



# Do institutional investors drive corporate social responsibility? International evidence<sup>☆</sup>

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## ARTICLE INFO

### Article history:

Received 20 December 2016

Revised 20 December 2017

Accepted 17 January 2018

Available online 4 September 2018

### JEL classification:

G15

G23

G30

M14

### Keywords:

Corporate social responsibility

Institutional investors

Social norms

Culture

Environment

## ABSTRACT

This paper assesses whether shareholders drive the environmental and social (E&S) performance of firms worldwide. Across 41 countries, institutional ownership is positively associated with E&S performance with additional tests suggesting this relation is causal. Institutions are motivated by both financial and social returns. Investors increase firms' E&S performance following shocks that reveal financial benefits to E&S improvements. In cross section, investors increase firms' E&S performance when they come from countries with a strong community belief in the importance of E&S issues, but not otherwise. As such, these institutional investors transplant their social norms regarding E&S issues around the world.

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<sup>☆</sup> We thank Tetyana Balyuk for excellent research assistance. We also thank Bill Schwert (the editor), Isil Erel (the referee), Andrew Ellul, Miguel Ferreira, Yelena Larkin, Pedro Matos, Denis Sosyura Leon Zoltoy, and seminar participants at the Frankfurt School of Finance and Management, Hong Kong University of Science and Technology, University of Arizona, University of Fribourg, University of Geneva, University of Michigan, University of Neuchatel, York University, and participants at the Ackerman Conference on Corporate Governance, the American Finance Association meetings, the Financial Institutions, Regulation, and Corporate Governance Conference at the University of Melbourne, the International Centre for Pension Management Forum, and the Northern Finance Association meetings for helpful comments and suggestions. We thank MSCI for providing MSCI index constituent data. A. Dyck gratefully acknowledges the financial support of the Michael Lee-Chin Family Institute for Corporate Citizenship. Hannes F. Wagner gratefully acknowledges financial support from the BAFFI Center for Applied Research on International Markets, Banking, Fi-

## 1. Introduction

In making investment decisions, shareholders today are asked to assess, and can easily track, measures of a firm's financial performance and metrics covering a firm's environmental and social (E&S) performance, which are two components of corporate social responsibility (CSR). Whether E&S performance is beneficial to the average shareholder remains controversial.

Tests that explore the financial costs and benefits of increasing E&S performance yield mixed results. Investments to improve E&S performance could be a signal of agency

nance, and Regulation. The results in the Online Appendix are available at [papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2708589](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2708589).

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<https://doi.org/10.1016/j.jfineco.2018.08.013>

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problems in firms. Outsiders with no financial stake do not bear the costs of such commitments and will press for improvements. If a firm's managers care about these pressures or obtain other private benefits from E&S investments, they will overinvest (Masulis and Reza, 2015; Cheng et al., 2016; Cronqvist and Yu, 2017). Alternatively, E&S investment can provide valuable product market differentiation and insurance against event risk (Servaes and Tamayo, 2013; Hong and Liskovich, 2016; Albuquerque et al., 2017; Lins et al., 2017).

In this paper, we take a different tack to shed light on the importance of E&S performance to shareholders. We test for a relation between share ownership and firms' E&S performance. It is hard to dismiss the hypothesis that E&S investments are beneficial to shareholders if they are a driving force behind firms' E&S choices.

We examine whether shareholders drive E&S performance for firms around the world as pressure for E&S improvement is a truly global phenomenon. We specifically investigate institutional investors because these shareholders own and vote the bulk of the world's equity capital. We construct firm-level environmental and social performance measures using line items (covering areas such as CO<sub>2</sub> emissions, renewable energy use, human rights violations, and employment quality) from several E&S data providers. We also use these providers' proprietary E&S scores. We combine these measures of firms' E&S performance with institutional ownership data and financial data to build a sample of 3277 non-US firms from 41 countries over the 2004–2013 period.

We first explore whether institutional investors in aggregate are a driving force behind firms' E&S performance around the world. We test whether lagged total institutional ownership is associated with firms' E&S performance, controlling for observable factors that can affect E&S performance directly. We find that greater institutional ownership is associated with higher firm-level E&S scores. Not only is this result statistically significant, but it is also economically meaningful. A one standard deviation change in institutional ownership is associated with an increase in our score (data providers' proprietary score) for environmental performance of 4.5% (6.8%) and an increase in social performance score of 2.1% (8.2%).

We next assess whether institutional investors are more impactful in situations in which stronger effects are plausibly expected. Investors that are signatories to the United Nations Principles for Responsible Investment (UN PRI), which commits them to E&S activism, have more than double the average investor impact on firms' E&S performance. Investors also have a stronger effect in firms with below-median initial E&S scores and, thus, greater scope to improve E&S.

To support a causal interpretation, we take advantage of a quasi-natural experiment provided by the 2010 BP Deepwater Horizon oil spill. This costly environmental disaster represents an unexpected shock that increased the perceived financial value of having in place robust environmental policies and procedures, particularly for firms in extractive industries. If institutional ownership drives changes in firms' environmental policies, then firms with greater institutional ownership at the time of the shock are

expected to be more reactive in improving environmental performance in the years following this shock. We find precisely this result.

Other robustness tests support this causal interpretation, including an instrumental variable specification that follows Aggarwal et al. (2011) and Bena et al. (2017) and a firm fixed effect specification that follows Gormley and Matsa (2014). We also assess whether our results are influenced by changes in firms' governance or transparency levels by controlling for these factors. Our results are unaffected.

We next ask what mechanisms investors use to influence firms' E&S performance. Using several additional data sources, as well as tests such as Granger causality, we draw two overall conclusions. First, selecting into good E&S firms or selling bad E&S firms is not a driver of E&S performance change. Instead, investors convey their preferences for improved E&S by engaging with firms they already own. Second, successful engagements are predominantly private, with public pressure such as shareholder proposals used only occasionally to increase leverage in institutions' private negotiations.

Finally, we conduct tests to understand better the empirical importance of alternative motivations for institutional investors' push for E&S performance. We introduce a framework that allows for the possibility that in choosing the level of firm E&S performance, institutional investors could be motivated by financial returns or by norms, or a combination of both.

Norms can be defined as views as to how investment managers and others should or should not behave. If an investment manager lives in a community that believes strongly that firms should have high levels of environmental and social performance, increasing E&S performance in the firms in her portfolio brings the investment manager social rewards and avoids social sanctions. In that setting, the investment manager can drive firms to overinvest in E&S performance in the sense that the level she chooses can exceed the level that maximizes financial returns, which becomes acceptable because it moves firms' E&S performance closer to her community's E&S ideals.

To test whether demands for E&S performance are motivated by financial returns, we exploit the 2008–2009 global financial crisis as recent research shows it to be a shock that affected, positively, the financial value of the environmental and the social performance levels of firms (Lins et al., 2017). A financially motivated investor will ask firms for more E&S after its perceived financial value increases. We test this prediction and find that the already significant impact of institutional ownership on firms' E&S performance increases following the financial crisis. This suggests the growing importance of financial motivations behind investors' push for E&S performance.

To test whether demands for E&S performance are motivated by a desire to align that performance with an investor's E&S ideals, we exploit differences in these norms across investors. We use multiple sources of data to construct country-level norms regarding environmental and social issues. These norm measures include outcomes, such as scores on the Environmental Performance Index (EPI), and stated values regarding E&S issues captured by the

World Values Survey (WVS). Social norms toward E&S differ significantly across countries and these differences are persistent.

Consistent with investors being motivated by social returns, foreign institutional investors impact firms' E&S performance only when these investors are from countries where social norms reveal a greater demand (above median) for E&S performance. Our analysis suggests that a firm's environmental and social performance levels would improve by 7.4% and 5.2%, respectively, if the firm's foreign investors are from countries with strong instead of weak norms toward E&S performance. In addition, because European countries occupy the top 17 positions in E&S rankings of countries, we conduct tests that group investors by geographic location and find that only European institutional investors impact firms' E&S performance. Investors do not impact firms' E&S performance if they come from any other geographic region, including the US.

A more focused test of the importance of social norms accounts for investor type. Of particular interest are independent institutional investors (e.g., mutual funds) as they face a clear trade-off. They compete for capital and lower performance will affect fund flows, heightening the importance of financial returns. But they are also exposed to social norms as they need to network and raise capital locally and are mindful of local E&S social norms.

Our tests show that, for independent institutional investors, essentially no impact is evident on firms' E&S performance if the investor is from a country where E&S social norms are relatively weak, e.g., the US. However, when independent institutional investors come from countries with strong social norms toward E&S issues, e.g., from the Netherlands, they have a significantly positive impact on firms' E&S performance. Strong enough social norms can overcome market pressures to focus primarily on financial returns. We find that pension plans consistently influence firms to strengthen E&S performance no matter their country of domicile.

In conclusion, the social norm tests, combined with the financial crisis tests, show that investors around the world are motivated by both financial and social returns when they address firms' E&S performance.

In a final set of tests, we replicate our analysis using US firms. US investors have an insignificant impact on US firms' E&S performance. Foreign investors that come from high E&S norm countries have a strong and significant positive impact on US firms, for both their environmental and social performance. Thus, foreign investors' social norms also make their way into US firms.

Our paper contributes to the general literature on corporate social responsibility (e.g., Margolis et al., 2009; Kitzmueller and Shimshack, 2012; Ferrell et al., 2016). In contrast to papers that focus on firm managers' characteristics and private benefits to explain firms' CSR investments (Masulis and Reza, 2015; Davidson et al., 2017; Cronqvist and Yu, 2017), we show that investors play a significant role. Similarly, Dimson et al. (2015) detail the private engagements that one socially responsible investor undertakes to change specific E&S policies for US target firms. We complement this research, showing the aggregate impact of global institutional investors on broad mea-

asures of firm's E&S performance around the world. We separately study US firms and find that US investors in aggregate play no role in pushing for E&S improvements at US firms.

Our paper also contributes to the literature that explores institutional investors' impact on corporate finance in general (see, e.g., Gillan and Starks, 2000, 2003). Ferreira and Matos (2008) and Aggarwal et al. (2011) show that independent institutional investors, and foreign investors in particular, are more active in improving firms' governance. Our paper shows that foreign independent institutional investors are consistently active in driving firms to increase E&S performance only if they are from countries with strong E&S social norms.

Viewed broadly, this paper contributes to the literature on the impact of informal rules of the game for finance. We complement papers such as Guiso et al. (2009) that suggest the importance of a society's culture for a range of economic outcomes. We show that institutional investors carry these cultural attributes (in our case, E&S norms) to firms when they invest abroad, transplanting their social norms. Barber et al. (2017) study factors that drive limited partner (LP) investor demand for impact funds (these funds have the dual objective of financial and social returns). Tests that segment by geography show that LP investors from Europe dominate the demand for impact funds. This echoes our result that institutional investors from Europe dominate the push to drive firms to higher levels of E&S performance.

The paper proceeds as follows. Section 2 describes our sample, Section 3 tests whether institutional investors drive firms' E&S performance, Section 4 explores the mechanisms that investors use, and Section 5 explores why investors ask for E&S performance. Section 6 concludes.

## 2. Sample and summary statistics

In this section, we describe our data sources and provide and discuss descriptive statistics for the sample of firms used in our analysis.

### 2.1. Data sources

We obtain data on firms' E&S performance from the Thomson Reuters ASSET4 ESG database. Thomson Reuters acquires information from annual reports, corporate sustainability reports, nongovernmental organizations, and news sources for large, publicly traded companies from more than 45 countries, at annual frequency. Thomson Reuters states that reported data items are chosen to maximize company coverage, timeliness of reporting, data availability, quality, and perceived materiality for investors. Consistent coverage of firms begins in 2004, with coverage for a few countries starting in 2009. We use data from the first year of coverage through year-end 2013 for our analysis.

