What Drives a Firm's ES Performance? Evidence from Stock Returns*

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Abstract

This study empirically explores the dynamic relation between the environmental and social (ES) performance of a firm and its stock market returns. We find robust evidence that worse stock market performance increases firms' efforts on ES activities. Specifically, firms are more likely to improve their product and diversity performance and enhance their ES strengths rather than reduce ES concerns after poor stock market performance. This finding that poor stock market performance precedes enhanced ES performance is present (i) in firms with more financial slack, (ii) in firms with higher customer awareness, (iii) during the post-financial crisis period, and (iv) when a firm's shareholder activism on ES issues is intense. Our results underscore the importance of stock market performance in corporate ES decisions.

Keywords: ES Performance, Stock Market Performance, Corporate Governance
JEL classification: G12, G23, G32

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This study empirically explores the dynamic relation between the environmental and social (ES) performance of a firm and its stock market returns. We find robust evidence that worse stock market performance increases firms' efforts on ES activities. Specifically, firms are more likely to improve their product and diversity performance and enhance their ES strengths rather than reduce ES concerns after poor stock market performance. This finding that poor stock market performance precedes enhanced ES performance is present (i) in firms with more financial slack, (ii) in firms with higher customer awareness, (iii) during the post-financial crisis period, and (iv) when a firm's shareholder activism on ES issues is intense. Our results underscore the importance of stock market performance in corporate ES decisions.

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1. Introduction

Over the past two decades, corporate social responsibility (CSR) has played an increasingly important role in business operations around the world.[1] Managers take environmental, social (ES), and governance (ESG) issues into account when making corporate decisions. In 1999, 35% of the world's 250 largest companies by revenue included CSR information in their annual financial reports, while approximately 93% showed off their good deeds in 2017.[2] Mirroring the growing awareness of CSR issues, in 2018, around 11.6 trillion dollars, or about 25% of total assets under management, incorporated ESG considerations into their investment decisions.[3]

How CSR influences financial performance is an important question that receives more attention these days from both practitioners and researchers. One challenge in this line of research is the reverse causality issue: Evidence of CSR's impact on financial performance might be spurious if a firm's financial performance influences its CSR activities. For example, Bolton and Kacperczyk (2020) find that a firm's carbon emissions positively impact its stock returns because investors demand carbon risk premiums (i.e., forward causality—CSR affecting financial performance). Dimson, Karakaş, and Li (2015) show that institutional shareholders initiate behind-the-scenes ES engagement with portfolio firms to protect their portfolios' financial performance from externalities such as ES risks (i.e., reverse causality—financial performance affecting CSR). Despite the importance of ES issues for investors, relatively little empirical research directly tests the dynamic relation between ES performance and stock performance. Notwithstanding the longstanding debate over the impact of ES performance on stock market performance, no conclusive evidence demonstrates that ES gives stock market performance a boost. In the existing literature, firms' ES performance is shown to have a positive impact (Bénabou and Tirole (2010), Edmans (2011), Dimson, Karakaş, and Li (2015), Flammer (2015), Kruger (2015), Tang and Zhang (2020), Gong and Grundy (2019), Albuquerque, Koskinen, Yang, and Zhang (2020)), to have a negative impact (Renneboog, Horst, and Zhang (2008b), Hong and Kacperczyk (2009), Bolton and Kacperczyk (2020), Hong, Li, and Xu (2019), Ilhan, Sautner, and Vilkov (2019)), or to have no impact at all (Margolis, Elfenbein, and Walsh (2007), Renneboog, Horst, and Zhang (2008a)) on stock market performance. In this paper, we adopt a panel vector autoregression (PVAR) model to examine

[1] We use ES performance, corporate social performance, CSR performance, CSR scores, and ES index interchangeably hereafter.
[2] *KPMG Survey of Corporate Responsibility Reporting 2017*.
[3] *Report on Sustainable and Responsible Investing Trends by the Forum for Sustainable and Responsible Investment 2018*.

the dynamic relation between ES performance and stock returns. This advanced statistical method is a popular tool to explore the dynamic relation between variables (Grinstein and Michaely (2005), Chang and Zhang (2015)), which enables us to disentangle the relative importance of forward impact (i.e., current ES performance influences future stock returns) and reverse impact (i.e., current stock returns influence future ES performance) in a dynamic setting.

We begin by constructing an industry-adjusted ES index as a proxy for a firm's ES performance. We then examine how stock returns interact with the ES index. Based on the estimated PVAR, we find that poor stock market performance, defined as stock returns below the 30th percentile each year, precedes good ES performance. This relationship is statistically and economically significant, with a one standard deviation drop in stock returns associated with an approximately 25% increase in the ES index. Our results are robust to the inclusion of different specifications of control variables and to the use of different measures of a firm's stock returns and ES performance. Our interpretation of this result is that negative stock market performance could motivate a firm to enhance its social impact. The connection underlying the relation between stock returns and ES performance is simple: After a disappointing stock market performance, firms are incentivized to appear more socially responsible and to rebuild trust with shareholders and stakeholders (Lins, Servaes, and Tamayo (2017), Dyck, Lins, Roth, and Wagner (2019)). Our results echo Cai, Gao, Garrett, and Xu (2020), who find that social reputation plays a key role in promoting ESG activities. On the other hand, we find that little evidence exists to indicate that past ES performance affects future stock returns. Prior studies examining the impact of CSR on financial performance mainly document three views: *Underperform by doing good*, *Outperform by doing good*, and *No effect by doing good*.[4] In general, our results are in line with the latter.

Our finding that poor stock market performance precedes improved ES performance raises some interesting questions. One question that our findings prompt is whether it is ES performance in general that improves or whether it is particular dimensions of ES performance that improve. To answer this question, we decompose ES performance into the environment (E) and social (S) performance. We find that the negative relationship between past stock

[4] *Underperform by doing good*: Some researchers consider firms' ES activities a manifestation of managerial agency problems that pose a threat to firm values (Friedman (1970), Jensen and Meckling (1976)). *Outperform by doing good*: CSR activities allow managers to adopt a long-term perspective in profit maximization (Kacperczyk (2009), Durand, Paugam, and Stolowy (2019), Hoepner, Oikonomou, Sautner, Starks, and Zhou (2020)). *No effect by doing good*: In a comprehensive review of both theoretical and empirical CSR literature, Renneboog, Horst, and Zhang (2008a) conclude that previous studies do not demonstrate that socially responsible investment funds or portfolios exhibit inferior performance when compared with conventional portfolios.

returns and ES performance is mainly driven by the S performance, especially product and diversity issues, highlighting the key role that social capital plays in recovering investors' confidence.[5] We also decompose the ES index into ES strengths and ES concerns to assess how they respond to prior stock returns. We find that firms enhance ES performance after a poor stock market performance by improving ES strengths rather than reducing ES concerns.

A second question that arises from our finding that poor stock market performance precedes enhanced ES performance is which types of firms are more likely to engage in ethical activities to rebuild their images after a poor stock market performance. Usually, it is impossible to assume a single channel prompts the change—both variations in firm characteristics and industry fundamentals may play a role in explaining these patterns. To help understand which channel(s) drive the ex post effects of prior stock returns on future ES performance, we consider four potential sources. First, we examine whether the negative relation between prior stock returns and future ES performance is related to a firm's financial resources by considering three measures of financial slack: leverage, free cash flows, and share repurchase. Given that CSR activities may be limited by financial resources (Hong, Kubik, and Scheinkman (2012)), we expect that findings will vary with these proxies. We find the negative relation between current stock returns and future ES performance tends to be stronger in a firm with fewer financial constraints (i.e., lower leverage ratios, higher free cash flows, and more equity repurchases). Intuitively, cash-abundant firms are able to afford costly CSR activities regardless of poor stock market performance. After the poor stock market performance, managers in these firms have the extra scope to engage in more ES activities; more importantly, CSR engagement enables them to enhance their own profiles and reputation. Our results are consistent with the view that CSR plays a pivotal role in establishing managers' social reputations and determining their future careers (Cai, Gao, Garrett, and Xu (2020)).

Second, motivated by Servaes and Tamayo (2013), we assess whether the customer awareness channel drives the empirical link. Two interesting observations arise. First, we find the negative correlation between past stock returns and current ES performance is especially strong for firms and industries exposed to higher customer awareness (as proxied by high advertising spending and business-to-consumer [B2C] industries). Second, we observe that for firms with low public awareness, a firm's past ES activities (especially in the community and diversity issues) harm its future financial performance, implying that whether ES increases or

[5] We find that past environment performance negatively precedes stock performance, consistent with Bolton and Kacperczyk (2019), who show that firms with more carbon emission risks need to compensate investors with higher risk premiums.

decreases future stock returns hinges on consumers' perspectives. More specifically, for firms with high consumer awareness, shareholders may view CSR activities as marketing practices rather than managerial agency problems; for example, ES activities can help firms signal product quality to target customers effectively (McWilliams and Siegel (2001), Baron (2008), Bénabou and Tirole (2010)). For firms with low consumer awareness, shareholders may attach less importance to product promotion practices through costly CSR spending; consequently, the agency motivation behind ES activities outweighs alternative incentives, reflected in a disappointing stock market performance. Our results are in line with Servaes and Tamayo (2013), who show that investors and customers pay more attention to CSR activities for firms with high public awareness. More importantly, our results reveal whether managers strategically use ES activities to attract customers is conditional on stock market performance.

Third, we explore the social capital channel. In our sub-sample period analysis, we find evidence that better ES performance precedes higher stock returns during the global financial crisis, while lower stock returns precede better ES performance post-financial crisis. Previous studies argue that during a crisis period, investors value more the superior ES performance firms had built (Lins, Servaes, and Tamayo (2017), Amiraslani, Lins, Servaes, and Tamayo (2019)). Our study provides further confirmative evidence that social capital (i.e., ES activities) pays off when overall trust in the economy faces a negative shock. Interestingly, we find a feedback effect that managers of underperforming firms are motivated to build up social capital after the financial crisis because they realize that commitment to social capital can provide a source of value by making firms crisis-resistant and increasing managerial reputation.

Fourth, the frequency and persistence of ES performance measures is a concern we seek to mitigate by focusing on an updated and point-in-time proxy; that is, a record of shareholder proposals on ES issues (hereafter, ES proposals). We use this new ES proxy to analyze the potential impact of shareholder pressure on the documented empirical link between ES performance and returns. We perform a test using ES proposals to measure corporate social responsibility and adopting their voting outcomes to measure the level of shareholder pressure on sustainable corporate initiatives.

Although prior studies indicate the number and supporting rates of ES proposals are low on average, their growth rate is exploding (Flammer (2015), He, Kahraman, and Lowry (2020)), as is the private engagement channel through which shareholders influence firms on ES issues (Dimson, Karakaş, and Li (2015, 2020)). We examine 2,884 ES proposals voted on at a firm's annual general meeting (AGM). Consistent with our prior findings, we find that the lower the prior short-term stock returns, the better the voting outcomes on ES proposals,

implying that prior poor stock market performance leads to the success of shareholder activism on ES proposals, thereby putting pressure on managers to improve ES performance. This result is in line with the view that shareholders' preferences for CSR are crucial for a firm to pursue a broader objective beyond market value maximization (Hart and Zingales (2017)). Our results remain robust, even after controlling for key determinants of shareholder proposals such as sponsor identity and the ES theme.

Our research contributes numerous new insights to the existing literature. First, this study adds to the extensive literature on CSR by improving understanding of its determinants. Prior literature finds that CSR depends on financial constraints (Hong, Kubik, and Scheinkman (2012)), political values (Hong and Kostovetsky (2012), DiGiuli and Kostovetsky (2014)), managerial incentives (Cheng, Hong, and Shue (2016)), legal origin (Liang and Renneboog (2017)), and the potential leakage of trade secrets (Flammer and Kacperczyk (2019)). We extend this literature by providing evidence on the ex post effects of prior stock market performance on ES performance, with a focus on the role of financial capacity, social trust, customer awareness, and shareholder pressure in shaping these patterns.

Second, to the best of our knowledge, we are among the first to examine the dynamic relation between ES performance and stock market performance. Prior studies that explore how ES performance influences firms' stock market performance are plagued by the potential for endogeneity (Hong, Kubik, and Scheinkman (2012), Flammer (2015), Kruger (2015)); as highlighted by Hong, Kubik, and Scheinkman (2012), the reverse causality that stock market performance may also influence a firm's ES performance must be considered. Prior studies on CSR primarily attempt to address the forward impact, i.e., how prior ES performance influences future stock returns. Rarely do scholars research the reverse impact, which may influence future ES performance. Inevitably, stock returns are a significant factor when judging a firm's financial performance, and they potentially affect many prospects of a firm's operation. To take this into account, we adopt the PVAR methodology to disentangle the relation between stock market performance and ES performance and examine the relative importance of both forward impact and reverse impact in a dynamic system.

