ESG Shareholder Engagement and Downside Risk

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March 2017

Abstract

Direct institutional shareholder engagement on environmental, social and governance (ESG) issues has become increasingly important. We show that ESG shareholder engagement creates value by reducing downside risk, measured using lower partial moments and value at risk. We document this effect by exploiting proprietary access to the complete engagement database of one of the world's largest institutional shareholder activist. We document a risk-reduction effect only for engagements where portfolio firms respond with real actions to the investor's demands. The risk effect of ESG engagement varies across engagement themes. It is effective when governance or strategy & risk topics are addressed, and if changes in firms' environmental policies are coupled with governance improvements.

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1. Introduction

Direct institutional shareholder engagement on environmental, social and governance (ESG) issues has become increasingly important. Several factors have contributed to this trend, including the increased public interest in corporate social responsibility (CSR), the growing size and importance of institutional shareholdings, and the relatively low success of shareholder resolutions on ESG issues.

Reducing downside risks related to ESG factors is considered one of the major drivers of direct firm engagement by institutional shareholders. The reason is that negative ESG exposures can imply substantial legal, reputational, operational, and financial risks for corporations. For example, BP's Deepwater Horizon oil spill in 2010, a typical example of a tail risk event, reminded many investors of the importance of having robust environmental policies in place (e.g., Dyck et al., 2016). An increasing number of institutions therefore actively engage with their constituent firms through direct engagement with management or the board, so as to reduce risks from ESG exposures. The underlying rationale is that higher standards of corporate ESG practice serve as an insurance mechanism against harmful, risk-inducing events. Hence, improved ESG standards can reduce downside risk via mitigating the likelihood of regulatory, legislative or consumer action taken against firms.[1]

This paper provides *direct* evidence that ESG shareholder engagement reduces downside risk at portfolio firms. We document this effect based on proprietary engagement data provided by a large institutional investor with more than $200 billion in assets under management. The investor is considered to be one of the most influential activists when it comes to promoting and developing ESG standards at portfolio firms. Our data contain 682 engagements across 296 targeted firms worldwide, covering the period 2005 to 2014. The investor provided us with full access to its

[1] Large institutional investors—also called "universal owners" due to their highly diversified and long-term portfolios—are exposed not only to ESG risk at individual portfolio firms, but also to corporate externalities from environmental damage or social misconduct.

engagement database, including its shareholdings, engagement reports, action reports, and measures of success.

In the first part of the paper, we provide a detailed descriptive analysis of the institutional processes behind the investor's ESG engagement. We show that the investor most commonly engages over corporate governance issues, accounting for about half of all engagements. This is followed by social & ethical engagements (21%), environmental engagements (18%), and strategy & risk engagements (13%). Within the broader area of governance, the investor most frequently intervenes over concerns related to board structure and remuneration. In terms of social & ethical themes, the investor engages mostly over health and safety issues, supply chain topics, and bribery and corruption. The primary theme in the area of environmental engagement is climate change. Strategy & risk topics are mostly driven by concerns over a firm's business strategy and risk management.

In terms of measuring engagement success, the investor uses four milestones to track each intervention: (i) investor raises concern with the target company (Milestone 1); (ii) company acknowledges the concern that was raised (Milestone 2); (iii) company takes actions to address the concern (Milestone 3); and (iv) investor successfully completes the engagement (Milestone 4). In total, 28% of all engagements successfully achieve all four milestones, 23% achieve Milestone 3, 34% only achieve Milestone 2, and 15% are at the stage of raising a concern. The investor needs, on average, four months to complete Milestone 1. It takes eleven months until a firm acknowledges an ESG issue (Milestone 2), 24 months until a target also takes actions and develops a strategy to address an issue (Milestone 3), and 34 months until an entire engagement is successfully completed.

The investor primarily uses a private and non-public route to engage portfolio firms, consistent with more general evidence on shareholder engagement in McCahery, Sautner, and Starks (2016). Among the 2,927 interactions between the investor and its portfolio firms, more than 60% take the form of private meetings (1,778 interactions), followed by phone calls (606), emails

(204), and letters (203). Milestone 1 can be completed, on average, with one meeting per engagement, while it takes on average two meetings to achieve Milestone 2. Moving from Milestone 2 to Milestone 3 is generally the most difficult step, taking as many as four additional meetings. Once Milestone 3 is achieved, it requires on average three further meetings to successfully complete an engagement. The finding that the investor prefers private negotiations to public engagement is consistent with recent theoretical evidence in Levit (2014), who shows that if an activist's information becomes public, the activist loses credibility and the ability to influence the manager's actions.

Our data also allow us to describe the governance body at each portfolio firm that is addressed by the investor. Overall, senior executives (1,004 contacts), boards of directors (805), and chairmen (471) are the most frequently contacted bodies. However, there is heterogeneity in the line of contact depending on the specific ESG topic. Dialogues over social and environmental issues are conducted mostly with senior executives, CSR and investor relations, whereas governance as well as strategy & risk issues tend to be raised directly with the board, the chairman or senior executives.

In the second part of the paper, we study whether and how ESG engagement reduces downside risk, which we measure using three variables. Our first two measures capture the distribution of returns that fall below the 0%-return-threshold. We calculate these measures as the lower partial moments (LPMs) of the second and third order, respectively (Bawa, 1975; Fishburn, 1977). Different from stock return volatility, these measures capture *negative* return fluctuations, reflecting many long-term investors' perception of risk and the wealth-protection motive of ESG engagements (Harlow, 1991). As a third measure of downside risk, we calculate an investment's value at risk (VaR) (e.g., Duffie and Pan, 1997). Empirical evidence suggests that this tail-risk measure is closely related to ESG risk (Diemont, Moore, and Soppe, 2016), as firms with better ESG performance are less vulnerable to company specific negative events (e.g., Krüger, 2015).

