Do Institutional Investors Drive Corporate Social Responsibility?
International Evidence

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December 20, 2016

Abstract

This paper assesses whether the environmental and social (E&S) performance of firms worldwide is driven by shareholders—an important channel to study because it is their money being spent. Across 41 countries, we find that institutional ownership is positively associated with firm-level E&S performance with multiple tests suggesting this relation is causal. We test whether investors are motivated by their local social norms towards E&S issues. Investors increase firms' E&S performance when they come from countries where there is a strong community belief in the importance of E&S issues, but not otherwise. Overall, our results indicate that institutional investors drive firms' E&S performance around the world and transplant their local social norms in that process.

Keywords: Corporate Social Responsibility, Institutional Investors, Social Norms, Culture
JEL Classification: G15, G23, G30, M14

1. Introduction

In making investment decisions, shareholders today are asked to assess, and can easily track, not only measures of a firm's financial performance, but also metrics covering a firm's environmental and social (E&S) performance—two components of corporate social responsibility. Whether E&S performance is beneficial to the average shareholder remains controversial.

Investments that improve E&S performance could be a signal of agency problems in firms. Outside pressure groups with no financial stake do not need to consider the associated costs of such commitments and will advocate for improvements. If a firm's managers care about these pressures, or obtain other private benefits from E&S investments, they will over-invest (Masulis and Reza (2015), Cheng, Hong, and Shue (2016), Cronqvist and Yu (2017)). Alternatively, E&S investment could be value enhancing by providing a form of insurance against event risk and/or product market differentiation (Servaes and Tamayo (2013), Hong and Liskovich (2016), Albuquerque, Durnev, and Koskinen (2016), Lins, Servaes, and Tamayo (2017)). Thus, the evidence detailing the financial costs and benefits of investment to increase E&S performance is mixed.

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 ownership and firms' E&S performance. It is hard to dismiss the hypothesis that E&S investments benefit shareholders if owners are a driving force behind firms' E&S choices. After all, it is their money that is being spent. Tests featuring institutional investor ownership should be the most compelling. These investors own and vote the bulk of the world's equity capital, are sophisticated, and face legal

obligations to primarily consider firms' financial returns in their investment and voting decisions.

We examine whether institutional investors drive firms' E&S performance around the world. The majority of work to date has focused on E&S choices within U.S. firms, yet pressure for improved E&S performance is truly a global phenomenon. We use the Thomson Reuters' ASSET4 database that provides detailed line-item data across many firms and countries for over a decade. We construct environmental and social performance measures for each firm and year by scoring firms based on these detailed data items (e.g., covering areas such as CO_2 emissions, renewable energy use, human rights violations, and employment quality). We also use ASSET4's proprietary weighted z-score. These data are combined with institutional ownership data from Factset and firm characteristic data from Worldscope to build a sample of 3,277 non-U.S. firms from 41 countries over the period 2004 through 2013. We perform robustness tests using Bloomberg and Sustainalytics data, two alternative sources for E&S measurement that are popular with investors.

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 may affect E&S performance directly. We find that when institutional ownership is higher, firm-level E&S scores are greater in the subsequent year. Not only is this result statistically significant, it is also economically meaningful. A move from the first to the third quartile in institutional ownership is associated with an increase in the equally weighted (proprietary weighted) environmental performance score of 5.7% (8.6%) and an increase in the social performance score of 2.6% (10.5%).

We next assess whether institutional investors are more impactful in situations where stronger effects are plausibly expected. Two settings that predict stronger impacts are when institutional owners are clearly committed to activism on E&S issues and when firms have greater scope to improve their E&S performance. We find that both of these investor and firm characteristics matter. Investors that are signatories to the UN Principles on Responsible Investing (UN PRI) have more than double the average investor impact on firms' E&S performance, and investors have a stronger effect in firms with low (below-median initial) E&S scores than in firms with high E&S scores.

It is of course possible that these results reflect institutional investors selecting firms that have higher E&S performance as opposed to investors pushing for E&S changes in firms they already own. To support a causal interpretation, we take advantage of a quasi-natural experiment provided by the BP Deepwater Horizon oil spill in 2010. This costly environmental disaster represents an unexpected shock that increased the perceived importance 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 we expect that firms with greater institutional ownership at the time of the shock will be more reactive in the years following this shock. We find precisely this result.

Other robustness tests support this causal interpretation. These tests include: statistical Granger-causality-style tests and an instrumental variable specification that follows Aggarwal, Erel, Ferreira, and Matos (2011) and Bena, Ferreira, Matos, and Pires (2017). To address the possibility that the results are driven by omitted variables, we employ a firm fixed effect specification as suggested by Gormley and Matsa (2014). We address the potential concern that our results could be influenced by firms' governance or transparency levels by controlling for

these factors and our results are unaffected. Overall, our results show that, in aggregate, sophisticated owners with a fiduciary duty to focus primarily on financial returns are asking for, and getting, improvements in E&S performance at the firms they own—this constitutes *prima facie* evidence that supports the beneficial view of improved E&S performance.

These initial tests, however, do not explore the possibility that in choosing the level of firm E&S performance, institutional investors may be motivated both by financial returns and by *norms* —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 potentially 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 explore whether firms' E&S performance is affected by investors' social norms, we introduce proxies for community ideals for E&S performance and then test whether the ideals help to explain cross-sectional differences across investors in their E&S impact. We exploit our global sample and focus on country-level norms regarding environmental and social issues. We use several types of cross-country data, including observed E&S behavior at the country level, for example captured by scores on the Environmental Performance Index, and stated values regarding E&S issues captured by the World Values Survey. Social norms towards E&S differ significantly across countries and these differences are persistent.

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To facilitate identification of the impact of norms on investors' E&S impact, we focus on institutional investors' foreign holdings. Foreign investors are unlikely to obtain private benefits other than through the social norm channel, given that there is a geographic separation between investors' domicile and firm headquarters. In our sample, foreign investors account for two-thirds of institutional ownership and there is significant heterogeneity in national social norms across foreign investors.

Consistent with investors being motivated in part by norms, foreign institutional investors impact firms' E&S performance only when these investors are from countries where measured norms reveal a greater demand (above-median) for E&S performance. Our analysis suggests firms' environmental and social performance levels would improve by 7.4% and 2.2%, respectively, if a firm's foreign investors are from countries with strong instead of weak norms towards E&S performance. We obtain these results for various measures of national social norms and they hold when we control for other country characteristics, such as GDP per capita.

Geography is also highly correlated with levels of social norms. European countries occupy the top 17 positions in E&S rankings of countries. As a group, only European institutional investors impact firms' E&S performance. Investors have no impact on firms' E&S performance if they come from any other geographic region, including the U.S.

When investors are motivated by norms, the impact of high community E&S norms is greatest when an investment manager places a lower weight on financial returns relative to social conformity. This weight on financial returns depends on investment managers' financial incentive intensity and their expected fund-flow-financial-performance relationship—both of which vary significantly across investor type. Managers of pension plans, for example, have muted incentives and in the short term do not typically face the threat of outflows if firms in their

portfolios underperform. Independent investment managers have stronger incentives than pension fund managers and more to fear from short-term underperformance, since they can experience outflows. Hedge fund managers have high incentives and can also experience outflows from short-term underperformance.

Consistent with this framework, we find that the weight an investment manager places on financial returns (as captured by investor type) influences its impact on firms' E&S performance. Pension funds have the most significant positive impact on firms' E&S performance, and their strong impact obtains when they come from both high- and low-E&S social norm countries. On the contrary, hedge funds (who represent only a small fraction of our total foreign institutional investor ownership) appear to lessen the E&S performance of firms they invest in, and this is generally true regardless of the E&S social norms where they are domiciled.

Most interestingly, we find that the impact of market-sensitive independent institutional investors (e.g., mutual funds) depends on the social norms they face. These independent investors account for the majority of foreign institutional investor capital and, thus, are more likely to play a pivotal role regarding E&S issues. They have a small and usually insignificant impact on firm E&S performance if they are from countries where E&S social norms are relatively weak—e.g., in the U.S. However, when independent institutional investors come from countries with strong social norms towards 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 solely focus on financial returns.

Our paper most directly contributes to the literature that explores why firms invest in corporate social responsibility (CSR)[1] and whether institutional investors impact firms' CSR

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[1] Margolis, Elfenbein, and Walsh (2009), Kitzmueller and Shimshack (2012), and Ferrell, Liang, and Renneboog (2016) document the way in which CSR has been perceived and provide overviews of the CSR literature.

choices. In contrast to papers that focus on firm managers' characteristics and private benefits to explain firms' CSR investments (Masulis and Reza (2015), Davidson, Dey, and Smith (2016), Cronqvist and Yu (2017)), we focus on the role of investors. This complements other research on how CSR performance is influenced by investors, such as CSR-related shareholder proposals and voting in the U.S. (Del Guercio and Tran (2012)) as well as an investor's impact through private engagements on CSR issues (Dimson, Karakas, and Li (2015)).

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)). Aggarwal, Erel, Ferreira, and Matos (2011) and Ferreira and Matos (2008) show that investors most exposed to market forces, and foreign investors in particular, are more active in improving firms' governance. Our paper shows that institutional investors' push for greater E&S performance differs in important ways from governance activism. For E&S, we find that foreign pension plans (which are least exposed to market forces) are the most active in driving firms to increase E&S performance. Foreign independent institutional investors are only consistently active in driving firms to increase E&S performance 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. Guiso, Sapienza, and Zingales (2009), for example, suggest the importance of a society's culture for a range of economic outcomes. We complement these findings. We document both substantial cross-country variation in social norms regarding the extent to which E&S matters and show that institutional investors carry these cultural attributes when they invest abroad, transplanting their social norms. In a similar vein, Barber, Morse and Yasuda (2016) find that investor demand for E&S attributes is strongest in Europe, but they do

not focus on the social norm channel and they investigate investor demand for the specific case of impact funds rather than for all institutional investors.

The remainder of the paper proceeds as follows. Section 2 describes our sample and shows summary statistics, Section 3 tests whether institutional investors drive firms' E&S performance, Section 4 assesses whether investors' E&S social norms play a role. Section 5 concludes the paper.

2. Sample and Summary Statistics

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, NGOs, and news sources for large, publicly traded companies from over 45 countries. Thomson Reuters states that reported data items are chosen to maximize company coverage, timeliness of reporting, data availability, quality, and perceived materiality for investors. E&S scores, based on commitments against criteria, are available at annual frequency. Consistent coverage of firms begins in 2004 for most countries, 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 Appendix A for details). For our empirical tests, we transform all line items into indicator variables such

that a 'one' corresponds to better E or S performance (e.g., a below-median greenhouse gas emission firm would get a 'one').[2]

We construct summary statistics of firms' E&S performance. There is no obvious 'right' weighting scheme that an investor should use. We use two weighting approaches for our main tests. First, we use the detailed raw data and construct an equally-weighted performance measure, where we weight all three environmental and all seven social areas equally, and then sum across the areas to produce aggregate E&S performance scores. This approach ensures each area has equal importance in the overall score, even if there are more or less specific items available to assess that area. Second, we use the proprietary aggregate scores that ASSET4 provides to investors (ASSET4 z-scores).[3] These rank-based scores range from 0 to 100 and measure the E&S performance relative to all other companies in a given year. ASSET4 also produces a transparency score which is 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. For robustnesss, we also obtain E&S data from Sustainalytics and Bloomberg. All three firms provide data they believe is material for investors, and all three 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.

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[2] Specifically, 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 (or equal) than zero; or value is less (or equal) than 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 associated with better environmental or social performance), the opposite coding applies.

[3] The ASSET4 ESG database was first created in 2003. The data we use is based on their optimization released in 2014 which reports raw data only for 'strategic' items, which were collected beginning in 2003.

To measure institutional ownership, we use detailed information from the Factset Ownership database. These data have been widely used (e.g., Ferreira and Matos (2008), Aggarwal Erel, Ferreira, and Matos (2011)) and report institutional investors' equity holdings collected directly from fund reports, regulatory authorities (e.g., 13F reports in the U.S.), fund associations, and the fund management companies themselves.[4] The data also allow us to identify investors by country of domicile and by investor type.

Finally, we obtain from Worldscope financial statement and stock market valuation data. Our final sample consists of 19,849 firm-year observations and covers 3,277 firms from 41 countries during the period 2004-2013.