Third, this paper contributes to the literature on the determinants and effectiveness of corporate governance proposals (Gillan and Starks (2000), Becht, Franks, Mayer, and Rossi, (2009)) and links to studies on ex post effects of shareholder activism toward ES issues (Dimson, Karakaş, and Li (2015, 2020), Flammer (2015), Cao, Liang, and Zhan (2019), He, Kahraman, and Lowry (2020)). In addition to updating earlier studies on shareholder proposals, we provide new insights into stock returns as a significant force in the outcomes of shareholder

activism. Our work distinguishes itself by illuminating how responsible investors can time the stock market performance of a firm and increase the success of shareholder activism involving corporate sustainability, especially considering the support rates of CSR proposals are generally low at annual meetings (Flammer (2015)). Our findings suggest that prior poor stock performance can explain the success rate of these proposals and the pressure imposed by ES proposals on management.

The remainder of this paper proceeds as follows. In Section 2, we describe data and summary statistics. In Section 3, we present our main empirical results. In Section 4, we discuss the cross-sectional determinants of the stock return/ES index relation. Finally, in Section 5, we conclude the study.

2. Data and Summary Statistics

2.1. ES performance data

MSCI ESG KLD STATS (MSCI KLD hereafter) is an annual dataset that applies ESG performance indicators to a universe of publicly traded firms.[6] The MSCI KLD dataset is the longest time series of ESG data available and is used extensively in finance and economics literature.[7] Most of the top 50 institutional investors worldwide take advantage of this research to integrate ESG issues in their investment strategies (Chava (2014)). Moreover, ESG scores provided by MSCI KLD are widely applied by SRI funds to screen out irresponsible stocks from their portfolios. For instance, SRI funds usually hold stocks with higher ESG scores within an industry.[8]

Following Cheng, Hong, and Shue (2016), we focus on five ES categories provided by MSCI KLD: environment, community, employee relations, diversity, and product.[9] Under each of the five broad categories, MSCI KLD outlines strengths and concerns in subcategory indicators.[10] If a company satisfies the evaluation criteria established for a given indicator, it is

[6] Kinder, Lydenberg, and Domini Research and Analytics (KLD) was acquired by the RiskMetrics Group in November 2009. Subsequently, Morgan Stanley Capital International (MSCI) acquired RiskMetrics in June 2010.
[7] See Hong and Kostovetsky (2012), Hong, Kubik, and Scheinkman (2012), Cheng, Hong, and Shue (2016), Deng, Kang, and Low (2013), Chava (2014), Dimson, Karakaş, and Li (2015), Flammer (2015), and Kruger (2015).
[8] MSCI KLD measures firms' ESG ratings using various data sources such as academic datasets, government reports, nongovernmental organization datasets, media coverage, companies' 10-K filings, and sustainability reports, and so forth.
[9] Additionally, MSCI KLD provides ratings for human rights, corporate governance, and controversial business issues (alcohol, gambling, firearms, military, nuclear power, and tobacco). We exclude human rights because the scores are only available for a few years in the 1990s. We do not include controversial business issues because firms can do little to alter their line of business. Because the coverage of governance scores is different from that of other conventional corporate governance measures, we exclude them from our analysis.
[10] See Appendix 1 for more about these five categories.

given a 1 for this subcategory; otherwise, it receives a 0. To measure ES performance, most previous studies count the number of strengths and concerns for each of the five broad categories first and then subtract the number of concerns from the number of strengths to calculate the score in each category for each firm-year. The ES score is the sum of the scores of these five categories.

The number of strength and concern indicators has not been fixed, which makes it difficult to compare raw ESG scores across years.[11] To mitigate this concern, following Deng, Kang, and Low (2013), we divide the number of strengths (concerns) by the maximum number of strengths (concerns) in each ES category for each firm-year to calculate a strength (concern) index, which ranges from 0 to 1. Next, we subtract the concern index from the strength index to calculate the index for each category, which ranges from -1 to +1. Lastly, we sum the index under the five categories and compute the index, ranging from -5 to +5. To mitigate the concern that unobserved industry components exist in firms' ES performance, we use this index minus the median ES index within a firm's industry in the observation year to define our final ES index.[12] We define a firm's industry by the Fama and French (1997) classification of 48 industry groups.[13]

2.2. Firm-level data

We obtain accounting information from Compustat Annual Fundamental Files and download stock market data from the Center for Research in Security Prices (CRSP). Our main dependent variable $Return_{it}$ is stock *i*'s return in year *t*; $Logsize_{it}$ is the natural logarithm of firm *i*'s market capitalization (stock price times shares outstanding) at the end of year *t*; $Logbm_{it}$ is the natural logarithm of firm *i*'s book value of equity divided by its market capitalization in year *t*; $Profitability_{it}$, gross profits for firm *i* is the annual revenue (Compustat item *REVT*) minus the cost of goods sold (*COGS*), divided by total assets (*AT*); $Investment_{it}$ is the growth of total assets in year *t* divided by total assets at the end of year $t-1$; $Leverage_{it}$ represents the book leverage of the company, which is total debt (*DLTT* + *DLC*) divided by total assets; $Cash_{it}$, cash liquidity, is cash and short-term investments (*CHE*) scaled by total assets; $Dividends_{it}$ are

[11] The coverage universe of MSCI KLD has expanded since it was first issued in 1991. From 1991 to 2000, the dataset covered the 500 largest US companies and MSCI KLD 400 Social Index components. In 2001, it evolved to include the 1,000 largest US companies. In 2003, it was extended to cover all 3,000 of the largest US companies.
[12] See Appendix 2 for an example of how to calculate the ES index for Apple.
[13] See the Ken French Data Library at: http : //mba.tuck.dartmouth.edu/pages/faculty/ken.french/datalibrary.html

cash dividends (*DVC*+ *DVP*) over book assets; and $Log(age)_{it}$ is the natural logarithm of firm *i*'s age, as measured by the number of years available in CRSP. *Free cash flow* is the operating income before depreciation (*OIBDP*), minus interest expenses (*XINT*), minus income taxes (*TXT*), minus capital expenditures (*CAPX*), and scaled by the book value of total assets (*AT*). *No Repurchase Indicator*, a dummy variable, is equal to one if a firm does not repurchase stocks, and zero otherwise. A firm's repurchase is defined as the expenditure on the purchase of common and preferred stocks (*PRSTKC*) minus preferred stock reduction (the first difference of *PSTKL*).

2.3. Summary statistics

In the MSCI KLD dataset, the primary identifying information for a firm is its ticker and its CUSIP number.[14] Most MSCI KLD data have CUSIPs, while others do not (i.e., CUSIPs are missing in MSCI KLD from 1991 to 1994 and from 2013 to 2014). For those observations without CUSIPs, we complete them manually. For those observations with CUSIPs, we check whether their identifying information is correct and updated. To mitigate the influence of outliers, all financial variables are winsorized at 1% and 99% for each year. In the final sample, we have 33,815 firm-year observations (4,279 distinct firms) from 1991 to 2015.

[Insert Table 1 here]

Table 1 reports the summary statistics for our sample. The mean ES index is 0.03, with a standard deviation of 0.44. The maximum ES index is 3.25, and the minimum is -2.10. The last column of Table 1 shows the pairwise correlation coefficients between the ES index and other variables. All the correlation coefficients are statistically significant. The ES index is negatively correlated with annual stock returns. Firms that are large, profitable, low leveraged, and cash abundant appear to be more active in ES activities.

[14] The CUSIP for a firm in the MSCI KLD dataset, as in Compustat, is composed of nine digits; the first 6 digits indicate issuer number, the next 2 digits represent issue number, and the last digit is the check digit. In CRSP data, CUSIP is the latest 8-digit identifier for the security through the end of the file. Additionally, CRSP has preserved all CUSIPs that were assigned to a given issue, which is called NCUSIP (or historical CUSIP) and varies across years for a firm.

3. Stock Market Performance and ES Performance

In this section, we estimate the relation between the ES index and stock returns by employing the PVAR technique to disentangle the causal effect between them. This PVAR model offers several appealing econometric features: First, the model allows us to examine the dynamic relation between the ES index and stock returns. Second, it does not require a priori knowledge of the direction of the relation between the ES index and stock returns. Stock returns and the ES index in future years are also allowed to be a function of values of each other for previous years. Third, the model allows us to eliminate time-invariant components correlated with the ES index and stock returns. For the sake of brevity, the estimation process of this PVAR model is explained in Appendix 4.

3.1. Baseline results

To examine the relation between the ES index and stock market performance, we run the empirical regression specifications as:

$$RET_{it} = a_{0t} + a_1 RET_{it-1} + b_1 ES_{it-1} + \delta C_{it-1} + f_i + x_t + \varepsilon_{it} \quad (1)$$

$$ES_{it} = c_{0t} + c_1 RET_{it-1} + d_1 ES_{it-1} + \phi C_{it-1} + g_i + y_t + \omega_{it} \quad (2)$$

where C_{it-1} is a vector of exogenous control variables, and f_i and g_i are unobserved firm-fixed effects for stock returns *RET* and the *ES* index, respectively. x_t and y_t are year-fixed effects for annual stock returns RET_{it-1} and the industry-adjusted ES index ES_{it-1}, respectively.[15]

[Insert Table 2 here]

We report the results of regression specifications (1) and (2) in Panel A of Table 2. In Columns (1)–(2), we use *Logsize* and *Logbm* as control variables. Our main dependent variables are stock returns and the *ES* index. Consistent with the *No effect by doing good* view, we find that the estimated coefficient b_1 on ES_{it-1} in Column (1) is insignificant. In contrast, c_1 on RET_{it-1} in Column (2) is negative and significant at the 1% level, indicating that past poor stock performance is associated with better ES performance. The magnitude of the coefficient

[15] In the empirical regression, we set the number of lags as one according to various commonly used maximum likelihood-based model-selection criteria: the Akaike information criteria (AIC), the Bayesian information criteria (BIC), and the Hannan-Quinn information criteria (HQIC). When the lag is set equal to one, all three information criteria are minimized (AIC = -59.81, BIC = 32.65, and HQIC = 2.10).

c_1 indicates that one standard deviation drop in annual returns is associated with an increase of approximately 25% in the ES index. In Columns (3)–(6) of Table 2, we add several control variables to illustrate the robustness of our findings.[16] In Columns (3)–(4), we include profitability and investment as additional controls. In Columns (5)–(6), we further control leverage, cash balance, cash dividends, and firm age. All estimates of coefficient c_1 across the three regression specifications with different control variables are negative and significant at the 1% level. In line with the findings in the literature, the book-to-market ratio, gross profit, and book leverage are found to positively forecast stock returns, while market capitalization negatively affects stock returns. Larger firms indeed exhibit better ES performance, consistent with evidence from DiGiuli and Kostovetsky (2014). Our finding of a negative relationship between stock returns and the ES index remains unchanged after the inclusion of those control variables.[17]

CSR can be used as a product differentiation strategy to decrease systematic risk (Albuquerque, Koskinen, and Zhang (2019)). To control differences in systematic risk that may vary over time, we repeat the exercise by using abnormal returns (i.e., market-adjusted returns) instead of total returns. As reported in Column (2) of Panel B in Table 2, the estimated coefficient on RET_{it-1} is negative and significant, showing our findings are qualitatively similar after controlling for systematic risk in stock returns.[18]

Our baseline results suggest that stock returns negatively precede ES performance. Key to interpreting our findings is being able to disentangle whether firms increase ES performance after poor stock performance or firms decrease ES performance after strong stock performance, or both. To provide an accurate depiction of the findings, we replace stock returns in regression specifications (1)–(2) with a dummy variable capturing relatively low (high) stock returns and report estimated results in Columns (1)–(2) (Columns (3)–(4)) in Panel C of Table 2. The *Low Return* (*High Return*) dummy equals 1 if stock returns are below (above) the 30% (70%)

[16] We use the documented control variables to explain the cross-section variation of stock returns or ES performance; see Fama and French (1993), Hong and Kacperczyk (2009), Hong, Kubik, and Scheinkman (2012), and DiGiuli and Kostovetsky (2014), among others.

[17] In un-tabulated results, our findings are robust to the use of raw ES scores and of change in the ES index as the measure of ES performance. However, we still choose the ES index as our main dependent variable, following the recommendation of Sims (1980), who argues against differencing because it throws away valuable information about the co-movements between dependent variables in the data. Furthermore, because the PVAR model requires a firm to have at least three years of data observations in our sample, adopting differences in the ES index would leave us with a smaller sample size.

[18] To mitigate the concern that stock price movements can be influenced by industry conditions, we estimate our baseline models using industry-adjusted returns rather than total returns. As reported in Column (4) of Panel B in Table 2, the coefficient on past stock returns remains robust, -0.012 (*t*-statistic of -3.14), and highly significant.

breakpoints each year and 0 otherwise. When the dependent variable is the ES index, the coefficients on the $Low\ Return_{t-1}$ dummy are positive, significant at 5% level, and similar in magnitude with our baseline estimates. On the other hand, the coefficients on the $High\ Return_{t-1}$ dummy are insignificant. These findings suggest firms with poor stock performance improve their future ES performance.

3.2. Impulse response function

Next, based on the estimate of coefficients reported in Panel A of Table 2, we construct orthogonalized impulse response functions (IRFs), which describe how our variable of interest, the ES index (stock returns), evolves along a specified time horizon (from year 1 to year 5) after a 1-unit shock to stock returns (ES index). Following Chang and Zhang (2015), we adopt the inverse of the Cholesky decomposition of the residual covariance matrix to orthogonalize the impulses.[19] We calculate the confidence intervals and standard errors of our orthogonalized IRFs based on 500 Monte Carlo simulations. Figure 1 presents two graphs of the orthogonalized IRFs (dashed lines) and the 5th percentile bands (solid lines).