ASSET4 evaluates firms' environmental commitments in three areas: Emission Reduction, Product Innovation, and Resource Reduction. Social commitments are evaluated in seven areas: Community, Diversity & Opportunity, Employment Quality, Health & Safety, Human Rights, Product

Responsibility, and Training & Development. Within each area, ASSET4 analysts identify specific line items (e.g., “Are the firm’s greenhouse gas emissions/sales below the industry median in that year?”), with 148 items in total (see Online Appendix A for details).

We construct summary statistics of firms’ E&S performance. There is no obvious right weighting scheme of these line items that an investor should use. We use two weighting approaches for our main tests. First, we transform all line items into indicator variables such that a one corresponds to better environmental or social performance (e.g., a below-median greenhouse gas emission firm would get a one) and construct an equally weighted performance measure, in which we weight all three environmental and all seven social areas equally and then sum across the areas to produce aggregate E&S performance scores.<sup>1</sup> Second, we use the proprietary-weighted aggregate scores that ASSET4 provides to investors (ASSET4 z-scores).<sup>2</sup> These rank-based scores range from 0 to 100 and measure the E&S performance relative to all other companies in a given year. We also use a transparency score produced by ASSET4, defined as the number of data items reported by the company out of all items tracked as part of the ASSET4 scoring system.

Thomson Reuters is one of several providers that measure firms’ E&S performance, with no obvious market leader. We also obtain E&S data from Sustainalytics and Bloomberg that cover publicly traded firms worldwide. Differences arise with respect to which items of E&S choices are considered by each data provider and how they are weighted. Our results are robust to these alternative ways to measure firms’ E&S performance.

We measure institutional ownership using the Factset Ownership database. Factset has been widely used (e.g., Ferreira and Matos, 2008; Aggarwal et al., 2011) and reports institutional investors’ equity holdings collected directly from fund reports, regulatory authorities (e.g., 13F reports), fund associations, and fund management companies themselves. The data also allow us to identify investors by country of domicile and by investor type. Finally, we obtain Worldscope financial statement and stock market valuation data. Our final sample consists of 19,849 firm-year observations and covers 3277 firms from 41 countries during the period 2004–2013.

## 2.2. Descriptive statistics

Significant variation exists in firms’ E&S performance across countries, industries, and time. Table 1 and Fig. 1 provide basic summary statistics. We control for most of these sources of variation with fixed effects.

Panel A of Table 1 shows E&S scores for our entire sample. The mean (median) E score, which weights each sub

area equally, is 35.4 (31.8), with a perfect score being 100. The mean (median) S score is 51.7 (51.1). In Panel B, average E&S scores show significant variation across all 41 countries in the sample (we show data for the year 2010 to facilitate comparisons). The countries where firms have the highest E&S performance are all European (France and Spain, for example, are ranked in the top three for both E&S). Countries where firms’ E&S scores are lowest are in Asia and Africa.<sup>3</sup>

Fig. 1 shows E&S performance over time. Because time trends are influenced by sample composition, Panel A shows plots for a constant panel of firms for which data are available in all years between 2004 and 2013 (805 firms), and Panel B plots a larger but shorter constant panel of firms with uninterrupted coverage between 2009 and 2013 (1662 firms). Firms increase their performance levels of both E and S over the sample period. Institutional ownership rises initially and peaks in 2007, remaining essentially flat afterward. We report in Section 3 that parallel trends between E&S performance and institutional ownership in the early part of our sample do not affect our inferences.

We provide more detail on institutional ownership levels across countries in Panel B of Table 1 (again for the year 2010 to facilitate comparisons). The mean level of institutional ownership is 21.4%, with average levels highest at around 40% in firms from Canada, Ireland, and Sweden and lowest at below 10% in Colombian, Chilean, and Malaysian firms. In this global sample, foreign institutions dominate and account for more than two-thirds of all institutional ownership. The sample is unevenly distributed, with 50% of the observations concentrated in just four countries: Australia, Canada, Japan, and UK.<sup>4</sup>

## 3. Do institutional investors drive firms’ environmental and social performance?

In this section, we assess whether global evidence shows that institutional investors are a driving force behind firms’ E&S performance. Institutional investors pursuing strategies such as negative or positive screening based on firms’ E&S practices would bias against finding our results. Under positive screening, less scope exists for institutions to improve E&S performance once they become owners, while under negative screening institutions would not even be present to do so. We discuss this further in Section 4.

socialized with better environmental or social performance), the opposite coding applies.

<sup>2</sup> The ASSET4 ESG database was created in 2003. The data we use are based on their optimization released in 2014, which reports raw data only for strategic items, which were collected beginning in 2003.

<sup>3</sup> We also find significant variation across industries (not reported). Perhaps not surprisingly, the industries with the lowest performance for both E&S are mining (which includes oil and gas) and agriculture, forestry, and fishing (industries based on Standard Industrial Classification divisions).

<sup>4</sup> Summary statistics for all control variables used in our regressions are provided in Table OB1 of Online Appendix B.

<sup>1</sup> For questions with a positive direction (i.e., a “yes” answer or a greater number is associated with better environmental or social performance), we translate the answers to Y/N questions into 0 (N) and 1 (Y); the answers to double Y/N questions into 0 (NN), 0.5 (YN or NY), and 1 (YY); and the answers to numerical questions into 0 (value is less than or equal to zero or value is less than (or equal to) the median) and 1 (value is greater than zero or value is greater than the median). For questions with a negative direction (i.e., a “no” answer or a lower number is as-

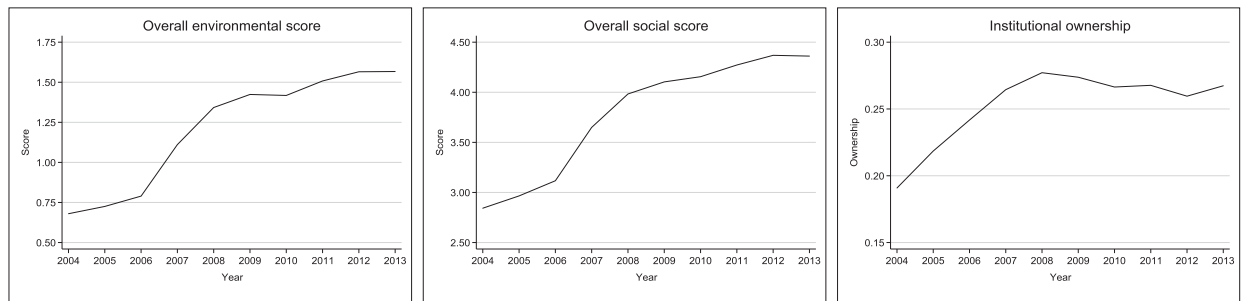
**Table 1**

Summary statistics of environmental and social scores.

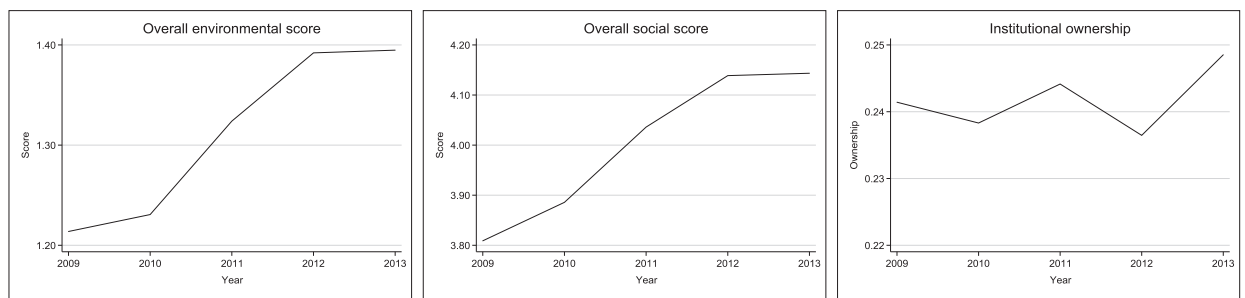
This table shows summary statistics of environmental and social scores as well as institutional ownership. Panel A shows environmental and social scores for the full sample. The category scores are calculated as the sum of all indicator variables in each category divided by the number of reported items times one hundred. The overall score is the average of the category scores. Online Appendix A describes the indicator variables used to calculate the environmental and social scores. The ASSET4 z-scores are standardized scores, calculated by and obtained from ASSET4 ESG, and measure firms' environmental and social performance relative to other companies in a given year. Panel B shows means of environmental and social scores as well as institutional ownership by country for year 2010. The data are from the ASSET4 ESG database and Factset and are obtained for the years 2004–2013. All variables are winsorized at the 1st and 99th percentiles.

<i>Panel A: Full sample</i>										
Item	Number of indicators	Mean	Median	Standard deviation	Number of observations					
Environmental										
Emission reduction	28	39.1	35.7	21.4	19,849					
Product innovation	25	27.9	16.7	23.1	19,849					
Resource reduction	17	39.3	37.5	22.5	19,849					
Overall score	70	35.4	31.8	20.2	19,849					
Social										
Community	14	63.6	64.3	12.4	19,849					
Diversity and opportunity	10	45.9	38.9	19.9	19,849					
Employment quality	17	53.1	53.3	13.5	19,849					
Health and safety	9	57.8	57.1	19.1	19,849					
Human rights	8	51.8	43.8	16.3	19,849					
Product responsibility	10	50.2	50.0	13.8	19,849					
Training and development	10	39.4	37.5	26.1	19,849					
Overall score	78	51.7	51.1	13.5	19,849					
ASSET4 z-score										
Environmental score		53.7	56.2	31.6	19,785					
Social score		52.6	54.4	31.6	19,785					
<i>Panel B: Summary statistics by country</i>										
Country	Overall scores		ASSET4 z-scores		Institutional ownership		Coverage start	Observations (year 2010)	Firms (total)	Number of observations (total)
	Environmental	Social	Environmental	Social	Total (percent)	Foreign as a fraction of total (percent)				
Australia	26.3	46.8	35.9	34.1	10.8	70.1	2004	267	385	1,739
Austria	40.2	57.3	62.6	62.8	18.4	88.3	2004	16	18	147
Belgium	39.4	51.6	59.2	51.5	16.4	82.6	2004	28	29	237
Brazil	36.0	58.2	52.0	65.6	22.5	86.8	2004	75	88	342
Canada	27.6	47.9	39.5	39.4	42.0	41.0	2004	254	309	1,807
Chile	28.0	48.5	41.0	39.9	6.1	93.5	2007	17	19	83
China	21.4	41.7	29.4	28.5	14.3	71.9	2004	109	126	514
Colombia	25.2	45.0	32.0	34.9	4.1	49.5	2009	9	12	37
Denmark	43.1	57.6	66.2	61.8	22.9	58.3	2004	24	27	225
Egypt	17.1	44.5	21.9	30.3	8.4	98.6	2008	10	11	36
Finland	52.3	60.5	79.0	70.4	31.4	58.4	2004	26	27	230
France	53.5	65.0	78.5	79.5	25.6	64.0	2004	92	99	820
Germany	49.4	62.9	72.0	71.0	27.9	76.5	2004	78	90	694
Greece	36.3	52.8	51.8	52.3	13.2	89.9	2004	20	24	192
Hong Kong	24.3	45.0	34.1	35.6	16.7	82.0	2004	102	119	728
India	36.9	55.6	51.6	59.4	15.8	69.8	2007	58	88	347
Indonesia	30.4	54.2	41.4	60.2	10.9	96.9	2008	24	29	108
Ireland	35.8	48.3	47.5	39.1	39.6	93.9	2004	16	20	152
Israel	29.5	49.5	42.2	46.2	24.7	81.7	2004	15	16	68
Italy	40.6	60.9	55.2	66.5	14.4	84.5	2004	46	57	437
Japan	44.7	51.7	63.0	49.7	13.5	62.5	2004	389	417	3,594
Luxembourg	42.8	56.0	70.8	64.0	35.6	84.7	2004	6	9	59
Malaysia	26.4	50.0	36.7	43.4	8.1	87.0	2008	41	45	178
Mexico	32.0	52.0	46.2	52.4	18.6	98.1	2007	21	29	118
Netherlands	46.9	61.8	71.7	73.1	35.7	88.0	2004	32	49	319
New Zealand	34.7	51.4	52.1	46.6	14.0	69.2	2004	10	13	94
Norway	45.1	61.4	68.7	70.0	35.6	61.1	2004	15	19	165
Philippines	27.2	49.1	37.5	43.9	12.6	95.7	2008	18	23	76
Poland	26.1	47.5	36.2	42.7	30.5	24.9	2007	20	24	88
Portugal	48.2	65.5	73.1	84.2	10.6	79.4	2004	13	13	104
Russia	28.5	52.1	41.3	53.2	14.4	99.5	2004	29	31	158
Singapore	28.1	48.6	39.6	44.2	19.3	81.1	2004	42	47	365
South Africa	40.8	62.8	62.0	77.2	21.4	65.3	2008	44	127	372
South Korea	41.6	52.0	58.2	53.0	11.6	99.0	2004	93	105	411
Spain	52.0	66.6	75.6	81.0	13.4	79.0	2004	42	55	413
Sweden	49.8	59.8	76.1	67.9	39.4	33.0	2004	47	53	459
Switzerland	38.2	54.2	56.6	55.1	26.8	74.1	2004	63	72	524
Taiwan	30.1	43.9	41.1	33.2	14.7	79.8	2004	123	134	460
Thailand	32.8	53.4	43.9	53.3	13.6	74.8	2007	20	29	103
Turkey	34.7	54.5	51.0	56.8	14.0	99.4	2008	22	25	111
UK	41.3	58.8	64.7	65.7	34.3	40.4	2004	285	365	2,735
Total	36.4	52.7	52.6	51.5	21.4	67.3		2,661	3,277	19,849