2.2 Descriptive Statistics

There is significant variation in firms' E&S performance across countries, industries, and time. Table 1 and Figure 1 provide basic summary statistics. As we describe in the tests to follow, 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, when we weight each sub-area equally, is 35.4 (31.8) where a perfect score would be 100, and the mean (median) S score is 51.7 (51.1). In Panel B of Table 1, 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

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[4] The equity positions reflect stakes over which institutional managers exercise investment discretion and include ordinary shares, preferred shares, American Depositary Receipts (ADRs), Global Depositary Receipts (GDRs), and dual listings.

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.[5]

Figure 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 uninterrupted data in all years between 2004 and 2013 are available (805 firms), and Panel B plots a larger but shorter constant panel of firms with uninterrupted coverage between 2009 and 2013 (1,662 firms). Firms increase their performance levels of both E and S over the sample period.

Further, Figure 1 shows an increase in institutional ownership during the first years of the sample period. 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 Canada, Ireland, and Sweden, and lowest at below 10% in Colombia, Chile, and Malaysia. 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—Japan, U.K., Canada, and Australia.[6]

3. Do Institutional Investors Drive Firms' Environmental and Social Performance?

In this section, we assess whether there is global evidence that institutional investors are a driving force behind firms' E&S performance. Before we start with this analysis, we note that if institutional investors also pursue strategies such as negative or positive screening based on firms' E&S practices, this would bias against finding our results. Under positive screening, there

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[5] 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 SIC divisions).
[6] Summary statistics for all control variables used in our regressions are provided in Table B1 of Appendix B.

is less scope for institutions to improve E&S performance once they become owners, while

under negative screening institutions would not even be present to do so.[7]

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 following specification:

$$Log\left(Score_{it}\right) = \alpha + \beta X_{it-1} + \gamma' Y_{it-1} + \Lambda + \varepsilon_{it}, \tag{1}$$

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 Λ are year, country, and industry fixed effects.[8] We use

logs of E&S scores to obtain better distributional properties and to reduce the impact of outliers.[9]

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, Kubik,

and Scheinkman (2012) suggest that financial slack also predicts E&S adoption. Following them,

we include leverage and asset tangibility to capture credit constraints, and Tobin's q and

profitability to capture the impact of performance. We include a dummy variable for a firm

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[7] A number of mutual funds rely on negative screening (e.g., socially responsible investing funds), but most institutional investors do not, and when they do, exclude few companies. For example, as of December 31, 2015, the Norwegian Global Pension Fund had investments in more than 9,050 firms around the world, and blacklisted only 66 firms. Hong and Kacperczyk (2009) show that excluded stocks have higher expected returns than comparable stocks, making it difficult for investors with fiduciary obligations to justify such an investment approach.

[8] E&S variables reflect data available to ASSET4 analysts that covers 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 early 2011. Thus, our baseline model with 2010 E&S scores would have fiscal-year-2009 right-hand-side variables.

[9] Our main results are unaffected if we use the raw scores rather than the log scores.

cross-listed on a major U.S. exchange to capture likely higher overall institutional ownership. We lag all right-hand side variables by one year, and cluster standard errors by country.

In Table 2 we report the results of these tests. 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 move from the first to the third quartile in total institutional ownership (0.213) is associated with a 5.7% increase in environmental performance (calculated as 0.213×0.268) and a 2.6% increase in social performance (calculated as 0.213×0.124). The results are a bit stronger in columns 2 and 4, where we use the standardized relative-rank ASSET4 *z*-Scores. A similar change in institutional ownership is associated with an 8.6% increase in environmental performance and a 10.5% increase in social performance. The consistent results across weighting schemes gives us confidence that the relationship between institutional ownership and firms' E&S performance is not an artefact of the specific aggregation approach we use to calculate overall E&S scores.[10]

We next examine 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 (UN PRI). 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 of UN PRI signatories. A

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[10] 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 (results are not reported for brevity but available upon request).

second setting we consider is 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, expecting 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 significantly greater when those investors have signed up to the UN PRI. Compared to the Panel A results, the coefficient is almost three times larger for environmental performance and more than two times larger for social performance. In Panel C the impact of institutional investors is greater for firms with more room for E&S improvement. 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 reflects real pressures coming from investors.

3.2 Additional Tests: Causality, Selection, and Robustness

One concern that arises is whether institutional investors select into firms that have high E&S levels as opposed to driving firms toward higher E&S performance. In other words, our results could be influenced by reverse causality. We address this concern through three tests, focusing on the results provided by a quasi-natural experiment.

Our first tests 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 will 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, Duflo, and Mullainathan (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:

$$Log(Score_{it}) = \alpha + \beta_1 Total\ IO_i + \beta_2 Post\ Event + \beta_3 Total\ IO_i \times Post\ Event + \gamma'Y_{it} + \Lambda + \varepsilon_{it}, (2)$$

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 β_3 for the interaction term *Total IO × Post Event*. We use three alternative industry classifications to identify treated firms in extractive industries: two-digit SIC code in column 1 (SIC 13, Oil and Gas Extraction), Fama-French 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 β_3 is positive and significant at the 5% level or better, indicating that the relation between institutional ownership and firms' environmental performance has strengthened post the Deepwater Horizon shock. This is consistent with the channel of influence going from institutional ownership to firms' E&S performance.

In Panel B of Table 3, we report difference-in-differences estimates, where we use the entire sample and therefore estimate the triple interaction coefficient for *Total*

IO × Post Event × Treated Firm to capture the difference of the effect of *Total IO* for treated relative to control firms after the event. Our findings are very similar, and confirm the positive and significant effect of the unexpected Deepwater Horizon event on the relation between institutional ownership and firms' E&S performance.[11]

As further tests to address the potential for reverse causality, we estimate Granger-causality-style tests and use instrumental variables regressions. The Granger-causality tests show that E&S performance depends on lagged institutional ownership but the opposite is not true, with institutional ownership not depending on lagged E&S scores. In the instrumental variable approach, we use additions to the MSCI All Country World Index as an instrument for institutional ownership. Instrumented institutional ownership predicts current firm E&S performance. For brevity, these tests are discussed in detail in Sections B1 and B2 in Appendix B. Consistent with the quasi-natural experiment, the evidence from all tests indicates that the direction of causality likely flows from institutional ownership to firms' E&S performance.

A second concern that arises is 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. More convincingly, we introduce a firm-fixed-effects model that controls for time-invariant unobserved firm characteristics (Gormley and Matsa (2014)). The results are very similar, with consistent significant impacts from institutional ownership on subsequent firm E&S performance. For brevity, we present and discuss these results in detail in Section B3 in Appendix B.

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[11] In unreported results, we do not find such an impact on these firms' social performance, consistent with the environmental shock sharpening institutions' focus on environmental rather than social performance, which were not subject to such a shock.

A third concern is that the results could be driven by problems in E&S performance measurement. To explore whether our results are influenced by the choice of a specific E&S data provider, we obtain firm-level data on E&S performance from Sustainalytics and Bloomberg and re-estimate our baseline models. These tests show that institutional ownership remains positively and significantly related to firms' E&S performance (see Section B4 in 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 Section B5 in Appendix B).

Collectively, our results show that, in aggregate, sophisticated owners with a fiduciary duty to focus primarily on financial returns play an important role in improving E&S performance in firms across the world, and the evidence suggests that the direction of the observed effects goes from institutional ownership to E&S performance.

4. Institutional Investors' Social Norms and Firms' E&S Performance

In Section 3, we test *whether* institutional investors are driving firms E&S performance. In this section we ask *why* institutional investors are pushing for E&S performance. In particular, we allow and then test for the possibility that investment managers' choices are motivated not only by their desire for financial returns but also by their desire to drive firms in their portfolios towards E&S performance levels that align with the social norms towards E&S performance in their community.

4.1 Investor Preferences, 'Rules of the Game', and Social Norms

The 'rules of the game' clearly impact investors' actions and firms' choices. One of the most important formal rules that determine behavior of institutional investors is fiduciary duty, which acts as constraint on investment managers' pursuit of non-financial objectives. To illustrate with a U.S. example, the Department of Labor's 2008 Interpretative Bulletin clarifies whether the fiduciary duties of investors allow considering environmental and social factors and concludes "[…] that fiduciary consideration of collateral, non-economic factors in selecting plan investments should be rare and, when considered, should be documented in a manner that demonstrates compliance with ERISA's rigorous fiduciary standards."

A growing literature recognizes that *informal* rules can likewise influence investor actions. Guiso, Sapienza, and Zingales (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) provide a definition of norms—"peoples' views of how they, and others, should or should not behave," (p. 12)—and show that when agents are motived by social norms this can significantly influence their 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 that the investment manager receives social rewards for aligning her portfolio firms' E&S performance with community ideals and faces social penalties if there is weak alignment.

It is not hard to find strong views suggesting how firms should or should not behave towards "people and the planet." Activists have not only organized protests against firms to change their E&S performance, but have challenged investors to improve the environmental and social performance of the firms they own. There is a global dimension to concerns about E&S performance, but also an important national dimension, as community E&S expectations differ significantly across geography, as we will show in the next section. These national differences in E&S views will affect investors if the investment managers care about the prevailing E&S views in their country.

Differences across countries or regions in social norms are persistent, changing across generations rather than years. This does not mean that norms do not change—for example, if individuals acquire new information about the salience of risks, such as data on rising global temperatures or the costs of poor environmental practices as in the BP Deepwater Horizon case, they may put greater weight on such issues. But such changes affect all countries, and cross-country differences will be preserved to the extent that social norms are based on deeper cultural values and institutional features of economies, such as their industrial composition.

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 may or may not be (Arrow (1971), Akerlof (1980), Elster (1989)). In the E&S context that means we take no stand on whether the E&S social norms are either a good way to correct for market failure or reflect a misperception pushed effectively by a pressure group. We simply record the social norms and test whether these influence investors' impact on firms' E&S performance.

4.2 A Simple Framework for Testing the Importance of E&S Social Norms

In this section we test the hypothesis that social norms in the country of domicile of the institutional investor influence the institutional investor's impact on firms' E&S performance. To set ideas we first introduce a parsimonious framework that captures the potential impact of social norms on an investment manager's E&S choices that builds on the models of Akerlof and Kranton (2005) as extended in Benjamin, Choi, and Strickland (2010).

For simplicity, consider a situation where an investment manager owns one firm and chooses x, which is the E&S performance of that firm. There is a level x_o, which maximizes firm value. There is also a level x_c, which 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 $w(o) = 0$ and $w' > 0$. Thus, in making a choice about x an investment manager faces both a loss from deviating from the ideal investment choice and a loss from deviating from the ideal social choice in her community, with a potential tradeoff between a financial loss and a social gain. A simple functional form to capture this tradeoff is provided in Eq. 3 where the investment manager chooses x to maximize:

$$Max \; E[U] = -\big(1 - w(s)\big)\big(x - x_o\big)^2 - \big(w(s)\big)\big(x - x_c\big)^2. \tag{3}$$

For an investment manager that derives no utility from social norms, $w(s) = 0$ and the manager chooses x_o, 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. If the investment manager lives in a community that places a high value on E&S performance, so that $x_c > x_o$, the investment manager minimizes disutility loss by raising firm E&S performance towards 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. Of course, institutional investors own shares in a portfolio of firms rather than a single firm, but the same logic carries that those investors who live in communities that have higher E&S performance ideals, and those investors that derive more utility from social norms, are predicted to actively push firms to increase their E&S performance.

To facilitate identification of the potential impact of social norms on investor actions in our empirical tests, we take several steps. First, we include country fixed effects for a firm's domicile in our regressions to capture any time-invariant effects of domestic social norms on firms' E&S choices. Second, we focus on the impact of social norms in an 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, however, are unlikely to obtain private benefits other than through the social norm channel, given that there is a 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.

4.3 Country-level Data on Social Norms

Our data for social norms across countries come from several sources. 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 (EPI), 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 eco-system vitality. Higher index values indicate better environmental performance in a country.

To measure social norms towards worker rights and other social issues, we use the Employment Laws Index from Botero, Djankov, La Porta, Lopez de Silanes, and Shleifer (2004). This index is an observed-outcome metric for a country's protection of labor which 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.[12] Higher index values indicate stronger protection of labor.

