more responsive to negative news, we should observe that institutions with strong E&S preferences react more negatively to all news, not only to news related to E&S risks. On the contrary, in column 1, general negative news coverage is associated with an increase in the shareholdings of E&S-conscious investors, possibly because stock prices over-react and investors purchase underpriced stocks. In contrast, in column 2, investors with less sustainable portfolios appear to decrease their holdings after negative news about a company. This evidence alleviates the concern that we may be capturing differences in trading styles and indicates that the patterns in institutional ownership we highlight capture investors' preferences on E&S issues.

In column 3, we explore how the proportion of sales to E&S-conscious countries varies with general negative news about a firm. To the extent that E&S-conscious countries are wealthier, customers in these countries may be more concerned about product quality. Thus, their demand may decrease to a larger extent if concerns about the firm's reputation arise, regardless of whether these concerns are due to E&S issues. We find that the percentage of sales to E&S-conscious countries is unaffected. This is in contrast to our earlier finding that only E&S-conscious customers react negatively to heightened E&S risk, confirming our conjecture that their preferences on E&S issues matter.

Overall, these results indicate that investors and consumers vote with their wallets. In what follows, we explore whether higher ownership by E&S-conscious investors and higher sales to E&S-conscious customers make firms' valuations more sensitive to negative realizations of E&S risk. This could be due not only to investors' contemporaneous divestitures but also to the market's expectations of further investor exits and reduced investor and consumer demand. We then ask whether companies take actions to improve their reputations.

3. Do E&S-conscious Investors and Customers Affect Stock Prices?

This section explores how E&S risk affects stock returns and how this relation depends on the market's anticipation of the reactions of E&S-conscious investors and customers, holding constant the intensity of E&S risk.

In Table 6, we perform an event study around negative news coverage of E&S risk. In particular, we compute firms' daily abnormal returns either by subtracting the market return or as the residuals of a Fama and French (1993) three-factor model, estimated over the 252 days before the event. We then cumulate abnormal returns from one day before to one day after the news coverage. The univariate evidence in Panel A of Table 6 shows that firms experience negative short-term abnormal returns around the realizations of E&S risk, demonstrating the relevance of these occurrences. These findings also confirm results in prior literature that negative news about firms' E&S policies is associated with negative abnormal returns (Karpoff, Lott, and Wehrly, 2005; Flammer, 2013; Krueger, 2015; and Serafeim and Yoon, 2020).

In Panel B of Table 6, we investigate whether investors' and customers' preferences are associated with firms' stock price responses to heightened E&S risk. We test whether firms with

ex-ante larger ownership by E&S-conscious investors, or with ex-ante higher sales in E&S-conscious countries, experience more negative abnormal returns.

Given that the ownership data are available only at the quarterly frequency, we are unable to relate actual sales by E&S-conscious investors to price reactions. Arguably, this test would not be the correct one to perform. Even if the sales by E&S-conscious investors occur later in the quarter, market participants would presumably incorporate the anticipated effects of changes in ownership structure. In addition, higher expected returns going forward may compensate the remaining E&S-conscious investors for E&S risk. It is therefore more meaningful to ask whether the composition of institutional ownership or the geography of sales increase a firm's exposure to negative realizations of E&S risk.

The results in Table 6 show that firms with more E&S-conscious investors have more negative stock price reactions when they experience heightened E&S risk. A high proportion of sales in E&S-conscious countries does not affect firms' exposure to E&S risk; if anything, we find a small positive reaction for firms with more sales in E&S-conscious countries, possibly indicating that these firms are difficult to substitute. The parameter estimates are obtained by including interactions of country and year fixed effects as well as industry fixed effects and firm-level controls as in Table 2.

In terms of economic magnitudes, the estimates in column 3 of Panel B, focusing on *All News*, imply that a one-standard-deviation increase in *High Rating IO %* is associated with a 1.73 standard-deviation decrease in market-adjusted returns. These effects are even stronger when we focus only on *E&S News.* Estimates are equally robust when we use the Fama-French three-factor model to estimate firm-level abnormal returns.

These effects should be interpreted as coming only in part from the actual divestitures by E&S-conscious investors occurring in the quarter of negative news coverage. They may also capture market participants' fears of future investor exits and sales drops if the company's reputation deteriorates further in subsequent quarters. Crucially, the price reaction also captures expectations about corporate actions.[16] Thus, while the behavior of investors and customers may be expected to inflict a stronger punishment on firms with more E&S-conscious investors and customers, anticipation that these firms may improve their E&S policies would tend to reduce the negative price impact.

Interestingly, the firm's ESG rating (whose coefficient we do not report in Panel B for brevity) is not significantly related to the stock price reaction triggered by negative E&S risk. This indicates that while corporate social responsibility may be able to shield firms from shocks unrelated to E&S policies (Lins, Servaes, and Tamayo, 2017; Hong, Kubik, Liskovich, and Scheinkman, 2019), such mitigating effects are not present when the firm's reputation about E&S policies is at risk.

4. Effects of Investors' and Customers' Backlash on Corporate Policies

In this section, we explore the long-term effects of stock price reactions and investor behavior on corporate policies. So far, we have shown that firms with more E&S-conscious investors experience more negative market reactions to negative E&S news. If market discipline were effective, we would expect these firms to improve their policies to a larger extent.

[16] See Bond, Goldstein, and Prescott (2010) for a model in which market prices incorporate firms' corrective actions. In our context, the threat by customers and suppliers remains credible not because they have non-public information, but because of their preferences towards E&S policies. Disutility from holding the stock of companies with negative realizations of E&S risk can prompt investors to sell, even if they anticipate improvements in the companies' ESG policies.

4.1 Learning from the Market Reaction

Chen, Goldstein, and Jiang (2007) test whether managers learn about their firms' fundamentals from the stock price by showing that investment is more sensitive to corporate valuations in firms with more informative stock prices. We posit that a high level of price informativeness could enable managers to learn about shareholders' preferences from the market reaction to negative E&S news and lead them to adapt their firms' E&S policies.

To test this, we relate price reactions to negative realizations of E&S risk to subsequent changes in corporate E&S policies. To provide direct evidence that firms learn from the stock price, we test whether firms with more informative stock prices respond more to negative abnormal returns due to negative realizations of E&S risk.[17]

We estimate a firm's price informativeness using a measure of price non-synchronicity, as Chen, Goldstein, and Jiang (2007) do. The measure of price informativeness aims to capture price non-synchronicity and is estimated as $1\text{-}R^2$, where R^2 is from a regression of the firm's daily return on the MSCI world market return and the industry return.[18] We estimate this regression using daily returns for firm *i* in year *t*-1. We then ask whether the policy response to the negative announcement returns upon the realizations of negative E&S risk is stronger for firms with more informative stock prices.

Table 7 tests whether firms learn from the market reaction. In columns 1 and 2, we explore how a firm's change in its Thomson Reuters *CSR Strategy Score* between *t* and *t+1* depends on the market reaction to negative E&S news. Specifically, we consider the (market-adjusted or

[17] This test is similar to Chen, Goldstein, and Jiang (2007), who investigate whether the investment of firms with more informative stock prices is more responsive to Tobin's Q, although announcement returns are less subject to endogeneity problems than Tobin's Q.

[18] We acknowledge that lacking a structural interpretation, R^2 can have alternative interpretations (Davila and Parlatore, 2021). In our empirical application, R^2 captures by construction the fact that the short-term price reaction to negative E&S news cannot be attributed to aggregate factors. Such an interpretation does not rely on stock prices being informative in other states of the world.

Fama-French three-factor model) CARs experienced by the firm during the three days around any negative realization of E&S risk during year *t*. We set the indicator variable *Very Negative Market Reaction* equal to one if the lowest three-day CARs associated with any negative E&S news revealed during year *t* belong to the bottom quintile, and zero otherwise. CARs are also set to zero in years in which a firm experiences no negative E&S news coverage.