Panel A: Constant panel of 805 firms, 2004–2013



Panel B: Constant panel of 1,662 firms, 2009–2013



**Fig. 1.** Environmental and social scores and institutional investors' ownership over time. This figure shows average environmental and social scores and institutional ownership by year. Data are from the ASSET4 ESG database and Factset and are obtained for the years 2004–2013. Online Appendix A describes the indicator variables used to calculate the environmental and social scores.

### 3.1. Total institutional ownership and firms' E&S performance

Our baseline tests examine the relation between (lagged) total institutional ownership and firms' E&S performance using the specification

$$\text{Log}(\text{Score}_{it}) = \alpha + \beta X_{it-1} + \gamma' Y_{it-1} + \Lambda + \varepsilon_{it}, \quad (1)$$

where the dependent variable is the log of one of the environmental or social scores of firm  $i$  in year  $t$ ,  $X_{it-1}$  is the percentage of total institutional ownership in year  $t-1$ ,  $Y_{it-1}$  are a set of firm-level control variables in year  $t-1$ , and  $\Lambda$  are year, country, and industry fixed effects.<sup>5</sup> We use logs of E&S scores to obtain better distributional properties and to reduce the impact of outliers.<sup>6</sup> For firm-level control variables, we use firm size (log of total assets), asset tangibility, leverage, Tobin's  $q$ , and profitability. We include firm size as prior literature has shown it to predict institutional ownership, and larger firms are subject to more external pressures. Hong et al. (2012) suggest that financial slack also predicts E&S adoption. Following them, we include leverage and asset tangibility to measure credit con-

straints and Tobin's  $q$  and profitability to capture the impact of performance. We include a dummy variable for a firm cross-listed on a major US exchange to proxy for likely higher overall institutional ownership. All right-hand side variables are lagged by one year, and we cluster standard errors by country.<sup>7</sup>

We report the results of these tests in Table 2. In Panel A, which uses the full sample, the positive and significant coefficient on the fraction of a firm's shares owned by institutional investors (*Total IO*) in Columns 1 and 3 indicates a positive relation between (lagged) institutional ownership and firms' E&S performance, each significant at the 1% level. These results are not only statistically significant, but also economically meaningful. To illustrate, a one standard deviation change in total institutional ownership (0.168) is associated with a 4.5% increase in environmental performance (calculated as  $0.168 \times 0.268$ ) and a 2.1% increase in social performance (calculated as  $0.168 \times 0.124$ ). The results are a bit stronger in Columns 2 and 4, which use the proprietary-weighted ASSET4 z-scores. A similar change in institutional ownership is associated with a 6.8% increase in environmental performance and an 8.2% increase in social performance. The consistent results across weighting

<sup>5</sup> E&S variables reflect data available to ASSET4 analysts that cover the firm's fiscal year. A score for fiscal year 2010, for example, would reflect items that occurred during the 2010 fiscal year as well as information contained in the company annual report and any company sustainability reports published after the fiscal year-end in early 2011. Thus, our baseline model with 2010 E&S scores would have fiscal year 2009 right-hand-side variables.

<sup>6</sup> Our main results are unaffected if we use the raw scores instead of the log scores.

<sup>7</sup> Alternative two-way clustering (by country and year or by country and industry) leads to marginally lower significance levels in some of our specifications, but all results remain significant at conventional levels. Further, we find that controlling for firms' cash holdings and ownership by insiders does not meaningfully affect our results. See also Table OB6 in Online Appendix B.

**Table 2**

Institutional investors and firms' environmental and social (E&S) performance.

This table reports regression estimates of environmental and social scores on institutional ownership and control variables. The dependent variables are the natural logarithm of environmental and social scores. Total IO is total institutional ownership, Log (total assets) is the natural logarithm of a firm's total assets, Tangibility is property, plant, and equipment to total assets, Leverage is total debt to total assets, Tobin's q is market capitalization of equity plus total debt divided by total assets, Profitability is net income plus after-tax interest expenses to total assets, and Cross-list is a dummy variable equal to one if the firm is cross-listed on a major US exchange, and zero otherwise. The data are from the ASSET4 ESG database, Factset, Worldscope, depositary receipt lists, and the Center for Research in Security Prices, and they are obtained for the years 2004–2013. Panel A uses the full sample. Panel B groups institutional ownership by whether institutional investors are United Nations Principles for Responsible Investment signatories or not. Panel C uses subsamples. The below-median subsample contains firms that have environmental and social scores below the sample median at the time they enter the sample. The above-median subsample contains firms above (or equal) to the sample median at the time they enter the sample. Online Appendix A describes the indicator variables used to calculate the environmental and social scores. All variables are winsorized at the 1st and 99th percentiles. All right-hand-side variables are lagged by one year. Standard errors are clustered at the country level, and *p*-values are reported in parentheses.

	Environmental scores		Social scores	
	Overall score (1)	ASSET4 z-score (2)	Overall score (3)	ASSET4 z-score (4)
<i>Panel A: Full sample</i>				
Total IO	0.268 (0.00)	0.403 (0.00)	0.124 (0.00)	0.491 (0.00)
Log (total assets)	0.214 (0.00)	0.255 (0.00)	0.084 (0.00)	0.274 (0.00)
Tangibility	0.194 (0.00)	0.228 (0.00)	0.031 (0.16)	0.116 (0.16)
Leverage	−0.116 (0.13)	−0.141 (0.21)	−0.041 (0.14)	−0.133 (0.22)
Tobin's q	0.033 (0.00)	0.027 (0.00)	0.015 (0.00)	0.032 (0.03)
Profitability	0.082 (0.43)	0.176 (0.18)	0.068 (0.11)	0.350 (0.04)
Cross-list	−0.027 (0.23)	−0.071 (0.06)	0.004 (0.73)	−0.040 (0.38)
Country fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Adjusted <i>R</i> <sup>2</sup>	0.543	0.446	0.523	0.393
Number of observations	19,849	19,785	19,849	19,785
<i>Panel B: Institutional ownership split by UN PRI signatory status</i>				
IO UN PRI Signatories	0.773 (0.00)	1.147 (0.00)	0.271 (0.00)	1.013 (0.00)
IO non-UN PRI Signatories	0.073 (0.13)	0.091 (0.22)	0.054 (0.04)	0.241 (0.02)
Control variables	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Adjusted <i>R</i> <sup>2</sup>	0.546	0.450	0.525	0.394
Number of observations	19,849	19,785	19,849	19,785
IO UN PRI versus IO non-UN PRI ( <i>p</i> -value)	(0.00)	(0.00)	(0.00)	(0.00)
<i>Panel C: Subsamples of firms with weak and strong initial E&amp;S performance</i>				
Weak initial E&S performance subsample				
Total IO	0.259 (0.00)	0.415 (0.00)	0.128 (0.00)	0.487 (0.00)
Control variables	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Adjusted <i>R</i> <sup>2</sup>	0.446	0.329	0.456	0.293
Number of observations	11,918	11,907	11,989	11,862
Strong initial E&S performance subsample				
Total IO	0.137 (0.03)	0.207 (0.01)	0.039 (0.11)	0.093 (0.26)
Control variables	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Adjusted <i>R</i> <sup>2</sup>	0.611	0.228	0.65	0.277
Number of observations	7931	7878	7860	7923
Total IO, weak versus strong initial E&S performance ( <i>p</i> -value)	(0.02)	(0.02)	(0.00)	(0.00)

schemes gives us confidence that the relation between institutional ownership and firms' E&S performance is not an artifact of the specific aggregation approach we use to calculate overall E&S scores.<sup>8</sup>

We next examine two settings in which institutional owners plausibly have a greater impact on firms' E&S performance within our sample. First, we identify whether an investor becomes a signatory to the UN Principles for Responsible Investment. Being a signatory requires, among other things, that investors incorporate environmental, social, and governance issues into their investment analysis and decision making and that they are active owners, individually and collectively, regarding these goals. We therefore expect a larger impact from UN PRI signatories. At the beginning of our sample period, there were no signatories to the UN PRI. By the end of the sample period, 57% of our institutional owners are UN PRI signatories.

Second, we consider when a firm has greater scope for E&S improvement. To capture this scope, we split our sample into firms with low (below median) and high (equal or above median) E&S performance at the time they enter the sample. We expect greater effects in the firms with low initial E&S performance.

We find support for enhanced institutional investor impact in both settings. In Panel B of Table 2, the economic impact of institutional investors is greater when those investors are UN PRI signatories, and this difference in coefficients is statistically significant at the 1% level in all four specifications (*p*-values reported in the last row of Panel B). Compared with the Panel A results, the coefficient is almost three times larger for environmental performance and more than two times larger for social performance. To illustrate, increasing UN PRI signatory ownership by 16.8 percentage points (one standard deviation of institutional ownership) predicts a 13.0% increase in environmental performance and a 4.6% increase in social performance. Panel C shows that the impact of institutional investors is greater for firms with more, not less, room for E&S improvement and that this difference is always statistically significant at the 5% level. Because these tests confirm greater investor impact on E&S in settings where a greater effect is expected, they increase confidence that the statistical relation identified in Panel A of Table 2 reflects real pressures coming from investors.

<sup>8</sup> In untabulated tests, we also decompose environmental and social scores and consider the three components of environmental and the seven components of social scores separately as dependent variables. Institutional ownership is positively and significantly related to nine out of ten E&S sub-scores (*p*-value < 1%). Thus, our results are not driven by one particular E&S component, and the impact of institutional ownership appears to be broad and affects a wide and diverse range of firm-specific E&S commitments. We also perform tests to address the possibility that these findings arise from parallel trends in institutional ownership and E&S performance. We find similar results when focusing on the 2008–2013 period, with no parallel trends as institutional ownership is essentially flat (it peaks in 2007 with an average ownership level of 27.7% and is 26.7% at the end of 2013) and E&S scores are rising; standardizing our measures of E&S performance and institutional ownership by year such that these measures have zero mean and a standard deviation of one in each year of our sample period; and reestimating Table 2, Panel A, to include additional country × year or industry × year effects to absorb any time trends.