Because a society's attitudes and beliefs towards E&S issues may be different from observed outcomes, we also use data from the extensive World Values Survey (WVS) to construct an aggregate E&S social norm measure. WVS data come from interviews with representative samples of 1,000 to 4,000 individuals in more than 100 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, Lopez-de-Silanes, Shleifer, and Vishny (1997), Glaeser, Laibson, Scheinkman, and Soutter (2000), Guiso, Sapienza, and Zingales (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

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[12] The results are similar in magnitude and significance when we use the Collective Relations Laws Index (obtained from Botero et al. (2004)) that measures the extent to which employees are protected by collective bargaining and labor relations laws.

responses to these questions following the methodology of Welzel (2013)).[13] Higher index values indicate stronger values and beliefs towards 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 4 reports descriptive statistics of our measures of E&S social norms across countries, where countries are sorted by the average of the three indices. As the table shows, European countries rank high in social norms towards E&S, holding the top 17 spots; the top 5 countries include Sweden, Norway, the Netherlands, Germany, and Finland. Countries in Asia, Australasia, and Africa are at the bottom of the list. The lowest ranked are Hong Kong, South Africa, India, Malaysia, and China.

E&S social norm differences across countries are strongly persistent to the extent we can measure these in the available data. To illustrate, for the EPI index, 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.[14]

4.4 Institutional Investors' Social Norms and Firms' E&S Performance

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. More specifically, we rank all institutional investors by

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[13] The aggregation combines data from the World Value Survey (WVS; 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 and www.europeanvaluesstudy.eu.

[14] Note that the EPI index in 2004 is called the Environmental Sustainability Index. The WVS provides data from six survey waves, with Wave 2 being the first to involve a larger number of countries, and Wave 3 providing coverage for most of our sample countries. The rank correlation of countries comparing Wave 2 and 5 is 0.91, and Wave 3 and 5 is 0.94.

their countries' social norms and sort them into two groups using the median of the social norm measures as cutoff points.

Panels A and B of Table 5 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, whereas 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 estimate on foreign institutional ownership of the high group is significantly larger than the corresponding one for the low group.[15] We also note that these results are obtained even though the low-social-norm group generally consists of higher ownership stakes than the high-social-norm group.

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 5, 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 performance 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. This 'color of money' effect is unlikely to be without conflict—for example, executives of firms from low-social-norm countries would have both social norm and fiduciary duty incentives to push back.

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[15] To address the possibility that results are driven primarily by Anglo-American institutions, who represent the majority of institutional ownership in the data, we drop all U.S. and U.K. institutional investor stakes, and our results remain unchanged.

One potential concern is that our measures of E&S social norms are correlated with other country level factors, and it could be these other omitted factors that drive firms' E&S performance. For example, it could be that investors from wealthy countries are the ones pushing for more E&S at firms or that activism experience from being domiciled in countries with strong investor protection laws is behind our results. Therefore, we use alternative measures of social norms that are orthogonal to citizen wealth and investor protection. To construct these alternative measures, we regress the original social norm measures on GDP/capita (as of 2004, measured in US$) and investor protection laws (measured with Legal, calculated as the product of the Revised Anti-director Rights Index (Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2008)) and Rule of Law (La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998)), used in Doidge, Karolyi, and Stulz (2007)), and retain the residuals from that regression. These residuals are, by construction, orthogonal to wealth and investor protection. With these alternative measures, we again sort foreign investor ownership into high and low-social-norm groups and replicate the models of Table 5. The effect of foreign investor ownership on firms' E&S performance is significantly greater in the high compared to the low-social-norm group in all models (see Table B7 in Appendix B).

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 geographic proximity can indicate similarity of norms. As we reported in Table 4, for example, European countries rank high in social norms—do they also have the greatest impact on firms' E&S performance?

In Table 6 we group institutional ownership by geography, and repeat our regressions. Our findings show that it is the European investors who drive firms' E&S performance; their

coefficient estimate is positive and significant in all models. In contrast, investors domiciled in the Americas or in Asia and Australasia do not significantly impact E&S performance. 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 5 and 6, 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 Figure 2. As both panels show, there is a positive relationship between social norms (on the vertical axis) and the country-level coefficient estimates of foreign owners' impact on firms' E&S performance (on the horizontal axis). European countries, colored green, cluster in the top right part of the figure, consistent with both high norms and high E&S impacts. Among them, the Netherlands have the largest estimated impact on E&S scores. Within the Americas, colored red, the U.S. is far to the left on the E score and middle of the pack on the S score, indicating that U.S. investors do not play a leading role in driving firms' E&S performance.

Overall, our findings suggest that institutional investors reflect the social norms of their countries when they invest abroad. It is the investors from countries that rank high on measures of E&S social norms that affect firms' E&S performance, whereas investors from countries that are relatively unsupportive toward E&S issues do not drive firms' E&S performance.

4.5 Differences in Institutional Investors' Exposure to Market Forces and Firms' E&S Performance

The simple model in Eq. 3 suggests that another important variable driving investors' incorporation of social preferences for E&S into their decision making is the weight placed on

social norms relative to financial returns. We hypothesize that investor type captures cross-sectional variation in the weight on social norms, as investors of different types face different market pressures to generate short-term returns. This allows us to test both whether market forces influence an investor's pursuit of E&S objectives ($w(s)$ in Eq. 3) and whether social norms (x_c) either override or are subsumed by such market forces.

Generally, we expect market forces to reduce investors' push for greater E&S performance. Asset managers that have strong financial incentives and face a strong fund-flow-performance relation may shy away from encouraging E&S performance, since firms that enhance their E&S performance incur costs upfront for benefits potentially far in the future. For precisely those investors, analyzing the impact of social norms is especially interesting. If social norms regarding E&S are strong, they might override market forces. Thus, even investors mindful of the fund-flow-performance relationship would push firms towards greater E&S performance. In contrast, if social norms are weak, competitive concerns could dominate and there could be relatively little push for greater E&S performance. We examine this tradeoff between social norms and competitive pressures using regressions that split foreign institutional investors both by the strength of their country-of-domicile E&S social norms and by their investor type.

Before doing so, we note that differences in investor type may also reflect differences in investors' investment horizons. Cella, Ellul, and Giannetti (2013), for example, focus on the cross-section of U.S. institutional investors and find that pension funds are generally long-horizon investors and hedge funds are generally short-horizon investors. Our primary interest is to explore whether social norms can overcome preferences coming from investor type, regardless of whether those preferences come from investment horizon or market pressures.

We use Factset's classification of investors for these tests. Four of their investor categories account for 99.3% of our total institutional ownership: investment advisors (66.9% of institutional ownership), investment companies (22.2%), pension funds (8.1%), and hedge funds (2.2%).[16] We expect pension fund investors to face relatively low competitive pressure whereas the other categories should all face such pressure. 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).

Table 7 shows the results. We focus our discussion on independent institutional investors, who are both subject to competitive pressure and represent by far the largest investor category. In Panel A, the dependent variables measure firms' environmental performance. The coefficient on independent institutional investor ownership is consistently economically large and statistically significant in the high-social-norm group. In contrast, the coefficient on independent institutional investors in the low-social-norm group has a lower magnitude and is never statistically significant (the differences in coefficients between the high and low group are also statistically significant). Among this large group of investors, strong social norms appear to dominate concerns about competitive market forces potentially leading to fund outflows.

Panel B reports the results where the dependent variables measure firms' social commitments. We find similar patterns that social norms affect independent institutional investors' E&S impacts, but they are less pronounced. Consistently, the coefficient on independent institutional investors is 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

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[16] We exclude the remaining categories (banks, insurance companies, government agencies) that represent less than 0.7% of total institutional ownership.

one of the four models is the difference between the coefficient on independent institutional investors in the high and low-social-norm groups significant.

Pension funds, with less *ex ante* pressure to worry about fund-flow-performance relationships are, not surprisingly, largely unaffected by their domestic social norms regarding E&S impacts. Regardless of social norms, they consistently influence firms to strengthen E&S performance, with positive and significant coefficients in 15 of the 16 models.

Finally, hedge funds face perhaps the greatest pressures to focus on financial returns, with the strongest incentives across all investment manager types to focus on financial returns and expectations of outflows from short-term underperformance. We find in all 16 models that the coefficient on hedge funds is negative, and in nine of these models this coefficient is significant. Hedge funds appear to pressure firms to reduce their E&S performance, and hedge funds also appear to be largely immune to social norms.

These findings show that both market forces and social norms influence investor actions regarding firms' E&S performance. Pension funds, that do not face short-term market pressure to generate returns, consistently push firms towards greater E&S performance, whereas hedge funds, that certainly face such pressure, appear to consistently push against them. We also find that independent institutional investors trade off concerns regarding market forces with a desire to reflect their communities' social norms toward E&S.

It is interesting to compare the impact of institutional investor types with respect to E&S performance with their impact on traditional governance (G). There is a growing tendency to discuss ESG activism as if it is all the same. Aggarwal, Erel, Ferreira, and Matos (2011), for example, find that independent institutional investors, which are subject to market forces, and foreign investors in particular are most engaged in corporate governance activism. We

complement their results by showing that for E&S, pension plans, which have low exposure to market forces, are most active. We also find that independent institutional investors are active in driving firms to make greater E&S performance only if they are from countries with strong E&S social norms.

5. Conclusion

Executives of firms face increasing pressure to look beyond profits and to consider their firms' environmental and social impacts. Additionally, firm-level E&S measurement has evolved such that investors and other outsiders can easily track firms' E&S performance. Yet, whether improved E&S performance is beneficial to the average shareholder remains controversial.

Our paper examines the relation between institutional investor ownership and firms' E&S performance. If owners drive firms' E&S performance, this would indicate that E&S investments benefit shareholders because it is their money that is being spent. 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. Viewed in isolation, this evidence suggests that better E&S performance is desirable for shareholders.

We next exploit the heterogeneity of institutional investors' cultural and social norms to examine motives behind investors' push for greater E&S performance. Specifically, we assess whether a desire to obtain personal benefits from moving firms' E&S performance toward the ideal of those in the investors' local community might drive investors to advocate for greater E&S performance. Fiduciary duty allows only financial returns to be considered and the evidence to date on the financial benefits of E&S investment is mixed. If money is all the same, and institutional investors are interested only in financial returns, then the cultural origin and

social norms of investors should not matter. 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.

From a CEO and firm management standpoint, the success of foreign investors transplanting their social norms into the firms they own adds an additional dimension to the importance of institutional investors. This 'color of money' effect is unlikely to be without conflict—executives of firms from low-social-norm countries would have both social norm and fiduciary duty incentives to push back. Our results help inform the debate about increasing investor power by, for example, giving investors enhanced access to the proxy. To the extent that domestic social norms place less value on E&S performance, calls for enhanced investor power are likely to be challenged by management and domestic regulators.

Our findings indicate that investment managers' choices are motivated not only by their desire for financial returns but also by their desire to drive firms in their portfolios towards E&S performance levels that align with the social norms towards E&S performance in their community. The welfare consequences of our results depend on the extent to which there are net benefits arising from firms' increased E&S performance. Further research on the net value effect of E&S is required, given the conflicting academic evidence to date.

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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 100. The overall score is the average of the category scores. 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.

Panel A: Full Sample

	Number of Indicators	Mean	Median	SD	Obs
A. Environmental					
1) Emission Reduction	28	39.1	35.7	21.4	19,849
2) Product Innovation	25	27.9	16.7	23.1	19,849
3) Resource Reduction	17	39.3	37.5	22.5	19,849
Overall Score	70	35.4	31.8	20.2	19,849
B. Social					
1) Community	14	63.6	64.3	12.4	19,849
2) Diversity & Opportunity	10	45.9	38.9	19.9	19,849
3) Employment Quality	17	53.1	53.3	13.5	19,849
4) Health & Safety	9	57.8	57.1	19.1	19,849
5) Human Rights	8	51.8	43.8	16.3	19,849
6) Product Responsibility	10	50.2	50.0	13.8	19,849
7) Training & Development	10	39.4	37.5	26.1	19,849
Overall Score	78	51.7	51.1	13.5	19,849
C. ASSET4 z-Score					
Environmental Score		53.7	56.2	31.6	19,785
Social Score		52.6	54.4	31.6	19,785

Panel B: Summary Statistics by Country

Country	Overall Scores		ASSET4 z-Scores		Institutional Ownership		Coverage Start	Obs (Year 2010)	Firms (Total)	Obs (Total)
	Environ-ment	Social	Environ-ment	Social	Total (%)	Foreign as a Fraction of Total (%)				
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
U.K.	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

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Table 2
Institutional Investors and Firms' 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 U.S. exchange, and zero otherwise. The data are from the ASSET4 ESG database, Factset, Worldscope, DR lists, and CRSP, 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 UN PRI signatories or not. Panel C uses subsamples; the below-median subsample contains firms that have environmental/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. 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.