The *Very Negative Market Reaction* dummy has a positive and statistically significant effect on a firm's change in CSR score during the following year only when it is interacted with the proxy for price informativeness. Hence, companies that experience very negative abnormal returns upon the revelation of negative E&S news subsequently improve their *CSR Strategy Score* only if they have more informative stock prices and can therefore attribute the negative market reactions to the negative news realizations. The effect is also highly economically significant. In column 1, following an increase in E&S risk, a firm with high stock price informativeness that experiences a very negative market reaction improves its *CSR Strategy Score* by 1.4 points (relative to the average change in *CSR Strategy Score* of 1.41).

We obtain our results controlling for a wide range of firm characteristics. In particular, one may wonder whether firms always react to poor performance by improving their ESG policies, perhaps to maintain or gain investors' trust. For this reason, we control for the firm's average stock returns over year *t*. This control (coefficient not reported) does not appear to be systematically related to the firm's ESG policies.

The improvements in future ESG policies also do not depend on the firm's initial ESG rating, as all empirical models include firm fixed effects. Firm fixed effects also capture systematic differences in E&S policies related to the firms' countries of origin, industries, and legal

environments (Liang and Renneboog, 2017). Thus, our results suggest that firms use their ESG policies to repair their reputations following negative realizations of E&S risk.

ESG ratings provided by different agencies, albeit positively correlated, are often in disagreement because rating agencies focus on different attributes, measure them differently, or construct the final scores by aggregating attributes using different weights (Berg, Koelbel, and Rigobon, 2019). For this reason, we consider an event-based measure of negative firm ESG policies based on RepRisk. As Li and Wu (2020) argue, the frequency of negative ESG events depends on news coverage and cannot be manipulated as easily. In columns 3 and 4, we use the RepRisk index to assess changes in E&S policies. The estimates confirm the results in columns 1 and 2. In the year following negative news coverage of E&S risks, negative ESG incidents, captured by a higher RepRisk index, decrease to a larger extent in firms that experience more negative price reactions and have more informative stock prices, suggesting that these firms improve their E&S policies.

This evidence provides a direct link between the punishment inflicted by investors, price informativeness, and the subsequent changes in firm policies.

4.2 The Role of Investors' Preferences

We have shown so far that market discipline appears to be effective for firms with more informative stock prices. In Table 8, we explore whether this result is indeed driven by firms that experience negative realizations of E&S risk because they have more E&S-conscious investors. These firms should be more inclined to improve their E&S policies not only because they experience divestitures and larger drops in valuations, but also because they may want to avoid further exits of their E&S-conscious investors.

We test whether the improvements in E&S policies are long-lasting by interacting E&S-conscious institutional ownership at *t*-1 with the average of any negative E&S news the firms have experienced up to year *t*. That is, we test whether firms that have experienced relatively more negative realizations of E&S risk have better subsequent E&S policies when their investors are more E&S-conscious.[19] In these specifications, we control for ex-ante higher sales to E&S-conscious countries.

Column 1 in Panel A of Table 8 shows that a one-standard-deviation increase in ex-ante E&S-conscious institutional ownership is associated with an improvement in the firm's *CSR Strategy Score* at *t*+1 by 1.9 points, following an average increase in average past news (equal to ln(1+13.67)).[20] As shown in Figure 1, firms with more E&S-conscious investors start improving their CSR ratings to a larger extent only after experiencing the negative shocks, suggesting that omitted factors are unlikely to drive our findings and that the price drops triggered by investors' sales indeed affect corporate policies.

In addition, we find no consistent evidence across specifications that ex-ante higher sales in E&S-conscious countries are associated with improvements in firms' *CSR Strategy Score* following negative E&S risks. This may reflect that customers do not have access to as much information as investors, who monitor firms' E&S risks using a variety of metrics, including RepRisk.[21] Firms' costs in switching suppliers may also explain why we find limited evidence of market discipline associated with customers' E&S preferences.

[19] We use the average E&S news to take into account that our sample is unbalanced and that firms covered for a larger number of years have more negative E&S news.
[20] The within-firm standard deviation of *CSR Strategy Score* is 11.3.
[21] A recent article in *The Economist* mentions RepRisk as a tool used by investors to monitor ESG Risk. See "ESG Investors Get Their Heads around Social Risks", June 4, 2020.

In columns 2 and 3 of Panel A, we consider firms with more or less informative stock prices. Following negative realizations of E&S risk, firms with ex-ante more E&S-conscious institutional ownership respond by improving their E&S policies to a larger extent if they have more informative stock prices. These estimates mitigate concerns that E&S-conscious institutional ownership is related to other firm characteristics affecting firms' reactions to negative E&S coverage and support our conjecture that firms learn about their investors' preferences from stock prices.

Our conclusions remain unchanged in columns 4 to 6, where we consider the *RepRisk Index* to proxy for a firm's improvement in E&S policies. Finally, in Panel B, we confirm our results using measures of firms' carbon emissions from burning fossil fuels and production processes and the broader total direct environmental costs, which we obtain from S&P Trucost.

Overall, these results indicate that there are actual long-term improvements in the E&S policies of firms that have experienced more negative realizations of E&S risk in the past and happen to have more E&S-conscious investors.[22] In addition, the fact that we can confirm our findings not only considering future E&S risk, measured by the *RepRisk Index*, but also actual carbon emissions and total direct environmental costs suggests that firms do not just window dress to attempt to improve their reputation. Their policies appear to improve even when we consider more homogenous and harder to manipulate metrics based on carbon emissions and other environmental costs. In sum, the E&S policies of firms with more informative stock prices are more responsive to the preferences of their investors.

[22] Consistent with the long-term improvements in corporate policies, in columns 3 and 4 of Table A6, we find that E&S-conscious institutional ownership increases one year after the negative E&S news coverage.

5. Blockholder Engagements

Our results suggest that investors can exercise market discipline and affect firms' E&S policies. In contrast, existing literature has highlighted that blockholders are able to engage with companies and obtain improvements in E&S policies. A possible concern is that the companies that have more informative stock prices and improve their E&S policies are the ones in which blockholders engage with management. Thus, these improvements may occur independently from the divestitures of E&S-conscious investors and the negative market reactions.

Table 9 explores the role of blockholders that can potentially engage with management and push for improvements in E&S policies following negative realizations of E&S risk. We find no evidence that this alternative mechanism is at work. Panel A shows that both small and large E&S-conscious investors – defined as institutional shareholders with ownership below and above 1%, respectively – divest firms following heightened E&S risk.[23]

Panel B shows that consistent with the existence of market discipline, the improvements in E&S policies (measured by *CSR Strategy Score*) are driven by small E&S-conscious investors (column 3). In fact, E&S-conscious blockholders appear to play a more limited role, as seen from the statistically insignificant interaction between *High Rating IO – Large %* and *Average Past E&S News*. This evidence confirms that the effects we document are mostly due to E&S-conscious investors' actual and threatened divestitures rather than to blockholder engagement.

6. Conclusions

We show that the effects of negative news coverage of firms' E&S policies on corporate valuations are magnified in firms with more E&S-conscious investors and more informative stock

[23] In unreported tests, we find no evidence that new blockholders arrive following negative realizations of E&S risk.

prices. Following negative realizations of E&S risk, firms that experience more negative abnormal returns improve their E&S policies, regardless of their initial sustainability ratings. Overall, our results indicate that market discipline can play a powerful role in achieving a more sustainable economy, thus offering important policy implications.