[Insert Figure 1 here]

Graph A of Figure 1 displays the response of stock returns to a 1-unit increase in the current level of the ES index. Because the confidence intervals include the zero line, the orthogonalized IRFs suggest that the ES index does not generate a significant impact on stock returns. Graph B shows that a shock amounting to a 1% decrease in current stock returns leads to an increase in the ES index of around 0.5% in the first year and around 0.2% from two to five years. The response of a firm's ES index to stock returns is statistically significant at greater than the 5% level because the zero line is above the 95% error band. Overall, the orthogonalized IRFs further support our results.

3.3. Different dimensions of ES

We further investigate how different dimensions of ES performance affect the dynamic relationship between the ES index and stock returns. Table 3 presents the estimation results by

[19] Estimates from orthogonalized IRFs may be sensitive to how endogenous variables are ordered in the Cholesky decomposition. Although no empirical test exists for the ordering, our un-tabulated robustness tests indicate that our impulse-response results are robust to the ordering of the ES index and stock returns.

different ES categories and sub-categories. In Panel A, Columns (1)–(2) and Columns (3)–(4) report the results for the ES-return relationship under the *Environment* (E) and *Social* (S) categories, respectively. Column (1) shows a negative association between past environment index and stock returns, in line with the evidence that investors demand a higher risk premium for holding the firms with poor environmental performance. For example, investors may seek compensation for holding firms with high exposures to carbon emissions risks (Bolton and Kacperczyk (2020)). Column (4) reveals that the negative relationship between past stock returns and ES performance is primarily driven by the S category.

[Insert Table 3 here]

Next, we assess each subcategory under the S dimension: community, employee relations, products, and diversity. The results are reported in Panel B (community and employee relations) and Panel C (products and diversity). We find that firms are more likely to improve the products and diversity dimensions after a poor stock market performance. Our results demonstrate that improving products (i.e., product quality and safety) is beneficial to firms' stock market performance and is in line with Albuquerque, Koskinen, and Zhang (2019), showing CSR increases firms' values, especially for firms with high product differentiation (i.e., high advertising spending).

In Panel D, we decompose the total ES performance into ES strengths and ES concerns. Column (2) shows stock returns negatively precede ES strengths, while Column (4) reveals no significant relation between ES concerns and subsequent stock returns. Thus, firms enhance ES performance after poor stock market performance by improving ES strengths rather than reducing ES concerns.

4. Channels and Economic Mechanisms

In the previous section, we revealed that lower past stock returns predict better future ES performance. In this section, we perform various tests to provide evidence on channels and mechanisms that drive the documented link.

4.1. Financial capacity

The first channel we test is related to a firm's financial capacity. It is natural for a firm to be more likely to engage in ES activities when it has more resources. When firms have

greater cash flow and lower leverage ratios, managers have more to spend on activities that improve their ESG profile. In addition, firms that repurchase their stocks tend to rely less on equity and be less financially constrained; therefore, such firms are more likely to engage in CSR activities (Hong, Kubik, and Scheinkman (2012)). We examine how our findings are influenced by proxies for financial constraints such as financial leverage, free cash flow, and stock repurchases.

To examine whether leverage has any influence on how stock returns negatively precede ES performance, we divide our sample into three leverage groups (low, medium, and high) based on the 30% and 70% breakpoints each year. We use the same control variables as in Table 2, but for brevity's sake, we do not report the estimates of those coefficients. Columns (1)–(2) and Columns (3)–(4) of Table 4 display the results for the high and low leverage groups, respectively. When the dependent variable is ES_t, the coefficient c_1 on Ret_{t-1} is insignificant in Column (2) but negative and statistically significant in Column (4). Furthermore, the magnitude of the coefficient c_1 in Column (4) is twice as large as that reported in Table 2. After controlling for firm characteristics, our finding is stronger for firms with low leverage than for firms with high leverage. Additionally, the *No effect by doing good* hypothesis holds, regardless of leverage. When the dependent variable is Ret_t, the coefficient b_1 on ES_{t-1} is insignificant in Columns (1) and (3).

[Insert Table 4 here]

To investigate whether a firm's free cash flow can influence the ES index to stock return relation, we follow the same procedure as above. We classify all firms into three free cash flow groups based on the breakpoints for the top 30% (high) and the bottom 30% (low) of the ranked values of free cash flows; our results appear in Columns (5)–(6) and Columns (7)–(8) of Table 4, respectively. Not surprisingly, when the dependent variable is the ES index, the estimates of the return coefficients are negative and significant at the 5% level for the high free cash flow group, and insignificant for the low free cash flow group. This evidence confirms our previous findings, that past stock returns negatively forecast future ES index levels and that this is even more pronounced in cash abundant firms.

We construct our third measure of financial constraints, *No Repurchase Indicator*, which is equal to 1 for a firm that does not repurchase stocks and is placed in the non-repurchase group; otherwise, it is equal to 0 and assigned to the positive repurchase group. The results for

the positive repurchase group and the non-repurchase group are presented in Columns (9)–(10) and Columns (11)–(12) of Table 4, respectively. In the positive repurchase group, past stock returns are negatively correlated with the current ES index. We do not find such evidence in the non-repurchase group. Given firms that repurchase stocks are less financially constrained, managers are willing and able to invest in CSR projects after poor stock market performance.[20]

Our results reinforce the idea that a negative and significant correlation between past stock returns and the future ES index is stronger for firms with greater financial slack (i.e., firms with lower debt ratios, higher free cash flow, and more stock repurchases). Managers in these firms are more inclined to invest in CSR activities after their firms' negative stock market performance. A manager may derive nonfinancial utility from costly ESG activities such as building up friendly relations with employees, making generous donations to local charities, or purchasing "eco-efficient" facilities (Jensen and Meckling (1976)). Such ESG expenditures are not only in line with the managers' social preferences but could also entrench their positions after the firm's disappointing performance in the stock market.

4.2. Customer awareness

We then assess the second customer awareness channel that may drive the empirical link we demonstrate. Considered a product differentiation strategy, ESG activities convey to consumers that companies are concerned about ES issues; in turn, consumers regard those firms as more reliable and consider their products of higher quality (McWilliams and Siegel (2001), Baron (2008), Bénabou and Tirole (2010)). In other words, ES activities provide a competitive advantage to firms in that they help them cater to customers who prefer sustainable practices. Servaes and Tamayo (2013) stress that corporate sustainability can signal product quality to customers; however, consumers recognize the value of CSR only when customer awareness is high (e.g., when firms spend more on advertising). Therefore, we hypothesize that industries and firms with higher customer awareness more often increase their ES activities after a poor stock market performance, in order to rebuild trust and enhance the firm image.

We adopt two approaches to evaluate customer awareness at the industry- and firm-level. First, we classify industries into *Business-to-consumer (B2C) industries* and *other industries* according to the classification scheme constructed by Sharpe (1982). In the second

[20] In Internet Appendix Table A.1, we disentangle whether firms with fewer financial constraints improve ES performance after poor stock performance, or ES performance deteriorates after strong stock performance, or both. We find that less financially constrained firms improve their future ES performance after poor stock performance.

method, we divide firms into two groups—firms with positive advertising spending and firms with non-advertising groups), as advertising helps increase customer awareness of CSR activities (Servaes and Tamayo (2013)). The estimates from the PVAR models are reported in Panel A and Panel B of Table 5.

[Insert Table 5 here]

Two interesting observations arise. First, consistent with our conjecture, we find that past stock returns have a negative impact on a firm's ES performance when customer awareness is high (i.e., a firm belongs to a B2C industry or engages in positive advertisement spending), whereas this relation does not exist when customer awareness is low. The results suggest that when firms face a higher level of customer awareness, they are more likely to offset stock market underperformance by engaging in ES activities to repair their relationship with customers.[21] Second, we find that when customer awareness is low, a firm's past ES performance is negatively associated with its subsequent stock returns, supporting the *Underperform by doing good* view. As a robustness check, in Internet Appendix Table A.3, we repeat the exercise but use abnormal stock returns (with the control of systematic risk), and find that the results are qualitatively similar. Further, in Internet Appendix Table A.4, we explore how the evidence of *Underperform by doing good* for low customer awareness firms varies depending on the type of ES. We find that social activities harm the financial performance of firms with low customer awareness, and under the social subcategories, community and diversity issues negatively precede the financial performance of such firms with low customer awareness.

From this, we argue that whether firms' ES activities enhance or destroy firm values might depend on shareholders' perspectives. If customer awareness is high, CSR activities could be viewed more as corporate promotion practices than as agency problems. For example, in B2C industries, CSR can effectively promote products to targeted customers, which is consistent with shareholders' interests. However, if customer awareness is low, shareholders may not feel the need to spend resources on CSR; they view CSR activities as agency problems rather than as promotion practices and respond negatively to ES activities in the stock market.

[21] In Internet Appendix Table A.2, we disentangle whether firms with high customer awareness increase ES performance after weak stock performance, or decrease ES performance after strong stock performance, or both. We find that firms with high customer awareness improve their future ES performance after weak stock performance.

4.3. Social capital

The third social capital channel is tied to the fact that investors and firms paid more attention to ES issues during the 2007–2008 financial crisis (Dyck, Lins, Roth, and Wagner (2019)). Prior studies suggest firms' ES activities are more valued as social capital during financial crisis periods (Lins, Servaes, and Tamayo (2017), Amiraslani, Lins, Servaes, and Tamayo (2019)). The established negative relation may be driven by investors and customers' growing awareness of ESG issues. That is, the poor stock market performance during the financial crisis subsequently led to increased pressure from investors to improve a firm's ES profile. In this section, we investigate whether the relation between stock returns and ES performance is the same before, during, and after the financial crisis period. Thus, we divide our sample period into pre- (1991–2006), during- (2007–2009), and post-financial crisis (2010–2015) periods. We expect the negative relation between past stock returns and future ES performance should be more pronounced in the post-financial crisis period. Economic downturns cause investors to realize that social capital is a valuable intangible asset, so firms want to rebuild trust with investors and customers by investing in more ES activities.

Table 6 reveals the estimation results for different time periods surrounding the financial crisis. We investigate whether firms increase ES performance after poor stock performance, or if firms decrease ES performance after strong stock performance, or both, for pre-, during-, and post-financial crisis periods in Panels A, B, and C, respectively. Consistent with our conjecture, we find that firms increase ES performance after poor stock market performance in the post-financial crisis period (Column (2) of Panel C), not during the pre- or during the financial crisis period. This is in line with the idea that recent shareholder pressure to increase ESG endeavors after the crisis is much stronger than during the pre-financial crisis period. In Internet Appendix Table A.5, we repeat the exercise, but use abnormal stock returns (with the control of systematic risk) and find that the results are qualitatively similar.

[Insert Table 6 here]

In Internet Appendix Table A.6, we show that prior poor performance preceding better ES performance is stronger for firms with high customer awareness during the post-financial crisis period. Intuitively, firms with higher customer awareness are motivated to rebuild trust with shareholders by increasing their ES activities after the financial crisis. Lins, Servaes, and Tamayo (2017) argue that the value attached by investors to superior ES performance exists

during the crisis period only, rather than before and after, given that social capital pays off when the overall trust in the economy faces a negative shock. Yet our focus is on the impact of a firm's stock market performance on its *subsequent* ES performance. The main takeaway from this section is that focusing on the post-financial crisis period generally strengthens our results because of investors' and customers' growing awareness of ESG issues.

4.4. Shareholder activism

The fourth shareholder activism channel is motivated by the idea that shareholders care most about stock returns. We examine whether poor stock market performance may lead to shareholder activism and consequently pressure managers to improve ES performance. Gillan and Starks (2000) find that both long-term and short-term stock returns are negatively associated with future voting outcomes on *corporate governance* proposals. Using an empirical framework similar to theirs, we investigate whether prior poor stock returns lead to more support on *ES* proposals. Flammer (2015) focuses on stock performance *after* the passage of ES proposals. Cao, Liang, and Zhan (2019) examine the impact of the passage or failure of ES proposals on peer firms' stock returns. In contrast with their studies, we focus mainly on how the stock returns *prior* to the ES proposals affect voting outcomes.

Although our previous results imply that negative stock returns have a positive impact on future ES performance, one may question the low-frequency measure of stock returns and their persistence in the ES index. To mitigate this concern and sharpen our identification, we perform a test using a point-in-time record of ES shareholder proposals, which helps us to link subsequent voting results on ESG issues (dynamic rather than static) to prior stock returns (in different frequencies).

We obtain data from the Institutional Shareholder Services (ISS) database, which includes shareholder proposal data for S&P 1500 firms. We focus on shareholder proposals that come to a vote on ES issues with a resolution type of SRI. For each ES shareholder proposal, the ISS shareholder proposal database records information such as the firm identifier, the AGM date, the proposal description, the proposal's sponsor identifier, the type of the proposal sponsor, and the voting outcome. After combining proposal data with financial and accounting information from CRSP and Compustat, our sample includes 2,844 ES shareholder proposals in 1997–2015.

Table 7 provides summary statistics for the frequency of firms that receive ES shareholder proposals at the AGM (Panel A) and across the entire sample period (Panel B).