### 3.2. A quasi-natural experiment: The BP Deepwater Horizon oil spill

As a further test of the hypothesis that institutional investors cause changes in firms' E&S performance, we use the BP Deepwater Horizon oil spill on May 24, 2010 as a quasi-natural experiment. This unexpected event serves as an exogenous shock to the importance that institutional investors assign to firms' environmental commitments. While the immediate negative economic effect of the oil spill was on BP, the event arguably focused investors' attention on all extractive industries and the potential risks of weak environmental policies even in the most developed countries. If institutional ownership drives changes in firms' environmental performance, we expect that firms with greater institutional ownership at the time of the Deepwater Horizon disaster would subsequently display higher environmental performance levels, as these institutional owners are better able to force through policy changes.

For this test, we follow a difference-in-differences approach using the years 2009–2012 to have balance on each side of the event. To address serial correlation (Bertrand et al., 2004), we collapse the two-year pre- and post-event periods each into one observation. Further, to ensure that the estimated effect in the post-event period is not driven by changes in institutional ownership, *Total IO* is measured as of the pre-event period.

Panel A of Table 3 reports regression results for treated firms only (firms belonging to several categories of extractive industries) for which we estimate

$$\begin{aligned} \text{Log}(\text{Score}_{it}) = & \alpha + \beta_1 \text{Total IO}_i + \beta_2 \text{Post Event} \\ & + \beta_3 \text{Total IO}_i \times \text{Post Event} + \gamma' Y_{it} + \Lambda + \varepsilon_{it}, \end{aligned} \quad (2)$$

where the dependent variables are the log of firms' environmental scores and *Post Event* equals one for the years 2011 and 2012 and zero otherwise (all other variables are as in Eq. (1)). The coefficient of interest is  $\beta_3$  for the interaction term *Total IO* × *Post Event*. We use three alternative industry classifications to identify treated firms in extractive industries: two-digit Standard Industrial Classification (SIC) code in column 1 (SIC 13, Oil and Gas Extraction), Fama and French (FF) industry in Column 2 (FF 17, Oil and Petroleum Products), and SIC division in Column 3 (SIC Division B, Mining). For all subsamples, the coefficient estimate of  $\beta_3$  is positive and significant at the 5% level or better, indicating that the relation between institutional ownership and firms' environmental performance has strengthened after the Deepwater Horizon shock.<sup>9</sup> This is consistent with the channel of influence going from institutional ownership to firms' environmental performance.

In Panel B of Table 3, we report difference-in-differences estimates, using the entire sample. Our coefficient of interest is the triple interaction coefficient for *To*

<sup>9</sup> In several of the specifications in Panel A of Table 3, the *Total IO* coefficient lacks significance pre-spill. The magnitude of these coefficient estimates are similar to our baseline results in Table 2, so the lack of significance could stem from the much smaller sample used in these tests.



**Table 3**

Institutional investors and firms' environmental performance: BP Deepwater Horizon oil spill.

This table reports regression estimates of environmental scores on institutional ownership and control variables for years 2009 through 2012, which correspond to the four years surrounding the Deepwater Horizon oil spill that occurred on May 24, 2010. The dependent variables are the natural logarithm of environmental scores. The Post event dummy is equal to one for the years 2011 and 2012 and zero otherwise. The two-year pre- and post-event periods are each collapsed into one observation, and Total IO is the total institutional ownership measured over the pre-event period. In Panel A, we report within-industry results for firms in extractive industries. The coefficient estimate of Total IO  $\times$  Post event shows the differential effect of institutional ownership on environment scores after the event. In Panel B, we report difference-in-differences regression results. The coefficient estimate of Total IO  $\times$  Post event  $\times$  Treated firm shows the differential effect of institutional ownership on the environment scores for firms in extractive industries (treated firms) compared with the rest of the sample firms. The data are from the ASSET4 ESG database, Factset, Worldscope, depositary receipt lists, and the Center for Research in Security Prices. Online Appendix A describes the indicator variables used to calculate the environmental and social scores. All variables are winsorized at the 1st and 99th percentiles. All right-hand-side variables are lagged by one year. Controls are as in Table 2. Standard errors are clustered at the country level, and *p*-values are reported in parentheses. SIC = Standard Industrial Classification; FF = Fama and French.

	Overall environmental score			Environmental ASSET4 z-score		
	Oil and gas extraction (SIC 13) (1)	Oil and petroleum products (FF 17) (2)	Mining (SIC Division B) (3)	Oil and gas extraction (SIC 13) (4)	Oil and petroleum products (FF 17) (5)	Mining (SIC Division B) (6)
<i>Panel A: Within-industry regressions</i>						
Total IO	0.100 (0.32)	0.093 (0.46)	0.168 (0.12)	0.394 (0.05)	0.252 (0.17)	0.337 (0.01)
Post event	-0.007 (0.88)	0.028 (0.40)	0.008 (0.78)	-0.154 (0.07)	-0.099 (0.13)	-0.125 (0.03)
Total IO $\times$ Post event	0.216 (0.02)	0.150 (0.02)	0.120 (0.00)	0.332 (0.03)	0.240 (0.03)	0.235 (0.00)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted <i>R</i> <sup>2</sup>	0.722	0.727	0.616	0.667	0.677	0.586
Number of observations	222	302	606	222	302	606
Number of treated firms	111	151	303	111	151	303
<i>Panel B: Difference-in-differences regressions</i>						
Total IO	0.288 (0.00)	0.306 (0.00)	0.377 (0.00)	0.431 (0.00)	0.454 (0.00)	0.523 (0.00)
Post event	0.087 (0.00)	0.089 (0.00)	0.097 (0.00)	0.002 (0.90)	0.005 (0.78)	0.017 (0.38)
Treated firm	-0.100 (0.45)	-0.038 (0.68)	-0.122 (0.28)	-0.091 (0.68)	-0.032 (0.78)	-0.195 (0.27)
Total IO $\times$ Post event $\times$ Treated firm	0.156 (0.06)	0.091 (0.12)	0.116 (0.01)	0.247 (0.08)	0.149 (0.17)	0.222 (0.01)
Control variables and other interactions	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted <i>R</i> <sup>2</sup>	0.515	0.474	0.483	0.465	0.423	0.43
Number of observations	5172	5172	5172	5168	5168	5168
Number of treated firms	111	151	303	111	151	303
Number of control firms	2475	2435	2283	2473	2433	2281

*tal IO*  $\times$  Post Event  $\times$  Treated Firm that captures the difference of the effect of Total IO for treated firms relative to control firms after the event. Our findings are very similar, and they confirm the positive and significant effect of the unexpected Deepwater Horizon event on the relation between institutional ownership and firms' E performance.

We also explore the impact of Deepwater Horizon on firms' social performance levels using an identical structure to Table 3. We report these results in Table OB2 in Online Appendix B. Consistent with the environmental shock sharpening institutions' focus on environmental instead of social performance, we find no impact of this shock on firms' social performance.

### 3.3. Additional robustness tests

We conduct other robustness tests. First, we use additions to the MSCI All Country World Index as an instrument for institutional ownership, discussed in detail in the Online Appendix (Table OB3). We find that instrumented institutional ownership predicts firms' E&S performance. More important, consistent with the quasi-natural experiment, the evidence indicates a direction of causality from institutional ownership to firms' E&S performance.

Second, a concern arises that the results could be driven by firm characteristics that affect both investors' choice of firms to invest in and firms' E&S performance.

The inclusion of firm-level controls and industry and time fixed effects in the main specification alleviates the concern that the result comes from observable firm characteristics. We introduce a firm fixed effects model that controls for time-invariant unobserved firm characteristics (Gormley and Matsa, 2014). The results, discussed in detail in Online Appendix B (Table OB4) are very similar, with consistent positive and significant effects of institutional ownership on subsequent firm E&S performance.

Third, we explore whether our results are influenced by the choice of a specific E&S data provider, by obtaining firm-level data on E&S performance from Sustainalytics and Bloomberg. We reestimate our baseline models using these data and find that institutional ownership remains positively and significantly related to firms' E&S performance (see Table OB5 in Online Appendix B). Finally, to ensure that our results are not driven by a firm's E&S transparency or by its corporate governance, we explicitly control for transparency using ASSET4 transparency scores and for a firm's governance using a measure of insider control. All of our results continue to hold (see Table OB6 in Online Appendix B).

We find that, in aggregate, institutional investors play an important role in improving E&S performance in firms across the world, and the evidence suggests that the relation is causal. Because owners are pushing for greater E&S performance, our results indicate that firms' E&S choices are not explained solely by managerial agency costs.

#### 4. What mechanisms do institutional investors use to push for E&S changes?

In this section, we assess the mechanisms that institutional investors use to drive E&S performance changes. Firms enjoy a lower cost of capital if they can make themselves attractive to a greater pool of shareholders. Thus, investors can use the threat of exit, or the threat of selecting only firms with specific E&S policies, to indirectly influence firms' choices. Investors can engage with management using the voice that comes with their shareholding to influence firms' E&S policies (Hirschman, 1970; Gillan and Starks, 2000, 2003; Edmans, 2009; Edmans and Manso, 2011; Edmans and Holderness, 2017). The consistent presence of institutional investors (85% of institutional ownership in a given firm is held by the same institutional investors from one year to the next) makes voice and the threat of exit plausible channels.

##### 4.1. Exit and selection

There is evidence indicating that investors use exit and selection to influence firms' E&S performance. Some investors use negative screening to exclude poor E&S performers or positive screening to buy only firms above certain E&S thresholds (e.g., socially responsible funds or impact funds; e.g., Barber et al., 2017). Yet, it remains unclear how significant this is for investors as a whole. Negative screening is used by few institutional investors and excludes few companies. For example, the Norwegian Global Pension Fund had investments in more than 9050 firms around the world as of December 2015, but it blacklisted

only 66 firms.<sup>10</sup> The positive screening used by socially responsible funds represents only a small fraction of institutional ownership.

We explore whether exit and selection is an important mechanism for institutional investors' push for E&S performance using Granger causality tests. We estimate two symmetric sets of regressions. First, similar to our tests so far, we regress E&S scores on lagged *Total IO*, lagged E&S scores, and lagged control variables. Second, consistent with screening and exit being important, we regress *Total IO* on lagged E&S scores, lagged *Total IO*, and lagged control variables. Granger causality has been widely applied in economic research, and interpretations of the causality concept have been broadly debated such that caveats associated with its usage are well understood. With panel data, in which time series tend to be relatively short but available for a great number of cross-sectional units, parameter estimation is performed by pooling the data, and allowing for differences in individual effects can be achieved by including fixed effects (see, e.g., Holtz-Eakin et al., 1988). We follow this approach and include firm fixed effects.

In results presented in Table OB7 in Online Appendix B we do not find support for exit and selection being important as a determinant for institutional ownership. *Total IO* does not depend on lagged E&S scores (while controlling for lagged *Total IO*). We instead find support for our baseline results of institutional ownership driving firms' E&S performance. E&S scores significantly depend on lagged *Total IO* (while controlling for lagged E&S performance). These findings suggest that exit and selection does not account for broad changes in firms E&S performance. An additional benefit of these Granger causality tests is that, like the Deepwater Horizon quasi-natural experiment, they help rule out reverse causality as an alternative explanation for our results.<sup>11</sup>

##### 4.2. Voice

Given these results, we expect investors' voice to be a dominant mechanism that drives E&S changes. Evidence that voice is important includes the growth in investor organizations such as the UN PRI. Being a signatory requires investors to commit to actively engage with firms to improve their E&S commitments and allows for collaboration.

Voice could be publicly observable, such as in shareholder proposals and voting, or could be used in private engagements between investors and firms. Annual reports of major institutional investors and investor groups provide anecdotal evidence that private, not public, engagement is the primary mechanism to obtain E&S changes. This is consistent with recent evidence showing that institutional investors engage firms through private channels (McCahery et al., 2016; Amel-Zadeh and Serafeim, 2017) and that pri-

<sup>10</sup> Further, Hong and Kacperczyk (2009) show that such excluded stocks have higher expected returns than comparable stocks, making it difficult for investors with fiduciary obligations to justify such an investment approach.