Market discipline works if firms have informative stock prices and investors are able to evaluate firms' E&S policies. Hence, better disclosure may enhance market discipline not only by improving the informativeness of stock prices (Morck, Yeung, and Yu, 2000; Jin and Myers, 2006), but also by enabling investors to more closely monitor firms' E&S policies. Yet, despite strong pressure from institutional investors, regulatory agencies have been reluctant to impose uniform disclosure standards regarding E&S policies.[24] Driven by increased interest in E&S issues, the media and private data providers have stepped in to provide information on firms' long-term sustainability policies. Still, mandated standards of disclosure may enhance market discipline and become a powerful instrument in incentivizing firms to adopt E&S-friendly policies.

[24] See "SEC urged by institutions to mandate ESG disclosure", October 2, 2018, *Pensions and Investments.*

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Figure 1. E&S-conscious institutional ownership and CSR policies

Figure 1 plots the residuals from an OLS regression of a firm's *CSR Strategy Score* on firm controls and firm and year fixed effects (as in column 1 of Table 8). The plot compares the *CSR Strategy Score* of firms with high proportions of E&S-conscious investors (right *y*-axis, blue line with solid diamond markers) and firms with low proportions of E&S-conscious investors (left *y*-axis, red line with hollow circle markers) in the years preceding and following the negative news coverage. The sample includes only firms with negative E&S news.

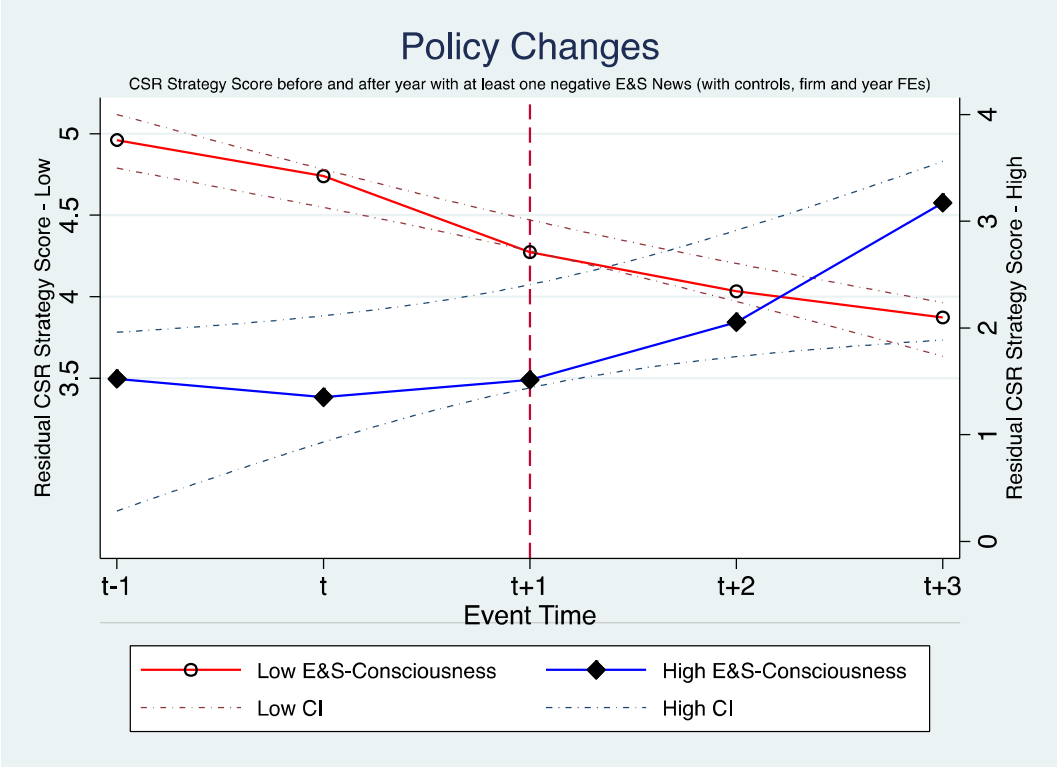

Table 1. Summary statistics

This table reports summary statistics of E&S risk news coverage (Panel A), institutional ownership (Panel B), sales (Panel C), and other firm characteristics (Panel D). The sample period is between 2007 and 2016. *High (Low) Rating IO %* is the percentage of firm ownership by institutional investors with average portfolio sustainability ratings in the top tercile (not in the top tercile). *High (Low) ENV IO %* is the percentage of firm ownership by institutional investors from countries in the top tercile (not in the top tercile) of the World Value Survey (WVS) self-expression score. *High ENV Sales %* is the percentage of firm sales in countries in the top tercile of the WVS self-expression score. All other variables are defined in the Appendix.

Variable	Num Obs	Mean	Std Dev	10th	90th
Panel A – E&S Risk					
RepRisk					
RepRisk Index	235,552	6.380	10.406	0.000	22.33
Total News	235,552	5.672	64.986	0.000	2.000
Severe News	235,552	3.365	39.119	0.000	0.000
High Reach News	235,552	1.932	23.506	0.000	0.000
Environment News	235,552	1.459	16.154	0.000	0.000
Social News	235,552	2.451	32.820	0.000	0.000
Governance News	235,552	1.762	22.755	0.000	0.000
Panel B – Ownership					
FactSet					
Inst Ownership %	228,893	29.321	31.862	0.797	88.013
High Rating IO %	235,552	3.871	6.643	0.000	11.584
Low Rating IO %	235,552	13.627	15.642	0.047	40.057
High ENV IO %	235,552	15.820	17.545	0.000	44.613
Low ENV IO %	235,552	1.650	3.557	0.000	5.458
High Rating IO - Small %	235,552	1.752	2.685	0.000	5.321
High Rating IO - Large %	235,552	2.086	4.661	0.000	6.913
IO Concentration	228,891	23.342	28.049	3.072	71.937
Panel C – Sales					
FactSet Revere					
High ENV Sales %	55,239	37.396	39.206	0.000	100.000
Ln Sales	55,239	20.345	6.749	15.417	26.210
Ln High ENV Sales	55,239	16.445	12.461	0.000	28.273
Ln Low ENV Sales	55,239	18.394	12.384	0.000	30.225
Panel D - Other Data					
Datastream					
Leverage	225,730	0.341	0.273	0.000	0.674
Tangibility	226,087	0.328	0.235	0.051	0.684
ROA	226,389	0.017	0.144	-0.079	0.123
Cash	226,389	0.083	0.109	0.004	0.235
Dividend	226,648	1.700	2.220	0.000	4.480
Average Return	226,690	-0.001	0.042	-0.051	0.046
Market Value	226,631	8.507	2.839	5.021	12.358
Thomson Rated	235,552	0.373	0.484	0.000	1.000
Thomson Rating	85,025	56.898	29.846	12.850	92.880
Raw Return (%)	656,694	0.237	12.515	-13.571	14.918
Market Excess Return (%)	656,694	-0.430	12.111	-13.622	14.315
Ravenpack					
Total Negative News	191,895	0.551	1.730	0.000	2.000
Thomson Reuters ASSET4 ESG					
CSR Strategy Score	20,974	55.246	27.509	19.15	91.43

Table 2. Institutional investors with sustainable portfolios and E&S risk

This table reports OLS estimates of E&S-conscious institutional ownership on E&S risk, measured by RepRisk news counts. The observations are firm-quarter. The dependent variable is *High (Low) Rating IO %* for firm *i* in quarter *t*, which is the percentage of firm ownership by institutional investors with average portfolio ESG ratings in the top tercile (not in the top tercile). All models control for the firm's number of governance news in the past four quarters and lagged firm characteristics, and also include year-quarter fixed effects and firm fixed effects. The *t*-statistics, calculated with standard errors clustered at the firm level, are reported in parentheses. Statistical significance at the 10%, 5%, and 1% level is denoted by *, **, and ***, respectively.