We document across all three measures that ESG engagements significantly reduce downside risk. We establish this risk-reduction effect by using an endogenous treatment-effects model that addresses potential selection in the engagement decision (Wooldridge, 2010).[2] We estimate this model using a set of matched control firms that were *not* targeted by the investor, but have similar characteristics in terms of their country origin, industry, and size (similar to Brav et al., 2008). The economic effects on risk that we attribute to ESG interventions are large. After controlling for selection, we find that engagement targets have LPMs of the second (third) order that are 1.1% (1.4%) lower. These numbers are economically meaningful, as both measures have mean values of 5.6% and 7.5% at control firms, respectively. We also find that engagement targets have value at risks (5%-VaR) that are 2.7% lower compared to matched control firms. This is again a large number as the VaR averages 14% across control firms, so that the reduction in VaR is about 20% of the mean value.

We then show that the effect of ESG engagement on downside risk is stronger for the more successful engagements, which we define as those where at least Milestone 3 is achieved. Hence, a risk-reduction effect of ESG engagement only exists for engagements where a portfolio firm responds with real actions to the investor's engagement demands. This corroborates the finding that it is indeed the engagement by the investor, rather than a selection effect, that reduces downside risk.

We further document that the risk-reducing effect of ESG engagements varies across engagement themes. ESG engagement is effective when governance or strategy & risk topics are addressed, while we cannot find direct effects for environmental topics *unless* they are combined with improving governance. This latter finding supports the notion that changing a firm's

[2] We use this approach to address the challenge that (unobserved) factors may affect both the investor's engagement decision and a target's downside risk. In addition, some ESG engagements may be triggered by public events, which may occur more frequently in industries where ESG issues are more important.

sustainability agenda without addressing governance is unlikely to reduce downside risk.[3] We cannot find corresponding effects for engagements over social & ethical themes, neither individually nor in combination with governance engagements.

Our paper contributes to the literature on shareholder activism by showing that intervention over ESG topics reduces downside risk. This finding complements existing work that focused primarily on the value-enhancing effects of ESG engagements (e.g., Smith, 1996; Becht et al. 2009; Dimson, Karakas, and Li, 2015; Carleton, Nelson, and Weisbach, 1998). We also complement studies that show that voluntary ESG or CSR efforts by firms decrease the probability of negative events occurring (Kim, Li, and Li, 2014; Krüger, 2015), and firm risk more generally (e.g., Albuquerque, Durnev, and Koskinen, 2015; Jo and Na, 2012; Godfrey, Merrill, and Hansen, 2009; Luo and Bhattacharya, 2009; Oikonomou, Brooks, and Pavelin, 2012). Our findings also complement Dyck et al. (2016), who show that institutional ownership is positively associated with firm-level environmental and social performance, and Liang and Renneboog (2016) who trace standards of corporate CSR back to the legal origins in a country.

Our paper proceeds as follows. Section 2 presents the data, and Section 3 the empirical methodology. Section 4 provides empirical results, and Section 5 concludes.

2. Data and Engagement Statistics

2.1 Engagement Data

Our institutional engagement data is provided by one of the largest institutional asset managers in the United Kingdom. The investor has been actively engaging with companies for over 20 years. The proprietary database provided by the investor contains 682 engagements across 296 targeted firms worldwide, and covers the period 2005 to 2014.

[3] This argument mirrors findings in Monks et al. (2004), who find that shareholder proposals which combine CSR issues with traditional corporate governance gain more shareholder support than issues of CSR alone.

The investor is considered to be one of the most influential activists when it comes to promoting and developing ESG standards at portfolio firms. By engaging with portfolio firms, the investor aims to incorporate long-term sustainability and risk management into business operations and corporate policies. The investor believes that companies with informed and involved shareholders are better able to manage risk and minimize the occurrence of tail risk events.

The investor provided us with full access to its online engagement database, including its shareholdings, engagement reports, action reports, and success milestones. The investor engages predominantly via a constructive, confidential dialogue, and prefers not to take a public route when seeking to promote change in companies, consistent with recent survey evidence on engagement by institutional investors in McCahery, Sautner, and Starks (2016).

2.2 Summary Statistics on ESG Engagement

Figure 1 illustrates the distribution of engagements by geography. The investor engages firms across 31 different countries, with the United Kingdom seeing the largest number of engagements (154 engagements or 23% of the sample). This is followed by the United States, for which our sample includes 137 engagements, and France, Japan, and Canada.

Figure 2 reports engagements by industry. Most engagements occur in the financial, oil & gas, basic materials, and consumer goods sectors, composing 426 engagements in total (about two-thirds of all engagements). Several engagements also take place in the industrial, consumer services, and utilities sector, while relatively few engagements occur in the sectors of health care, telecommunications, and technology.

Finally, Figure 3 shows that the number of engagements gradually increases since the beginning of our sample period in 2004, reaching a spike with 155 engagements in 2010. While the number of engagements per year decreases since then, it still remains above 50 per year till the end of our sample period in 2014.