Panel A: Full Sample

	Environmental Scores		Social Scores	
	Overall Score	ASSET4 z-Score	Overall Score	ASSET4 z-Score
	(1)	(2)	(3)	(4)
Total IO $_{t-1}$	0.268	0.403	0.124	0.491
	(0.00)	(0.00)	(0.00)	(0.00)
Log (Total Assets) $_{t-1}$	0.214	0.255	0.084	0.274
	(0.00)	(0.00)	(0.00)	(0.00)
Tangibility $_{t-1}$	0.194	0.228	0.031	0.116
	(0.00)	(0.00)	(0.16)	(0.16)
Leverage $_{t-1}$	-0.116	-0.141	-0.041	-0.133
	(0.13)	(0.21)	(0.14)	(0.22)
Tobin's q_{t-1}	0.033	0.027	0.015	0.032
	(0.00)	(0.00)	(0.00)	(0.03)
Profitability $_{t-1}$	0.082	0.176	0.068	0.350
	(0.43)	(0.18)	(0.11)	(0.04)
Cross-list $_{t-1}$	-0.027	-0.071	0.004	-0.040
	(0.23)	(0.06)	(0.73)	(0.38)
Country Fixed Effects	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Adjusted R^2	0.543	0.446	0.523	0.393
Obs	19,849	19,785	19,849	19,785

Panel B: Institutional Ownership Split by UN-PRI-Signatory Status

	Environmental Scores		Social Scores	
	Overall Score	ASSET4 z-Score	Overall Score	ASSET4 z-Score
	(1)	(2)	(3)	(4)
IO_{t-1}				
UN PRI Sig.	0.773	1.147	0.271	1.013
	(0.00)	(0.00)	(0.00)	(0.00)
Non-UN PRI Sig.	0.073	0.091	0.054	0.241
	(0.13)	(0.22)	(0.04)	(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 R^2	0.546	0.450	0.525	0.394
Obs	19,849	19,785	19,849	19,785
IO, UN PRI vs. Non-UN PRI (p-value)	(0.00)	(0.00)	(0.00)	(0.00)

Panel C: Subsamples of Firms with Weak and Strong Initial E&S Performance

	Environmental Scores		Social Scores	
	Overall Score	ASSET4 z-Score	Overall Score	ASSET4 z-Score
	(1)	(2)	(3)	(4)
Weak Initial E&S Performance Subsample				
Total IO_{t-1}	0.259	0.415	0.128	0.487
	(0.00)	(0.00)	(0.00)	(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^2	0.446	0.329	0.456	0.293
Obs	11,918	11,907	11,989	11,862
Strong Initial E&S Performance Subsample				
Total IO_{t-1}	0.137	0.207	0.039	0.093
	(0.03)	(0.01)	(0.11)	(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 R^2	0.611	0.228	0.65	0.277
Obs	7,931	7,878	7,860	7,923
Total IO, Weak vs. Strong Initial E&S Performance (p-value)	(0.02)	(0.02)	(0.00)	(0.00)

Table 3
Institutional Investors and Firms' E&S Performance: 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 × 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 × Post Event × Treated Firm shows the differential effect of institutional ownership on the environment scores for firms in extractive industries compare to the rest of the sample firms. The data are from the ASSET4 ESG database, Factset, Worldscope, DR lists, and CRSP. 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.

Panel A: Within-industry Regressions

	Overall Environmental Score			Environmental ASSET4 z-Score		
	Oil and Gas Extraction (SIC 13)	Oil and Petroleum Products (FF 17)	Mining (SIC Division B)	Oil and Gas Extraction (SIC 13)	Oil and Petroleum Products (FF 17)	Mining (SIC Division B)
	(1)	(2)	(3)	(4)	(5)	(6)
Total IO	0.100	0.093	0.168	0.394	0.252	0.337
	(0.32)	(0.46)	(0.12)	(0.05)	(0.17)	(0.01)
Post Event	-0.007	0.028	0.008	-0.154	-0.099	-0.125
	(0.88)	(0.40)	(0.78)	(0.07)	(0.13)	(0.03)
Total IO × Post Event	0.216	0.150	0.120	0.332	0.240	0.235
	(0.02)	(0.02)	(0.00)	(0.03)	(0.03)	(0.00)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.722	0.727	0.616	0.667	0.677	0.586
Obs	222	302	606	222	302	606
# Treated Firms	111	151	303	111	151	303

Panel B: Difference-in-differences Regressions

	Treatment Effect (Coefficient Estimate of Total IO × Post Event × Treated Firm)		
	Oil and Gas Extraction (SIC 13)	Oil and Petroleum Products (FF 17)	Mining (SIC Division B)
	(1)	(2)	(3)
Overall Environmental Scores	0.156	0.091	0.116
	(0.06)	(0.12)	(0.01)
Environmental ASSET4 z-Score	0.247	0.149	0.222
	(0.08)	(0.17)	(0.01)
Obs	5,172	5,172	5,172
# Treated Firms	111	151	303
# Control Firms	2,475	2,435	2,283

Table 4
Measures of Country-level 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.

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
U.K.	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
U.S.	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

Table 5
Foreign Institutional Investors' Social Norms and Firms' 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 a) 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 b) 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 b) the World Value E&S Index. The other data are from the ASSET4 ESG database, Factset, Worldscope, DR lists, and CRSP, and they are obtained for the years 2004-2013. 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.

Panel A: Environmental Scores

	Overall Score		ASSET4 *z*-Score	
Measure of Social Norm	Environmental Performance Index	World Value E&S Index	Environmental Performance Index	World Value E&S Index
	(1)	(2)	(3)	(4)
Foreign IO $_{t-1}$				
High-social-norm Group	0.948	0.885	1.265	1.171
	(0.00)	(0.00)	(0.00)	(0.00)
Low-social-norm Group	-0.001	0.065	0.051	0.132
	(1.00)	(0.59)	(0.75)	(0.42)
Domestic IO $_{t-1}$	0.442	0.444	0.644	0.646
	(0.00)	(0.00)	(0.00)	(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^2	0.544	0.544	0.445	0.446
Obs	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 vs. High (*p*-value)	(0.00)	(0.01)	(0.00)	(0.01)

Panel B: Social Scores

Measure of Social Norm	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 $_{t-1}$				
High-social-norm Group	0.556	0.285	1.449	0.962
	(0.00)	(0.00)	(0.00)	(0.00)
Low-social-norm Group	0.063	0.056	0.359	0.291
	(0.04)	(0.29)	(0.00)	(0.18)
Domestic IO $_{t-1}$	0.175	0.186	0.702	0.733
	(0.00)	(0.00)	(0.00)	(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^2	0.524	0.524	0.388	0.392
Obs	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 vs. High (p-value)	(0.00)	(0.07)	(0.02)	(0.16)

Table 6
Foreign Institutional Investors' Geographic Location and Firms' 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 & Australasia, and Africa. The data are from the ASSET4 ESG database, Factset, Worldscope, DR lists, and CRSP, and they are obtained for the years 2004-2013. 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	ASSET4 z-Score	Overall Score	ASSET4 z-Score
	(1)	(2)	(3)	(4)
Foreign IO $_{t-1}$				
Europe	0.809	1.077	0.275	0.871
	(0.00)	(0.00)	(0.00)	(0.00)
Americas	-0.089	-0.067	0.008	0.139
	(0.43)	(0.67)	(0.84)	(0.38)
Asia & Australasia	0.625	0.857	0.060	0.432
	(0.25)	(0.26)	(0.74)	(0.48)
Africa	-1.119	-2.204	-0.953	-3.771
	(0.21)	(0.13)	(0.11)	(0.09)
Domestic IO $_{t-1}$	0.445	0.652	0.183	0.720
	(0.00)	(0.00)	(0.00)	(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^2	0.547	0.450	0.525	0.394
Obs	19,849	19,785	19,849	19,785

Table 7
Social Norms, Institutional Investors' Exposure to Market Forces, and Firms' 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 a) 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 b) 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 b) the World Value E&S Index. The other data are from the ASSET4 ESG database, Factset, Worldscope, DR lists, and CRSP, and they are obtained for the years 2004-2013. 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.

Panel A: Environmental Scores

	Overall Score		ASSET4 z-Score	
Measure of Social Norm	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 $_{t-1}$				
Independent Institutional Investors	0.608	0.550	0.852	0.751
	(0.00)	(0.01)	(0.00)	(0.00)
Pension Funds	2.643	2.014	3.186	2.399
	(0.00)	(0.00)	(0.00)	(0.00)
Hedge Funds	-1.046	-2.256	-0.852	-2.818
	(0.65)	(0.06)	(0.80)	(0.11)
Foreign IO, Low-social-norm Group $_{t-1}$				
Independent Institutional Investors	0.026	0.107	0.080	0.180
	(0.81)	(0.33)	(0.59)	(0.23)
Pension Funds	1.436	3.909	1.643	5.185
	(0.06)	(0.00)	(0.08)	(0.01)
Hedge Funds	-0.674	-0.734	-0.762	-0.848
	(0.02)	(0.02)	(0.01)	(0.01)
Domestic IO $_{t-1}$	0.410	0.412	0.609	0.610
	(0.00)	(0.00)	(0.00)	(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^2	0.545	0.546	0.446	0.448
Obs	19,648	19,661	19,585	19,598

Panel B: Social Scores

Measure of Social Norm	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 $_{t-1}$				
Independent Institutional Investors	0.444	0.187	1.173	0.669
	(0.00)	(0.05)	(0.06)	(0.05)
Pension Funds	0.574	0.579	1.706	1.691
	(0.07)	(0.00)	(0.17)	(0.03)
Hedge Funds	-1.816	-0.927	-4.014	-3.101
	(0.07)	(0.07)	(0.10)	(0.10)
Foreign IO, Low-social-norm Group $_{t-1}$				
Independent Institutional Investors	0.065	0.054	0.335	0.263
	(0.04)	(0.29)	(0.00)	(0.19)
Pension Funds	0.740	2.150	2.439	7.905
	(0.03)	(0.00)	(0.05)	(0.00)
Hedge Funds	-0.242	-0.241	-0.518	-0.484
	(0.17)	(0.20)	(0.29)	(0.35)
Domestic IO $_{t-1}$	0.170	0.175	0.689	0.705
	(0.00)	(0.00)	(0.00)	(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^2	0.524	0.526	0.387	0.394
Obs	19,474	19,661	19,413	19,598

Figure 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. Appendix A describes the indicator variables used to calculate the environmental and social scores.

Panel A: Constant Panel of 805 Firms, 2004-2013
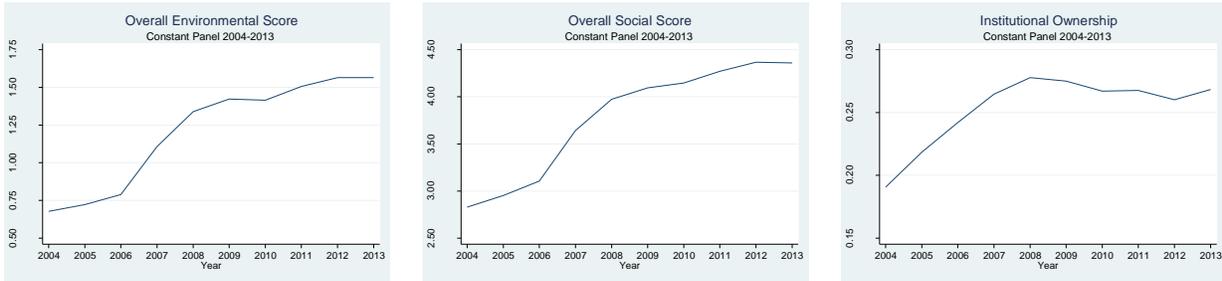
Panel B: Constant Panel of 1,662 Firms, 2009-2013
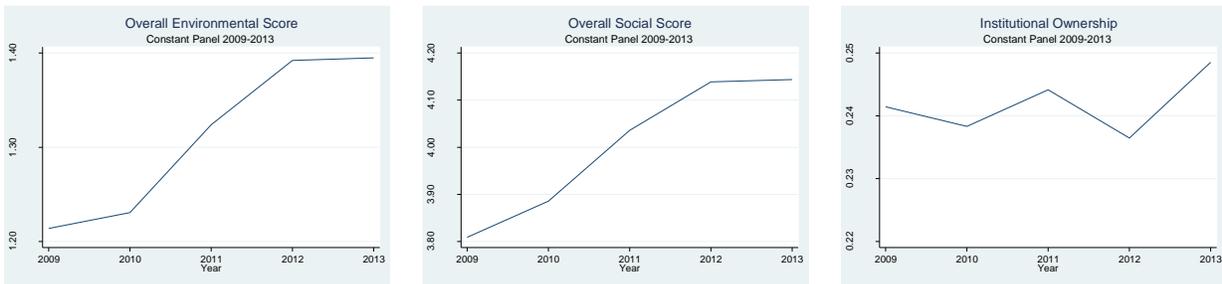
This figure shows social norms, measured with the World Value E&S Index, and the coefficient estimates of foreign institutional ownership grouped by country. The coefficient estimates are obtained from regressing environmental and social scores on foreign institutional ownership grouped by investors' country of domicile, while controlling for domestic institutional ownership and controls. We standardize foreign institutional ownership for better comparison across countries.