<sup>11</sup> We find similar results if we restrict attention to institutional investors who have been present in a given firm for more than one year.

vate engagements could be the most effective type of activism (Becht et al., 2009).

To test the voice mechanism, one would ideally use a comprehensive database of both private and public activism around the world. Unfortunately, such data do not yet exist. Even public activism data, which would include shareholder proposals, voting tallies, and voting outcomes (including those for withdrawn proposals), are not yet available from commercial data providers for a global sample.<sup>12</sup> For the third-largest sample country in our data, Canada, we are able to collect such data. Canada has a large share of natural resource firms that are likely to be the focus of investor activism, and its study thus should shed light on investor activism globally.

If shareholder proposals are an important mechanism to drive E&S changes around the world (Del Guercio and Tran (2012) find this to be the case for US firms), we expect them to be both common and effective. We investigate this using the SHARE.ca database, which tracks all shareholder proposals in Canada, and restrict our attention to firms with available E&S data from ASSET4 in our sample period. The results, reported in Table OB8 in Online Appendix B, show that only 147 E&S proposals are made in 53 firms over our sample period, constituting 6% of firm-years.

To judge the effectiveness of these proposals, looking solely at vote outcomes is not sufficient because more than 60% of the time a proposal never comes to a shareholder vote. We conduct a case study analysis and categorize each proposal as successful or not, consulting data from SHARE.ca, the websites of the proposal maker, and news sources.<sup>13</sup> As the results show, shareholder proposals are frequently successful; 45% of environmental proposals and 21% of social issue proposals succeed. We also test whether investor engagement of firms via a shareholder proposal is associated with subsequently higher E&S scores as measured by ASSET4 E&S scores. Panel B of Table OB8 reports results similar to our baseline specifications, using shareholder proposals as an additional explanatory variable for E&S performance. In the regression, *Shareholder Proposals* is a dummy variable equal to one for the two years following the submission of a shareholder proposal and zero otherwise. The results show the impact of shareholder proposals, with a subsequent increase in E&S performance (statistically significant at the 5% level for E scores but not for S scores).

Importantly, we find that successful proposals are rarely voted on. For E proposals, only 6% of the successful ones are voted on; for S proposals, the fraction is only 3%. For proposals that do get voted on, the percentage vote in favor is low, averaging about 10% (12% for E proposals and 8.5% for S proposals). These findings indicate that E&S

shareholder proposals are primarily used as a lever to enhance the effectiveness of private negotiations.

Public engagement through shareholder proposals, given their scarcity, is unlikely to be the dominant mechanism that investors use to drive firms' E&S performance. Further, in a non-US sample, Iliev et al. (2015) show that shareholder proposals are extremely rare. We conclude that private engagement is the most likely channel through which investors push firms for stronger E&S performance. While private engagements can in some cases entail (observable) shareholder proposals, they do not require them to be effective (see Becht et al. (2009) for UK targets of shareholder activism and Dimson et al. (2015) for US targets).

## 5. Why do institutional investors' push firms to improve E&S performance?

In this section, we examine the motivations behind institutional investors' push for E&S performance. We propose that they are motivated by financial returns, or by social returns, or a combination of both.

### 5.1. Financial motivations to improve E&S performance

E&S investment could be value enhancing by providing a form of insurance against event risk or product market differentiation, or both (Servaes and Tamayo, 2013; Hong and Liskovich, 2016; Albuquerque et al., 2017; Lins et al., 2017). Many investors use such motivations to explain their E&S activism, and these investors often note that E&S spending is aimed at a long-term, instead of short-term, payoff.<sup>14</sup>

### 5.2. Social motivations to improve E&S performance

Institutional investors also could push to improve firms' E&S performance levels because of social pressures they face. Guiso et al. (2006) show pervasive effects of culture, a broad term that captures beliefs, values, and norms of a group or society, on a range of economic outcomes. In this paper, we focus on the pressure coming from social norms regarding firms' E&S performance.

Akerlof and Kranton (2005, p. 12) provide a definition of norms ("peoples' views of how they, and others, should or should not behave") and show that social norms can significantly influence agents' behavior. The necessary ingredients for norms to matter for investment managers are that managers identify themselves with a particular community, the community has views regarding appropriate firm-level E&S performance (ideals), and the investment manager receives social rewards for aligning her portfolio

<sup>12</sup> Institutional Shareholder Services (ISS) records shareholder proposals for non-US firms (with US shareholders (registered management investment companies) required to file N-PX forms with the Securities and Exchange Commission) but, within our sample period, ISS does not report voting outcomes or whether withdrawn proposals were successful or not.

<sup>13</sup> We categorize a proposal as successful if it is implemented or if these sources report successful negotiations or productive discussions (or equivalent wording).

<sup>14</sup> For instance, Norges Bank Investment Management, the investment fund managing Norway's Government Pension Fund Global states that "as a large, long-term investor, we engage directly with companies' board and management. ... Our investment management takes account of environmental, social and governance issues that could have a significant impact on the fund's performance over time. We seek to further the long-term economic performance of our investments and reduce financial risks associated with the environmental, social and governance practices of companies we have invested in" (Norges Bank Investment Management (2016)).

firms' E&S performance with community ideals and faces social penalties if there is weak alignment.

Further, social norms matter if institutional investors are trying to reflect the preferences of their beneficiaries as in [Hart and Zingales \(2017\)](#). To the extent a community has consistent views toward E&S, instead of divergent ones, the investment manager more likely reflects those preferences in her engagements with firms.

In exploring the hypothesis that social norms matter, we are not making a statement that norms are Pareto-improving. Prior research in other contexts shows that they perhaps are or are not ([Arrow, 1971](#); [Akerlof, 1980](#); [Elster, 1989](#)). In the E&S context, we simply record the environmental and social norms and test whether these influence investors' impact on firms' E&S performance.

### 5.3. A simple framework

We introduce a parsimonious framework to capture the potential impact of both financial returns and social norms on an investment manager's E&S choices. The framework builds on the models of [Akerlof and Kranton \(2005\)](#) as extended in [Benjamin et al. \(2010\)](#).

For simplicity, consider a situation in which an investment manager owns one firm and chooses  $x$ , which is the E&S performance of that firm. A level  $x_0$  exists that maximizes firm value. Also, a level  $x_c$  is the preferred level of E&S performance for that firm based on the views of members in the community in which the investment manager lives. Investment managers differ in the utility they derive from living up to such social norms, which we capture through a weight  $w(s)$ , where  $w(0)=0$  and  $w' > 0$ . Thus, in making a choice about  $x$ , an investment manager faces both a utility loss from deviating from the ideal choice from a financial perspective and a utility loss from deviating from the ideal social choice in her community. A functional form to capture this trade-off is provided in [Eq. \(3\)](#), where the investment manager chooses  $x$  to maximize

$$\text{Max } E[U] = -(1 - w(s))(x - x_0)^2 - (w(s))(x - x_c)^2. \quad (3)$$

This framework illustrates the potential importance of both social and financial returns. For an investment manager who derives no utility from social norms,  $w(s)=0$  and the manager chooses  $x_0$ , the E&S performance that maximizes firm financial performance. Otherwise, the manager needs to consider the gap between firm E & S performance and community ideals.

Profound differences exist across countries in the strength of E & S concerns, and these differences in social norms are persistent. If the investment manager lives in a community with high social norms for E & S performance, so that  $x_c > x_0$ , the investment manager minimizes disutility loss by raising firm E&S performance toward community norms, with the intensity dependent upon  $w(s)$ , how much the manager cares about living up to community norms, and  $x_c$ , the strength of the community norms regarding firms' E & S performance. The same logic carries through when we consider institutional investors that own a portfolio of firms.

To facilitate the identification of financial returns as a motivation we look for situations in which the level  $x_0$ , the

E&S performance that maximizes firm value, unexpectedly increases. In this circumstance, a financially motivated investor seeks to increase firms' E&S performance levels. The Deepwater Horizon environmental shock provides an example as the cost from not having robust environmental practices was revealed to be unexpectedly large. If, after such a shock, E&S performance increases significantly, one can conclude that this choice is driven by financial motivations.

To facilitate the identification of social norms as a motivation, we focus on investors' foreign holdings. To the extent that a firm's board and management team and its domestic institutional investors are both affected by their country-of-domicile E&S social norms, it would be challenging to isolate whether firm managers or domestic investors are behind a firm's E&S performance. Foreign investors are unlikely to obtain private benefits other than through the social norm channel, given the geographic separation between them and firm headquarters. Therefore, we use the social norms of foreign institutional owners, who account for two-thirds of institutional ownership in the data, to test whether investor social norms influence firm-level E&S performance. Such a finding would indicate that institutional investors are, in effect, transplanting their social norms across countries.

### 5.4. Tests of the importance of financial motivations

The results reported in [Table 3](#) illustrate the importance of financial motivations for investors' push for firms' E&S performance using the impact of the unexpected costs from the Deepwater Horizon event. In that situation, the increase in investors' push for E&S performance was found only for environmental performance and only for the extractive industries.

In this subsection, we follow a similar logic but explore a shock that affects the financial value of both environmental performance and social performance for firms. Following [Lins et al. \(2017\)](#), we use the 2008–2009 global financial crisis as such a shock. As they argue and find, the financial crisis revealed the financial value of firm-level social capital and trust (as captured by E&S performance scores). They report higher crisis period returns for firms that entered the crisis with higher E&S performance. If financial motivations are important, we expect that firms with greater institutional ownership during the global financial crisis period would subsequently display higher E&S performance levels, as these institutional owners have a financial motive to force through policy changes because the value-maximizing level of  $x_0$  has arguably increased.

We test for this in [Table 4](#), using a *Post Crisis* dummy variable (similar to [Lins et al., 2017](#)) that is zero for fiscal years ending between August 31, 2008 and August 30, 2009 and equals one for fiscal years ending between August 31, 2009 and August 30, 2011. The two-year post-crisis observations are collapsed into one observation. *Total IO* is the total institutional ownership measured in the fiscal year preceeding the crisis period.

The results are similar to those reported earlier, with institutional ownership again predicting higher subsequent E&S scores. Our focus is on the positive and significant

**Table 4**

Institutional investors and firms' environmental and social (E&S) performance surrounding the crisis.

This table reports regression estimates of environmental and social scores on institutional ownership and control variables surrounding the financial crisis. Post crisis is a dummy variable that is equal to one for fiscal years ending between August 31, 2009 and August 30, 2011 and zero for fiscal years ending between August 31, 2008 and August 30, 2009. The two-year post-crisis observations are collapsed into one observation. Total IO is the total institutional ownership measured in the fiscal year preceding the crisis period. The data are from the ASSET4 ESG database, Factset, Worldscope, depositary receipt lists, and the Center for Research in Security Prices. Online Appendix A describes the indicator variables used to calculate the environmental and social scores. All variables are winsorized at the 1st and 99th percentiles. Controls are as in Table 2. Standard errors are clustered at the country level, and *p*-values are reported in parentheses.

	Environmental scores		Social scores	
	Overall score (1)	ASSET4 z-score (2)	Overall score (3)	ASSET4 z-score (4)
Total IO × Post crisis	0.155 (0.00)	0.182 (0.00)	0.065 (0.00)	0.179 (0.00)
Total IO	0.268 (0.01)	0.397 (0.00)	0.155 (0.00)	0.649 (0.00)
Post crisis	0.010 (0.61)	0.002 (0.92)	0.011 (0.12)	0.039 (0.09)
Control variables	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Adjusted <i>R</i> <sup>2</sup>	0.501	0.449	0.468	0.408
Number of observations	3698	3698	3698	3698
Number of firms	1849	1849	1849	1849

(*p*-value < 1%) coefficient on the *Post Crisis* dummy interacted with total institutional ownership. This indicates that the already significant impact of institutional ownership on firms' E&S performance increases following the financial crisis. We conclude from this quasi-natural experiment that financial motivations play an important role in investors' push for greater E&S commitments.