Panel A shows that firms receive more than one ES proposal in a given AGM. More than half of ES proposals are multiple proposals targeting a single firm. Panel B shows that less than one-third of the 498 firms encounter only one shareholder proposal throughout the entire sample period.

[Insert Table 7 here]

Panel A of Table 8 presents the distribution of favorable votes for ES shareholder proposals by year. As measured by the total number of proposals that come to a vote, SRI shareholders became increasingly active in 1997–2015. While the average percentage of votes in favor of proposals is relatively small during the sample period, the mean (median) percentage of votes increased from 6.62% (6.00%) in 1997 to 20.37% (23.00%) in 2015, suggesting ES proposals submitted by SRI shareholders received increased attention from other shareholders over the sample period.

[Insert Table 8 here]

Panel B of Table 8 reports the summary statistics of the voting outcome on ES proposals by sponsor type. Note that proposals submitted by pension funds receive the highest support from other shareholders, with a mean value of around 23.34%, similar to the median of 23.30%. In contrast, the least successful proposal sponsors are individuals, with an average voting percentage of 6.96%. This evidence is in line with previous studies, which find that corporate governance proposals supported by individuals gain less support than those advocated by institutional investors or coordinated groups (Gillan and Starks (2000)).[22]

4.4.1. The voting outcome of ES proposals

This subsection examines the impact of past stock returns over several different horizons on the supporting rate of ES shareholder proposals. In Table 9, we estimate regressions of the following form:

$$\%Votes_{it} = \alpha + \beta_1 ret_{qit} + \beta_2 X_{it} + \eta_p + \eta_t + \varepsilon_{it} \quad (3)$$

[22] In Appendix 5, following Dimson, Karakaş, and Li (2015), we manually classify ES proposals into 2 broad areas (i.e., environment and social), ten themes, and thirty-six issues. The average (median) support is the highest for business-ethics-related proposals at 20.36% (19.40%) and lowest for animal-rights-related proposals at 4.94% (4.45%) over the 19 years of our sample period (1997–2015).

where the dependent variable $\%Votes_{it}$ is the average percentage of votes that firm *i* receives in favor of ES proposals at the AGM in year *t*.[23] The independent variable of interest is ret_{qit}, which denotes past *q* month stock returns prior to the AGM; we use the past three-, six-, twelve-, and sixty-month stock returns relative to the value-weighted market return from CRSP in the following analysis. X_{it} is the vector of firm-level controls, including *return on assets* (ROA), *logsize*, *leverage*, *Tobin's Q*, *dividends*, *cash*, and a dummy variable *S&P 500*. Definitions and descriptions of all control variables and data sources can be found in Appendix 3. We include ROA to control for the possibility that a firm is more likely to attract shareholders' attention if it experiences prior negative net income, as documented by Gillan and Starks (2000). η_p and η_t correspond to industry-fixed effects and year-fixed effects, respectively. Following Fama and French (1997), we classify firms into 48 industries. Standard errors are adjusted for the existence of clustering across firms.

[Insert Table 9 here]

In Column (1), the estimated coefficients on $ret_{3,0}$ are negative (-2.170) and statistically significant at the 5% level, indicating past quarterly stock performance is negatively and significantly associated with support for ES proposals from other shareholders. Again, as shown in Columns (2)–(4), stock returns measured at 6-month, 12-month, and 5-year horizons are not significantly associated with voting outcomes on ES proposals. Gillan and Starks (2000) contend that both previous short-term and long-term stock returns negatively affect the voting outcome of proposals on corporate governance issues. We find this relation holds between voting outcomes on ES proposals and short-term prior returns, but not relatively long-term returns.

Next, we perform the sub-sample analyses of high and low returns to understand why short-term stock returns negatively precede voting outcomes on ES proposals. The results are shown in Table 10. Panel A shows results from estimation of the impact of past three-month stock returns on voting outcomes for the high return (Column 1) and low return group (Column 2). High return groups consist of firms with $ret_{3,0}$ above the 70th percentile each year, while

[23] Because some firms may discuss several ES proposals at the AGM, we collapse our data to firm-year observations by averaging the multiple shareholder proposal observations within each firm-year. In untabulated results, we find that our estimates are robust to using the median percentage of favorable votes.

low return groups consist of firms with $ret_{3,0}$ below the 30th percentile each year. The estimated coefficient on $ret_{3,0}$ is negative and significant for the low return group but insignificant for the high return group. The result is consistent with our conjecture that shareholders respond to the poor stock market performance by casting more support for ES proposals. Column 1 (2) of Panel B reports regression results for sub-samples of proposals on environmental (social) issues. The number of environmental proposals (268) is far fewer than social proposals (1448). Regardless of whether proposals are targeted to environmental or social issues, the estimated coefficients on $ret_{3,0}$ are negative and significant; the coefficient for those proposals targeted to environmental issues (-10.175) is more sizable than that on social issues (-3.460).

[Insert Table 10 here]

Panel C explores how the return and voting outcome relation varies over the three subsample periods: pre-financial crisis (1997–2006), during-financial crisis (2007–2009), and post-financial crisis (2010–2015) in Columns (1), (2), and (3), respectively. We find that the negative association between past short-term stock returns and supporting rates for ES proposals is more pronounced during the post-financial crisis period than the others. This is in line with our previous PVAR analysis showing that stock returns precede the ES index during the post-financial crisis period because of increasing shareholder pressure on ESG issues. Our results also echo the growing awareness of ESG issues by institutional investors. For example, Sandy Boss, the global head of investment stewardship at Blackrock, stated, "Where we tend to be less supportive of executive compensation proposals is when they are single-metric driven, only looking at share price and not considering performance more in the round".[24] This indicates institutional investors ensure they consider both short-term and long-term focus when making investment decisions. In a survey of institutional investors' climate risk perceptions, Krüger, Sautner, and Starks (2020) find that both financial motives and non-financial motives are behind institutional investors' engagement with portfolio companies on climate risk issues. When asked what motivates them to incorporate climate risks into the investment process, reputation and ethical obligation are ranked first and second, while fiduciary duty and investment returns are third and fourth.

[24] Sarah Murray, (2021). "How to take the long-term view in a short-term world". Financial Times, February 26. Available at https://www.ft.com/content/5bc1580d-911e-4fe3-b5b5-d8040f060fe1.

4.4.2. Proposal type and sponsor identity

Finally, we examine the robustness of our findings by controlling for factors shown to influence the voting outcome of corporate governance proposals in the previous literature. As demonstrated by Gillan and Starks (2000), the shareholder proposal issue type and the identity of the sponsors are among the factors driving the voting results. To mitigate the concern that the past short-term stock return of a firm is followed by multiple proposals with different voting outcomes, we restrict the sample to firms facing one proposal at a given year's AGM. Further, we add two dummy variables to control for issue themes and sponsor types in the model (3). Specifically, Appendix 5 shows that ES shareholder proposals are classified into ten issue themes (e.g., climate change, environmental management, labor standards). As shown in Panel B of Table 8, sponsors are classified into nine different types (e.g., SRI, pension funds, unions).

[Insert Table 11 here]

Panel A of Table 11 reports coefficient estimates for model (3), controlling for proposal issue themes and sponsor types. In Column (1), a fixed effect for each sponsor type is considered and included. We find that the coefficient on $ret_{3,0}$ is -2.802 with a *t*-statistic of 2.88, significant at the 1% level. The estimate is qualitatively similar to that in Table 9 (-2.170 with a *t*-statistic of -2.12, without the control for proposal issue themes). Column (2) presents results after controlling for issue themes of ES proposals. The $ret_{3,0}$ coefficient, -2.351 with a *t*-statistic of -2.02, remains negative and significant, which suggests that our findings are robust to the control of sponsor types. In Column (3), we repeat our analysis, including both sponsor-identity and proposal-type fixed effect. This yields a similar magnitude of the coefficient on $ret_{3,0}$, -2.640 with a *t*-statistic of -2.47. These results help alleviate the concern that our findings are driven by specific issue themes and/or sponsor types of ES shareholder proposals.

Although our findings show a robust relation between past short-term stock returns and voting outcomes on ES proposals, the average shareholder supporting rate for ES shareholder proposals (14%) is overall low during the sample period. Are these supporting rates enough to push firms to advance their ES activities and enhance their social reputation? To address this concern, in Panel B of Table 11, we regress the probability of passing an ES shareholder proposal at the AGM (i.e., a support rate higher than 50%) on the past three-month stock returns, with the same control variables and fixed effects as Panel A. The coefficient on $ret_{3,0}$ is -0.030 with a *t*-statistic of -1.79, which indicates that past stock market performance is negatively

associated with a firm's likelihood of passing ES proposals. The economic effect of this estimate is significant – representing a 14.59% increase over the mean value of the percentage of the votes in support of ES proposals. The weaker statistical significance may align with the fact that, apart from submitting ES proposals, shareholders may also engage behind the scenes to push firm managers into improving their ES practices.

5. Conclusion

This paper examines the dynamic relation between stock returns and ES performance. We use the industry-adjusted ES index to measure each firm's ES performance and employ a PVAR technique to examine the magnitude and significance of forward influence (ES index affecting stock returns) and reverse influence (stock returns affecting the ES index). The results suggest that stock returns precede and negatively influence ES performance. Improved ES performance is mainly driven by enhancement in product and diversity performance and improvement in ES strengths rather than by a reduction in ES concerns. We document a set of channels regarding firms' motivation to improve ES performance after poor stock market performance. We find that this negative relation between prior stock returns and the current ES index is concentrated in firms with fewer financial constraints and heightened customer awareness. Firms are also motivated to build up social capital post-financial crisis and in the presence of higher shareholder pressure on ES issues. Although the ES-return relation ought not to be confined to these channels—financial capacity, customer awareness, social capital, and shareholder proposals—the literature reveals that they constitute natural and essential starting points to better understand the ES-return relation that we document.

Overall, these findings suggest that firms with better ES performance—those popular among investors motivated by morals and ethics, including SRI funds, pension funds, foundations, and religious organizations—do not necessarily underperform in the financial market. Although stocks with a higher ES index do not exhibit superior performance, their ES performance is consistent with the social values of SRI investors and could at least enhance their nonfinancial utility. These results should be informative for managers who are interested in the strategic role that ES activities play in promoting products and attracting ES-conscious consumers. They can also provide insight into how responsible investors can time the market and increase the success rate of engaging with firms.

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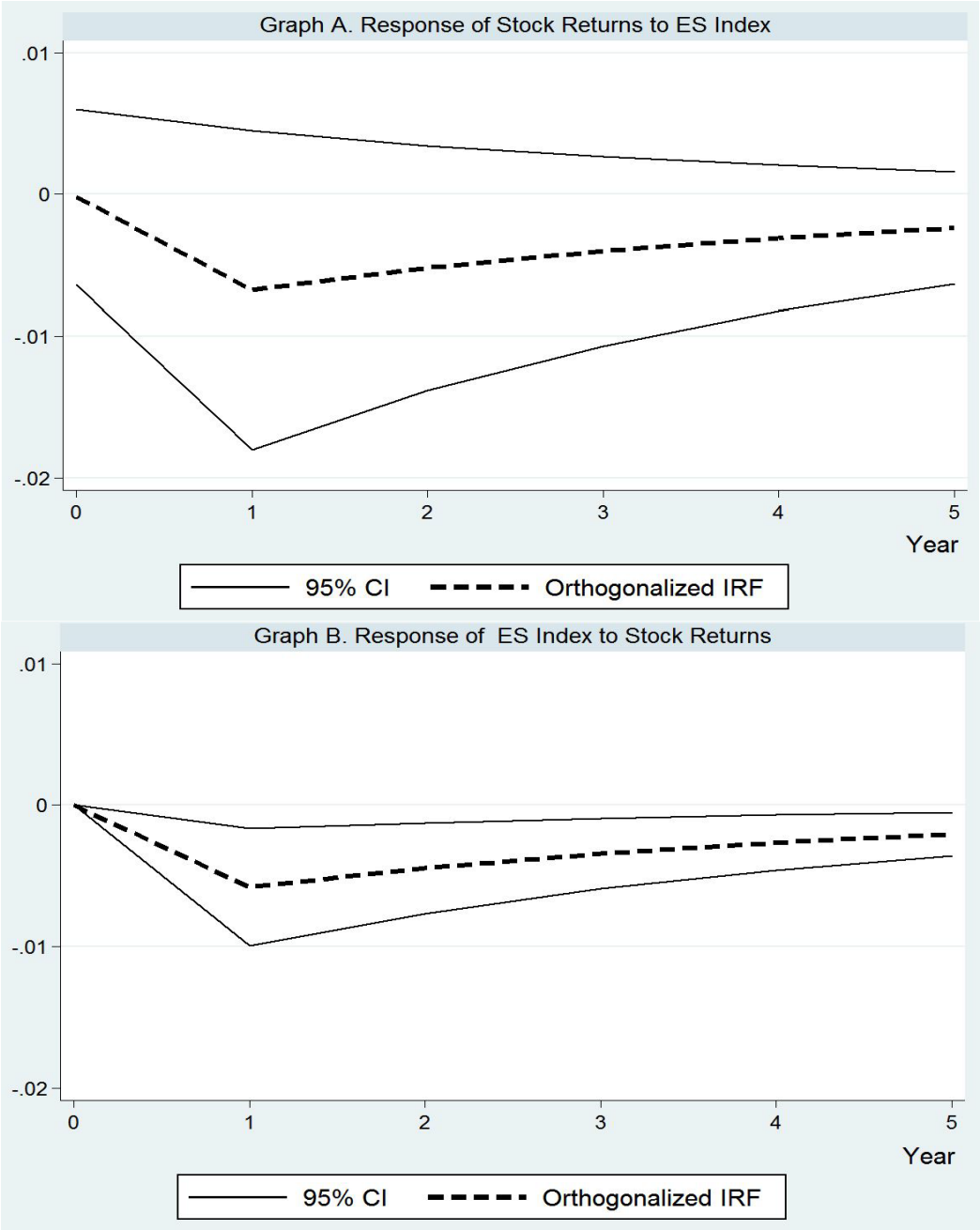

Figure 1. Orthogonalized impulse response functions between the ES index and stock returns

This figure displays the orthogonalized impulse response functions (IRF) and the 5% error bands calculated using 500 Monte Carlo simulations. Orthogonalized IRFs are estimated using the estimates of coefficients in Table 2. The responses of stock returns (ES index) to a 1-unit increase in the current ES index (stock returns) for up to five years are shown in Graph A (B). Dashed lines report the orthogonalized IRFs, while solid lines represent the 5% error bands.