Panel A: Overall Environmental Score
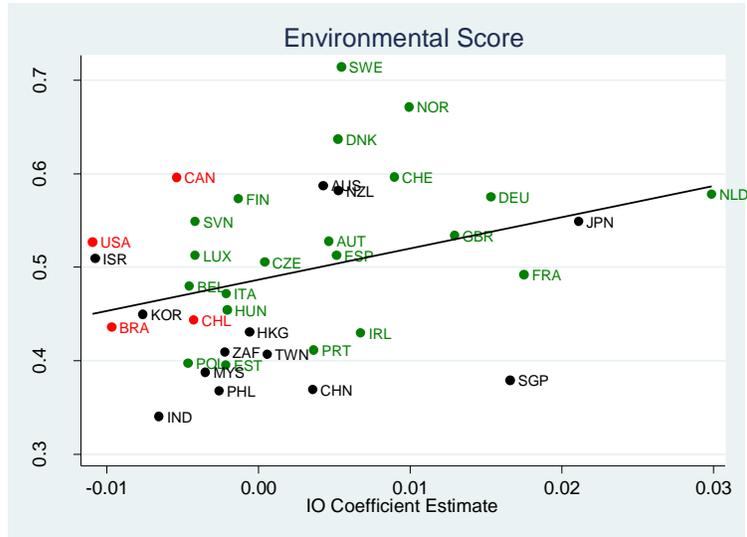
Panel B: Overall Social Score

<div align="center">
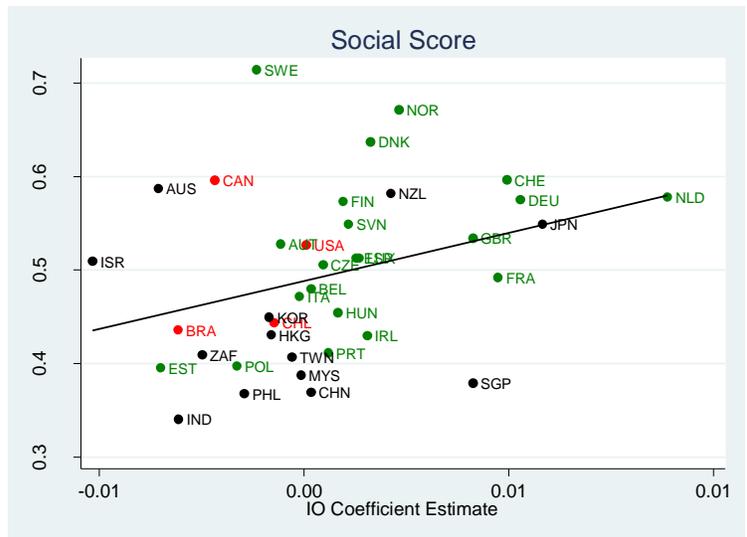
Appendix A
Creating Environmental and Social Indicators Based on ASSET4 ESG Environmental and Social Data

</div>

We create environmental and social indicator variables based on the ASSET4 ESG environmental and social indicator values. Indicator values are the answers to Y/N questions, double Y/N questions, and numerical questions. We translate the answers to these questions into indicator variables. More specifically, for questions with a positive direction (i.e., a "yes" answer or a greater number is associated with better environmental 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 (or equal) than zero; or value is less (or equal) than the median; see also column "Translation Numeric Values") and 1 (value is greater than zero; or value is greater than the median; see also column "Translation Numeric Values"). For questions with a negative direction (i.e., a "no" answer or a lower number is associated with better social performance), the opposite coding applies. The data are from the ASSET4 ESG database.

Panel A: Environmental Indicator Variables

		Description	Direction	Question Type	Translation Numeric Values
A.	Emission Reduction				
1)	Biodiversity Controversies	Is the company under the spotlight of the media because of a controversy linked to biodiversity?	Negative	Y/N	
2)	Biodiversity Impact	Does the company report on initiatives to protect, restore or reduce its impact on native ecosystems and species, biodiversity, protected and sensitive areas?	Positive	Y/N	
3)	Cement CO2 Emissions	Total CO2 and CO2 equivalents emission in kilograms per tonne of cement produced.	Negative	Number	Median
4)	Climate Change Risks and Opportunities	Is the company aware that climate change can represent commercial risks and/or opportunities?	Positive	Y/N	
5)	CO2 Reduction	Does the company show an initiative to reduce, reuse, recycle, substitute, phased out or compensate CO2 equivalents in the production process?	Positive	Y/N	
6)	Discharge into Water System	Total weight of water pollutant emissions in tonnes divided by net sales or revenue in U.S. dollars.	Negative	Number	Median
7)	Environmental Compliance	All real or estimated penalties, fines from lost court cases, settlements or cases not yet settled regarding environmental controversies in U.S. dollars.	Negative	Number	Zero
8)	Environmental Expenditures	Does the company report on its environmental expenditures or does the company report to make proactive environmental investments to reduce future risks or increase future opportunities?	Positive	Y/N	
9)	Environmental Management Systems	The percentage of company sites or subsidiaries that are certified with any environmental management system.	Positive	Number	Median
10)	Environmental Partnerships	Does the company report on partnerships or initiatives with specialized NGOs, industry organizations, governmental or supragovernmental organizations that focus on improving environmental issues?	Positive	Y/N	
11)	Environmental Restoration Initiatives	Does the company report or provide information on company-generated initiatives to restore the environment?	Positive	Y/N	
12)	F-Gases Emissions	Does the company report on initiatives to recycle, reduce, reuse or phase out fluorinated gases such as HFCs (hydrofluorocarbons), PFCs (perfluorocarbons) or SF6 (sulphur hexafluoride)?	Positive	Y/N	
13)	Greenhouse Gas Emissions	Total CO2 and CO2 equivalents emission in tonnes divided by net sales or revenue in U.S. dollars.	Negative	Number	Median
14)	Hazardous Waste	Total amount of hazardous waste produced in tonnes divided by net sales or revenue in U.S. dollars.	Negative	Number	Median
15)	Implementation	Does the company describe the implementation of its emission reduction policy through a public commitment from a senior management or board member? AND Does the company describe the implementation of its emission reduction policy through the processes in place?	Positive	Double Y/N	
16)	Improvements	Does the company set specific objectives to be achieved on emission reduction?	Positive	Y/N	
17)	Innovative Production	Does the company report on the concentration of production locations in order to limit the environmental impact during the production process? OR Does the company report on its participation in any emissions trading initiative? OR Does the company report on new production techniques to improve the global environmental impact (all emissions) during the production process?	Positive	Y/N	
18)	Monitoring	Does the company monitor its emission reduction performance?	Positive	Y/N	
19)	NOx and SOx Emissions Reduction	Does the company report on initiatives to reduce, reuse, recycle, substitute, or phase out SOx (sulphur oxides) or NOx (nitrogen oxides) emissions?	Positive	Y/N	
20)	Ozone-Depleting Substances Reduction	Does the company report on initiatives to reduce, substitute, or phase out ozone-depleting (CFC-11 equivalents, chlorofluorocarbon) substances?	Positive	Y/N	
21)	Policy	Does the company have a policy for reducing environmental emissions or its impacts on biodiversity? AND Does the company have a policy for maintaining an environmental management system?	Positive	Double Y/N	
22)	Spill Impact Reduction	Does the company report on initiatives to reduce, avoid or minimize the effects of spills or other polluting events (crisis management system)?	Positive	Y/N	
23)	Spills and Pollution Controversies	Is the company directly or indirectly (through a supplier) under the spotlight of the media because of a controversy linked to the spill of chemicals, oils and fuels, gases (flaring) or controversy relating to the overall impacts of the company on the environment?	Negative	Y/N	
24)	Transportation Impact Reduction	Does the company report on initiatives to reduce the environmental impact of transportation of its products or its staff?	Positive	Y/N	
25)	VOC Emissions Reduction	Does the company report on initiatives to reduce, substitute, or phase out volatile organic compounds (VOC) or particulate matter less than ten microns in diameter (PM10)?	Positive	Y/N	
26)	Waste	Total amount of waste produced in tonnes divided by net sales or revenue in U.S. dollars.	Negative	Number	Median
27)	Waste Recycling Ratio	Total recycled and reused waste produced in tonnes divided by total waste produced in tonnes.	Positive	Number	Median
28)	Waste Reduction	Does the company report on initiatives to recycle, reduce, reuse, substitute, treat or phase out total waste, hazardous waste or wastewater?	Positive	Y/N	

B. Product Innovation

#	Name	Description			
1)	Animal Testing	Is the company endorsing guidelines on animal testing (e.g., the EU guideline on animal experiments)? OR Has the company established a programme or an initiative to reduce, phase out or substitute for animal testing?	Positive	Y/N	
2)	Eco-Design Products	Does the company report on specific products which are designed for reuse, recycling or the reduction of environmental impacts?	Positive	Y/N	
3)	Energy Footprint Reduction	Does the company describe initiatives in place to reduce the energy footprint of its products during their use?	Positive	Y/N	
4)	Environmental Asset Management	Does the company report on assets under management which employ environmental screening criteria or environmental factors in the investment selection process?	Positive	Y/N	
5)	Environmental Labels and Awards	Has the company received product awards with respect to environmental responsibility? OR Does the company use product labels (e.g., FSC, Energy Star, MSC) indicating the environmental responsibility of its products?	Positive	Y/N	
6)	Environmental Products	Does the company report on at least one product line or service that is designed to have positive effects on the environment or which is environmentally labelled and marketed?	Positive	Y/N	
7)	Environmental Project Financing	Is the company a signatory of the Equator Principles (commitment to manage environmental issues in project financing)? OR Does the company claim to evaluate projects on the basis of environmental or biodiversity risks as well?	Positive	Y/N	
8)	Environmental R&D	Does the company invest in R&D on new environmentally friendly products or services that will limit the amount of emissions and resources needed during product use?	Positive	Y/N	
9)	Environmental R&D Expenditures	Total amount of environmental R&D costs (without clean up and remediation costs) divided by net sales or revenue in U.S. dollars.	Positive	Number	Median
10)	GMO Free Products	Does the company make a commitment to exclude GMO ingredients from its products or retail offerings?	Positive	Y/N	
11)	Hybrid Vehicles	Is the company developing hybrid vehicles?	Positive	Y/N	
12)	Implementation	Does the company describe the implementation of its environmental product innovation policy?	Positive	Y/N	
13)	Improvements	Does the company set specific objectives to be achieved on environmental product innovation?	Positive	Y/N	
14)	Labelled Wood Percentage	The percentage of labelled wood or forest products (e.g., Forest Stewardship Council (FSC)) from total wood or forest products.	Positive	Number	Median
15)	Liquefied Natural Gas	Does the company develop new products and services linked to liquefied natural gas?	Positive	Y/N	
16)	Monitoring	Does the company describe, claim to have or mention the processes it uses to accomplish environmental product innovation?	Positive	Y/N	
17)	Noise Reduction	Does the company develop new products that are marketed as reducing noise emissions?	Positive	Y/N	
18)	Organic Products	Does the company report or show initiatives to produce or promote organic food or other products?	Positive	Y/N	
19)	Policy	Does the company have an environmental product innovation policy (eco-design, life cycle assessment, dematerialization)?	Positive	Y/N	
20)	Product Impact Controversies	Is the company under the spotlight of the media because of a controversy linked to the environmental impact of its products or services?	Negative	Y/N	
21)	Product Impact Minimization	Does the company reports about take-back procedures and recycling programmes to reduce the potential risks of products entering the environment? OR Does the company report about product features and applications or services that will promote responsible, efficient, cost-effective and environmentally preferable use?	Positive	Y/N	
22)	Renewable Energy Supply	Total energy distributed or produced from renewable energy sources divided by the total energy distributed or produced.	Positive	Number	Median
23)	Renewable/Clean Energy Products	Does the company develop products or technologies for use in the clean, renewable energy (such as wind, solar, hydro and geo-thermal and biomass power)?	Positive	Y/N	
24)	Sustainable Building Products	Does the company develop products and services that improve the energy efficiency of buildings?	Positive	Y/N	
25)	Water Technologies	Does the company develop products or technologies that are used for water treatment, purification or that improve water use efficiency?	Positive	Y/N	