##### 5.5. Tests of the importance of social motivations, country-level social norms

To test whether social returns are motivating investors, we begin by collecting data for social norms across countries. Social norms can be measured as observed policies and outcomes in a society or as expressed values and aspirations of individuals. We use both approaches. To measure a country's social norms toward the environment, we use the Environmental Performance Index, obtained from the Yale Center for Environmental Law (Yale University) and Center for International Earth Science Information Network (Columbia University) for the year 2004. The EPI is an observed-outcome metric that aggregates country-level data on environmental health and ecosystem vitality. Higher index values indicate better environmental performance in a country.

To measure social norms toward worker rights and other social issues, we use the Employment Laws Index from Botero et al. (2004, p. 1353). This index is an observed-outcome metric for a country's protection of labor that captures the "cost to the employer of deviating from a hypothetical rigid contract." Many of the line items in ASSET4's social commitment data are related to worker rights, making this a plausible proxy for social norms.<sup>15</sup> Higher index values indicate stronger protection of labor.

Because a society's attitudes and beliefs toward E&S issues can be different from observed outcomes, we also use data from the extensive World Values Survey to construct an aggregate E&S social norm measure. WVS data come from interviews with representative samples of one thousand to four thousand individuals in more than one hundred countries, conducted in waves over several years, assessing peoples' values and beliefs using common questionnaires. Survey questions from the WVS have been used to measure social norms in prior work (e.g., La Porta et al., 1997; Glaeser et al., 2000; Guiso et al., 2003). Our World Values E&S Index uses 12 questions from the WVS that assess a society's values regarding environmental activism, lifestyle liberty, gender equality, personal autonomy, and the voice of the people. We aggregate responses to these questions following the methodology of Welzel (2013).<sup>16</sup> Higher index values indicate stronger values and beliefs toward E&S. The Environmental Performance Index, Employment Laws Index, and World Values E&S Index measures are available for 85, 75, and 79% of investors' countries in our sample, respectively, representing between 96 and 99% of total institutional ownership.

Table 5 reports descriptive statistics of E&S social norms across countries, sorted by the average of the three indexes. European countries rank high in social norms toward E&S, holding the top 17 spots. The top five countries are Finland, Germany, the Netherlands, Norway and Sweden. Countries in Asia, Australasia, and Africa are at the bottom of the list.

E&S social norm differences across countries are strongly persistent to the extent that we can measure

that measures the extent to which employees are protected by collective bargaining and labor relations laws.

<sup>16</sup> The aggregation combines data from the World Value Survey (Waves 4 and 5, 1999–2009) and the European Value Study (EVS; Waves 3 and 4, 1999–2010), to obtain the widest possible country coverage. See also [www.worldvaluessurvey.org](http://www.worldvaluessurvey.org) and [www.europeanvaluesstudy.eu](http://www.europeanvaluesstudy.eu).

<sup>15</sup> The results are similar in magnitude and significance when we use the Collective Relations Laws Index (obtained from Botero et al., 2004)

**Table 5**

Measures of country-level environmental and social (E&S) social norms.

This table reports means of social norm measures by country. Countries in which institutional investors hold on average less than 0.001% in foreign firms are not reported in this table but they are included in our analysis. The Environmental Performance Index is obtained from the Yale Center for Environmental Law (Yale University) and the Center for International Earth Science Information Network (Columbia University) for 2004. The Employment Laws Index is obtained from [Botero et al. \(2004\)](#). The average World Value E&S Index is obtained from the World Value Survey and European Value Study ([Welzel, 2013](#)) for 1999–2010. The table is sorted by the average value across the three measures. na = not available.

Country	Environmental Performance Index	Employment Laws Index	World Value E&S Index
Sweden	0.67	0.74	0.71
Norway	0.70	0.69	0.67
Netherlands	0.64	0.73	0.58
Germany	0.66	0.70	0.57
Finland	0.62	0.74	0.57
France	0.67	0.74	0.49
Slovenia	0.61	0.74	0.55
Spain	0.57	0.74	0.51
Denmark	0.62	0.57	0.64
Switzerland	0.77	0.45	0.60
Italy	0.68	0.65	0.47
Luxembourg	0.68	na	0.51
Portugal	0.53	0.81	0.41
Austria	0.68	0.50	0.53
Poland	0.62	0.64	0.40
Czech Republic	0.62	0.52	0.51
Belgium	0.62	0.51	0.48
Brazil	0.56	0.57	0.44
Australia	0.58	0.35	0.59
UK	0.68	0.28	0.53
Chile	0.55	0.47	0.44
South Korea	0.55	0.45	0.45
Taiwan	0.57	0.45	0.41
Estonia	0.56	na	0.40
Canada	0.57	0.26	0.60
Hungary	0.55	0.38	0.45
New Zealand	0.63	0.16	0.58
Philippines	0.52	0.48	0.37
Israel	0.55	0.29	0.51
Japan	0.63	0.16	0.55
Ireland	0.56	0.34	0.43
US	0.55	0.22	0.53
Singapore	0.56	0.31	0.38
China	0.42	0.43	0.37
Malaysia	0.61	0.19	0.39
India	0.36	0.44	0.34
South Africa	0.35	0.32	0.41
Hong Kong	na	0.17	0.43

these in the available data. To illustrate, for the EPI, a comparison of country rankings in 2004 and 2014 yields a rank correlation of 0.99. We find similarly strong persistence of social norms when we use the World Values E&S Index.<sup>17</sup>

For our primary tests of whether social norms in the country of domicile of foreign institutional investors influence investors' E&S impact, we sort foreign institutional ownership into high and low social norm groups. We rank all institutional investors by their countries' social norms and sort them into two groups using the medians of the social norm measures as cutoff points. Lacking additional data, we assume the ultimate beneficiaries of the investment manager are located in the country of the investing fund.

Panels A and B of [Table 6](#) report the results for environmental and social scores, respectively, in each case showing the impact of both an output-based and a survey-based measure of E&S norms. For both E&S scores and for both measures of social norms, foreign institutional ownership of the high social norm group is positively and significantly associated with E&S scores, and the ownership of the low social norm group is generally not significantly related to E&S scores (with the exception of Models 1 and 3 in Panel B). Further, in seven out of eight models, the coefficient on foreign institutional ownership from the high group is significantly larger than the corresponding one for the low group (*p*-values reported in the last row of Panels A and B, respectively).

The impact of social norms is also economically meaningful. For example, based on the results of Column 1 in Panels A and B of [Table 6](#), if foreign institutional investors from countries with low social norms were to pressure firms on E&S in the same manner as investors from countries with high social norms, firms' environmental per-

<sup>17</sup> The EPI in 2004 is called the Environmental Sustainability Index. The WVS provides data from six survey waves, with Wave 2 being the first to involve many countries and Wave 3 providing coverage for most of our sample countries. The rank correlation of countries comparing Wave 2 and Wave 5 is 0.91 and Wave 3 and Wave 5 is 0.94.

**Table 6**

Foreign institutional investors' social norms and firms' environmental and social (E&S) performance.

This table reports regression estimates of environmental and social scores on domestic institutional ownership, foreign institutional ownership grouped by social norms of institutional investors' home countries, and control variables. The dependent variables are the natural logarithm of environmental and social scores. Foreign institutional ownership is sorted into high and low social norm groups based on the social norms concerning environmental and social issues of the foreign investors' country of domicile. We measure a country's social norms concerning environmental issues with the Environmental Performance Index (obtained from Yale Center for Environmental Law (Yale University) and Center for International Earth Science Information Network (Columbia University), 2004, median split) and the World Value E&S Index (obtained from the World Value Survey and European Value Study, 1999–2010, Welzel (2013), median split). We measure a country's social norms concerning social issues with the Employment Laws Index (obtained from Botero et al. (2004), median split) and the World Value E&S Index. The other data are from the ASSET4 ESG database, Factset, Worldscope, depositary receipt lists, and the Center for Research in Security Prices, and they are obtained for the years 2004–2013. Online Appendix A describes the indicator variables used to calculate the environmental and social scores. All variables are winsorized at the 1st and 99th percentiles. All right-hand-side variables are lagged by one year. Controls are as in Table 2. Standard errors are clustered at the country level, and *p*-values are reported in parentheses. The last row reports *p*-values of a test of equality of the coefficient estimates on Foreign IO, high social norm group and Foreign IO, low social norm group.

	Overall score		ASSET4 z-score	
	Environmental Performance Index	World Value E&S Index	Environmental Performance Index	World Value E&S Index
	(1)	(2)	(3)	(4)
Foreign IO				
High social norm group	0.948 (0.00)	0.885 (0.00)	1.265 (0.00)	1.171 (0.00)
Low social norm group	−0.001 (1.00)	0.065 (0.59)	0.051 (0.75)	0.132 (0.42)
Domestic IO	0.442 (0.00)	0.444 (0.00)	0.644 (0.00)	0.646 (0.00)
Control variables	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Adjusted R <sup>2</sup>	0.544	0.544	0.445	0.446
Number of observations	19,648	19,661	19,585	19,598
Average Foreign IO				
High social norm group	0.049	0.050	0.049	0.050
Low social norm group	0.078	0.085	0.078	0.085
Foreign IO, low social norm group versus high social norm group ( <i>p</i> -value)	(0.00)	(0.01)	(0.00)	(0.01)
<i>Panel B: Social scores</i>				
	Overall score		ASSET4 z-score	
	Employment Laws Index	World Value E&S Index	Employment Laws Index	World Value E&S Index
	(1)	(2)	(3)	(4)
Foreign IO				
High social norm group	0.556 (0.00)	0.285 (0.00)	1.449 (0.00)	0.962 (0.00)
Low social norm group	0.063 (0.04)	0.056 (0.29)	0.359 (0.00)	0.291 (0.18)
Domestic IO <i>t</i> -1	0.175 (0.00)	0.186 (0.00)	0.702 (0.00)	0.733 (0.00)
Control variables	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Adjusted R <sup>2</sup>	0.524	0.524	0.388	0.392
Number of observations	19,474	19,661	19,413	19,598
Average Foreign IO				
High social norm group	0.029	0.050	0.029	0.050
Low social norm group	0.105	0.085	0.105	0.085
Foreign IO, low social norm group versus high social norm group ( <i>p</i> -value)	(0.00)	(0.07)	(0.02)	(0.16)

formance would increase by 7.4% (calculated as  $[0.948 - (-0.001)] \times 0.078$ ) and social performance would increase by 5.2% (calculated as  $(0.556 - 0.063) \times 0.105$ ). Overall, these results on social norms carry a significant implication for global capital markets as they show that high social norm foreign institutional investors, in effect, transplant their social norms to the foreign firms they hold.<sup>18</sup>

One potential concern is that our measures of E&S social norms are correlated with other omitted country level factors, which could drive firms' E&S performance. For example, investors from wealthy countries could be the ones pushing for more E&S at firms or activism experience from being domiciled in countries with strong investor protection laws could be behind our results. Therefore, we construct alternative measures of social norms that are orthogonal to citizen wealth and two proxies for investor protection. To do so, we regress the original social norm measures on gross domestic product per capita (as of 2004, measured in US dollars); one investor protection proxy (Legal, calculated as the product of the Revised Anti-director Rights Index (Djankov et al., 2008), and Rule of Law (La Porta et al., 1998)), used in Dojige et al. (2007); and another investor protection proxy (Common Law legal origin dummy; La Porta et al., 1998) we retain the residuals from these regressions. With these orthogonalized alternative measures of social norms, we again sort foreign investor ownership into high and low social norm groups and replicate the models of Table 6. The effect of foreign investor ownership on firms' E&S performance is significantly greater in the high compared with the low social norm group in all models (see Table OB9 in Online Appendix B).