The investor categorizes engagements into four themes: (i) corporate governance; (ii) social & ethical; (iii) environmental; and (iv) strategy & risk. Table 1 reports how frequently portfolio firms are engaged over these themes, as well as over the sub-themes that are within each of these broader areas. Overall, the investor most commonly engages portfolio firms over governance issues, accounting for about half of all engagements. This is followed by social & ethical engagements (21%), environmental engagements (18%), and strategy & risk engagements (13%). This distribution generally mirrors the numbers in Dimson, Karakas, and Li (2015), who also document that corporate governance engagements outpace those on environmental and social topics.

Within the broader area of governance, the investor most frequently intervenes over issues related to board structure (37%), remuneration (31%), succession planning (9%), and the separation of the chairman/CEO role (6%). In terms of social & ethical themes, the investor intervenes mostly because of concerns over health and safety issues (19%), supply chain topics (25%), and bribery and corruption (13%). Community relations, operations in troubled regions and employee relations are also frequently on the engagement agenda.

Within the area of environmental engagement, the investor focuses on issues related to climate change (45%). The primary intervention motives when it comes to strategy & risk topics are improving business strategy (47%) and risk management (40%).

In terms of measuring engagement success, the investor uses four milestones to track each intervention: (i) investor raises concern with the target company (Milestone 1); (ii) company acknowledges the concern that is raised (Milestone 2); (iii) company takes actions to address the concern (Milestone 3); and (iv) investor successfully completes the engagement (Milestone 4).

Table 2 shows that, across all engagements, 28% successfully achieve all four milestones, 23% achieve Milestone 3, 34% only achieve Milestone 2, and 15% are at the stage of raising concerns (Milestone 1). As in Dimson, Karakas, and Li (2015), the engagement success rate in our sample is

somewhat lower than that of activist hedge funds.[4] One reason might be that it is harder to persuade top management and the board to install ESG themes, compared to more financial topics such as capital structure or dividend policy. Second, ESG engagements by our investor might be less aggressive and less influential on target firms because ownership positions are lower compared to those of activists that often take concentrated positions,

Table 2 also displays descriptive statistics on engagement durations, reported by milestone and theme. The table illustrates that it takes, on average, four months to complete Milestone 1, eleven months until a portfolio firm also acknowledges an issues raised by the investor (Milestone 2), 24 months until the engagement target has also taken actions or developed a strategy to improve an issue (Milestone 3), and 34 months until all four milestones are successfully completed.[5] The table further shows that the minimum time needed to achieve one milestone is between one and two months, regardless of the stage of the engagement.

Regarding the length of engagement by theme, the table shows that environmental engagements take the least time for targets to acknowledge an engagement issue (Milestone 2) and to implement an action in response to the investor's demands (Milestone 3). In contrast, corporate governance engagements take the longest time when it comes to completing Milestone 1 and Milestone 2. Strategy & risk engagement require the longest duration for Milestone 3, and social & ethical issues take most time for eventually accomplishing an engagement success (Milestone 4).

Table 3, Panel A presents engagement actions by theme and milestone. Apart from the absolute number of actions, we also report the number of actions per engagement. The table shows that, among the set of 2,927 actions, more than 60% take the form of meetings (1,778 actions), followed by phone calls (606), emails (204), and letters (203). The table further shows that Milestone

[4] These success rates are 60% in Brav et al. (2008); 60% in Klein and Zur (2011), and 56% in Smith (1996).

[5] Becht et al. (2010) suggest that, in general, collaborative corporate governance engagements take 16 months, whereas confrontational ones take 43 months. Brav et al. (2008) find that the average duration of an engagement undertaken by a hedge fund is 12 month.

1 can be completed, on average, with one meeting per engagement, while it takes on average two meetings to achieve Milestone 2. Moving from Milestone 2 to Milestone 3 is the most difficult step, taking as many as four meetings. Once Milestone 3 is achieved, it requires on average three further meetings to successfully complete an engagement.

Table 3, Panel B presents data on the governance bodies or individuals at the portfolio firms that are contacted by the investor by means of their actions. The table shows that senior executives (1,004 contacts), boards of directors (805), and chairmen (471) are most frequently targeted. However, there is interesting heterogeneity depending on the specific engagement topic. Statistics classified by theme show that the investor has dialogues over social and environmental topics mostly with senior executives, CSR and investor relations, whereas it tends to directly communicate with the board of directors, chairmen, and senior executives over governance as well as strategy & risk issues.

Actions classified by milestone further show that the investor usually raises issues of concern directly with senior management (Milestone 1). Senior management also acknowledges in Milestone 2 the issue that is raised. To ensure that firms take measures to address the concerns (Milestones 3 and 4), the investor then roughly doubles the number of cases where it intervenes directly with the board, chairmen and senior executives.

3. Empirical Methodology

3.1 Identification Strategy

To examine whether ESG engagement has a risk-reduction effect, we use an endogenous treatment-effects model that aims to address selection bias in the engagement decision (Wooldridge, 2010). We use this approach to tackle the challenge that certain factors may affect both the investor's engagement decision and a target's downside risk. In addition, some ESG engagements

may be triggered by public events, which may occur more frequently in industries where ESG issues are more important.