C. Resource Reduction

#	Name	Description			
1)	Cement Energy Use	Total energy use in gigajoules per tonne of clinker produced.	Negative	Number	Median
2)	Energy Efficiency Initiatives	Does the company report on initiatives to use renewable energy sources? AND Does the company report on initiatives to increase its energy efficiency overall?	Positive	Double Y/N	
3)	Energy Use	Total direct and indirect energy consumption in gigajoules divided by net sales or revenue in U.S. dollars.	Negative	Number	Median
4)	Environmental Resource Impact Controversies	Is the company under the spotlight of the media because of a controversy linked to the environmental impact of its operations on natural resources or local communities?	Negative	Y/N	
5)	Environmental Supply Chain Management	Does the company use environmental criteria (ISO 14000, energy consumption, etc.) in the selection process of its suppliers or sourcing partners? AND Does the company report or show to be ready to end a partnership with a sourcing partner, if environmental criteria are not met?	Positive	Double Y/N	
6)	Green Buildings	Does the company have environmentally friendly or green sites or offices?	Positive	Y/N	
7)	Implementation	Does the company describe the implementation of its resource efficiency policy through a public commitment from a senior management or board member? AND Does the company describe the implementation of its resource efficiency policy through the processes in place?	Positive	Double Y/N	
8)	Improvements	Does the company set specific objectives to be achieved on resource efficiency? AND Does the company comment on the results of previously set objectives?	Positive	Double Y/N	
9)	Land Use	Does the company report on initiatives to reduce the environmental impact on land owned, leased or managed for production activities or extractive use?	Positive	Y/N	
10)	Materials	Total amount of materials used in tonnes divided by net sales or revenue in U.S. dollars.	Negative	Number	Median
11)	Materials Recycled and Reused Ratio	The percentage of recycled materials of the total materials used.	Positive	Number	Median
12)	Monitoring	Does the company monitor its resource efficiency performance?	Positive	Y/N	
13)	Policy	Does the company have a policy for reducing the use of natural resources? AND Does the company have a policy to lessen the environmental impact of its supply chain?	Positive	Double Y/N	
14)	Renewable Energy Use	Total energy generated from primary renewable energy sources divided by total energy.	Positive	Number	Median

		Description	Direction	Question Type	Translation Numeric Values
15)	Toxic Chemicals	Does the company report on initiatives to reduce, reuse, substitute or phase out toxic chemicals or substances?	Positive	Y/N	
16)	Water Recycling	Does the company report on initiatives to reuse or recycle water? OR Does the company report on initiatives to reduce the amount of water used?	Positive	Y/N	
17)	Water Use	Total water withdrawal in cubic meters divided by net sales or revenue in U.S. dollars.	Negative	Number	Median

Panel B: Social Indicator Variables

		Description	Direction	Question Type	Translation Numeric Values
A.	**Community Category**				
1)	Bribery, Corruption, Fraud Controversies	Is the company under the spotlight of the media because of a controversy linked to bribery and corruption, political contributions, improper lobbying, money laundering, parallel imports or any tax fraud?	Negative	Y/N	
2)	Business Ethics Compliance	All real or estimated penalties, fines from lost court cases, settlements or cases not yet settled regarding controversies linked to business ethics in general, political contributions or bribery and corruption, price-fixing or anti-competitive behaviour, tax fraud, parallel imports or money laundering in U.S. dollars.	Negative	Number	Zero
3)	Corporate Responsibility Awards	Has the company received an award for its social, ethical, community, or environmental activities or performance?	Positive	Y/N	
4)	Crisis Management	Does the company report on crisis management systems or reputation disaster recovery plans to reduce or minimize the effects of reputation disasters?	Positive	Y/N	
5)	Critical Countries, Indigenous People Controversies	Is the company under the spotlight of the media because of a controversy linked to activities in critical, undemocratic countries that do not respect fundamental human rights or to disrespecting the rights of indigenous people?	Negative	Y/N	
6)	Donations in General	Does the company make cash donations? AND Does the company make in-kind donations, foster employee engagement in voluntary work or provide funding of community-related projects through a corporate foundation?	Positive	Double Y/N	
7)	Implementation	Does the company describe the implementation of its community policy through a public commitment from a senior management or board member? AND Does the company describe the implementation of its community policy through the processes in place?	Positive	Double Y/N	
8)	Improvements	Does the company set specific objectives to be achieved on its reputation or its relations with communities?	Positive	Y/N	
9)	Income Taxes	Total amount of income taxes divided by net income.	Positive	Number	Median
10)	Monitoring	Does the company monitor its reputation or its relations with communities?	Positive	Y/N	
11)	Patent Infringement	All real or estimated penalties, fines from lost court cases, settlements or cases not yet settled regarding controversies linked to patents and intellectual property infringement in U.S. dollars.	Negative	Number	Zero
12)	Policy	Does the company have a policy to strive to be a good corporate citizen or endorse the Global Sullivan Principles? AND Does the company have a policy to respect business ethics or has the company signed the UN Global Compact or follow the OECD guidelines?	Positive	Double Y/N	
13)	Public Health Controversies	Is the company under the spotlight of the media because of a controversy linked to public health or industrial accidents harming the health & safety of third parties (non-employees and non-customers)?	Negative	Y/N	
14)	Total Donations	Total amount of all donations divided by net sales or revenue.	Positive	Number	Zero
B.	**Diversity and Opportunity**				
1)	Diversity Compliance	All real or estimated penalties, fines from lost court cases, settlements or cases not yet settled regarding controversies linked to workforce diversity and opportunity in U.S. dollars.	Negative	Number	Zero
2)	Diversity Controversies	Is the company under the spotlight of the media because of a controversy linked to workforce diversity and opportunity?	Negative	Y/N	
3)	Family Friendly	Does the company claim to provide day care services for its employees? OR Does the company claim to provide generous maternity leave benefits? OR Has the company won a family friendly prize like a "Working Mother Award"?	Positive	Y/N	
4)	Implementation	Does the company describe the implementation of its diversity and opportunity policy?	Positive	Y/N	
5)	Improvements	Does the company set specific objectives to be achieved on diversity and equal opportunity?	Positive	Y/N	
6)	Management Equal Opportunity	Does the company promote positive discrimination? OR Has the company won any prize or award relating to diversity or opportunity?	Positive	Y/N	
7)	Managers Female Male Ratio	Percentage of women managers.	Positive	Number	Median
8)	Monitoring	Does the company monitor the diversity and equal opportunities in its workforce?	Positive	Y/N	
9)	Policy	Does the company have a work-life balance policy? AND Does the company have a diversity and equal opportunity policy?	Positive	Double Y/N	
10)	Work-Life Balance	Does the company claim to provide generous vacations, career breaks or sabbaticals? OR Does the company claim to provide flexible working hours or working hours that promote a work-life balance?	Positive	Y/N	
C.	**Employment Quality**				
1)	Announced Lay-offs	Total number of announced lay-offs by the company divided by the total number of employees.	Negative	Number	Median
2)	Bonus Plan	Does the company claim to provide a bonus plan to at least the middle management level? AND Is the employees' compensation based on personal or company-wide targets?	Positive	Double Y/N	
3)	Employment Awards	Has the company won an award or any prize related to general employment quality or "Best Company to Work For"?	Positive	Y/N	
4)	Generous Fringe Benefits	Does the company claim to provide its employees with a pension fund, health care or other insurances?	Positive	Y/N	
5)	Implementation	Does the company describe the implementation of its employment quality policy?	Positive	Y/N	

6)	Improvements	Does the company set specific objectives to be achieved on employment quality?	Positive	Y/N	
7)	Key Management Departures	Has an important executive management team member or a key team member announced a voluntary departure (other than for retirement) or has been ousted?	Negative	Y/N	
8)	Monitoring	Does the company monitor or measure its performance on employment quality?	Positive	Y/N	
9)	Net Employment Creation	Employment growth over the last year.	Positive	Number	Median
10)	Personnel Turnover	Percentage of employee turnover.	Negative	Number	Median
11)	Policy	Does the company have a competitive employee benefits policy or ensuring good employee relations within its supply chain? AND Does the company have a policy for maintaining long term employment growth and stability?	Positive	Double Y/N	
12)	Salaries	Average salaries and benefit in U.S. dollars (Salaries and Benefits (U.S. dollars) /Total Number of Employees).	Positive	Number	Median
13)	Salaries Distribution	Total salaries and benefits divided by net sales or revenue.	Positive	Number	Median
14)	Salary Gap	CEO's total salary (or other highest salary) divided by average wage (Highest Salary (U.S. dollars) /Average Salaries and Benefits in (U.S. dollars)).	Negative	Number	Median
15)	Strikes	Has there has been a strike or an industrial dispute that led to lost working days?	Negative	Y/N	
16)	Trade Union Representation	Percentage of employees represented by independent trade union organizations or covered by collective bargaining agreements.	Positive	Number	Median
17)	Wages or Working Condition Controversies	Is the company under the spotlight of the media because of a controversy linked to the company's employees, contractors or suppliers due to wage, layoff disputes or working conditions?	Negative	Y/N	

D. Health and Safety

1)	Health & Safety Compliance	All real or estimated penalties, fines from lost court cases, settlements or cases not yet settled regarding controversies linked to workforce or contractor health and safety in U.S. dollars.	Negative	Number	Zero
2)	Health & Safety Controversies	Is the company under the spotlight of the media because of a controversy linked to workforce health and safety?	Negative	Y/N	
3)	HIV-AIDS Programme	Does the company report on policies or programmes on HIV/AIDS for the workplace or beyond?	Positive	Y/N	
4)	Implementation	Does the company describe the implementation of its employee health & safety policy through a public commitment from a senior management or board member or the establishment of an employee health & safety team? AND Does the company describe the implementation of its employee health & safety policy through the processes in place?	Positive	Double Y/N	
5)	Improvements	Does the company set specific objectives to be achieved on employee health & safety? AND Does the company comment on the results of previously set objectives?	Positive	Double Y/N	
6)	Injuries	Total number of injuries and fatalities including no-lost-time injuries relative to one million hours worked.	Negative	Number	Median
7)	Lost Days	Total lost days at work divided by total working days. (Refers to an employee absent from work because of incapacity of any kind, not just as the result of occupational injury or disease)	Negative	Number	Median
8)	Monitoring	Does the company monitor or measure its performance on employee health & safety?	Positive	Y/N	
9)	Policy	Does the company have a policy to improve employee health & safety within the company and its supply chain?	Positive	Y/N	

E. Human Rights

1)	Child Labour Controversies	Is the company under the direct or indirect (through suppliers) spotlight of the media because of a controversy linked to child labour?	Negative	Y/N	
2)	Freedom of Association Controversies	Is the company under the direct or indirect (through suppliers) spotlight of the media because of a controversy linked to freedom of association?	Negative	Y/N	
3)	Human Rights Controversies	Is the company under the direct or indirect (through suppliers) spotlight of the media because of a controversy linked to general human rights issues?	Negative	Y/N	
4)	Implementation	Does the company describe the implementation of its human rights policy?	Positive	Y/N	
5)	Improvements	Does the company set specific objectives to be achieved on its human rights policy?	Positive	Y/N	
6)	Monitoring	Does the company monitor human rights in its or its suppliers' facilities?	Positive	Y/N	
7)	Policy	Does the company have a policy to guarantee the freedom of association universally applied independent of local laws? AND Does the company have a policy for the exclusion of child, forced or compulsory labour?	Positive	Double Y/N	
8)	Suppliers Social Impact	Does the company report or show to use human rights criteria in the selection or monitoring process of its suppliers or sourcing partners? AND Does the company report or show to be ready to end a partnership with a sourcing partner if human rights criteria are not met?	Positive	Double Y/N	