	(1)	(2)	(3)	(4)
	High Rating IO %		Low Rating IO %	
Total News	-0.105***		0.050*	
	(-5.231)		(1.729)	
E&S News		-0.106***		0.055
		(-4.215)		(1.521)
Past Governance News	0.038	0.028	-0.042	-0.038
	(1.145)	(0.824)	(-0.870)	(-0.770)
Market Value	0.649***	0.649***	2.070***	2.070***
	(12.392)	(12.397)	(21.340)	(21.336)
Cash	-0.106	-0.106	0.297	0.297
	(-0.319)	(-0.320)	(0.520)	(0.520)
Dividend	0.085***	0.085***	0.033	0.033
	(6.101)	(6.101)	(1.604)	(1.603)
Tangibility	0.278	0.283	0.979**	0.976**
	(0.941)	(0.956)	(2.084)	(2.079)
ROA	0.690***	0.691***	0.520	0.519
	(3.436)	(3.442)	(1.349)	(1.348)
Leverage	0.697***	0.696***	-1.569***	-1.569***
	(3.629)	(3.626)	(-4.925)	(-4.925)
Average Return	1.072**	1.077**	-0.852	-0.853
	(2.144)	(2.154)	(-1.009)	(-1.010)
Thomson Rated	2.115***	2.114***	-0.187	-0.187
	(16.108)	(16.098)	(-0.925)	(-0.923)
Thomson Rating	0.042***	0.042***	-0.024***	-0.024***
	(12.564)	(12.560)	(-4.976)	(-4.974)
IO Concentration	-0.759***	-0.760***	-3.534***	-3.533***
	(-4.826)	(-4.829)	(-14.568)	(-14.568)
Constant	-4.778***	-4.784***	-2.081**	-2.078**
	(-9.179)	(-9.192)	(-2.190)	(-2.186)
Observations	191496	191496	191496	191496
Adjusted R-squared	0.701	0.701	0.872	0.872
Firm & YQ FE	Yes	Yes	Yes	Yes

Table 3. Institutional ownership from E&S-conscious countries and E&S risk

This table reports OLS estimates of E&S-conscious institutional ownership on E&S risk, measured by RepRisk news counts. The observations are firm-quarter. The dependent variable is *High (Low) ENV IO %* for firm *i* in quarter *t*, which is the percentage of firm ownership by institutional investors from countries in the top tercile (not in the top tercile) of the World Value Survey (WVS) self-expression score. All models control for the firm's number of governance news in the past four quarters and lagged firm characteristics as reported in Table 2, and also include year-quarter fixed effects and firm fixed effects. The *t*-statistics, calculated with standard errors clustered at the firm level, are reported in parentheses. Statistical significance at the 10%, 5%, and 1% level is denoted by *, **, and ***, respectively.

	(1)	(2)	(3)	(4)
	High ENV IO %		Low ENV IO %	
Total News	-0.075***		0.007	
	(-3.012)		(1.102)	
E&S News		-0.084**		0.020***
		(-2.556)		(2.677)
Past Governance News	-0.035	-0.041	0.009	0.008
	(-0.731)	(-0.843)	(0.666)	(0.545)
Observations	191496	191496	191496	191496
Adjusted R-squared	0.926	0.926	0.746	0.746
Controls	Yes	Yes	Yes	Yes
Firm & YQ FE	Yes	Yes	Yes	Yes

Table 4. Sales in E&S-conscious countries and E&S risk

This table reports OLS regression estimates of firm sales in E&S-conscious and non-E&S-conscious countries, respectively, on E&S risk, measured by RepRisk news counts. The observations are firm-year. The dependent variables are one plus the natural logarithm of total sales for firm *i* in year *t* in high (low) E&S-conscious countries, defined as those in the top tercile (not in the top tercile) of the WVS self-expression score. All models control for the firm's number of governance news in the past year and lagged firm characteristics as reported in Table 2, and also include firm and year fixed effects. The *t*-statistics, calculated with standard errors clustered at the firm level, are reported in parentheses. Statistical significance at the 10%, 5%, and 1% level is denoted by *, **, and ***, respectively.

	(1)	(2)	(3)	(4)
	Ln High ENV Sales		Ln Low ENV Sales	
Total News	-0.122**		-0.073	
	(-2.485)		(-1.541)	
E&S News		-0.155***		-0.048
		(-2.645)		(-0.918)
Past Governance News	-0.155**	-0.162**	-0.160***	-0.170***
	(-2.406)	(-2.506)	(-2.610)	(-2.766)
Observations	35748	35748	35748	35748
Adjusted R-squared	0.710	0.710	0.619	0.619
Controls	Yes	Yes	Yes	Yes
Firm & Year FE	Yes	Yes	Yes	Yes

Table 5. E&S-conscious institutional ownership/sales and general negative news

This table reports OLS regression estimates of E&S-conscious and non-E&S-conscious institutional ownership and sales in E&S-conscious countries on general negative news from Ravenpack. The observations are firm-quarter in columns (1) and (2), and firm-year in column (3). All models include lagged firm controls as reported in Table 2, firm and year-quarter fixed effects in columns (1) and (2), and firm and year fixed effects in column (3). The *t*-statistics, calculated with standard errors clustered at the firm level, are reported in parentheses. Statistical significance at the 10%, 5%, and 1% level is denoted by *, **, and ***, respectively.

	(1)	(2)	(3)
	High Rating IO %	Low Rating IO %	High ENV Sales %
General Negative News	0.173***	-0.274***	0.150
	(5.214)	(-5.761)	(1.158)
Observations	191496	191496	32786
Adjusted R-squared	0.701	0.872	0.883
Controls	Yes	Yes	Yes
FE	Firm & YQ	Firm & YQ	Firm & Year

Table 6. Stock returns and E&S risk

This table reports abnormal stock returns (in percentages) around E&S risk events, measured by RepRisk news. Panel A reports univariate *t*-tests of short-term CARs, cumulated from one day before to one day after the RepRisk news event and calculated by subtracting the value-weighted market index or as the residual of a three-factor Fama-French model, estimated over the 252 days before the event day. Panel B presents cross-sectional regression estimates for short-term CARs. All models include controls for lagged firm characteristics as reported in Table 2, country-by-year fixed effects, and industry fixed effects. All variables are defined in the Appendix. The *t*-statistics, calculated with standard errors clustered at the firm level, are reported in parentheses. Statistical significance at the 10%, 5%, and 1% level is denoted by *, **, and ***, respectively.

Panel A. Univariate statistics

	All News	*E&S News*
Market adjusted CARs (-1,1)		
Mean	-0.142	-0.089
t-value	-13.4	-5.9
N	109382	56664
FF3 adjusted CARs (-1,1)		
Mean	-0.147	-0.09
t-value	-14.2	-6.2
N	109382	56664

Panel B. Cross-sectional analysis

	(1)	(2)	(3)	(4)	(5)	(6)
	CAR (-1,+1) - Market adjusted			CAR (-1,+1) - FF3 adjusted		
	All News					
High Rating IO %	-0.767**		-0.772**	-0.778**		-0.783**
	(-2.316)		(-2.334)	(-2.346)		(-2.367)
High ENV Sales %		0.061	0.063		0.060	0.062
		(1.028)	(1.061)		(1.038)	(1.075)
Observations	71377	71377	71377	71377	71377	71377
Adjusted R-squared	0.010	0.010	0.010	0.009	0.009	0.009
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Ctry*Year & Ind FE	Yes	Yes	Yes	Yes	Yes	Yes