To this end, we estimate an endogenous treatment-effects model that is expressed by both an outcome regression equation (1) and an engagement selection equation (2):

$$downside\ risk_{i,t} = \alpha_1 + engagement\ target_{i,t}\delta + x_{i,t}\beta + \varepsilon_{i,t} \quad (1)$$

$$engagement\ target_{i,t} = \alpha_2 + z_{i,t-1}\gamma + u_{i,t,} \quad (2)$$

where $engagement\ target_{i,t}$ is the treatment variable in year t and takes the value 1 if a firm is an engagement target, and 0 if it is a control firm; $downside\ risk_{i,t}$ is the outcome variable capturing risk in year t; and $x_{i,t}\ and\ z_{i,t-1}$ are a vector of control variables for the outcome and engagement selection equations in t and $t-1$. $\varepsilon_{i,t}$ and $u_{i,t}$ are error terms, and parameters are estimated using maximum likelihood. We explain all variables in detail below.

To be able to conduct this analysis, we create a set of matched control firms that have similar characteristics but were *not* targeted by the investor. To identify such firms, we use the initial engagement date for each target firm and then search for a control firm in the FTSE All-World index within the same year.[6] We match engagement targets with firms from this index using three matching variables, namely country, industry, and size, similar to Brav et al. (2008). We use the largest number of possible matches available in the FTSE All-World index.[7] Our matching approach provides us with a sample of 1,210 firms, including 296 engagement targets and 914 control firms.

Summary statistics, measured on an annual basis, for targets and control firms are presented in Table 4. We report in Panel A data from one year prior to the initial engagement, and in Panel B data post engagement. The post-engagement period is defined as the time between the initial engagement and the end of the sample period in 2014.

[6] We use this index as our engagement targets come from around the world. The index covers about 98% of the world's investable market capitalization and includes more than 7,000 firms from 47 different countries.
[7] We first match on country, then industry, and finally size. To match on size, we exploit that the index groups firms into two categories, medium and large size firms. We match only within the same size category.

Table 4, Panel A shows that engagement targets are larger, have higher market-to-book ratios, and pay higher dividends compared to control firms. Another distinct difference is that targets have lower profit margins compared to matched firms. It also appears that the investor engages with firms that generally have higher leverage and a higher free float. These differences between target and control firms highlight the need to address selection bias appropriately through an econometric model, as we do in our analysis.

We also report summary statistics by engagement success rate in Table 4. Target firms achieving Milestone 3 or above share similar characteristics with firms from the overall sample, except that profit margins are slightly higher compared to matched peers. In contrast, engagement targets only achieving Milestones 1 or 2 have lower profit margins one year before engagement.

Table 4, Panel B shows that market values, dividend yields and leverage continue to be higher for targets once engagement has happened. However, the difference in profit margin is much smaller than one year prior to engagement, possibly as target firms' profitability has improved after the engagement.

3.2 Outcome Variables: Downside Risk

We use three variables to measure downside risk. All measures use monthly return data over the period between the initial engagement and the end of the sample period ("post-engagement period"). Our first two measures are calculated as the lower partial moment of the second (*LPM (0,2)*) and third order (*LPM (0,3)*), respectively. Both variables capture the distribution of returns that fall below a certain threshold value, which we set equal to 0% for our analysis. *LPM (0,2)* and *LPM (0,3)* are calculated as the square and cube root of the semi-variance below 0%, respectively (Bawa, 1975; Fishburn, 1977). More formally, *LPM (0,2)* is defined as:

$$LPM\ (0,2) = \sqrt{\frac{1}{N_1 - 1}\sum_{i=1}^{N_1}(r_{n,i} - \overline{r_{n,i}})^2} \qquad (3)$$

where $r_{n,i}$ indicates the negative monthly return of firm i and $\overline{r_{n,i}}$ is the mean value of $r_{n,i}$. N_1 is the number of observed *negative* monthly returns for firm i during the measurement period. *LPM (0,3)* measures the extreme negative return dispersion and is defined as:

$$LPM(0,3) = \sqrt[3]{\left|\frac{1}{N_1-1}\sum_{i=1}^{N_1}\left(r_{n,i}\right)^3\right|} \qquad (4)$$

where $r_{n,i}$; $\overline{r_{n,i}}$ and N_1 are defined as above. We use the absolute value of *LPM (0,3)* in our analysis.

We use these two risk measures for several reasons. First, empirical evidence suggests that the distribution of stock returns is not normal, and instead characterized by skewness and heavy tails (e.g., Ang, Chen, and Xing, 2006; Singleton and Wingender, 1986). In this case, measures, such as stock return volatility, that do not distinguish between positive and negative events may produce biased results. Downside risk variables try to capture negative price fluctuations, which is also consistent with many investors' perception of risk (Harlow, 1991). Second, long-term institutional investors often hedge against downside risk, especially during times of economic turbulence (Hebb, 2011). Hence, the wealth-protection purpose of ESG engagement should be captured reasonably well in these downside-risk measures.

As a third measure, we calculate an investment's value at risk (*VaR*), by measuring the worst historical loss over the post-engagement period (e.g., Duffie and Pan, 1997). The concept of VaR has gradually gained importance in risk management and is promoted by various industry regulations.[8] More crucially, empirical evidence suggests that the tail-risk measure of VaR is closely related to ESG risk (Diemont, Moore, and Soppe, 2016). The intuition is that firms with better ESG performance are less vulnerable to company specific negative events. We measure the VaR by taking return outcomes ranked at the bottom fifth percentile (5%-VaR).

[8] For example, The Federal Reserve and regulators in the European Union have accepted VaR as a risk measure in financial reporting. In 1995, the SEC issued a proposal to encourage market risk disclosure using a VaR measure as one of three available methods.