Table 1. Summary statistics

This table reports the descriptive statistics for the ES index and financial variables used in our main regressions. This study focuses on five ES categories: environment, community, employee relations, diversity, and product. To measure the ES index, we divide the number of strengths (concerns) for each firm-year within each ES category by the maximum number of strengths (concerns) in each ES category each year to obtain the strength (concern) index. Then, we subtract the adjusted concern index from the adjusted strength index to get the index for each category. Finally, we add the five indexes to create the ES index and subsequently adjust by subtracting the median ES index in the firm's industry in the observation year. The definition of other variables can be found in Appendix 3. All financial variables are winsorized at the 1% and 99% level for each year. The sample includes 33,815 firm-year observations (4,279 distinct firms) in 1991–2015. Reported summary statistics of each variable include the number of observations, mean, standard deviation, minimum, maximum, and the Pearson correlation coefficients between the ES index and other variables.

Variables	N	Mean	Std	Min	Max	Correlation
ES index	33,815	0.03	0.44	-2.10	3.25	
Return	33,815	0.17	0.68	-0.98	26.19	-0.02***
Logsize	33,815	7.36	1.58	3.13	12.37	0.19***
Logbm	33,815	-0.93	0.89	-4.02	2.01	-0.05***
Profitablity	33,815	0.34	0.26	-0.68	1.30	0.06***
Investment	33,815	0.13	0.35	-0.63	3.50	-0.02***
Leverage	33,815	0.23	0.20	0.00	1.02	-0.03***
Cash	33,815	0.18	0.21	0.00	0.96	0.01**
Dividends	33,815	0.01	0.02	0.00	0.30	0.07***
Log(age)	33,815	2.77	0.97	0.00	4.50	0.09***
Free cash flow	33,815	-0.03	0.22	-1.00	0.29	0.12***
No repurchase indicator	33,815	0.46	0.50	0.00	1.00	0.04 ***

Table 2. PVAR estimates of the relation between the ES index and stock returns

This table reports estimates from the panel-data vector autoregression (PVAR) analysis of the relation between the ES index and stock returns. The two-equation reduced-form PVAR model is:

$$RET_{it} = a_{0t} + a_1 RET_{it-1} + b_1 ES_{it-1} + \delta C_{it-1} + f_i + x_t + \varepsilon_{it}$$
$$ES_{it} = c_{0t} + c_1 RET_{it-1} + d_1 ES_{it-1} + \phi C_{it-1} + g_i + y_t + \omega_{it}$$

The dependent variables are Ret_{it} and ES_{it} in year *t*. Panel A shows the baseline regressions examining the relationship between the ES index and stock returns. Panel B reports results of estimations investigating the relation between alternative measures of stock returns and the ES index. Abnormal returns are estimated based on the market model. Industry-adjusted returns are stock returns adjusted to industry median returns in a year. Panel C presents regressions examining whether the relationship between stock returns and ES index varies by prior poor stock performance or strong stock performance. The *low return* (*high return*) dummy variable takes a value of 1 if stock returns are below (above) the 30th (70th) percentile each year, and 0 otherwise. Control variables include: $Logsize_{it-1}$, the natural logarithm of firm *i*'s market capital at the end of year $t-1$; $Logbm_{it-1}$, the natural logarithm of firm *i*'s book value divided by its market cap at the end of year $t-1$; $Profitability_{it-1}$, annual revenues minus cost of goods sold, divided by total assets for firm *i*; $Investment_{it-1}$, the growth of total assets in year $t-1$ divided by total assets at the end of year $t-2$; $Leverage_{it-1}$, the total debt divided by the sum of total debt and book equity; $Cash_{it-1}$, cash liquidity, cash and short-term investments scaled by total assets; $Dividends_{it-1}$, dividends per share by ex date times common shares outstanding, scaled by BE. $Log(age)_{it-1}$ is the natural logarithm of a firm's age. x_t and y_t are year-fixed effects, and f_i and g_i are firm-fixed effects for RET and ES, respectively. Firm-fixed effects are controlled by subtracting forward means from all variables in the model (Arellano and Bover, 1995). The lagged levels of regressors are used as instruments to estimate the model with the GMMs. z-statistics are reported in parentheses. ∗∗∗, ∗∗ and ∗ denote 1%, 5%, and 10% significance levels, respectively.

Panel A: Baseline results

	(1) Return	(2) ES index	(3) Return	(4) ES index	(5) Return	(6) ES index
Return $_{t-1}$	-0.002	**-0.011*** **	0.000	**-0.011*** **	-0.001	**-0.011*** **
	(-0.24)	**(-2.98)**	(0.03)	**(-2.98)**	(-0.12)	**(-2.77)**
ES Index $_{t-1}$	-0.023	0.770***	-0.026	0.771***	-0.025	0.771***
	(-1.25)	(46.03)	(-1.43)	(45.80)	(-1.25)	(45.43)
LogSize $_{t-1}$	-0.090***	0.032**	-0.094***	0.030**	-0.082***	0.043***
	(-3.80)	(2.08)	(-4.01)	(2.00)	(-2.90)	(2.72)
LogBM $_{t-1}$	0.120***	0.004	0.132***	0.005	0.156***	0.008
	(3.72)	(0.43)	(3.87)	(0.53)	(3.93)	(0.70)
Profitability $_{t-}$			0.263	0.031	0.346*	0.031
			(1.60)	(0.58)	(1.93)	(0.52)
Investment $_{t-1}$			0.002	0.006	-0.010	0.007
			(0.12)	(0.92)	(-0.51)	(1.02)
Leverage $_{t-1}$					0.525***	0.058
					(2.84)	(0.92)
Cash $_{t-1}$					0.636***	-0.050
					(3.43)	(-0.78)
Dividend $_{t-1}$					-0.721	0.657
					(-0.67)	(1.34)
LogAge $_{t-1}$					0.006	-0.016
					(0.26)	(-1.26)
Year-fixed	Yes	Yes	Yes	Yes	Yes	Yes
Firm-fixed	Yes	Yes	Yes	Yes	Yes	Yes
N	25,319	25,319	25,319	25,319	25,319	25,319

Panel B: Abnormal return and industry-adjusted return

	(1) Abnormal return	(2) ES index	(3) Industry-adjusted return	(4) ES index
Abnormal return $_{t-1}$	-0.026***	**-0.010** **		
	(-2.84)	**(-2.05)**		
ES index $_{t-1}$	-0.026	0.770***		
	(-1.13)	(45.98)		
Industry-Adjusted return $_{t-1}$			-0.011	**-0.012*** **
			(-1.35)	**(-3.14)**
ES index $_{t-1}$			-0.015	0.770
			(-0.76)	(45.68)
Year-Fixed effects	Yes	Yes	Yes	Yes
Firm-Fixed effects	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
N	25,319	25,319	25,319	25,319

Table 2 – *Continued*

Panel C: Weak vs strong stock performance				
	(1)	(2)	(3)	(4)
	Low Return	ES Index	High Return	ES Index
Low Return $_{t-1}$	-0.049***	**-0.010****		
	(-6.25)	**(-2.16)**		
ES Index $_{t-1}$	0.026	0.768***		
	(1.46)	(46.49)		
High Return $_{t-1}$			-0.032***	0.005
			(-4.29)	(1.13)
ES Index $_{t-1}$			-0.060***	0.766***
			(-3.32)	(47.00)
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
N	25,319	25,319	25,319	25,319

Table 3. The relation between ES categories and stock returns

This table reports PVAR estimation results of the association between different ES categories and stock returns. Panel A shows the regression of the relation between the environmental index and stock returns in Columns (1)–(2), and the relation between the social index and stock returns in Columns (3)–(4). Panel B reports the regressions between the community index and stock returns in Columns (1)–(2), and the relation between the employee relations index and stock returns in Columns (3)–(4). Panel C shows the regression between the relation between the products index and stock returns in Columns (1)–(2), and the relation between the diversity index and stock returns in Columns (3)–(4), respectively. Panel D reports the regressions between the relation of ES strength and stock returns in Columns (1)–(2), and the relation between ES concerns and stock returns in Columns (3)–(4). ***, ** and * indicate significance at 1%, 5%, and 10% levels, respectively.

Panel A: Environment v.s. Social				
	(1)	(2)	(3)	(4)
	Return	Environment	Return	Social
$Return_{t-1}$	-0.002	-0.001		
	(-0.28)	(-1.47)		
$Environment_{t-1}$	-0.099**	0.761***		
	(-2.03)	(50.15)		
$Return_{t-1}$			-0.0007	**-0.009****
			(-0.09)	**(-2.54)**
$Social_{t-1}$			-0.019	0.739***
			(-0.97)	(46.10)
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
N	25,319	25,319	25,319	25,319
Panel B: Community v.s. Employee Relations				
	(1)	(2)	(3)	(4)
	Return	Community	Return	Employee
$Return_{t-1}$	-0.001	0.0007		
	(-0.18)	(0.60)		
$Community_{t-1}$	-0.085**	0.594***		
	(-2.54)	(18.20)		
$Return_{t-1}$			-0.003	0.002
			(-0.39)	(1.47)
$Employee_{t-1}$			-0.035	0.699**
			(-0.81)	(64.95)
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
N	25,319	25,319	25,319	25,319

Table 3 – *Continued*

Panel C: Products v.s. Diversity				
	(1)	(2)	(3)	(4)
	Return	Products	Return	Diversity
$Return_{t-1}$	-0.001	**-0.002*** **		
	(-0.21)	**(-2.09)**		
$Products_{t-1}$	0.088**	0.726***		
	(2.28)	(46.07)		
$Return_{t-1}$			-0.003	**-0.009*** **
			(-0.04)	**(-2.60)**
$Diversity_{t-1}$			-0.064*	0.670***
			(-1.72)	(34.91)
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
N	25,319	25,319	25,319	25,319
Panel D: ES Strengths v.s. ES Concerns				
	(1)	(2)	(3)	(4)
	Return	ES Strengths	Return	ES Concerns
$Return_{t-1}$	-0.001	**-0.008*** **		
	(-0.23)	**(-3.47)**		
$ES\ Strengths_{t-1}$	-0.089**	1.035***		
	(-2.04)	(28.50)		
$Return_{t-1}$			-0.001	0.002
			(-0.19)	(0.82)
$ES\ Concerns_{t-1}$			-0.006	0.643
			(-0.25)	(36.64)
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
N	25,319	25,319	25,319	25,319

Table 4. The relation between the ES index and stock returns grouped by firm characteristics

This table shows how PVAR estimates of how the relation between ES index and stock returns varies with different financial constraint groups. From Columns (1)–(4), the sample is divided into high and low leverage groups, based on the 30% and 70% breakpoints each year. From Columns (5)–(8), all firms are divided into two free cash flow groups based on the breakpoints for the bottom 30% (Low)and top 30% (High) of the ranked values of free cash flow. From Columns (9)–(12), firms are assigned into the positive repurchase group or non-repurchase group if the non-repurchase indicator is equal to 0 or 1, respectively. ∗∗∗, ∗∗ and ∗ represent 1%, 5%, and 10% significance levels, respectively.

Financial Constraint	Leverage				Free Cash Flow				Repurchase			
Measures	High		Low		High		Low		Positive		Non	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Returns	ES Index	Returns	ES Index	Returns	ES Index	Returns	ES Index	Returns	ES Index	Returns	ES Index
Returns $_{t-1}$	-0.011	0.001	0.028*	**-0.022****	-0.018	**-0.030****	-0.001	-0.008	0.019	**-0.024****	-0.017	0.000
	(-0.80)	(0.18)	(1.77)	**(-2.40)**	(-1.05)	**(-2.37)**	(-0.06)	(-0.77)	(0.85)	**(-2.45)**	(-1.35)	(-0.07)
ES Index $_{t-1}$	-0.031	0.805***	0.037	0.681***	-0.059	0.843***	-0.061	0.675***	-0.031	0.797***	0.034	0.710***
	(-0.63)	(20.60)	(0.51)	(13.99)	(-1.41)	(15.48)	(-0.92)	(15.50)	(-1.59)	(31.89)	(0.59)	(18.58)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	5,765	5,765	5,474	5,474	5,253	5,253	4,371	4,371	11,109	11,109	7,287	7,287

Table 5. ES performance and return relation: Customer awareness

This table shows PVAR estimates of how the relation between the ES index and stock returns varies according to customer awareness. In Panel A, we classify industries into *Business-to-consumer (B2C industries* and *other industries*. In Panel B, we classify our sample firms into *positive advertising group* and *non-advertising group*. ∗∗∗, ∗∗ and ∗ represent 1%, 5%, and 10% significance levels, respectively.