	(1)	(2)	(3)	(4)	(5)	(6)
	CAR (-1,+1) - Market adjusted			CAR (-1,+1) - FF3 adjusted		
	E&S News					
High Rating IO %	-1.042**		-1.062**	-0.872*		-0.893*
	(-2.102)		(-2.149)	(-1.728)		(-1.778)
High ENV Sales %		0.174**	0.177**		0.185**	0.188**
		(2.221)	(2.264)		(2.405)	(2.445)
Observations	38774	38774	38774	38774	38774	38774
Adjusted R-squared	0.011	0.011	0.011	0.011	0.011	0.011
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Ctry*Year & Ind FE	Yes	Yes	Yes	Yes	Yes	Yes

Table 7. Firms' policy responses to negative price reactions

This table reports OLS regression estimates of firms' policy responses to E&S risk. The observations are firm-year. Firms' policies are captured by the change in *CSR Strategy Score* and *RepRisk Index* between years *t* and *t*+1. A higher *CSR Strategy Score* indicates improvements in a firm's environmental and social practices, whereas a higher *RepRisk Index* indicates worse environmental and social risks. The indicator variable *Very Negative Market Reaction (Mkt-adj/ FF3-adj)* is equal to one if the lowest three-day CARs associated with any negative E&S news revealed during year *t* belong to the bottom quintile, and zero otherwise; CARs are also set equal to zero in years in which a firm experiences no negative E&S news coverage. *High Informativeness* is a dummy variable that equals one if a firm has an informativeness ratio in the top tercile. A firm's informativeness ratio is measured by 1-R^2 in year *t*-1, where the R^2 is from the regression $r_{i,j,t} = \beta_{i,0} + \beta_{i,m} * r_{m,t} + \beta_{i,j} * r_{j,t} + \epsilon_{i,t}$, and $r_{i,j,t}$ is the return of firm *i* in industry *j* at time *t*, $r_{m,t}$ is the market return at time *t,* and $r_{j,t}$ is the return of industry *j* at time *t*. All models include lagged firm controls as reported in Table 2, and industry by year fixed effects. The *t*-statistics, calculated with standard errors clustered at the firm level, are reported in parentheses. Statistical significance at the 10%, 5%, and 1% level is denoted by *, **, and ***, respectively.

	(1)	(2)	(3)	(4)
	ΔCSR Strategy Score		ΔRepRisk Index	
High Informativeness	-0.652	-0.661	0.385*	0.150
	(-1.541)	(-1.596)	(1.730)	(0.667)
Very Negative Market Reaction (Mkt-adj)	-0.786**		-1.915***	
	(-2.103)		(-7.274)	
Very Negative Market Reaction (Mkt-adj)	1.403**		-1.202***	
# High Informativeness	(2.495)		(-4.407)	
Very Negative Market Reaction (FF3-adj)		-0.758**		-2.196***
		(-2.059)		(-8.281)
Very Negative Market Reaction (FF3-adj)		1.428**		-0.842***
# High Informativeness		(2.550)		(-3.033)
Observations	10597	10597	24254	24254
R-squared	0.109	0.109	0.084	0.084
Controls	Yes	Yes	Yes	Yes
Industry*Year FE	Yes	Yes	Yes	Yes

Table 8. Policy responses of firms with more or less informative stock prices

This table reports OLS regression estimates of firms' policy responses to E&S risk. The observations are firm-year. The main independent variables are *High Rating IO %* or *High ENV Sales %*, interacted with E&S risk, measured by the firm's *Avg Past E&S News* up to year *t*. In Panel A, firms' policies are captured by the *CSR Strategy Score* (columns (1) – (3)) and the *RepRisk Index* (columns (4) – (6)) in year *t*+1. A higher *CSR Strategy Score* indicates improvements in a firm's environmental and social practices, whereas a higher *RepRisk Index* indicates worse environmental and social risks. In Panel B, policies are captured by *Carbon Direct* – the natural logarithm of tonnes of firms' carbon emissions (columns (1) – (3)), and *Total Direct* – the natural logarithm of total direct external cost in dollars (columns (4) – (6)). In both panels, columns (1) and (4) include all firms, columns (2) and (5) include firms with high (top tercile) price informativeness, and columns (3) and (6) report firms with low (bottom two terciles) price informativeness. A firm's price informativeness ratio is measured by 1-R^2 in year *t*-1, where the R^2 is from the regression $r_{i,j,t} = \beta_{i,0} + \beta_{i,m} * r_{m,t} + \beta_{i,j} * r_{j,t} + \epsilon_{i,t}$, and $r_{i,j,t}$ is the return of firm *i* in industry *j* at time *t*, $r_{m,t}$ is the market return at time *t,* and $r_{j,t}$ is the return of industry *j* at time *t*. All models include lagged firm controls as reported in Table 2, and firm and year fixed effects. The *t*-statistics, calculated with standard errors clustered at the firm level, are reported in parentheses. Statistical significance at the 10%, 5%, and 1% level is denoted by *, **, and ***, respectively.

Panel A

	(1)	(2)	(3)	(4)	(5)	(6)
	CSR Strategy Score			Reprisk Index		
	Price Informativeness					
	All	*High*	*Low*	*All*	*High*	*Low*
Avg Past E&S News	-0.299	-0.351	-0.377	2.764***	3.300***	2.212***
	(-0.586)	(-0.280)	(-0.541)	(16.829)	(8.396)	(8.274)
High Rating IO%	-0.008	0.021	-0.012	0.001	-0.018	0.045*
	(-0.129)	(0.108)	(-0.135)	(0.104)	(-0.770)	(1.926)
Avg Past E&S News # High Rating IO%	0.088***	0.247**	0.131***	-0.032***	-0.052*	-0.028**
	(3.040)	(2.125)	(3.407)	(-3.849)	(-1.957)	(-2.144)
High ENV Sale%	-0.002	0.040	-0.009	-0.003	0.001	0.001
	(-0.146)	(1.436)	(-0.602)	(-1.055)	(0.284)	(0.126)
Avg Past E&S News # High ENV Sale%	0.003	-0.012	-0.000	-0.004*	-0.005	-0.004
	(0.580)	(-1.030)	(-0.066)	(-1.811)	(-0.995)	(-1.176)
Observations	15402	3234	6787	39233	11463	12106
Adjusted R-squared	0.780	0.784	0.803	0.628	0.509	0.723
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm & Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Panel B

	(1)	(2)	(3)	(4)	(5)	(6)
	Carbon Direct			Total Direct		
	Price Informativeness					
	All	*High*	*Low*	*All*	*High*	*Low*
Avg Past E&S News	0.038	0.078	0.004	0.035	0.076	-0.014
	(1.551)	(1.186)	(0.144)	(1.566)	(1.373)	(-0.568)
High Rating IO%	0.008***	0.009	0.006	0.004	0.004	-0.000
	(2.638)	(1.302)	(1.238)	(1.584)	(0.664)	(-0.088)
Avg Past E&S News # High Rating IO%	-0.005***	-0.014**	-0.002*	-0.003***	-0.010*	-0.001
	(-4.327)	(-2.213)	(-1.841)	(-2.719)	(-1.924)	(-0.984)
High ENV Sales %	-0.000	0.000	-0.001	0.000	0.001	-0.000
	(-0.110)	(0.150)	(-0.612)	(0.278)	(0.590)	(-0.166)
Avg Past E&S News # High ENV Sales%	-0.000	-0.001*	0.000	-0.000	-0.001	0.000
	(-0.628)	(-1.661)	(1.054)	(-1.100)	(-1.436)	(1.005)
Observations	16096	3840	6659	16110	3844	6662
R-squared	0.954	0.955	0.967	0.958	0.954	0.972
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm & Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Table 9. Market discipline *versus* blockholder engagements

In Panel A, the dependent variable is a firm's E&S-conscious institutional ownership of small (large) investors, defined as investors with less than 1% (more than 1%) ownership of the firm's shares. E&S-conscious institutional ownership is defined as the percentage of firm ownership by institutional investors with average portfolio ESG ratings in the top tercile. Observations are firm-quarter. All models control for the firm's number of governance news in the past four quarters and lagged firm characteristics as reported in Table 2, and also include firm and year-quarter fixed effects. In Panel B, the dependent variable is the *CSR Strategy Score* for firm *i* in year *t*+1, and the main independent variable is the firm's *Avg Past E&S News* up to year *t*, interacted with the firm's E&S-conscious institutional ownership of small (large) investors. Observations are firm-year. Columns (1) and (3) include firms with high (top tercile) informativeness ratios, and columns (2) and (4) include firms with low (bottom two terciles) informativeness ratios. All specifications include lagged firm controls, and firm and year fixed effects. The *t*-statistics, calculated with standard errors clustered at the firm level, are reported in parentheses. Statistical significance at the 10%, 5%, and 1% level is denoted by *, **, and ***, respectively.