3.3 Control Variables

We use two sets of control variables, namely variables that may determine the investor's engagement decision in equation (2), and variables that potentially affect downside risk in equation (1). We use the following variables to control for factors that prior literature related to the decision to engage: size; market-to-book ratio; profitability; dividend yield; leverage; and corporate governance.

We control for size as activist investors tend to engage with larger firms, which are more visible for institutional investors and their final asset owners, and likely imply higher investment portfolio risk (e.g., (e.g., Dimson, Karakas, and Li, 2015; Karpoff, Malatesta, and Walkling, 1996; Smith, 1996). We measure size using the logarithm of the equity market capitalization. We further control for the market-to-book ratio, which captures growth opportunities and value potential, reflecting some investors' engagement preferences (see Brav et al., 2008). We control for past performance using a firm's operating profit margin, calculated as operating income over sales. Past performance can affect an activist's engagement selection, as poor performance has been shown to trigger engagement (Karpoff, Malatesta, and Walkling, 1996; Smith, 1996). We further control for dividend yields as Dimson, Karakas, and Li (2015) show that target firms have relatively higher dividend yields. Dimson, Karakas, and Li (2015) also document that engagement targets have higher leverage than control firms, and we control for leverage, defined as total debt over common equity, as a result. Investors may also engage over concerns regarding target governance, which we try to capture with two proxies, namely ownership structure and investor protection. We control for ownership structures using the free float and for investor protection using the anti-director rights index (ADRI) from La Porta et al. (1998) and Spamann (2009).

When we investigate the effect of ESG engagement on investment risk in the outcome equations, we control for firm size and the market-to-book ratio to capture risk factors that affect investment risk (Fama and French, 1993). We also continue to control for leverage as higher debt

increases the volatility of the earning stream towards stockholders. Finally, we control in the outcome regressions for profitability, which has been shown to be related to firm risk (Wei and Zhang, 2006), as it reflects information about future cash flow streams which, in turn, can drive returns (e.g., Vuolteenaho, 2002).

4. Empirical Results: ESG Engagement and Downside Risk

We next analyze the effects of private shareholder intervention over ESG topics on downside risk. We report three sets of results. First, we present result of the overall effect of ESG engagement on risk. We then provide results by engagement success to corroborate that our results are indeed driven by the direct engagement of the investor and the subsequent response by the target. Finally, we provide results by engagement theme to understand which areas of engagement have the largest potential to reduce downside risk.

Constituting our first step, Table 5 reports estimates of the overall effect of ESG engagement on downside risk. Following the previously described endogenous treatment-effects model, we report results from the outcome (Panel A) and engagement selection (Panel B) regression. The sample in this table consists of a total of 1,210 firms, including the 296 engagement targets and the 914 control group firms. Recall that we measure downside risk for each target-control-group pair over the same time horizon, namely over the post-engagement period, i.e., the initial investment date to the end of the sample period. To make different pairs comparable, we standardize all measures by year.

In Column (1) and (2) of Table 5, Panel A we find that engagement targets have a 1.1% lower *LPM (0,2)* and a 1.4% lower *LPM (0,3)* when compared to control firms, both statistically significant at the 1% level. This finding implies that *negative* returns of engagement targets are statistically less dispersed than those of control firms. These numbers are economically meaningful, as both measures have mean values of 5.6% and 7.5% at control firms during the post-engagement period.

Turning in Column (3) to the link between ESG engagement and value at risk, we find that engagement targets have a VaR that is 2.7% lower compared to that of control firms, again significant at the 1% level. This is again a large number as the VaR averages 14% across control firms over the post-engagement period, so that the reduction in VaR is about 20% of this value.

With regards to the determinants of engagement, we find in Table 5, Panel B that larger firms are more often targeted by the investor. A possible reason is that the occurrence of ESG risks likely has more adverse legal or reputational consequences. Secondly, larger firms have been shown to respond more positively to shareholder activists (e.g., Dimson, Karakas, and Li, 2015). Furthermore, we find that firms that pay relatively high dividends are more likely to be engaged. Finally, the investor generally engages more in countries with better minority shareholder protection, as captured by the ADRI index. This finding corresponds to the results in Liang and Renneboog (2016), who find that corporate ESG standards are higher those countries where legal origins also foster stronger investor protection.

To sum up, the regressions Table 5 provide evidence for a wealth-protection effect of ESG engagement. This effect is obtained after controlling both for the endogenous engagement decisions and for several variables that may also affect downside firm risk.

As our second step, we document in Table 6 results of the ESG engagement effect by success rate. In this table we continue to run a treatment-effects model and keep using our control group firms. Columns (1) through (3) report result for targets with high engagement success rates, while Columns (4) through (6) show results for targets with low engagement success rates. We consider the engagement success to be high (low) if Milestones 3 or 4 (Milestone 1 or 2) have been achieved. [9] We do this sample split to corroborate that it is indeed the engagement by the investor that reduces downside risk; if this were not the case we would not expect to see results that differ across

[9] If several engagements are simultaneously conducted at a target firm by the investor, we calculate the firm average engagement success rate. We calculate this average success rate as the sum of the milestones achieved from the initial engagements up to December 2014, divided by the number of engagements, times 4.

success rates. In other words, this test exploits that engagements only involve real firm actions that change ESG practices if Milestone 3 and 4 have been achieved by the investor.