Panel A: Consumer Products

	B2C industries		*Other industries*	
	(1)	(2)	(3)	(4)
	Returns	ES Index	Returns	ES Index
Returns $_{t-1}$	0.010	**-0.015****	-0.018	-0.008
	(0.90)	**(-2.33)**	(-1.28)	(-1.47)
ES Index $_{t-1}$	0.042	0.880***	-0.064***	0.748***
	(1.03)	(27.13)	(-2.96)	(35.08)
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
N	11,408	11,408	13,408	13,408

Panel B: Advertising Spending

	Positive advertising		*Non advertising*	
	(1)	(2)	(3)	(4)
	Returns	ES Index	Returns	ES Index
Returns $_{t-1}$	-0.009	**-0.018****	0.005	-0.007
	(-0.66)	**(-2.14)**	(0.46)	(-1.46)
ES Index $_{t-1}$	0.026	0.875***	-0.067***	0.787***
	(0.57)	(22.81)	(-2.60)	(33.32)
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
N	9,113	9,113	13,763	13,763

Table 6. ES performance and return relation: Social capital

This table shows PVAR estimates of the change in relation between the ES index and stock returns changes with the financial crisis. In Panel A, B, and C, we present regressions examining the relationship between the ES index and weak (strong) stock performance during the pre-financial crisis, during-financial crisis, and post-financial crisis periods, respectively. The *low return* (*high return*) dummy takes a value of 1 if stock returns are below (above) the 30th (70th) percentile each year, and 0 otherwise. ***, ** and * represent 1%, 5%, and 10% significance levels, respectively.

Panel A: Pre-Financial Crisis				
	(1)	(2)	(3)	(4)
	Low Return	ES Index	High Return	ES Index
Low Return $_{t-1}$	-0.030**	-0.001		
	(-2.22)	(-0.28)		
ES Index $_{t-1}$	0.007	0.693***		
	(0.17)	(25.46)		
High Return $_{t-1}$			0.004	-0.010*
			(0.39)	(-1.76)
ES Index $_{t-1}$			0.035	0.692***
			(0.84)	(26.86)
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
N	11,469	11,469	11,469	11,469
Panel B: During-Financial Crisis				
	(1)	(2)	(3)	(4)
	Low Return	ES Index	High Return	ES Index
Low Return $_{t-1}$	-0.011	0.071		
	(-0.23)	(0.26)		
ES Index $_{t-1}$	-0.421	16.30***		
	(-0.42)	(2.59)		
High Return $_{t-1}$			-0.016	0.482
			(-0.12)	(1.42)
ES Index $_{t-1}$			**6.315***	17.09**
			(1.80)	(2.49)
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
N	1,891	1,891	1,891	1,891
Panel C: Post-Financial Crisis				
	(1)	(2)	(3)	(4)
	Low Return	ES Index	High Return	ES Index
Low Return $_{t-1}$	-0.021	**-0.058*** **		
	(-0.76)	**(-2.63)**		
ES Index $_{t-1}$	0.107***	0.394***		
	(4.37)	(13.63)		
High Return $_{t-1}$			0.001	-0.006
			(0.05)	(-0.40)
ES Index $_{t-1}$			-0.021	0.392***
			(0.67)	(13.57)
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
N	4,653	4,653	4,653	4,653

Table 7. Frequency of ES proposals

This table displays the number of ES proposals voted upon in 1997–2015, as reported by the ISS shareholder proposals databases. Panel A describes the frequency of ES proposals during a given year's AGM. Panel B reports the frequency of proposals voted upon during the sample period.

Panel A: Frequency of proposals in a given year's AGM

Number of ES proposals in a given year's AGM	Number of Firms	Total number of ES proposals
1	1348	1348
2	337	674
3	92	276
4	52	208
5	25	125
6	12	72
7	8	56
8	3	24
9	2	18
10	1	10
11	3	33
Overall	1883	2844

Panel B: Frequency of proposals over the whole sample period

Number of ES proposals during the entire period	Number of Firms	Total number of ES proposals
1	140	140
2	96	192
3	65	195
4	42	168
5	27	135
6	20	120
7	10	70
8	13	104
9	12	108
10	5	50
11-20	37	533
21-30	20	481
>31	11	548
Overall	498	2,844

Table 8. Voting results of ES shareholder proposals

Panel A and Panel B reveal the summary statistics for the percentage of votes in support of ES shareholder proposals by year and sponsor type, respectively. The number of shareholder proposals and the mean, median, minimum, and maximum of the percentage of favorable votes are reported. The sample includes 2,844 ES proposals voted upon in 1997–2015.

Panel A: Voting Results by Year

Year	N	Mean (%)	Median	Max (%)	Min (%)
1997	89	6.62	6.00	19.00	1.00
1998	97	7.78	6.00	31.00	2.00
1999	99	8.06	7.00	80.00	2.00
2000	120	7.00	6.00	24.00	1.00
2001	125	8.30	8.00	32.00	2.00
2002	139	9.19	7.00	58.00	1.00
2003	129	11.19	8.00	93.00	2.00
2004	168	11.74	8.00	98.00	1.00
2005	157	9.56	8.00	56.00	0.00
2006	239	12.89	8.40	75.50	1.00
2007	240	14.08	8.50	95.30	0.30
2008	191	13.32	8.30	52.80	0.30
2009	161	16.80	9.60	54.20	0.40
2010	156	19.38	14.65	60.30	0.50
2011	146	20.47	21.25	92.80	0.80
2012	150	18.29	12.85	52.70	1.10
2013	140	20.16	18.05	96.20	1.00
2014	148	21.58	23.15	51.80	0.60
2015	150	20.37	23.00	51.50	0.30
Overall	2,844	13.98	8.20	98.00	0.00

Panel B: Voting Results by Sponsor

Proposal Sponsor	N	Mean (%)	Median	Max (%)	Min (%)
SRIs	422	17.71	10.00	92.80	0.60
Pension funds	369	23.34	23.30	93.00	0.50
Other institutional	99	19.50	20.30	55.50	1.30
Foundations and	206	10.52	7.00	96.20	0.30
Religious Groups	622	11.25	7.20	95.30	0.30
Unions	105	16.07	10.00	44.70	2.10
Individuals	233	6.96	5.70	31.70	0.80
Other	85	19.85	22.00	49.40	1.80
Undisclosed	703	10.77	8.00	98.00	0.00

Table 9. Voting outcome and past stock performance

This table shows the percentage of votes in favor of ES shareholder proposals related to past stock performance. The dependent variable is the average of votes a firm receives for ES shareholder proposals at the AGM. In Column (1), the independent variable is three-month stock returns before the AGM. In Column (2), the independent variable is six-month stock returns. In Column (3), the independent variable is twelve-month stock returns. In Column (4), the independent variable is five-year stock returns. All returns are adjusted by the value-weighted market return from CRSP. The control variables are *ROA*, *logsize*, *leverage*, *Tobin's Q*, *dividends*, *cash*, and dummy variable *S&P 500*. Year-fixed effects and industry-fixed effects are included in all regressions. "Industry" is defined according to Fama-French's (1997) 48 industry classification. Standard errors are clustered by firm. T-statistics are shown in parentheses. ∗∗∗, ∗∗ and ∗ represent 1%, 5%, and 10% significance levels, respectively.

	Dependent Variable: The percentage of votes in favour of ES proposal			
	(1)	(2)	(3)	(4)
$ret_{3,0}$	-2.170**			
	(-2.12)			
$ret_{6,0}$		-1.122		
		(-1.09)		
$ret_{12,0}$			-1.085	
			(-1.17)	
$ret_{60,0}$				0.274
				(0.77)
ROA	-6.925	-6.247	-6.296	-10.320
	(-0.88)	(-0.79)	(-0.80)	(-1.26)
Logsize	-1.777***	-1.802***	-1.819***	-1.842***
	(-4.57)	(-4.60)	(-4.63)	(-4.62)
Leverage	-7.957***	-8.204***	-8.228***	-7.522**
	(-2.64)	(-2.73)	(-2.74)	(-2.37)
Tobin's Q	0.682*	0.668*	0.682*	0.912**
	(1.76)	(1.72)	(1.76)	(2.19)
Dividends	-10.180	-10.670	-10.710	-5.776
	(-0.46)	(-0.48)	(-0.48)	(-0.25)
Cash	-9.226**	-9.056**	-8.870**	-10.42**
	(-2.25)	(-2.20)	(-2.16)	(-2.59)
S&P 500	2.279	2.369*	2.406*	2.443*
	(1.62)	(1.68)	(1.70)	(1.68)
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
N	1,720	1,720	1,720	1,658
Adj-R Sq	0.273	0.272	0.272	0.274

Table 10. The effect of past stock performance on voting outcomes: Sub-Sample tests

This table demonstrates how the percentage of votes in favor of ES shareholder proposals relates to past stock performance in different sub-samples. The dependent variable is the average of votes a firm receives in favor of ES shareholder proposals at the AGM. The independent variables of interest are three-month stock returns before the proposal submission date ($ret_{3,0}$). Panel A reports estimates of the impact on voting outcomes for the high return (Column 1) and the low return group (Column 2). High (low) return groups incorporate firms with $ret_{3,0}$ above (below) the 70th (30th) percentile each year. Panel B reports regression results for different types of ES shareholder proposals. Column 1 (2) uses a sample composed of proposals on environmental (social) issues. Panel C explores how the return-voting outcome relation varies over time in sub-sample periods. Columns 1, 2, and 3 estimate the pre-(1997–2006), during (2007–2009), and post-financial crisis (2010–2015) periods, respectively. T-statistics are shown in parentheses. ∗∗∗, ∗∗ and ∗ represent 1%, 5%, and 10% significance levels, respectively.

Panel A: Strong V.S. Poor Stock Performance

	(1) High Return	(2) Low Return
$ret_{3,0}$	-1.705	**-5.248***
	(-1.58)	**(-1.73)**
Year FE	Yes	Yes
Industry FE	Yes	Yes
Controls	Yes	Yes
N	1,035	361
Adj-R Sq	0.271	0.244

Panel B: Environmental V.S. Social Proposals

	(1) Environmental Proposals	(2) Social Proposals
$ret_{3,0}$	-10.175*	-3.460***
	(-1.77)	(-2.64)
Year FE	Yes	Yes
Industry FE	Yes	Yes
Controls	Yes	Yes
N	268	1,448
Adj-R Sq	0.352	0.294

Panel C: Sub-sample Periods

	(1) Pre-financial crisis	(2) During-financial crisis	(3) Post-financial crisis
$ret_{3,0}$	-2.405	-2.371	**-15.456****
	(-1.39)	(-1.25)	**(-2.57)**
Year FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Controls	Yes	Yes	Yes
N	935	293	572
Adj-R Sq	0.193	0.329	0.310

Table 11. The effect of past stock performance on the supporting rate and the passing likelihood of ES Proposals

Panel A and Panel B report regression results of the percentage of votes in favor of an ES shareholder proposal and the probability of passing an ES proposal on past stock performance, respectively. In Panel A, the dependent variable is the percentage of the vote a firm receives for each ES shareholder proposal at the AGM. In Panel B, the dependent variable is a firm's likelihood of passing an ES shareholder proposal at the AGM. The independent variable of interest is three-month stock returns before the proposal submission date. Similar to Table 8, we control for *ROA*, *logsize*, *leverage*, *Tobin's Q*, *dividends*, *cash*, and dummy variable *S&P 500*. Sponsor-fixed effects are controlled using sponsor-type dummies in Columns (1) and (3). Proposal-theme fixed effects are included using theme dummies in Columns (2) and (3). Year-fixed effects and industry-fixed effects are applied to all regressions. We define "industry" according to the Fama-French (1997) 48 industry classification. Standard errors are clustered at the firm level. T-statistics are displayed in parentheses. ***, ** and * represent 1%, 5%, and 10% significance levels, respectively.