Panel A

	(1)	(2)	(3)	(4)
	High Rating IO – Small %		High Rating IO – Large %	
Total News	-0.056***		-0.044***	
	(-6.359)		(-3.054)	
E&S News		-0.053***		-0.045**
		(-4.696)		(-2.541)
Past Governance News	-0.044***	-0.050***	0.103***	0.099***
	(-2.894)	(-3.217)	(4.112)	(3.904)
Observations	191496	191496	191496	191496
Adjusted R-squared	0.779	0.779	0.616	0.616
Controls	Yes	Yes	Yes	Yes
Firm & YQ FE	Yes	Yes	Yes	Yes

Panel B

	(1)	(2)	(3)	(4)
	CSR Strategy Score			
	Informativeness			
	High	*Low*	*High*	*Low*
Avg Past E&S News	-0.892	-0.317	-0.851	-0.372
	(-0.752)	(-0.539)	(-0.717)	(-0.616)
High Rating IO %	0.237	0.220		
	(0.707)	(1.171)		
Avg Past E&S News # High Rating IO %	0.320*	0.139**		
	(1.949)	(2.107)		
High Rating IO – Small %			0.360	0.355*
			(1.089)	(1.710)
Avg Past E&S News # High Rating IO – Small %			0.299*	0.153**
			(1.777)	(2.055)
High Rating IO – Large %	-0.285	-0.315	-0.043	-0.117
	(-0.724)	(-1.323)	(-0.188)	(-1.014)
Avg Past E&S News # High Rating IO – Large %	-0.096	-0.055	0.227	0.093
	(-0.407)	(-0.500)	(1.382)	(1.464)
Observations	3234	6787	3234	6787
Adjusted R-squared	0.784	0.803	0.784	0.803
Controls	Yes	Yes	Yes	Yes
Firm & Year FE	Yes	Yes	Yes	Yes

Appendix. Variable definitions

Panel A – E&S Risk

Variable	*Definitions*	*Source*
Total News	Natural logarithm of one plus the firm's count of news on ESG issues.	RepRisk
Environmental News	Natural logarithm of one plus the firm's count of news on environmental issues.	RepRisk
Social News	Natural logarithm of one plus the firm's count of news on social issues.	RepRisk
Past Governance News	Natural logarithm of one plus the firm's count of news on governance issues in the previous year.	RepRisk
Severe News	Natural logarithm of one plus the firm's count of news of high severity ESG issues. The severity is determined based on the consequences, extent and cause of the risk incidents.	RepRisk
High Reach News	Natural logarithm of one plus the firm's count of high reach news on ESG issues. Low influence sources include local media, smaller NGOs, local government bodies, etc. Medium influence sources include most national and regional media, international NGOs, and state, national, and international government bodies. High influence sources include international media (e.g., the FT, NY Times, WSJ, BBC, etc.)	RepRisk
RepRisk Index	The RepRisk Index is obtained from a proprietary algorithm developed by RepRisk, which dynamically captures and quantifies a company's exposure to ESG and business conduct risks, associated with financing, investing, or doing business with a particular company. The Current RRI denotes the current level of firm-specific media and stakeholder coverage related to ESG issues. The RRI ranges from 0 to 100. The higher the value, the higher the risk exposure: 0-25 = low risk exposure; 26-49 = medium risk exposure; 50-59 = high risk exposure; 60-74 = very high risk exposure; 75-100 = extremely high risk exposure.	RepRisk
Avg Past News	Natural logarithm of one plus the firm's average annual count of news on ESG issues up to year *t*	RepRisk

Panel B - Ownership

Inst Ownership %	The total percentage of firm ownership by institutional investors.	FactSet
High ENV IO %	The total percentage of firm ownership by institutional investors from countries that are E&S-conscious. We define as E&S-conscious countries that are in the top tercile of the World Value Survey's self-expression score over the two most recent survey rounds of 2005-2009 and 2010-2014. The self-expression score is equally-weighted across all respondents in each surveyed country. See Table A3.	FactSet, World Value Survey (WVS)
Low ENV IO %	The total percentage of firm ownership by institutional investors from countries that are not in the top tercile of the WVS self-expression score.	FactSet, WVS
High Rating IO %	The total percentage of firm ownership by institutional investors with average portfolio ESG ratings in the top tercile. An institution's average portfolio ESG rating is calculated as the value-weighted ESG ratings of all firms held by the institution in the past two years. We set the ESG portfolio rating to 0 for all institutions with less than 50% holdings of firms with ESG ratings.	FactSet, Thomson Reuters ASSET4
Low Rating IO %	The total percentage of firm ownership by institutional investors with average portfolio ESG ratings not in the top tercile.	FactSet, ASSET4
High Rating IO – Small %	The total percentage of firm ownership by institutional investors who hold less than 1% of the firm's shares and whose average portfolio ESG ratings are in the top tercile.	FactSet, WVS

High Rating IO – Large %	The total percentage of firm ownership by institutional investors who hold more than 1% of the firm's shares and whose average portfolio ESG ratings are in the top tercile.	FactSet, WVS

Panel C - Customer Sales Distribution

High ENV Sales %	The percentage of firm sales in E&S-conscious countries. We define as E&S-conscious countries that are in the top tercile of the self-expression score, calculated as an equally-weighted score for all respondents in each country in the World Value Survey. See Table A3.	FactSet
Ln High ENV Sales	Natural logarithm of one plus total firm sales in E&S-conscious countries. We define as E&S-conscious countries that are in the top tercile of the self-expression score, calculated as an equally-weighted score for all respondents in each country in the World Value Survey.	FactSet
Ln Low ENV Sales	Natural logarithm of one plus total firm sales in non-E&S-conscious countries. We define as non-E&S-conscious countries that are not in the top tercile of the WVS self-expression score.	FactSet
Ln Sales	Natural logarithm of one plus total firm sales.	FactSet

Panel D - Other Data

Leverage	(Long Term Debt + Short Term Debt & Current Portion of Long Term Debt) / (Total Capital + Short Term Debt & Current Portion of Long Term Debt) * 100.	Thomson Datastream
Cash	The sum of cash and short-term investments scaled by total assets.	Thomson Datastream
Tangibility	Property, plant, and equipment (PPENT) scaled by total assets. PPENT represents gross property, plant, and equipment less accumulated reserves for depreciation, depletion and amortization.	Thomson Datastream
ROA	Net Income (before extraordinary items) scaled by total assets.	Thomson Datastream
Average Return	Average monthly stock return in the past year.	Thomson Datastream
Market Value	The share price multiplied by the number of ordinary shares outstanding. For companies with more than one class of equity capital, the market value is expressed according to the individual issue.	Thomson Datastream
Return	Monthly stock return.	Thomson Datastream
CSR Strategy Score	A score reflecting a company's practices regarding the economic (financial), social and environmental dimensions of its day-to-day decision-making processes.	Thomson ASSET4
General Negative News	Natural logarithm of one plus the total number of news with an Event Sentiment Score below 25, i.e., extremely negative sentiment, of a firm. The news count excludes items related to corporate social responsibility.	Ravenpack

Internet Appendix

Table A1. Issues and topics of RepRisk news

This table reports the frequency of the issues (in Panel A) and topics (in Panel B) of the news covered by RepRisk between 2007 and 2016. *Severe* news refers to firm-specific news of high severity based on the consequences, extent, and cause of the risk incidents. *High Reach* news refers to firm-specific news reported in influential sources (e.g., the FT, NY Times, WSJ, BBC, etc.).