The results in Table 6 show that the risk-reduction effect of ESG engagement indeed only exists for engagements were Milestone 3 or 4 were achieved, that's is where firms responded with real actions to the investor's engagement demands. To be more concrete, engagement targets achieving Milestone 3 or 4 have significantly lower downside risk: *LPM (0,2)* and *LPM (0,3)* for these engagement targets are 0.9% and 1.2% lower than those of control firms, and both effects are statistically significant at the 1% level. Moreover, targets achieving Milestone 3 or 4 have a value at risk that is 2.7% lower compared to control firms. At firms where engagement was unsuccessful, we find no statistically significant change for the VaR, and even an increase in the LPM measures. One possible explanation for this finding is that the engagement was initiated with the objective to address a latent ESG risk, and the failure to change ESG policies may have caused the risk to materialize.

As our third and final step, we investigate in Table 7 whether the effects of ESG engagement on downside risk vary across engagement themes. To this end, we report regressions by engagement theme, using our classifications from above. This is an important analysis as it can indicate how engagement can yield the most effective results. The estimates in Columns (1) through (3), and (10) through (12), show that ESG engagement is effective when governance or strategy & risk topics are addressed. For these themes we find across all three risk measures that downside risk is reduced after shareholder engagement. While we cannot find a direct risk-reduction effect for engagement over environmental topics (not reported), we do find in Columns (7) through (9) that risk is significantly reduced if environmental engagement is combined with engagement over governance issues. This finding indicates that changing the sustainability agenda without addressing governance is unlikely to yield a risk-reduction effect. This argument is similar to those in Monks et al. (2004), who find that shareholder proposals which combine CSR issues with traditional corporate

governance gain more shareholder support than proposals over of CSR issues alone. We cannot find corresponding effects for engagement over social & ethical themes, neither individually (not reported) nor in combination with governance engagement (see Columns (4) though (6)).

5. Conclusion

This paper provides direct evidence that shareholder engagement by institutional investors over ESG topics reduces downside risk at portfolio firms. We document this effect based on proprietary data provided by a large institutional investor. The investor has more than $200 billion assets under management and is considered to be one of the most influential activists when it comes to promoting ESG standards. The database contains 682 engagements across 296 targeted firms worldwide, covering the period 2005 to 2014. The investor most commonly engages firms over corporate governance issues, accounting for half of all engagements, followed by social & ethical engagements (21%), environmental engagements (18%), and strategy & risk engagements (13%).

We document the risk-reduction effect of ESG shareholder engagement by using an endogenous treatment-effects model to address selection bias in the engagement decision. After controlling for selection, we find that engagement targets have lower downside risk, which we measure using lower partial moments and value at risk. The estimated effects of ESG engagement are economically meaningful. We show that lower partial moments of the second (third) order are 1.1% (1.4%) lower at engagement targets compared to matched control firm that were not targeted. Engagement targets also have value at risks that are 2.7% lower compared to matched control firms.

We show that the effect of ESG engagement on downside risk is stronger for more successful engagements, which we define as engagements where the target company has taken actions to address a concern raised by the investor. Hence, the risk-reduction effect of ESG engagements only exists for when a portfolio firm responds with real actions to the investor's engagement demands. This corroborates that it is indeed the engagement by the investor that

reduces downside risk. We further document that the risk-reduction effect of ESG engagement varies across engagement themes. ESG engagement is effective when governance or strategy & risk topics are addressed, while we cannot find effects for environmental engagements *unless* they are combined with governance demands. This supports the notion that changing a firm's environmental agenda without addressing governance is unlikely to yield a risk-reduction effect. We cannot find corresponding effects for engagement over social & ethical themes, neither individually nor in combination with governance engagements.

References

Albuquerque, R. A., Durnev, A., and Koskinen, Y., 2015, Corporate social responsibility and firm risk: Theory and empirical evidence, Working paper, Boston College.

Ang, A., Chen, J., and Xing, Y., 2006, Downside risk, *Review of Financial Studies* 19, 1191-1239.

Bawa, V. S., 1975, Optimal rules for ordering uncertain prospects, *Journal of Financial Economics* 2, 95-121.

Becht, M., Franks, J., Mayer, C., and Rossi, S., 2010, Returns to shareholder activism: Evidence from a clinical study of the Hermes UK Focus Fund, *Review of Financial Studies* 23, 3093-3129.

Brav, A., Jiang, W., Partnoy, F., and Thomas, R., 2008, Hedge fund activism, corporate governance, and firm performance, *Journal of Finance* 63, 1729-1775.

Carleton, W. T., Nelson, J. M., and Weisbach, M. S., 1998, The influence of institutions on corporate governance through private negotiations: Evidence from TIAA-CREF, *Journal of Finance* 53, 1335-1362.

Diemont, D., Moore, K., and Soppe, A., 2016, The downside of being responsible: Corporate social responsibility and tail risk, *Journal of Business Ethics* 137, 213-229.

Dimson, E., Karakaş, O., and Li, X., 2015, Active ownership, *Review of Financial Studies* 28, 3225-3268.

Duffie, D., and Pan, J., 1997, An overview of value at risk, *Journal of Derivatives* 4, 7-49.

Dyck, A., Lins, K., Roth, L., and Wagner, H. (2016). Do institutional investors transplant social norms? International evidence on corporate social responsibility, Working Paper, Rotman School of Management.

Fama, E., and French, K., 1993, Common risk factors in the returns on stocks and bonds, *Journal of Financial Economics* 33, 3-56.

Fishburn, P-C., 1977, Mean risk analysis with below target returns, *American Economic Review* 67, 116-126.