F. Product Responsibility

1)	Customer Controversies	Is the company under the spotlight of the media because of a controversy linked to its products or services quality and responsibility?	Negative	Y/N	
2)	Implementation	Does the company describe the implementation of its product responsibility policy?	Positive	Y/N	
3)	Improvements	Does the company set specific objectives to be achieved on its products or services quality and responsibility?	Positive	Y/N	
4)	Monitoring	Does the company monitor the impact of its products or services on consumers or the community more generally?	Positive	Y/N	
5)	Policy	Does the company have a policy to protect customer health & safety? AND Does the company have a products and services quality policy?	Positive	Double Y/N	
6)	Product Access	Does the company distribute any low-priced products or services specifically designed for lower income categories (e.g., bridging the digital divide, telecommunications, low cost cars and micro-financing services)?	Positive	Y/N	
7)	Product Compliance	All real or estimated penalties, fines from lost court cases, settlements or cases not yet settled regarding controversies linked its products or services quality and responsibility in U.S. dollars.	Negative	Number	Zero
8)	Quality Management	Does the company claim to apply quality management systems, such as ISO 9000, Six Sigma, Lean Manufacturing, Lean Sigma, TQM or any other similar quality principles?	Positive	Y/N	
9)	Social Exclusion	Is the company under the spotlight of the media because of a controversy linked to market withdrawal	Negative	Y/N	

	Controversies	(closing of branches), retreating or failing to serve specific markets or customers?O			
10)	Technology Know-How Sharing	Does the company voluntarily share licenses, patents, intellectual property or useful technology with developing countries, or allow generics under specific conditions?	Positive	Y/N	
G.	**Training and Development**				
1)	Implementation	Does the company describe the implementation of its training and development policy?	Positive	Y/N	
2)	Improvements	Does the company set specific objectives to be achieved on the employee training and career development?	Positive	Y/N	
3)	Internal Promotion	Does the company claim to favour promotion from within?	Positive	Y/N	
4)	Management Training	Does the company claim to provide regular staff and business management training for its managers?	Positive	Y/N	
5)	Monitoring	Does the company monitor its training and development programs?	Positive	Y/N	
6)	Policy	Does the company have a policy to support the skills training or career development of its employees?	Positive	Y/N	
7)	Supplier ESG Training	Does the company provide training on environmental, social or governance factors for its suppliers?	Positive	Y/N	
8)	Training Costs	Training costs per employee in U.S. dollars.	Positive	Number	Median
9)	Training Hours	Average hours of training per year per employee.	Positive	Number	Median
10)	University Partnerships	Does the company claim to cooperate with schools or universities?	Positive	Y/N	

Appendix B
Additional Tests and Statistics

B1. Granger Causality Tests

We perform Granger-causality-style tests to draw conclusions about the direction of statistical causality between institutional ownership and firms' E&S performance. We estimate two sets of regressions. First, we regress E&S scores on lagged Total IO, lagged E&S scores, and lagged control variables. Second, we regress Total IO on lagged E&S scores, lagged Total IO, and lagged control variables. Granger causality has been widely studied and applied in macroeconomics, and interpretations of the causality concept have been widely debated such that caveats associated with its usage are well understood. With panel data, where 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, Newey, and Rosen (1988)). We follow this approach and include firm fixed effects. The results are reported in Table B2. Consistent with Total IO driving firms' E&S performance, we find that E&S scores significantly depend on lagged Total IO (while controlling for lagged E&S performance). However, the opposite is not true: Total IO does not significantly depend on lagged E&S scores (while controlling for lagged Total IO). Combined, this evidence indicates that the direction of causality likely flows from institutional ownership to firms' E&S performance.

B2. Instrumental Variables Regressions

We use instrumental variable estimation to further address the concern of reverse causality. Aggarwal, Erel, Ferreira, and Matos (2011), Appel, Gormley, and Keim (2016), Crane, Michenaud, and Weston (2016), and Bena, Ferreira, Matos, and Pires (2017) exploit variation of institutional ownership that results from a firm's stock being added to a major stock market index. In our study, we use stock additions to the MSCI All Country World Index as an instrument for institutional ownership. The MSCI World Index is composed of all country-level MSCI indices that are often used as a benchmark by institutional investors. Stocks are added to the MSCI country indices until the cumulative free-float-adjusted market capitalization reaches 85% of the total free-float-adjusted market capitalization in each country. Based on the index addition rules, firms are added mechanically to the index. Thus, stocks are added to the index because of their relative free-float-adjusted market capitalization, and not because of their E&S performance levels.

Panel A of Table B3 shows the first-stage results. Institutional investors increase their holdings by about 3.7 percentage points when a firm is added to the MSCI World Index. More importantly, the second-stage results in Panel B show that instrumented institutional ownership is positively and significantly associated with environmental and social scores. These results show that our findings are not due to the endogenous selection of firms with high E&S scores, but rather than institutional investors drive environmental and social performance of firms.[17]

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[17] We also exploit the variation of institutional ownership directly around firms' MSCI World Index addition. We match firms that were added to the index (treated firms) using a propensity score matching approach to control firms within the same country and industry in the year of the index addition. We match on outcome and control variables. The results show that after the index addition, environmental and social scores of treated firms increased significantly more compared to control firms (unreported for brevity).

B3. Firm Fixed Effects Regressions

Our results could be due to unobserved firm characteristics that affect both institutional ownership and firms' E&S performance. To address, we introduce a firm fixed effect specification as suggested by Gormley and Matsa (2014) in Table B4. The results show that institutional ownership continues to have a statistically significant impact on firms' E&S performance. Compared to the findings in Table 2, the coefficient estimates of Total IO are generally smaller. This is to be expected as the estimates are relying on time-series variation within firms rather than the likely larger cross-sectional variation. As an example, using the overall environmental score as the dependent variable, the coefficient on Total IO declines from 0.268 (Table 2, column 1) to 0.137 (Table B4, column 1).

B4. Alternative E&S Measures

We explore whether the positive effect of institutional ownership on environmental and social performance stems from our specific definitions of E&S measures. One concern is that while ASSET4 provides detailed documentation for its ESG data, and in evaluating firms' E&S performance relies predominantly on publicly available data, we cannot verify the entire data collection process or its accuracy. A second concern is that investors have a choice among several providers of ESG data, and there is no standardized framework of capturing such data. While ASSET4 data are widely used in the industry, it is possible that a specific institutional investor in our sample will rely on a different data provider. To address both concerns, we obtain detailed ESG data from Sustainalytics and Bloomberg, and match these data with our sample. Sustainalytics and Bloomberg coverage begins in 2009 and 2005, respectively.

We use the Sustainalytics' overall environmental and social scores. To construct these scores, Sustainalytics looks at firm-level information available from annual reports, corporate sustainability reports, NGOs, and news sources, applying their own weighting across items. The correlations between the scores constructed from ASSET4 and Sustainalytics data are neither particularly low nor high, at 0.68 for the environmental performance and 0.52 for social performance.

We aggregate indicator variables provided by Bloomberg to construct Bloomberg E&S scores. For the environmental score we use indicator variables that measure whether the firm has a climate change policy, energy efficiency policy, environmental supply chain management policy, waste reduction policy, water policy, and biodiversity policy. For the social score we use indicator variables that measure whether the firm has a health and safety policy, equal opportunity policy, human rights policy, policy against child labor, employee protection/whistle blower policy, anti-bribery ethics policy, and social supply chain management policy. The correlations between the ASSET4 overall scores and Bloomberg's scores are 0.66 for environmental and 0.65 for social commitments.

We use the Sustainalytics and Bloomberg scores to re-estimate our baseline specification of Table 2, Panel A. The results are reported in Panel A of Table B5. In all specifications, the coefficient estimate on institutional ownership is positive and significant at the 5% level or better. Thus, using alternative measure from two data providers confirms that lagged institutional ownership is positively associated with environmental and social performance.

Further, in Panels B and C of Table B5 we use the Sustainalytics and Bloomberg scores to replicate the specifications of Table 5, grouping foreign institutional ownership into high and low-social-norm groups. For both alternative E&S measures we find that investors' impact on firms' E&S performance is concentrated in the high-social-norm group, confirming our Table 5 results.

B5. Disentangling Environmental and Social Performance from Transparency and Governance

One potential concern about our results is that unobserved heterogeneity between firms may contribute to the observed positive relation between institutions and E&S performance. We have addressed this concern with firm fixed effects, evidence from a quasi-natural experiment, and IV regressions. It is illustrative, however, to explicitly control for firm-level characteristics that might influence both institutional ownership and E&S performance at the same time. Also, fixed effects would not capture firm heterogeneity in case it is time-varying.

We consider transparency and governance quality as two firm-level measures that are plausible candidates as determinants of both institutional ownership and E&S scores across firms. We therefore perform tests that re-estimate the baseline specifications of Table 2, Panel A, but additionally control for a firm's transparency and governance. Transparency is measured by the log of a firm's transparency score, which is defined as the number of data items reported by the company out of all items tracked as part of the ASSET4 scoring system. Our governance measure is based on a firm's level of insider control. To construct this measure, we regress the percentage of closely held shares (from Worldscope) on the percentage of institutional ownership of a firm, and retain the residuals from that regression. These residuals are, by construction, orthogonal to institutional ownership, and we refer to them as Insider Control.[18]

Table B6 shows the results. Greater E&S transparency is associated with higher E&S performance, as might be expected. Importantly, the coefficient on Total IO remains positive and significant when controlling for transparency. Insider Control is negatively related to E&S scores and is significantly different from zero in some of our model specifications. The key result for our purposes is that the coefficient on Total IO is affected very little when we explicitly control for firm-level governance. The negative sign on insider ownership also suggests that, generally speaking, more entrenched insiders do not see investing in E&S as a private benefit.

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[18] We prefer this cleaner measure of insider control. All of our results also obtain when we instead use the raw insider control percentages.

Table B1
Additional Summary Statistics

This table reports descriptive statistics. The sample consists of 19,849 firm-year observations and covers 3,277 firms from 41 countries during the period 2004 through 2013. Panel A shows summary statistics for our sample firms, and Panel B reports number of observations by industry (using SIC divisions industry groupings). Total Assets is in US$ million, Log (Total Assets) is the natural logarithm of 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, Cross-list is a dummy variable equal to one if the firm is cross-listed on a major U.S. exchange, and zero otherwise, and Total IO is total institutional ownership. The data are from Factset, Worldscope, DR lists, and CRSP. We winsorize all variables at the 1st and 99th percentiles.

Panel A: Summary Statistics

Variable	Average	Median	25th Percentile	75th Percentile	Standard Deviation
Total Assets	31,313	4,761	1,714	15,544	101,622
Log (Total Assets)	8.602	8.468	7.446	9.651	1.794
Tangibility	0.317	0.271	0.091	0.494	0.259
Leverage	0.239	0.224	0.092	0.352	0.176
Tobin's q	1.644	1.271	1.037	1.795	1.064
Profitability	0.061	0.052	0.019	0.094	0.080
Cross-list	0.096	0.000	0.000	0.000	0.295
Total IO	0.224	0.180	0.100	0.313	0.168

Panel B: Number of Observations by Industry

Industry	Obs	Fraction of Sample (%)
Agriculture, Forestry, Fishing	66	0.3
Mining	2,077	10.5
Construction	900	4.5
Manufacturing	7,095	35.7
Transportation, Public Utilities	2,816	14.2
Wholesale Trade	552	2.8
Retail Trade	1,138	5.7
Finance, Insurance, Real Estate	3,505	17.7
Services	1,685	8.5
Public Administration	15	0.1

Table B2
Granger Causality Tests

This table reports results of Granger-causality-style tests. In columns 1 through 4, the dependent variables are the natural logarithm of the environmental and social scores. In columns 5 through 8, the dependent variable is total institutional ownership. In all specifications, the one-year lagged dependent variable is included as a control. All regressions are estimated with firm fixed effects. The data are from the ASSET4 ESG database, Factset, Worldscope, DR lists, and CRSP, and they are obtained for the years 2004-2013. 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.