Panel A. Issues

Issue	Total News	Severe	High Reach
Animal mistreatment	6554	78.8%	39.2%
Child labor	19388	29.6%	38.7%
Controversial products and services	234861	61.2%	29.3%
Discrimination in employment	27119	70.1%	29.2%
Forced labor	22682	31.2%	37.0%
Freedom of association and collective bargaining	28646	48.1%	53.5%
Global pollution (including climate change and GHG emissions)	120391	65.7%	42.5%
Human rights abuses and corporate complicity	168070	46.4%	40.7%
Impacts on communities	322139	53.9%	45.8%
Impacts on ecosystems/landscapes	271141	54.1%	44.1%
Local participation issues	64492	46.1%	55.3%
Local pollution	165125	54.0%	40.4%
Occupational health and safety issues	78089	48.2%	36.0%
Other environmental issues	332	47.3%	14.5%
Other issues	1760	91.4%	49.0%
Other social issues	249	43.0%	20.5%
Overuse and wasting of resources	19220	46.6%	53.4%
Poor employment conditions	104057	56.4%	38.2%
Products (health and environmental issues)	76262	76.1%	21.1%
Social discrimination	27491	77.7%	25.4%
Supply chain issues	94437	58.4%	33.7%
Violation of international standards	43088	31.0%	50.4%
Violation of national legislation	773065	65.4%	19.1%
Waste issues	45130	52.3%	41.7%
Total E&S News	2707234	60.3%	30.7%

Panel B. Topics

Topic	Total News	Severe	High Reach
Abusive/Illegal fishing	717	42.3%	27.2%
Agricultural commodity speculation	4786	89.6%	49.5%
Alcohol	486	85.0%	42.2%
Animal transportation	181	78.5%	28.2%
Arctic drilling	4443	84.8%	24.4%
Asbestos	3773	71.5%	60.3%
Automatic and semi-automatic weapons	396	87.4%	42.4%
Cluster munitions	13110	10.8%	70.7%
Coal-fired power plants	38770	64.0%	36.0%
Conflict minerals	4174	38.7%	48.5%
Coral reefs	2444	47.6%	50.8%
Deep sea drilling	3276	51.8%	31.0%
Depleted uranium munitions	252	66.7%	46.4%
Diamonds	413	49.9%	74.6%
Drones	456	82.0%	35.1%
Endangered species	16575	33.2%	47.6%
Forest burning	2993	61.4%	21.8%
Fracking	14847	81.9%	45.6%
Gambling	877	84.3%	10.4%
Genetically modified organisms (GMOs)	14382	68.1%	58.9%
Genocide/Ethnic cleansing	4683	32.6%	62.5%
High conservation value forests	2993	39.4%	25.1%
Human trafficking	1248	31.2%	36.8%
Hydropower (dams)	15289	46.4%	61.2%
Illegal logging	4143	28.7%	49.6%
Indigenous people	59963	42.9%	53.1%
Involuntary resettlement	11010	23.3%	49.2%
Land grabbing	32990	30.1%	55.2%
Land mines	722	8.0%	79.8%
Migrant labor	6900	30.8%	28.5%
Monocultures	3236	29.3%	62.0%
Mountaintop removal mining	12889	73.0%	32.7%
Negligence	22039	52.7%	30.3%
Nuclear power	20272	75.7%	35.1%
Oil sands	12229	63.3%	40.8%
Palm oil	18832	37.0%	38.6%
Pornography	629	75.5%	19.6%
Predatory lending	14401	71.5%	27.6%
Privacy violations	26756	94.2%	17.0%
Protected areas	20246	40.3%	48.5%
Rare earths	82	72.0%	42.7%
Seabed mining	124	38.7%	21.0%
Soy	3142	52.4%	41.9%
Tobacco	8327	79.5%	27.0%
Water scarcity	8999	43.0%	57.5%

Table A2. Examples of RepRisk news

This table lists examples of RepRisk news stories over 2007-2016, and the companies' responses. *Severity* refers to the consequences, extent, and cause of the risk incidents. *Reach* refers to the level of coverage of the risk incidents. Detailed definitions are provided in the Appendix.

Company name	Country of risk incident	News date	Risk incident topic	News summary	Severity	Reach	Company response
Hasbro Inc.	China	19-Dec-11	Human rights, Working conditions	The Institute for Global Labor and Human Rights publicly accused Hasbro of poor working conditions and inadequate pay for workers at the Jet Fair Factory in China.	Low	Medium	Hasbro deployed a team to work with the International Council of Toy Industries to examine the conditions of the facility and continually monitor any deficiencies (Dec 28, 2011)
PNC Bank	USA	30-May-14	Environment, Mountaintop removal	Earth Quaker Action Team (EQAT) protested at PNC Bank's headquarters in Pittsburgh, Pennsylvania, as well as at other PNC branches and PNC events, urging the bank to stop financing mountaintop removal mining, which arguably caused environmental devastation in Appalachia.	Medium	Low	PNC Bank announced a shift in its policy as of March 2, 2015 that it will stop financing mountaintop removal coal mining in Appalachia.
BASF SE	Germany, Sweden, Czech Republic	3-Mar-10	Environment, Food supply, Genetically modified cultures	The company won approval for Amflora, its genetically modified potato. Amflora is an industrial potato which is neither allowed nor suitable for use as food. However, the concern was that by-products of its industrial use might be fed to livestock.	Low	High	The company committed to engage in dialogue with local residents where Amflora was to be planted and to monitor that the crop would not produce any "transgressions".

3M Co	Brazil, Estonia, Finland, Indonesia, Latvia, Lithuania, Norway, Russian Federation, Sweden, United States of America	24-Apr-14	Environment, Deforestation, Endangered species	Two NGOs, Forest Ethics and Greenpeace, alleged that 3M supplied many of its products from endangered forests around the world. The NGOs criticized 3M's current sourcing policies as "vague" and "lacking specific, measurable commitments".	Medium	Low	On June 5th, 2014, 3M committed to review its suppliers in high risk countries "for alignment with 3M Supplier Policy and Standards"
Canon Inc.	China, Malaysia	23-Jun-16	Human rights, Forced labor	The company was accused of not having publicly available supply chain code of conduct that required suppliers to adhere to international standards prohibiting forced labor.	Low	Medium	The company agreed to enhance its annual surveys of suppliers' compliance and take further actions to evaluate the allegations and improve monitoring.
Kellogg Co	Brazil, Sri Lanka, China, Ghana, India, Indonesia, Ivory Coast, Madagascar, Pakistan, Philippines	2-Aug-13	Environment, Supply chain	Kellogg came under scrutiny over the practice of farming palm oil, which had been devastating rain forests in Southeast Asia. The controversy was expected to hurt Kellogg if "environmental activists could drum up enough publicity around the issue to alarm consumers".	Medium	Medium	The company announced detailed plans to buy only forest-friendly palm oil and ensure traceability within its supply chain (June 10, 2014).