Panel A: The percentage of votes in favor of ES proposals			
	（1）	（2）	（3）
$ret_{3,0}$	-2.802***	-2.351**	-2.640**
	(-2.88)	(-2.02)	(-2.47)
Sponsor Types	Yes	No	Yes
Issue Themes	No	Yes	Yes
Control variables	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
N	929	929	929
Adj-R Squared	0.30	0.36	0.37
Panel B: The probability of passing ES proposals			
	（1）	（2）	（3）
$ret_{3,0}$	-0.028*	-0.028*	-0.030*
	(-1.71)	(-1.70)	(-1.79)
Sponsor Types	Yes	No	Yes
Issue Themes	No	Yes	Yes
Control variables	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
N	929	929	929
Adj-R Squared	0.06	0.08	0.09

Appendix 1. List of MSCI ESG Ratings

Rating Category	Coverage
Environment Strengths	Environmental Opportunities - Opportunities in Clean Tech; Pollution & Waste - Toxic Emissions and Waste; Pollution & Waste - Packaging Materials & Waste; Climate Change - Carbon Emissions; Environmental Management Systems; Natural Capital - Water Stress; Natural Capital - Biodiversity & Land Use; Natural Capital - Raw Material Sourcing; Climate change -Financing Environmental Impact; Environmental Opportunities - Opportunities in Green Building; Environmental Opportunities - Opportunities in Renewable Energy; Pollution & Waste - Electronic Waste; Climate Change - Energy Efficiency; Climate Change - Product Carbon Footprint; Climate Change - Climate Change Vulnerability; Environment - Other Strengths.
Environment Concerns	Toxic Emissions and Waste; Energy & Climate Change; Biodiversity & Land Use; Operational Waste (Non-Hazardous); Supply Chain Management; Water Stress; Environment - Other Concerns.
Community Strengths	Community Engagement.
Community Concerns	Impact on Community.
Employee Strengths	Union Relations; Cash Profit Sharing; Employee Involvement; Employee Health & Safety; Supply Chain Labor Standards; Human Capital Development; Labor Management; Controversial Sourcing; Human Capital - Other Strengths.
Employee Concerns	Collective Bargaining & Unions; Health & Safety; Supply Chain Labor Standards; Child Labor; Labor Management Relations; Labor Rights & Supply Chain.
Diversity Strengths	Representation; Board Diversity - Gender.
Diversity Concerns	Discrimination & Workforce Diversity; Board Diversity - Gender.
Product Strengths	Product Safety and Quality; Social Opportunities - Access to Healthcare; Social Opportunities - Access to Finance; Social Opportunities - Access to Communications; Social Opportunities - Opportunities in Nutrition and Health; Product Safety - Chemical Safety; Product Safety - Financial Product Safety; Product Safety - Privacy & Data Security; Product Safety - Responsible Investment; Product Safety - Insuring Health and Demographic Risk.
Product Concerns	Product Quality & Safety; Marketing & Advertising; Anticompetitive Practices; Customer Relations; Privacy & Data Security; Other Concerns.

Appendix 2. An Example of Calculating the ES index

To understand how the adjusted ES scores are calculated, we will take Apple Inc. as an example. For the data coverage in 2015, Apple exhibits strength in five indicators (i.e., ”Cash Profit Sharing”, ”Employee Involvement”, ”Supply Chain Labor Standards”, ”Controversial Sourcing”, and ”Human Capital-Other”), which means that it gets 5 points for employee relations strengths. After scaled by the maximum number of strengths in this category (i.e., 9) this year, Apple gets an adjusted score of 5/9=0.556 in employee relations strength. At the same time, Apple shows concerns on ”Supply Chain”, ”Child Labor”, and ”Labor-Management Relations”, which gives it 3 points for employee relations concerns. We scale it by 6, the maximum number of concerns reported in this category, which yields 3/6=0.5 for the adjusted employee relations concern score for Apple. Then, we deduct adjusted concern scores from adjusted strengths scores to obtain an adjusted score for employee relations, which is 0.556-0.5=0.056. The adjusted scores for the other four broad categories (i.e., environment, community, diversity, and product) are measured in the same vein: Apple obtains 0.170, 0.000, 0.000, -0.300 for environment, community, diversity, and product, respectively. In sum, the ES index for Apple is equal to 0.056+0.170+0.000+0.000-0.300=-0.074. Next, we adjust this index by the median ES score for its industry: Chips–Electronic Equipment, which is 0. Thus, the final ES index used in our regression for Apple Inc. is -0.074.

Appendix 3. Variable Definitions

Variable Name	Coverage
Source: Compustat	
Book value of equity	According to Fama and French (1993), this is equal to the book value of shareholders' equity plus balance sheet deferred taxes and investment tax credit (if available), minus the book value of the preferred stock. Following Novy-Marx (2013), we calculate shareholders' equity as item *SEQ* if available, or else common equity plus the carrying value of preferred stock (item *CEQ*+ item *PSTK*) if available, or else total assets minus total liabilities (item *AT* -item *LT*). We calculate deferred taxes as the deferred taxes and investment tax credits (item *TXDITC*) if available, or else deferred taxes and/or investment tax credit (item *TXDB* and/or item *ITCB*). Depending on data availability, we use redemption (item *PSTKRV*), liquidation (item *PSTKL*), or par value (item *PSTK*) (in that order) to estimate the book value of preferred stock.
Profitability	Annual revenues (item *REVT*) minus cost of goods sold (item *COGS*), divided by total assets (item *AT*)
Investment	The growth of total assets (item *AT*) in year t divided by total assets at the end of year $t-1$
Leverage	Total debt (item *DLTT* + item *DLC*) divided by the total asset (item *AT*)
Cash	Cash and short-term investments (item *CHE*) scaled by total assets (item *AT*)
Dividends	Cash dividends (item *DVC*+ item *DVP*) over book assets (item *AT*)
Free cash flow	The operating income before depreciation (item *OIBDP*) minus interest expenses (item *XINT*) minus income taxes (item *TXT*) minus capital expenditures (item *CAPX*), scaled by the book value of total assets (item *AT*)
Dividend payout ratio	Total dividends (item *DVT*) divided by book value of equity (item *BE*)
Repurchase	The expenditure on the purchase of common and preferred stocks (item *PRSTKC*) minus preferred stock reduction (the first difference of item *PSTKL*)
No Repurchase Indicator	A dummy equal to one if a firm does not repurchase stocks
ROA	Net income (item *NI*) /average total assets (item *AT*)

Tobin's Q	The market value of assets divided by the book value of assets (item *AT*), where the market value of assets is calculated as the book value of total assets (item *AT*) plus the market value of common stocks less the sum of book value for common stocks (item *CEQ*) and the deferred taxes (item *TXDB*).
S&P 500	A dummy variable equal to one if a firm is in the S&P 500 firm list, zero otherwise
Source: CRSP	
Return	Annual stock return over the past twelve months
Logsize	The natural logarithm of market capitalization (stock price (item *PRC*) times shares outstanding (item *SHROUT*))
Logbm	The natural logarithm of book value (item *BE*) divided by market capitalization (stock price (item *PRC*) times shares outstanding (item *SHROUT*))
Log(age)	The natural logarithm of firm age, as measured by the number of years available in the CRSP
$ret_{n,0}$	The n-month buy-and-hold stock returns relative to the value-weighted market return from CRSP before the AGM.
Source: ISS	
%Votes	The percentage of votes on ES shareholder proposals at the AGM for each firm-year.

Appendix 4. PVAR Specification

We briefly summarized the estimation and testing process of the PVAR specification. Here is a two-equation reduced-form PVAR model:

$$RET_{it} = a_{0t} + \sum_{k=1}^{m} a_k RET_{it-k} + \sum_{k=1}^{m} b_k ES_{it-k} + \delta C_{it} + f_i + \varepsilon_{it} \quad (1)$$

$$ES_{it} = c_{0t} + \sum_{k=1}^{m} c_k RET_{it-k} + \sum_{k=1}^{m} d_k ES_{it-k} + \phi C_{it} + g_i + \omega_{it} \quad (2)$$

where $i \in 1, \ldots, N$ and $t \in 1, \ldots, T$ index firms and years, respectively. a_{0t}, a_1, ..., a_m, b_1, ..., b_m are the coefficients of regressing RET_{it} on a constant, previous values of RET_{it} and ES_{it} while c_{0t}, c_1, ..., c_m, d_1, ..., d_m are the coefficients of regressing ES_{it} on a constant, previous values of RET_{it} and ES_{it}. k (from 1 to m) is the length of year lags, which is sufficiently large to ensure that error terms ε_{it} and ω_{it} are white noise. C_{it} is a vector of exogenous control variables, f_i and g_i are unobserved firm fixed effects for stock returns *RET* and *ES* index, respectively.

We assume that the error terms, ε_{it} and ω_{it}, satisfy the following orthogonality properties:

$$E(\varepsilon_{it} * RET_{is}) = E(\varepsilon_{it} * ES_{is}) = 0, \ (s < t) \quad (3)$$

$$E(\omega_{it} * RET_{is}) = E(\omega_{it} * ES_{is}) = 0, \ (s < t) \quad (4)$$

One way to eliminate the firm fixed effects f_i and g_i is to apply the first difference (FD) transformation (Anderson and Hsiao, 1982). Next, we show how to estimate equation (1), which also applies to equation (2). We subtract the equation in year $t-1$ from the equation for year t, which yields the transformed equation:

$$RET_{it} - RET_{it-1} = \alpha_t + \sum_{k=1}^{m} a_k (RET_{it-k} - RET_{it-k-1}) + \sum_{k=1}^{m} b_k (ES_{it-k} - ES_{it-k-1}) + \delta (C_{it} - C_{it-1}) + v_{it} \quad (5)$$

where

$$\alpha_t = a_{0t} - a_{0t-1}$$

$$v_{it} = \varepsilon_{it} - \varepsilon_{it-1}$$

The orthogonality conditions (3) indicate that the error term v_{it} of the transformed equation (5) satisfies the following orthogonality conditions:

$$E(v_{it} * RET_{is}) = E(v_{it} * ES_{is}) = 0, \ (s < (t-1)) \quad (6)$$

Therefore, the vector of instruments that is able to identify the coefficients of equation (5) is

$$Z_{it} = [RET_{it-2}, \ ..., RET_{i1}, ES_{it-2}, \ ..., \mathrm{ES}_{i1}] \tag{7}$$

According to the orthogonality condition (6), a necessary condition for the identification of equation (5) is that there are at least as many instrumental variables as right-hand-side endogenous variables. There are 2*m* right-hand-side endogenous variables in equation (5) and the dimension of instruments Z_{it} is 2*t*−4 so we need to have $T \geq m+2$ to estimate coefficients for equation (5) as well as equation (1).

As an alternative to FD transformation, Arellano and Bover (1995) put forward orthogonal deviation (FOD) transformation (Helmert's transformation), which is useful in the context of models with predetermined variables. Compared with FOD transformation, the FD transformation might amplify the gap in unbalanced panels. For example, if some RET_{it} is missing, then the first differences at time *t*+1 and *t* are missing. Also, the FD transformation requires a longer length of time periods than FOD transformation to identify parameters in equation (1). In essence, the FOD transformation subtracts the average of future observations available in the sample. Thus, equation (1) will be transformed into:

$$\begin{aligned} c_{it}(RET_{it} - \overline{RET_{it}}) = a_{0t} + \sum_{k=1}^{m} a_k c_{it}(RET_{it-k} - \overline{RET_{it-k}}) + \sum_{k=1}^{m} b_k c_{it}(ES_{it-k} - \overline{ES_{it-k}}) \\ + \delta c_{it}(C_{it} - \overline{C_{it}}) + c_{it}(\varepsilon_{it} - \varepsilon_{it-1}), \ t = 1, \ ..., \ T\text{-}1 \end{aligned} \tag{8}$$

where the weighting $c_{it} = \dfrac{T_i - t_i}{T_i - t_i + 1}$, is used to equalize the variance. $T_i - t_i$ is the number of all available future observations for firm *i* at time *t*. The $\overline{Variable}$ represents the mean of all available future observations for each original variable. Thus, for each of the first $T-1$ observations of each firm *i*, we subtract the mean of the remaining future observations available in the future through this transformation. Obviously, since the transformed equation (8) does not involve past error terms, the dimension of available instruments will grow into:

$$Z_{it} = [RET_{it-1}, \ ..., RET_{i1}, ES_{it-1}, \ ..., \mathrm{ES}_{i1}] \tag{9}$$

According to the order condition for identification, we must have $T \geq m+1$ observations to estimate parameters for the transformed equation (8).

Given the appealing attributes of FOD transformation, we first take the FOD transformation to get rid of firm fixed effects, and then follow the standard GMM procedure, using instrumental variables to estimate the preliminary one-step consistent estimator for the transformed equation (8). Then, we use the residuals obtained from preliminary estimates to form the variance-covariance matrix. Finally, we apply the estimated variance-covariance matrix to get a two-step consistent GMM estimator of the coefficients.

Appendix 5. Voting Results of ES Shareholder Proposals by Areas, Themes and Issues

This table classifies all the ES shareholder proposals which come to the vote into different areas, themes, and issues from 1997 to 2015. Each proposal area consists of different themes, and each proposal theme includes several types of issues. For example, three themes (climate change, ecosystem services, and environment management) are under the area of "environment". Three issues (biofuels, climate change strategy, and emissions management and reporting) are covered by the theme of "climate change". The last five columns report the summary statistics of voting results under each theme.