Panel A: Overall Scores

	Environ-mental Score	Social Score	Environ-mental Score	Social Score	Total IO			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Total IO $_{t-1}$	0.229	0.088	0.058	0.012	0.425	0.427	0.422	0.423
	(0.00)	(0.01)	(0.02)	(0.27)	(0.00)	(0.00)	(0.00)	(0.00)
Environmental Score $_{t-1}$	0.657		0.490		0.003		0.003	
	(0.00)		(0.00)		(0.57)		(0.27)	
Social Score $_{t-1}$		0.670		0.468		0.002		-0.006
		(0.00)		(0.00)		(0.87)		(0.39)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	No	No	Yes	Yes	No	No	Yes	Yes
Adjusted R^2	0.664	0.678	0.734	0.750	0.220	0.220	0.236	0.236
Obs	16,538	16,538	16,538	16,538	16,538	16,538	16,538	16,538

Panel B: ASSET4 *z*-Scores

	Environ-mental Score	Social Score	Environ-mental Score	Social Score	Total IO			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Total IO $_{t-1}$	0.158	0.138	0.094	0.059	0.429	0.430	0.424	0.424
	(0.02)	(0.05)	(0.04)	(0.23)	(0.00)	(0.00)	(0.00)	(0.00)
Environmental Score $_{t-1}$	0.415		0.396		-0.000		0.001	
	(0.00)		(0.00)		(0.99)		(0.55)	
Social Score $_{t-1}$		0.430		0.411		-0.002		-0.001
		(0.00)		(0.00)		(0.28)		(0.61)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	No	No	Yes	Yes	No	No	Yes	Yes
Adjusted R^2	0.259	0.265	0.278	0.287	0.247	0.247	0.258	0.258
Obs	16,479	16,479	16,479	16,479	16,479	16,479	16,479	16,479

Table B3
Institutional Investors and Firms' E&S Performance: IV Regressions

This table reports IV regression estimates of environmental and social scores on institutional ownership and control variables. Total IO is instrumented with MSCI Index, a dummy variable equal to one if the firm is a member of the MSCI All Country World Index, and zero otherwise. Panel A shows the first-stage regression results. Panel B shows the second-stage regression results with the dependent variables being the natural logarithm of environmental and social scores. The data are from the ASSET4 ESG database, Factset, Worldscope, DR lists, and CRSP, MSCI, and they are obtained for the years 2004-2013. 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.

Panel A: First Stage

	Total IO		
	Full Sample	Subsample of Firms that Changed MSCI Index Membership	Subsample of Firms that Changed MSCI Index Membership Only Once
	(1)	(2)	(3)
MSCI Index	0.037	0.027	0.026
	(0.00)	(0.00)	(0.00)
Log (Total Assets)	-0.004	-0.018	-0.015
	(0.44)	(0.00)	(0.00)
Tangibility	-0.039	-0.033	-0.001
	(0.00)	(0.18)	(0.99)
Leverage	-0.012	-0.023	-0.031
	(0.55)	(0.24)	(0.30)
Tobin's q	-0.005	-0.007	-0.004
	(0.05)	(0.02)	(0.33)
Profitability	0.092	0.081	0.047
	(0.02)	(0.08)	(0.41)
Cross-list	0.148	0.227	0.239
	(0.00)	(0.00)	(0.00)
Country Fixed Effects	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Adjusted R^2	0.521	0.586	0.597
Obs	19,849	7,556	5,575

Panel B: Second Stage, Total IO Instrumented with MSCI Index

	Environmental Scores		Social Scores	
	Overall Score	ASSET4 z-Score	Overall Score	ASSET4 z-Score
	(1)	(2)	(3)	(4)
Full Sample				
Total IO $_{t-1}$	2.970	4.111	1.390	4.854
	(0.00)	(0.00)	(0.00)	(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^2	0.292	0.142	0.224	0.059
Obs	19,849	19,785	19,849	19,785
Subsample of Firms that Changed MSCI Index Membership				
Total IO $_{t-1}$	1.168	1.842	0.760	2.800
	(0.08)	(0.07)	(0.05)	(0.08)
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^2	0.494	0.36	0.436	0.265
Obs	7,556	7,536	7,556	7,536
Subsample of Firms that Changed MSCI Index Membership Only Once				
Total IO $_{t-1}$	1.836	2.802	0.753	2.948
	(0.05)	(0.04)	(0.11)	(0.13)
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^2	0.437	0.287	0.431	0.247
Obs	5,575	5,563	5,575	5,563

Table B4
Institutional Investors and Firms' E&S Performance: Firm Fixed Effects Regressions

This table reports firm fixed effects 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. The data are from the ASSET4 ESG database, Factset, Worldscope, DR lists, and CRSP, and they are obtained for the years 2004-2013. 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	ASSET4 z-Score	Overall Score	ASSET4 z-Score
	(1)	(2)	(3)	(4)
Total IO $_{t-1}$	0.137	0.186	0.048	0.200
	(0.00)	(0.00)	(0.04)	(0.05)
Control Variables	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Adjusted R^2	0.640	0.110	0.685	0.115
Obs	19,849	19,785	19,849	19,785

Table B5
Alternative E&S Measures

This table reports regression estimates of environmental and social measures, obtained from Sustainalytics and Bloomberg, on institutional ownership and control variables. The Sustainalytics environmental and social scores are the overall scores obtained from the Sustainalytics database. The Bloomberg environmental score is equal to one plus the sum of indicator variables that measure whether the firm has a climate change policy, energy efficiency policy, environmental supply chain management policy, waste reduction policy, water policy, and biodiversity policy. The Bloomberg social score is equal to one plus the sum of indicator variables that measure whether the firm has a health and safety policy, equal opportunity policy, human rights policy, policy against child labor, employee protection / whistle blower policy, anti-bribery ethics policy, and social supply chain management policy. The dependent variables are the natural logarithm of environmental and social scores. In Panels B and C, 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 a) 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 b) 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 b) the World Value E&S Index. The other data are from the Sustainalytics database (starting in 2009), Bloomberg (starting in 2005), Factset, Worldscope, DR lists, and CRSP, and they are obtained for the years 2005-2013. 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.

Panel A: Baseline Regressions

	Sustainalytics		Bloomberg	
	Environmental Score	Social Score	Environmental Score	Social Score
	(1)	(2)	(3)	(4)
Total IO $_{t-1}$	0.111	0.068	0.281	0.196
	(0.00)	(0.00)	(0.05)	(0.05)
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^2	0.427	0.322	0.441	0.400
Obs	7,259	7,259	13,209	13,254

Panel B: Environmental Scores

Measure of Social Norm	Sustainalytics		Bloomberg	
	Environmental Performance Index	World Value E&S Index	Environmental Performance Index	World Value E&S Index
	(1)	(2)	(3)	(4)
Foreign IO $_{t-1}$				
High-social-norm Group	0.394	0.360	0.690	0.462
	(0.01)	(0.01)	(0.03)	(0.08)
Low-social-norm Group	-0.026	-0.010	0.040	0.190
	(0.72)	(0.88)	(0.85)	(0.27)
Domestic IO $_{t-1}$	0.111	0.109	0.611	0.609
	(0.01)	(0.01)	(0.00)	(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^2	0.428	0.428	0.437	0.438
Obs	7,250	7,251	13,118	13,129

Panel C: Social Scores

Measure of Social Norm	Sustainalytics		Bloomberg	
	Employment Laws Index	World Value E&S Index	Employment Laws Index	World Value E&S Index
	(1)	(2)	(3)	(4)
Foreign IO $_{t-1}$				
High-social-norm Group	0.381	0.191	0.981	0.307
	(0.02)	(0.01)	(0.01)	(0.25)
Low-social-norm Group	0.025	0.015	0.122	0.162
	(0.51)	(0.76)	(0.35)	(0.37)
Domestic IO $_{t-1}$	0.042	0.049	0.402	0.411
	(0.23)	(0.16)	(0.00)	(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^2	0.323	0.322	0.399	0.400
Obs	7,235	7,251	13,075	13,175

Table B6
Institutional Investors and Firms' E&S Performance: Controlling for Transparency and Governance

This table reports regression estimates of environmental and social scores on institutional ownership, controlling for transparency scores, governance measures, and control variables. The dependent variables are the natural logarithm of environmental and social scores. The Transparency Score is the natural logarithm of the overall transparency score calculated as the number of reported E&S items divided by the number of E&S items a firm could have reported. Insider Control is the residuals of a regression of Closely Held Shares (obtained from Worldscope) on Total IO. The data are from the ASSET4 ESG database, Factset, Worldscope, DR lists, and CRSP, and they are obtained for the years 2004-2013. 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 (except for the Transparency Score). Controls are as in Table 2. Standard errors are clustered at the country-level and p-values are reported in parentheses.

Panel A: Environmental Scores

	Overall Score			ASSET4 z-Score		
	(1)	(2)	(3)	(4)	(5)	(6)
Total IO $_{t-1}$	0.180	0.290	0.198	0.293	0.430	0.315
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Transparency Score $_t$	3.313		3.290	4.146		4.116
	(0.00)		(0.00)	(0.00)		(0.00)
Insider Control $_{t-1}$		-0.099	-0.035		-0.112	-0.032
		(0.01)	(0.26)		(0.03)	(0.45)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.643	0.545	0.643	0.546	0.447	0.546
Obs	19,849	18,560	18,560	19,785	18,496	18,496

Panel B: Social Scores

	Overall Score			ASSET4 z-Score		
	(1)	(2)	(3)	(4)	(5)	(6)
Total IO $_{t-1}$	0.076	0.125	0.078	0.324	0.498	0.334
	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)
Transparency Score $_t$	3.324		3.256	11.590		11.368
	(0.00)		(0.00)	(0.00)		(0.00)
Insider Control $_{t-1}$		-0.028	-0.019		-0.068	-0.037
		(0.05)	(0.11)		(0.15)	(0.38)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.618	0.526	0.616	0.501	0.394	0.497
Obs	19,849	18,560	18,560	19,785	18,496	18,496

Table B7

Foreign Institutional Investors' Social Norms and Firms' E&S Performance: Controlling for GDP/capita and Investor Protection

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 while controlling for GDP/capita and investor protection laws, 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 a) the Environmental Performance Index (obtained from Yale Center for Environmental Law (Yale University) and Center for International Earth Science Information Network (Columbia University), 2004); and b) the World Value E&S Index (obtained from the World Value Survey and European Value Study, 1999-2010, Welzel (2013)). We measure a country's social norms concerning social issues with a) the Employment Laws Index (obtained from Botero et al. (2004)); and b) the World Value E&S Index. All social norm measures are orthogonal to a country's GDP/capita (as of 2004, measured in US$) and investor protection laws (measured with 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)) as used in Doidge et al. (2007)). We regress each social norm measure separately on GDP/capita and Legal and use the residuals of these regressions to sort foreign investor ownership in high and low-social-norm groups based on median values. The other data are from the ASSET4 ESG database, Factset, Worldscope, DR lists, and CRSP, and they are obtained for the years 2004-2013. 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.

Panel A: Environmental Scores

Measure of Social Norm	Overall Score				ASSET4 z-Score			
	Environmental Performance Index		World Value E&S Index		Environmental Performance Index		World Value E&S Index	
Orthogonal to	GDP/capita	Legal	GDP/capita	Legal	GDP/capita	Legal	GDP/capita	Legal
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Foreign IO $_{t-1}$								
High-social-norm Group	0.802	1.579	0.766	1.205	1.074	1.904	1.013	1.397
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Low-social-norm Group	-0.017	0.041	0.041	0.128	0.030	0.124	0.101	0.234
	(0.86)	(0.56)	(0.68)	(0.11)	(0.82)	(0.18)	(0.45)	(0.02)
Domestic IO $_{t-1}$	0.446	0.416	0.449	0.430	0.651	0.615	0.654	0.631
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.543	0.542	0.543	0.541	0.444	0.441	0.445	0.441
Obs	19,648	19,518	19,661	19,520	19,585	19,456	19,598	19,458
Average Foreign IO								
High-social-norm Group	0.049	0.030	0.050	0.031	0.049	0.030	0.050	0.031
Low-social-norm Group	0.078	0.099	0.084	0.106	0.078	0.099	0.084	0.106
Foreign IO, High vs. Low (p-value)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)

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Panel B: Social Scores

Measure of Social Norm	Overall Score				ASSET4 z-Score			
	Employment Laws Index		World Value E&S Index		Employment Laws Index		World Value E&S Index	
Orthogonal to	GDP/capita	Legal	GDP/capita	Legal	GDP/capita	Legal	GDP/capita	Legal
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Foreign IO $_{t-1}$								
High-social-norm Group	0.480	0.486	0.233	0.369	1.311	1.334	0.795	0.981
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Low-social-norm Group	0.038	0.055	0.031	0.066	0.257	0.313	0.206	0.351
	(0.12)	(0.05)	(0.49)	(0.03)	(0.01)	(0.00)	(0.25)	(0.01)
Domestic IO $_{t-1}$	0.178	0.179	0.188	0.182	0.712	0.716	0.744	0.727
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.523	0.523	0.524	0.524	0.387	0.387	0.391	0.389
Obs	19,474	19,461	19,661	19,520	19,413	19,400	19,598	19,458
Average Foreign IO								
High-social-norm Group	0.029	0.029	0.050	0.031	0.029	0.029	0.050	0.031
Low-social-norm Group	0.104	0.107	0.084	0.106	0.104	0.107	0.084	0.106
Foreign IO, High vs. Low (*p*-value)	(0.00)	(0.00)	(0.07)	(0.00)	(0.01)	(0.01)	(0.14)	(0.09)