Godfrey, P. C., Merrill, C. B., and Hansen, J. M., 2009, The relationship between corporate social responsibility and shareholder value: An empirical test of the risk management hypothesis, *Strategic Management Journal* 30, 425-445.

Harlow, W. V., 1991, Asset allocation in a downside-risk framework, *Financial Analysts Journal* 47, 28-40.

Hebb, T., 2011, *The Next Generation of Responsible Investing*, Springer.

Jo, H., and Na, H., 2012, Does CSR reduce firm risk? Evidence from controversial industry sectors, *Journal of Business Ethics* 110, 441-456.

Karpoff, J. M., Malatesta, P. H., and Walkling, R. A., 1996, Corporate governance and shareholder initiatives: Empirical evidence, *Journal of Financial Economics* 42, 365-395.

Kim, Y., Li, H., and Li, S., 2014, Corporate social responsibility and stock price crash risk. *Journal of Banking & Finance* 43, 1-13.

Klein, A., and Zur, E., 2011, The impact of hedge fund activism on the target firm's existing bondholders, *Review of Financial Studies* 24, 1735-1771.

Krüger, P., 2015, Corporate goodness and shareholder wealth, *Journal of Financial Economics* 115, 304-329.

La Porta, R. L., Lopez-de-Silanes, F., Shleifer, A., and Vishny, R., 1996, Law and finance, *Journal of Political Economy* 106, 1113-1155.

Levit, Doron, 2014, Soft shareholder activism, Working paper, Wharton School.

Liang, H., and Renneboog L., 2016, On the foundations of corporate social responsibility, *Journal of Finance*, forthcoming.

Linsmeier, T. J., and Pearson, N. D., 2000, Value at risk, Financial Analysts Journal 56, 47-67.

Luo, X., and Bhattacharya, C.B., 2009, The debate over doing good: Corporate social performance, strategic marketing levers, and firm-idiosyncratic risk, *Journal of Marketing* 73, 198-213.

McCahery, J.A., Sautner, Z., and Starks, L.T., 2016, Behind the scenes: The corporate governance preferences of institutional investors, *Journal of Finance* 71, 2905-2932.

Monks, R., Miller, A., and Cook, J., 2004, Shareholder activism on environmental issues: A study of proposals at large US corporations (2000–2003), *Natural Resources Forum* 28, 317-330.

Oikonomou, I., Brooks, C., and Pavelin, S., 2012, The impact of corporate social performance on financial risk and utility: A longitudinal analysis, *Financial Management* 41, 483-515.

Singleton, J.C., and Wingender, J., 1986, Skewness persistence in common stock returns. *Journal of Financial and Quantitative Analysis* 21, 335-341.

Smith, M. P., 1996, Shareholder activism by institutional investors: Evidence from CalPERS, *Journal of Finance* 51, 227-252.

Spamann, H., 2009, The "antidirector rights index" revisited, *Review of Financial Studies* 23, 467-486.

Vuolteenaho, T., 2002, What drives firm-level stock returns*? Journal of Finance* 57, 233-264.

Wei, S. X., and Zhang, C., 2006, Why did individual stocks become more volatile? *Journal of Business* 79, 259-292.

Wooldridge, J. M., 2010., *Econometric Analysis of Cross Section and Panel Data,* 2nd ed. Cambridge, MA: MIT Press.

Figure 1: ESG Engagements by Country

This figure reports engagements by country. The sample consists of 682 engagements across 296 targeted firms over the period 2005 to 2014.

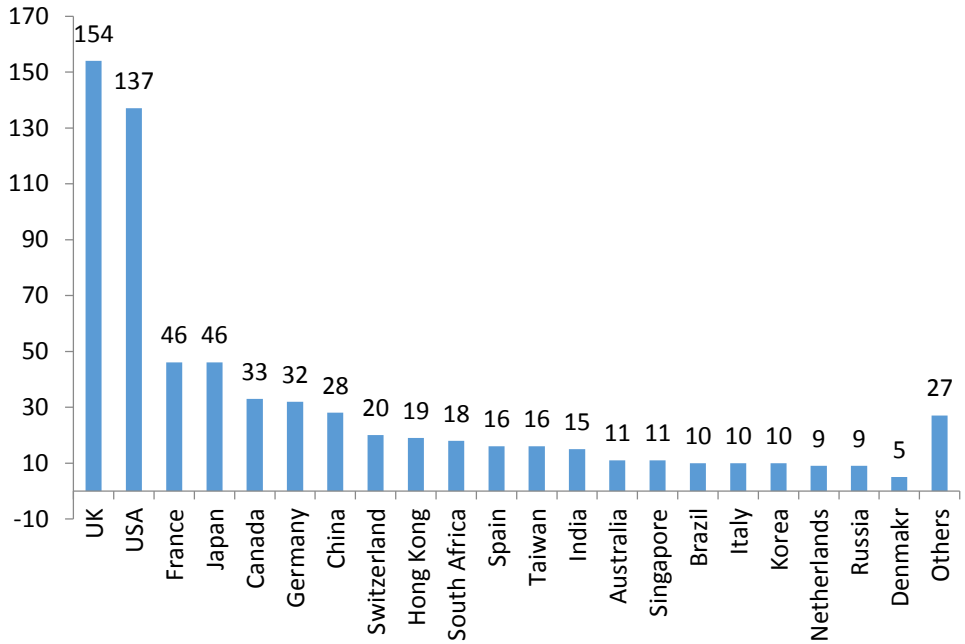

Figure 2: ESG Engagements by Industry

This figure reports engagements by industry. The sample consists of 682 engagements across 296 targeted firms over the period 2005 to 2014.