Appendix 5 – *Continued*

Areas and Themes	Issues within each theme	N	Mean (%)	Median (%)	Maximum (%)	Minimum (%)
a. Environment						
a.1 Climate change	Biofuels, Climate change strategy, Emissions management and reporting	331	16.27	10.90	92.00	1.10
a.2 Ecosystem services	Access to land, Biodiversity management, Water	37	9.27	7.00	29.40	2.00
a.3 Environment management	Environmental standards, Pollution control, Supply chain environmental standards, Waste and recycling	110	13.04	8.25	41.70	3.00
b. Social						
b.1 Public health	Access to medicines, HIV or AIDs, Nutrition, Product safety	324	7.47	6.00	98.00	0.00
b.2 Human rights	Community relations, Privacy and free expression, Weak governance zones, Human rights standards, Fair lending, Charitable contributions, Security	515	11.26	7.10	95.30	0.80
b.3 Labor standards	Diversity, Health and safety, ILO core conventions, Supply chain labor standards	264	17.16	10.00	93.00	0.00
b.4 Business ethics	Bribery and corruption, Political influence, Responsible marketing, Whistle-blowing systems	516	20.36	19.40	75.50	0.50
b.5 Sustainability management and reporting	Disclosure and reporting, Matching gift, Governance of sustainability issues, Stakeholder engagement, UNGC compliance	488	15.12	10.00	92.80	0.70
b.6 Animal rights	Protect animals	142	4.94	4.45	25.40	0.30
b.7 Other	Other social issues related	117	10.72	7.30	96.20	0.30

Internet Appendix

Table A.1. ES performance and return relation: High financial capacity

This table shows PVAR estimates of the relation between the ES index and poor stock performance (strong stock performance) for firms with high financial capacity. In Panels A, B, and C, as in Table 4, we estimate the regression results for firms with low leverage, high free cash flows, and positive share repurchase, separating low and high returns. A low return (high return) dummy takes the value of 1 if stock returns are below (above) the 30th (70th) percentile each year, and zero otherwise. ∗∗∗, ∗∗ and ∗ represent 1%, 5%, and 10% significance levels, respectively.

Panel A: Low Leverage				
	(1)	(2)	(3)	(4)
	Low Return	ES Index	High Return	ES Index
Low Return $_{t-1}$	-0.054***	**-0.023****		
	(-2.64)	**(-2.09)**		
ES Index $_{t-1}$	0.193***	0.674***		
	(2.88)	(14.28)		
High Return $_{t-1}$			-0.025	0.012
			(-1.39)	(1.27)
ES Index $_{t-1}$			-0.043	0.652***
			(-0.61)	(13.08)
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
N	5,474	5,474	5,474	5,474
Panel B: High Free Cash Flow				
	(1)	(2)	(3)	(4)
	Low Return	ES Index	High Return	ES Index
Low Return $_{t-1}$	-0.008	**-0.028***		
	(-0.48)	**(1.97)**		
ES Index $_{t-1}$	0.027	0.892***		
	(0.59)	(16.15)		
High Return $_{t-1}$			-0.046***	0.003
			(-2.61)	(0.30)
ES Index $_{t-1}$			0.013	0.903***
			(0.26)	(16.54)
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
N	5,253	5,253	5,253	5,253
Panel C: Positive Repurchase				
	(1)	(2)	(3)	(4)
	Low Return	ES Index	High Return	ES Index
Low Return $_{t-1}$	-0.042***	**-0.014***		
	(-3.51)	**(1.90)**		
ES Index $_{t-1}$	-0.027	0.797***		
	(-0.99)	(32.43)		
High Return $_{t-1}$			-0.058***	0.001
			(-5.12)	(0.15)
ES Index $_{t-1}$			-0.031	0.799***
			(-1.12)	(32.46)
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
N	11,109	11,109	11,109	11,109

Table A.2. ES performance and return relation: High customer awareness

This table shows PVAR estimates of the relation between the ES index and weak stock performance (strong stock performance) for firms with high customer awareness. In Panels A and B, similar to Table 4, we estimate the regression results for firms from Business-to-consumer (B2C) industries and firms with positive advertising spending, respectively, but separate low and high returns. A *low return* (*high return*) dummy takes the value of 1 if stock returns are below (above) the 30th (70th) percentile each year, and 0 otherwise. ∗∗∗, ∗∗ and ∗ represent 1%, 5%, and 10% significance levels, respectively.

Panel A: B2C industries				
	(1)	(2)	(3)	(4)
	Low Return	ES Index	High Return	ES Index
Low Return $_{t-1}$	-0.053***	**-0.018****		
	(-4.00)	**(-2.30)**		
ES Index $_{t-1}$	-0.005	0.872***		
	(-0.16)	(28.09)		
High Return $_{t-1}$			-0.040***	0.003
			(-3.57)	(0.44)
ES Index $_{t-1}$			0.001	0.872***
			(0.06)	(28.29)
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
N	11,408	11,408	11,408	11,408
Panel B: Positive Advertising Spending				
	(1)	(2)	(3)	(4)
	Low Return	ES Index	High Return	ES Index
Low Return $_{t-1}$	-0.067***	**-0.016***		
	(-4.96)	**(-1.67)**		
ES Index $_{t-1}$	0.019	0.872***		
	(0.55)	(24.24)		
High Return $_{t-1}$			-0.037***	-0.0035
			(-3.06)	(-0.42)
ES Index $_{t-1}$			-0.033	0.876***
			(-0.90)	(24.12)
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
N	9,113	9,113	9,113	9,113

Table A.3. ES performance and return relation: Customer awareness

This table shows the PVAR estimates of how the relation between the ES index and abnormal stock returns varies according to customer awareness. Abnormal returns are estimated based on the market model. In Panel A, we classify industries into Business-to-consumer (B2C) in*dustries* and *other industries*. In Panel B, we classify sample firms into *positive advertising* and *non-advertising*. ∗∗∗, ∗∗ and ∗ represent 1%, 5%, and 10% significance levels, respectively.

Panel A: Consumer Products

	B2C industries		*Other industries*	
	(1)	(2)	(3)	(4)
	Returns	ES Index	Returns	ES Index
Returns $_{t-1}$	-0.012	**-0.017****	-0.048***	-0.003
	(-1.07)	**(-2.01)**	(-3.47)	(-0.47)
ES Index $_{t-1}$	0.031	0.879***	**-0.046*** **	0.748***
	(1.09)	(27.40)	**(-2.75)**	(35.18)
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
N	11,408	11,408	13,408	13,408

Panel B: Advertising Spending

	Positive advertising		*Non advertising*	
	(1)	(2)	(3)	(4)
	Returns	ES Index	Returns	ES Index
Returns $_{t-1}$	-0.032**	**-0.020***	-0.022*	-0.006
	(-2.38)	**(-1.87)**	(-1.88)	(-0.90)
ES Index $_{t-1}$	0.016	0.876***	**-0.048*** **	0.786***
	(0.48)	(23.16)	**(-2.58)**	(33.16)
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
N	9,113	9,113	13,763	13,763

Table A.4. The relation between ES categories and stock returns: Low customer awareness

This table reports the regression results of the relation between different ES performance categories and stock returns for low customer awareness firms. Firms are classified as *low customer awareness* if they are not part of a B2C industry. In Panel A, the ES dimensions are *environment* and *social* in Columns (1)–(2) and Columns (3)–(4), respectively. In Panel B, the ES categories are *community* and *employee relations* in Columns (1)–(2) and Columns (3)–(4), respectively. In Panel C, the ES areas are *products* and *diversity* in Columns (1)–(2) and Columns (3)–(4), respectively. ∗∗∗, ∗∗ and ∗ indicate significance at 1%, 5%, and 10% levels, respectively.

Panel A: Environment v.s. Social				
	(1)	(2)	(3)	(4)
	Return	Environment	Return	Social
Return $_{t-1}$	-0.019	-0.003**		
	(-1.37)	(-2.23)		
Environment $_{t-1}$	-0.074	0.746***		
	(-1.58)	(40.81)		
Return $_{t-1}$			-0.017	-0.005
			(-1.22)	(-1.07)
Social $_{t-1}$			**-0.063*** **	0.720***
			(-2.75)	(34.90)
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
N	13,408	13,408	13,408	13,408
Panel B: Community v.s. Employee Relations				
	(1)	(2)	(3)	(4)
	Return	Community	Return	Employee
Return $_{t-1}$	-0.016	0.001		
	(-1.18)	(0.73)		
Community $_{t-1}$	**-0.116*** **	0.595***		
	(-3.04)	(13.17)		
Return $_{t-1}$			-0.018	0.002
			(-1.30)	(0.88)
Employee $_{t-1}$			-0.030	0.698**
			(-0.76)	(47.82)
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
N	13,408	13,408	13,408	13,408
Panel C: Products v.s. Diversity				
	(1)	(2)	(3)	(4)
	Return	Products	Return	Diversity
Return $_{t-1}$	-0.019	-0.003*		
	(-1.42)	(-1.93)		
Products $_{t-1}$	0.119**	0.749***		
	(2.45)	(37.04)		
Return $_{t-1}$			-0.019	-0.004
			(-1.38)	(-1.11)
Diversity $_{t-1}$			**-0.132*** **	0.658***
			(-3.14)	(27.15)
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
N	13,408	13,408	13,408	13,408

Table A.5. ES performance and return relation: Social capital

This table shows PVAR estimates of how the relation between the ES index and abnormal stock returns varies with the financial crisis. In Panel A, B, and C, we present estimation results of the relationship between the ES index and past weak stock performance (strong stock performance) in the pre-financial crisis, during-financial crisis, and post-financial crisis periods, respectively. Low return (high return) indicator variables take the value of 1 if stock returns are below (above) the 30th (70th) percentile each year, and 0 otherwise. ***, ** and * stand for 1%, 5%, and 10% significance levels, respectively.

Panel A: Pre-financial crisis				
	(1)	(2)	(3)	(4)
	Low Return	ES Index	High Return	ES Index
Low Return $_{t-1}$	-0.002	0.001		
	(-0.18)	(0.01)		
ES Index $_{t-1}$	-0.061	0.696***		
	(-1.42)	(26.54)		
High Return $_{t-1}$			-0.027**	-0.007
			(2.33)	(-1.32)
ES Index $_{t-1}$			0.032	0.692***
			(0.74)	(26.88)
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
N	11,469	11,469	11,469	11,469
Panel B: During-financial crisis				
	(1)	(2)	(3)	(4)
	Low Return	ES Index	High Return	ES Index
Low Return $_{t-1}$	-0.091	0.385		
	(-0.80)	(1.12)		
ES Index $_{t-1}$	-2.187	16.02***		
	(-1.07)	(2.66)		
High Return $_{t-1}$			0.044	-0.079
			(0.62)	(-0.41)
ES Index $_{t-1}$			**4.472***	16.16**
			(1.75)	(2.59)
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
N	1,891	1,891	1,891	1,891
Panel C: Post-financial crisis				
	(1)	(2)	(3)	(4)
	Low Return	ES Index	High Return	ES Index
Low Return $_{t-1}$	-0.016	**-0.044****		
	(-0.57)	**(-2.27)**		
ES Index $_{t-1}$	0.084***	0.399***		
	(3.31)	(13.50)		
High Return $_{t-1}$			-0.021	0.019
			(-0.93)	(1.34)
ES Index $_{t-1}$			-0.062*	0.390***
			(-1.85)	(13.43)
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
N	4,653	4,653	4,653	4,653

Table A.6. Social capital: High customer awareness

This table shows PVAR estimates of how the relation between the ES index and abnormal stock returns varies with the financial crisis in high customer awareness firms. Firms are classified as high customer awareness firms if they are in a B2C industry. In Panel A, we organize our sample period into pre-(1991–2006), during-(2007–2009), and post- (2010–2015) financial crisis periods, respectively. In Panel B, C, and D, we present estimation results of the relationship between the ES index and past weak (strong) stock performance for the pre-financial crisis, during-financial crisis, and post-financial crisis periods. ∗∗∗, ∗∗ and ∗ stand for 1%, 5%, and 10% significance levels, respectively.

Panel A: Pre-financial crisis				
	(1)	(2)	(3)	(4)
	Low Return	ES Index	High Return	ES Index
Low Return $_{t-1}$	-0.009	-0.003		
	(-0.48)	(-0.38)		
ES Index $_{t-1}$	0.092	0.634***		
	(1.14)	(14.56)		
High Return $_{t-1}$			0.012	-0.006
			(0.71)	(-0.68)
ES Index $_{t-1}$			-0.017	0.637***
			(-0.24)	(15.16)
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
N	5,501	5,501	5,501	5,501
Panel B: During-financial crisis				
	(1)	(2)	(3)	(4)
	Low Return	ES Index	High Return	ES Index
Low Return $_{t-1}$	-0.053	-0.002		
	(-1.26)	(-0.01)		
ES Index $_{t-1}$	-0.189	14.79**		
	(-0.13)	(1.97)		
High Return $_{t-1}$			-0.125	0.493
			(-1.10)	(1.60)
ES Index $_{t-1}$			3.675	15.84*
			(1.05)	(1.90)
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
N	906	906	906	906
Panel C: Post-financial crisis				
	(1)	(2)	(3)	(4)
	Low Return	ES Index	High Return	ES Index
Low Return $_{t-1}$	0.006	**-0.114****		
	(0.08)	**(-1.98)**		
ES Index $_{t-1}$	0.107	0.483***		
	(1.56)	(7.32)		
High Return $_{t-1}$			-0.004	0.128
			(-0.09)	(1.15)
ES Index $_{t-1}$			-0.117	0.747***
			(-1.32)	(4.00)
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
N	1,615	1,615	1,615	1,615