Adidas AG	Cambodia, China, India, Indonesia, Pakistan, Philippines	9-Oct-12	Poor employment conditions, Human rights	Adidas was accused by the International Union League for Brand Responsibility for "blatant disregard for local labor law and workers' union freedoms" across its supply chain in the mentioned countries. These included failures to comply with local minimum wage laws and ongoing violations of health and safety laws.	Medium	High	In July 2013, Adidas agreed to "implement feasible guarantees of industrial health and safety" and conduct its monitoring in collaboration with local labor administrators.
Carrefour SA	China	1-Feb-11	Price fraud, Supply chain	Carrefour stores in China's mainland were accused of price manipulation. Erroneous or misleading price tags, exaggerated discount advertisements and double-price labeling on numerous products.	Medium	Medium	Carrefour offered a public apology and restitution. The company also agreed to work with local authorities to enforce higher standards.
Koninklijke Philips NV	South Korea, Japan	24-Jun-12	Anti-competitive practices	Local regulators alleged the company engaged in anti-competitive and unlawful practices by preventing online retailers from selling small electronics items below a certain price.	Medium	Medium	Philips agreed to improve its policies and pay a fine.

Table A3. Country rankings by E&S-consciousness

This table lists E&S-conscious (High ENV) countries, defined as those in the top tercile of the World Value Survey's self-expression score over the two most recent survey rounds of 2005-2009 and 2010-2014. The self-expression score is equally-weighted across all respondents in each country.

Country	Self-Expression Score	E&S-consciousness
Sweden	1.582	High
Norway	1.437	High
New Zealand	1.294	High
Canada	1.156	High
Australia	1.126	High
Great Britain	1.052	High
Netherlands	0.983	High
Andorra	0.980	High
Finland	0.849	High
United States	0.817	High
Switzerland	0.780	High
France	0.745	High
Germany	0.530	High
Uruguay	0.519	High
Mexico	0.494	High
Spain	0.370	High
Slovenia	0.369	High
Japan	0.365	Low
Czech Rep.	0.349	Low
Israel	0.329	Low
Italy	0.309	Low
Argentina	0.304	Low
Colombia	0.265	Low
Hong Kong	0.137	Low
Brazil	0.105	Low
Chile	0.099	Low
India	0.091	Low
Poland	0.032	Low
South Africa	0.015	Low
Philippines	-0.011	Low
Thailand	-0.036	Low
Viet Nam	-0.039	Low
Singapore	-0.172	Low
South Korea	-0.194	Low
Malaysia	-0.233	Low
Egypt	-0.253	Low
Turkey	-0.259	Low
China	-0.323	Low
Bulgaria	-0.439	Low
Indonesia	-0.499	Low
Russia	-0.584	Low
Ukraine	-0.666	Low
Romania	-0.723	Low
Morocco	-0.732	Low
Belarus	-0.874	Low

country.

Table A4. Alternative classification of E&S-conscious countries

This table reports OLS estimates of E&S-conscious institutional ownership on E&S risk, measured by RepRisk news counts. The observations are firm-quarter. The dependent variable is *High (Low) ENV IO % (alt)* for firm *i* in quarter *t*, which is the percentage of firm ownership by institutional investors from countries above (below) the median of the *World Value E&S Index* from Dyck et al. (2019). All models control for the firm's number of governance news in the past four quarters and lagged firm characteristics as reported in Table 2, and also include year-quarter fixed effects and firm fixed effects. The *t*-statistics, calculated with standard errors clustered at the firm level, are reported in parentheses. Statistical significance at the 10%, 5%, and 1% level is denoted by *, **, and ***, respectively.

	(1)	(2)	(3)	(4)
	High ENV IO % (alt)		Low ENV IO % (alt)	
Total News	-0.073***		0.008	
	(-2.932)		(1.019)	
E&S News		-0.080**		0.019*
		(-2.462)		(1.922)
Past Governance News	-0.045	-0.051	0.035**	0.034*
	(-0.930)	(-1.038)	(2.014)	(1.904)
Observations	191496	191496	191496	191496
Adjusted R-squared	0.922	0.922	0.690	0.690
Controls	Yes	Yes	Yes	Yes
Firm & YQ FE	Yes	Yes	Yes	Yes

Table A5. Alternative E&S risk measures based on news reach and severity

This table reports OLS estimates of E&S-conscious institutional ownership on E&S risk, measured by high reach and severe news counts. High reach news sources include international media (e.g., FT, NY Times, WSJ, BBC, etc.) and severe news refers to news whose consequences or extent are extreme. All models control for the firm's number of governance news in the past four quarters and lagged firm characteristics as reported in Table 2, and also include year-quarter fixed effects and firm fixed effects. The *t*-statistics, calculated with standard errors clustered at the firm level, are reported in parentheses. Statistical significance at the 10%, 5%, and 1% level is denoted by *, **, and ***, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	High Rating IO %		High ENV IO %		High Rating IO – Small %		High Rating IO – Large %	
High Reach News	-0.146***		-0.100***		-0.069***		-0.069***	
	(-6.438)		(-3.306)		(-6.896)		(-4.214)	
Severe News		-0.078***		-0.076***		-0.047***		-0.027*
		(-3.468)		(-2.837)		(-4.722)		(-1.688)
Past Governance News	0.031	0.029	-0.041	-0.037	-0.049***	-0.047***	0.102***	0.098***
	(0.912)	(0.858)	(-0.837)	(-0.767)	(-3.133)	(-3.122)	(3.980)	(3.880)
Observations	191496	191496	191496	191496	191496	191496	191496	191496
Adjusted R-squared	0.701	0.701	0.926	0.926	0.779	0.779	0.616	0.616
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm & YQ FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table A6. E&S-conscious institutional ownership

This table reports OLS estimates of E&S-conscious institutional ownership on E&S risk, measured by RepRisk news counts. The observations are firm-quarter. The dependent variable is *High Rating IO %* for firm *i* in quarter *t*+1 (*t*+4), which is the percentage of firm ownership by institutional investors with average portfolio ESG ratings in the top tercile. All models control for the firm's number of governance news in the past four quarters and lagged firm characteristics as reported in Table 2, and also include year-quarter fixed effects and firm fixed effects. The *t*-statistics, calculated with standard errors clustered at the firm level, are reported in parentheses. Statistical significance at the 10%, 5%, and 1% level is denoted by *, **, and ***, respectively.

	(1)	(2)	(3)	(4)
	High Rating IO % (*t*+1)		High Rating IO % (*t*+4)	
Total News	-0.091***		0.049**	
	(-4.474)		(2.300)	
E&S News		-0.078***		0.079***
		(-3.063)		(2.985)
Past Governance News	0.086**	0.075**	0.169***	0.169***
	(2.496)	(2.154)	(4.428)	(4.360)
Observations	185705	185705	166952	166952
Adjusted R-squared	0.701	0.701	0.697	0.697
Controls	Yes	Yes	Yes	Yes
Firm & YQ FE	Yes	Yes	Yes	Yes

Table A7. Institutional ownership and E&S risk

This table reports OLS regression estimates of institutional ownership on E&S risk, measured by RepRisk news counts. The observations are firm-quarter. All models control for a firm's number of governance news in the past four quarters and firm characteristics as reported in Table 2. All specifications include year-quarter fixed effects and firm fixed effects. The *t*-statistics, calculated with standard errors clustered at the firm level, are reported in parentheses. Statistical significance at the 10%, 5%, and 1% level is denoted by *, **, and ***, respectively.

	(1)	(2)	(3)	(4)
	IO% (t)		IO% (t+1)	
Total News	-0.108***		-0.086**	
	(-2.957)		(-2.436)	
E&S News		-0.127***		-0.087*
		(-2.690)		(-1.915)
Past Governance News	-0.164***	-0.172***	-0.161**	-0.169***
	(-2.619)	(-2.682)	(-2.574)	(-2.645)
Observations	190775	190775	184467	184467
Adjusted R-squared	0.955	0.955	0.956	0.956
Controls	Yes	Yes	Yes	Yes
Firm & YQ FE	Yes	Yes	Yes	Yes