Another potential concern is that our results are driven solely by US and UK institutions that account for the majority of foreign institutional ownership. In Table OB10 in Online Appendix B we reestimate our models for a sample that excludes all US and UK institutional investor stakes. The results are generally unchanged. The impact of foreign institutional ownership is driven by high E&S norm countries, with a significantly greater impact from these countries compared with low E&S norm countries.

Our tests so far place foreign investors into two broad categories based on their country of domicile social norms. We can further test the social norm hypothesis by considering investors' geographic location, as investors in the same region can share similar norms. As reported in Table 5, for example, European countries rank high in social norms. Do they also have the greatest impact on firms' E&S performance?

In Table 7, we group institutional ownership by geography and then repeat our regressions. We find that European investors drive firms' E&S performance. Their coefficient estimate is always positive and significant. Investors

domiciled in the Americas or in Asia and Australasia do not significantly impact E&S.<sup>19</sup> While African institutional ownership is negatively related to E&S performance, it is modestly significant in only one model.

In an additional set of tests, we run identical regressions as in Tables 6 and 7 but, instead of estimating the impact by social norm group or geographic region, we estimate the coefficient of foreign institutional ownership for each country in our sample. To facilitate interpreting these results, we present them graphically in Fig. 2. As both panels show, a positive relation exists between social norms (vertical axis) and the country-level coefficient estimates of foreign owners' impact on firms' E&S performance (horizontal axis). European countries, in green diamonds, cluster in the top right part of the figure, consistent with both high norms and high E&S impacts. Among them, the Netherlands has the largest estimated impact on E&S. Within the Americas, in red circles, the US is far to the left on the E score and middle of the pack on the S score, indicating that US investors do not play a leading role in driving firms' E&S performance.

### 5.6. Tests of the importance of social motivations, investor type

Another avenue to identify the importance of social returns for investors is to group investors not by geography, but by investor type.

The most interesting category is investment companies and advisors. They face a clear trade-off. Their managers compete for capital and lower performance affects fund flows, heightening the importance of financial returns. But they are also exposed to social norms as they need to network and raise capital locally and are mindful of local E&S social norms. If the local E&S preferences are for high levels of E&S, they are more likely to communicate those preferences to the firms they control, hoping to satisfy their investors.

Pension plans' long investment horizon allows them to ask firms to incur E&S costs now for benefits potentially far in the future.<sup>20</sup> Hedge funds' relatively short investment horizon is unlikely to support E&S spending that could pay off over a long horizon and they generally have strong management contracts that reduce their exposure to their ultimate beneficiaries' social preferences.

We use Factset's classification of investors for these tests. Four of its investor categories account for 98.7% of our total institutional ownership: investment advisors (66.9% of institutional ownership), investment companies (22.2%), pension funds (8.1%), and hedge funds (1.5%).<sup>21</sup>

<sup>18</sup> We note, but do not emphasize, the statistical significance of the low social norm investors regarding firms' S performance in some of these specifications. Further tests show that these results are driven by the ASSET4 social category "training and development" (one of seven categories that make up the S score). When we exclude this category, these results are insignificant. This category is ex ante more likely to provide a clearly identifiable benefit for investors from all countries.

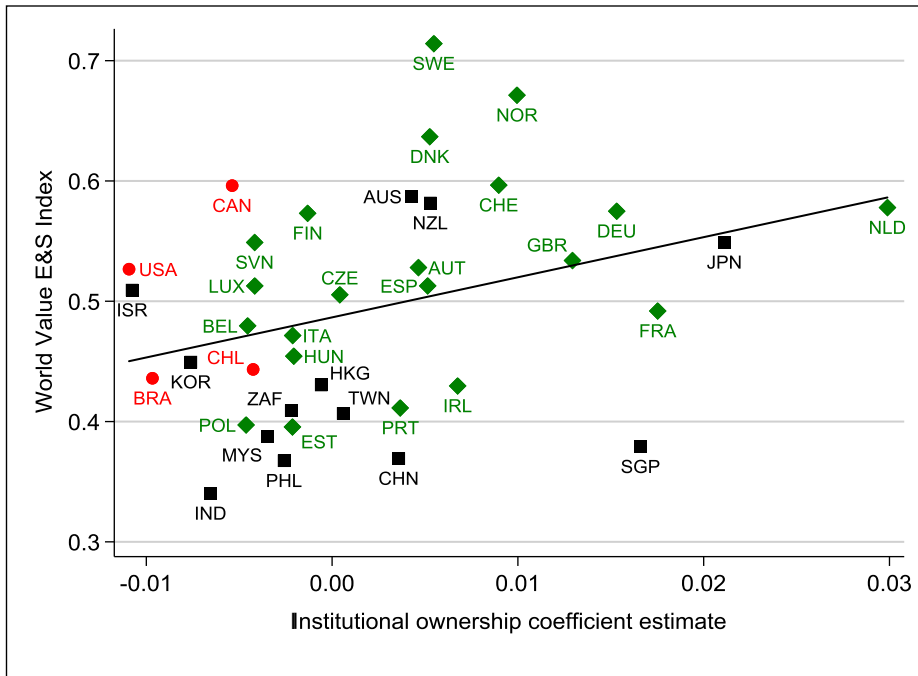
<sup>19</sup> While the coefficients for European investors are always significantly different from zero ( $p$ -values < 1%), the differences between the coefficients for Europe and Asia and Australasia are not significant at conventional levels. The distribution of institutional ownership from Asia and Australia across our sample firms is relatively broad compared with that from Europe, which can account for this lack of significance.

<sup>20</sup> Cella et al. (2013), for example, focus on the cross section of US institutional investors and find that pension funds are generally long-horizon investors and hedge funds are generally short-horizon investors.

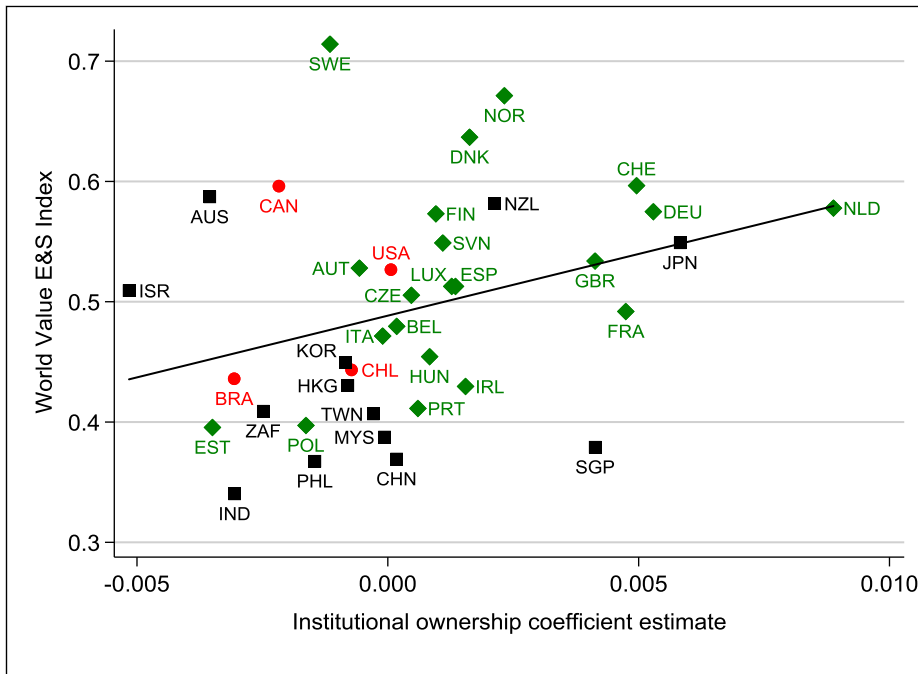
<sup>21</sup> The hedge fund category in Factset is an aggregate category containing a large number of actual hedge funds as well as several subcategories



Panel A: Overall environmental score



Panel B: Overall social score



**Fig. 2.** Foreign institutional investors' social norms and firms' environmental and social (E&S) performance by country. This figure shows social norms, measured with the World Value E&S Index, and the coefficient estimates of foreign institutional ownership grouped by country. The coefficient estimates are obtained from regressing environmental and social scores on foreign institutional ownership grouped by investors' country of domicile, while controlling for domestic institutional ownership and controls. We standardize foreign institutional ownership for better comparison across countries.

**Table 7**

Foreign institutional investors' geographic location and firms' environmental and social (E&S) performance.

This table reports regression estimates of environmental and social scores on institutional ownership grouped by geographical region of domicile and control variables. The dependent variables are the natural logarithm of environmental and social scores. We group foreign institutional investors by the following geographic regions: Europe, Americas, Asia and Australasia, and Africa. The data are from the ASSET4 ESG database, Factset, Worldscope, depositary receipt lists, and the Center for Research in Security Prices, and they are obtained for the years 2004–2013. Online Appendix A describes the indicator variables used to calculate the environmental and social scores. All variables are winsorized at the 1st and 99th percentiles. All right-hand-side variables are lagged by one year. Controls are as in Table 2. Standard errors are clustered at the country level, and *p*-values are reported in parentheses.

	Environmental scores		Social scores	
	Overall score (1)	ASSET4 z-score (2)	Overall score (3)	ASSET4 z-score (4)
Foreign IO				
Europe	0.809 (0.00)	1.077 (0.00)	0.275 (0.00)	0.871 (0.00)
Americas	-0.089 (0.43)	-0.067 (0.67)	0.008 (0.84)	0.139 (0.38)
Asia and Australasia	0.625 (0.25)	0.857 (0.26)	0.060 (0.74)	0.432 (0.48)
Africa	-1.119 (0.21)	-2.204 (0.13)	-0.953 (0.11)	-3.771 (0.09)
Domestic IO	0.445 (0.00)	0.652 (0.00)	0.183 (0.00)	0.720 (0.00)
Control variables	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Adjusted <i>R</i> <sup>2</sup>	0.547	0.450	0.525	0.394
Number of observations	19,849	19,785	19,849	19,785

To facilitate comparison with the literature on corporate governance activism, we group investment advisors and investment companies into a category called “independent institutional investors” following Ferreira and Matos (2008), among others.

In Table 8, we show the impact of investor type on E&S performance. Regardless of social norms, pension plans consistently influence firms to strengthen E&S performance, with positive and significant coefficients in 15 of the 16 models. Hedge fund ownership has no relation with E&S performance, consistent with expectations.

We focus our attention on independent institutional investors. For environmental performance (Panel A), in the high social norm group the coefficient on independent institutional investor ownership is consistently economically large and statistically significant. In the low social norm group, the coefficient on independent institutional investors has a lower magnitude and is never statistically significant (the differences in coefficients between the high and low group are also statistically significant). We conclude that, if social norms are strong, independent investors transmit them when they invest abroad.

of non hedge fund investor types (e.g., private banking portfolios, venture capital, and family office). In our hedge fund category, we keep the actual hedge funds (representing 1.5% of total institutional ownership) and exclude the others (representing less than 0.7%). We also exclude the Factset categories of banks, insurance companies, and government agencies that collectively represent less than 0.7% of total institutional ownership.

For social performance (Panel B), we find similar, but less pronounced, results. The coefficient on independent institutional investors is always higher in the high social norm group than the low social norm group and it is always statistically significant. In the low social norm group, in two of the four models, the coefficient on independent institutional investors is also significant, and in only one of the four models is the difference between the coefficient on independent institutional investors in the high and low social norm groups significant.

### 5.7. Summary: Financial and social motivations

Overall, this section establishes the empirical importance of both financial and social motivations for investors' E&S activism. The results can be explained better with both motivations than solely with one or the other.

Financial motivation is clearly illustrated by the Deepwater Horizon and financial crisis shocks in which investor pressure for E&S increased following the observed financial benefits of high levels of E&S. Evidence for social motivations comes first from our finding that investors from countries that rank high on measures of E&S social norms affect firms' E&S performance, and investors from countries that are relatively unsupportive toward E&S issues do not drive firms' E&S performance.<sup>22</sup> The importance of social

<sup>22</sup> In untabulated tests, we explore whether investors' activism regarding E&S issues mirrors their activism on corporate governance. Using firm-level governance scores as reported in ASSET4 (constructed similarly to

**Table 8**

Social norms, investor type, and firms' environmental and social (E&S) performance.

This table reports regression estimates of environmental and social scores on domestic institutional ownership, foreign institutional ownership grouped by social norms of institutional investors' home countries and investor type, and control variables. The dependent variables are the natural logarithm of environmental and social scores. Foreign institutional ownership is sorted into high and low social norm groups based on the social norms concerning environmental and social issues of the foreign investors' country of domicile and by investor type. We measure a country's social norms concerning environmental issues with the Environmental Performance Index (obtained from Yale Center for Environmental Law (Yale University) and Center for International Earth Science Information Network (Columbia University), 2004, median split) and the World Value E&S Index (obtained from the World Value Survey and European Value Study, 1999–2010, [Welzel \(2013\)](#), median split). We measure a country's social norms concerning social issues with the Employment Laws Index (obtained from [Botero et al. \(2004\)](#), median split) and the World Value E&S Index. The other data are from the ASSET4 ESG database, Factset, Worldscope, depository receipt lists, and the Center for Research in Security Prices, and they are obtained for the years 2004–2013. Online Appendix A describes the indicator variables used to calculate the environmental and social scores. All variables are winsorized at the 1st and 99th percentiles. All right-hand-side variables are lagged by one year. Controls are as in [Table 2](#). Standard errors are clustered at the country level, and *p*-values are reported in parentheses.

<i>Panel A: Environmental scores</i>				
	Overall score		ASSET4 z-score	
	Environmental Performance Index (1)	World Value E&S Index (2)	Environmental Performance Index (3)	World Value E&S Index (4)
Foreign IO, high social norm group				
Independent institutional investors	0.615 (0.00)	0.563 (0.01)	0.864 (0.00)	0.771 (0.00)
Pension funds	2.668 (0.00)	2.030 (0.00)	3.217 (0.00)	2.418 (0.00)
Hedge funds	−0.501 (0.87)	−2.573 (0.10)	−0.295 (0.95)	−3.428 (0.13)
Foreign IO, low social norm group				
Independent institutional investors	0.005 (0.97)	0.089 (0.42)	0.049 (0.74)	0.152 (0.30)
Pension funds	1.433 (0.07)	3.868 (0.00)	1.638 (0.09)	5.131 (0.01)
Hedge funds	−0.743 (0.26)	−0.856 (0.23)	−0.640 (0.35)	−0.808 (0.29)
Domestic IO	0.416 (0.00)	0.418 (0.00)	0.617 (0.00)	0.619 (0.00)
Control variables	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Adjusted <i>R</i> <sup>2</sup>	0.545	0.545	0.446	0.448
Number of observations	19,648	19,661	19,585	19,598
<i>Panel B: Social scores</i>				
	Overall score		ASSET4 z-score	
	Employment Laws Index (1)	World Value E&S Index (2)	Employment Laws Index (3)	World Value E&S Index (4)
Foreign IO, high social norm group				
Independent institutional investors	0.447 (0.00)	0.194 (0.05)	1.172 (0.06)	0.697 (0.04)
Pension funds	0.586 (0.06)	0.585 (0.00)	1.723 (0.16)	1.706 (0.03)
Hedge funds	−3.005 (0.66)	−1.178 (0.10)	1.978 (0.92)	−4.256 (0.11)
Foreign IO, low social norm group				
Independent institutional investors	0.061 (0.06)	0.045 (0.38)	0.314 (0.01)	0.227 (0.26)
Pension funds	0.739 (0.03)	2.134 (0.00)	2.431 (0.05)	7.853 (0.00)
Hedge funds	−0.254 (0.49)	−0.196 (0.57)	−0.170 (0.87)	0.138 (0.88)
Domestic IO	0.173 (0.00)	0.178 (0.00)	0.696 (0.00)	0.715 (0.00)
Control variables	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Adjusted <i>R</i> <sup>2</sup>	0.524	0.526	0.387	0.394
Number of observations	19,474	19,661	19,413	19,598

**Table 9**

Institutional investors and US firms' environmental and social (E&S) performance.

This table reports regression estimates of environmental and social scores on institutional ownership and control variables for firms domiciled in the U.S. The dependent variables are the natural logarithm of environmental and social scores. Panel A replicates the Table 2, Panel A specifications, and Total IO is total institutional ownership. Panel B and C replicate the Table 6, Panel A and Panel B specifications, respectively. Foreign institutional ownership is sorted into high and low social norm groups based on the social norms concerning environmental and social issues of the foreign investors' country of domicile. We measure a country's social norms concerning environmental issues with the Environmental Performance Index (obtained from Yale Center for Environmental Law (Yale University) and Center for International Earth Science Information Network (Columbia University), 2004, median split) and the World Value E&S Index (obtained from the World Value Survey and European Value Study, 1999–2010, Welzel (2013), median split). We measure a country's social norms concerning social issues with (a) the Employment Laws Index (obtained from Botero et al. (2004), median split) and the World Value E&S Index. The last row reports *p*-values of a test of equality of the coefficient estimates on Foreign IO, high social norm group and Foreign IO, low social norm group. The other data are from the ASSET4 ESG database, Factset, Worldscope, and they are obtained for the years 2004–2013. Online Appendix A describes the indicator variables used to calculate the environmental and social scores. All variables are winsorized at the 1st and 99th percentiles. All right-hand-side variables are lagged by one year. Controls are as in Table 2, except for Cross-list. Standard errors are clustered at the firm level, and *p*-values are reported in parentheses.

Panel A: Total institutional ownership				
	Environmental scores		Social scores	
	Overall score (1)	ASSET4 z-score (2)	Overall score (3)	ASSET4 z-score (4)
Total IO	0.074 (0.24)	0.159 (0.07)	0.063 (0.01)	0.333 (0.00)
Control variables	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Adjusted <i>R</i> <sup>2</sup>	0.559	0.445	0.555	0.35
Number of observations	7502	7445	7502	7445
Panel B: Environmental scores				
	Overall score		ASSET4 z-score	
	Environmental Performance Index (1)	World Value E&S Index (2)	Environmental Performance Index (3)	World Value E&S Index (4)
Foreign IO				
High social norm group	2.087 (0.00)	1.289 (0.00)	2.913 (0.00)	1.653 (0.00)
Low social norm group	0.082 (0.43)	0.157 (0.16)	0.273 (0.09)	0.396 (0.02)
Domestic IO	−0.019 (0.75)	0.021 (0.73)	0.025 (0.77)	0.084 (0.33)
Control variables	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Adjusted <i>R</i> <sup>2</sup>	0.564	0.561	0.452	0.448
Number of observations	7500	7500	7443	7443
Average Foreign IO				
High social norm group	0.045	0.040	0.045	0.040
Low social norm group	0.034	0.040	0.034	0.040
Foreign IO, low social norm group versus high social norm group ( <i>p</i> -value)	(0.00)	(0.01)	(0.00)	(0.04)
Panel C: Social scores				
	Overall score		ASSET4 z-score	
	Employment Laws Index (1)	World Value E&S Index (2)	Employment Laws Index (3)	World Value E&S Index (4)
Foreign IO				
High social norm group	0.880 (0.00)	0.491 (0.00)	3.367 (0.00)	1.857 (0.00)
Low social norm group	0.104 (0.04)	0.070 (0.20)	0.539 (0.00)	0.427 (0.03)
Domestic IO	0.049 (0.02)	0.045 (0.04)	0.266 (0.00)	0.254 (0.00)
Control variables	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Adjusted <i>R</i> <sup>2</sup>	0.558	0.558	0.354	0.354
Number of observations	7500	7500	7443	7443
Average Foreign IO				
High social norm group	0.058	0.040	0.058	0.040
Low social norm group	0.021	0.040	0.021	0.040
Foreign IO, low social norm group versus high social norm group ( <i>p</i> -value)	(0.01)	(0.00)	(0.01)	(0.02)

motivations is further highlighted when we focus on independent institutional investors who compete for capital and must trade off financial returns with a desire to reflect their communities' social norms toward E&S. When these independent investors are from high social norm countries they also push for greater E&S in their portfolio firms, reflecting this trade-off. Finally, our results showing an increase in investor pressure for E&S after the financial crisis from investors domiciled in low social norm countries clearly suggests that financial motivations have become more important in recent years.

### 5.8. Do institutional investors impact US firms' E&S performance?

In a final set of tests, we replicate our analysis using US instead of non-US firms, which allows us to provide new evidence on activism within US firms. We report these results in [Table 9](#), where we replicate our baseline tests of [Table 2](#), Panel A, and [Table 6](#), using as a new sample US firms that have data available in the ASSET4 ESG database, Factset, and Worldscope.

Panel A of [Table 9](#) reports results for total institutional ownership in aggregate, which includes a substantial percentage of US-based investors. We find a positive but not always significant impact on E&S performance. Panels B and C isolate domestic and foreign institutional ownership and segment by social norms. Domestic (i.e., US) institutional investors have no impact on E performance of US firms, consistent with their lack of impact on E performance when they invest abroad.<sup>23</sup>

Foreign investors that come from high E&S norm countries have a strong and significant impact ( $p$ -value < 1%) on both E and S performance for US firms. The coefficient estimates are substantially larger than for our non-US sample, but their economic impact is blunted by the fact that non-US institutional owners own less of US firms. The economic impact on E performance is two-thirds that found in the non-US sample and on S performance is one-half that found in the non-US sample.<sup>24</sup> We conclude that foreign investors also transplant their social norms when they invest in the US, and should such foreign institutional ownership increase it is predicted to have a significant impact on the E&S practices of US firms.

our E&S measures), we find that all investors, regardless of their ex ante commitment to E&S issues, have a significant impact on firms' governance. Our results show that non-UN PRI signatories as well as foreign institutional investors from countries with low E&S social norms have a positive and significant effect on firms' governance. This finding reinforces our E&S social norms explanation for the E&S results we show.

<sup>23</sup> We again note, but do not emphasize, the statistical significance of US domestic investors on firms' S performance. As before, we find that this result largely stems from the ASSET4 social score subcategory of "training and development" that is ex ante more likely to provide a clearly identifiable benefit for investors.

<sup>24</sup> As in our [Table 6](#) discussion, the economic impact is derived by comparing the coefficient estimate on (high social norms – low social norms)  $\times$  average institutional ownership for the low social norm group. In [Table 9](#), Column 1, this is  $(2.087 - 0.082) \times 0.034$  for E performance and  $(0.880 - 0.104) \times 0.021$  for S performance.

## 6. Conclusion

Using a comprehensive sample of publicly traded firms across more than 40 countries, we provide new evidence that institutional investors push for stronger firm-level E&S performance around the world. That is, firms are stepping up their E&S performance because investors are asking for it.

We use both time series and cross-sectional tests to understand better what motivates investors to push for greater E&S performance. Utilizing the global financial crisis as a natural experiment, we find a strong role for financial motivations. Firms with greater institutional ownership pushed harder for improved E&S performance after recognizing the value of E&S during this crisis period.

We also ask whether a desire to move firms' E&S performance toward the ideal of those in the investors' local community could drive investors to advocate for greater E&S performance. If only financial motivations matter, cultural and social norms should play no role. We instead find that cultural origin matters. Foreign institutional investors domiciled in countries with social norms supportive of strong E&S commitments are the ones that impact firms' E&S performance. This result suggests that a society's social norms flow through the channel of portfolio investment into firms and provides new evidence on the way in which culture makes its way into economic decision making.

Finally, our results on a sample of US firms indicate that those foreign investors from high social norm countries are already active and successful in pushing US firms to improve their E&S performance. These E&S-minded foreign investors own a relatively small fraction of US firms. If they were to increase their ownership in a meaningful way, we predict substantial changes in the E&S performance of US firms.

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