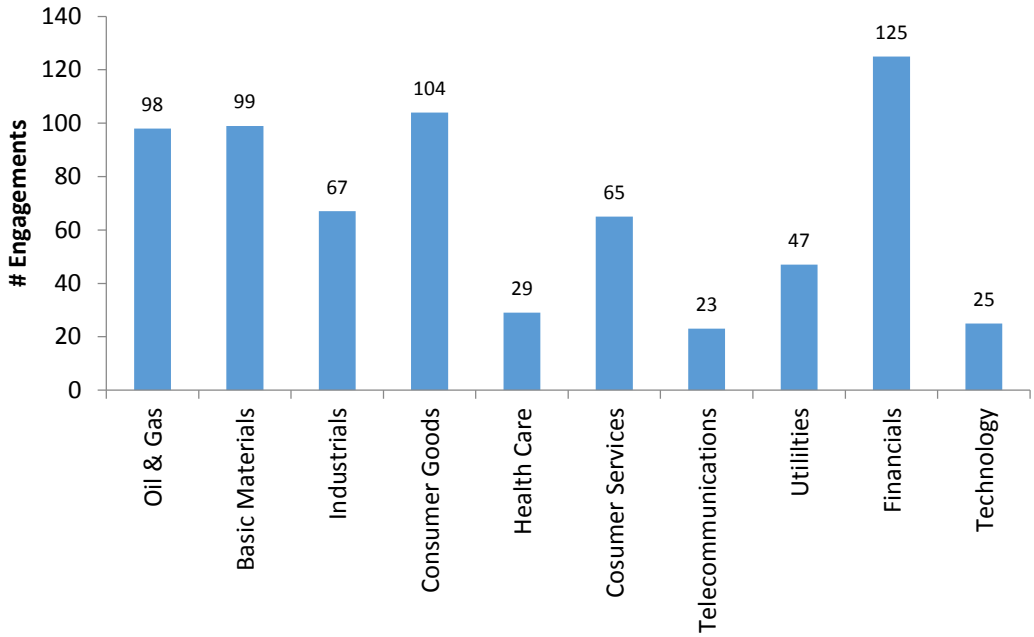

Figure 3: ESG Engagements by Year

This figure reports engagements by year. The sample consists of 682 engagements across 296 targeted firms over the period 2005 to 2014.

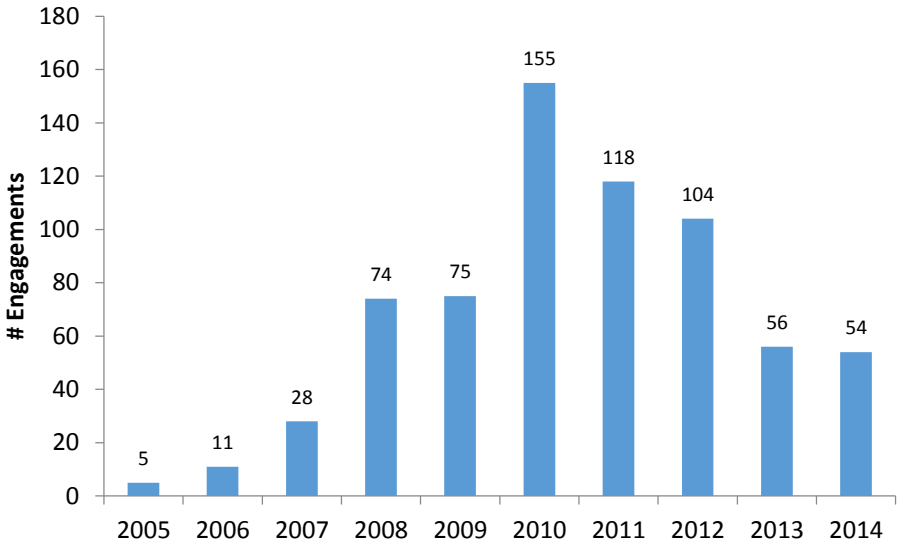

Table 1: Summary Statistics on Engagement Themes

This table provides summary statistics across four engagement themes: (i) governance; (ii) social & ethical; (iii) environmental; and (iv) strategy & risk. The table also classifies the themes into sub-themes, and we report the number (percentage) of engagements within each engagement theme. The sample consists of 682 engagements across 296 targeted firms over the period 2005 to 2014.

Governance Engagement			Social & Ethical Engagement			Environmental Engagement			Strategy & Risk		
Subthemes	#	%	Subthemes	#	%	Subthemes	#	%	Subthemes	#	%
Board structure	122	37%	Health and safety	27	19%	Climate change	54	45%	Business strategy	42	47%
Remuneration	103	31%	Supply chain management	25	17%	Other environmental	22	18%	Risk management	36	40%
Other governance	32	10%	Bribery and corruption	18	13%	Forestry	13	11%	Capital structure	4	4%
Succession planning	30	9%	Community relations	14	10%	Water stress	11	9%	Shareholder returns	3	3%
Separation of chair/CEO	20	6%	Operation in trouble regions	14	10%	Environmental management	8	7%	Reputational risk	3	3%
Shareholder communication	6	2%	Employee relations	12	8%	Biodiversity	5	4%	Other strategy and risk	2	2%
Accounting/auditing issues	5	2%	Corporate culture	10	7%	Oil sand	5	4%			
Committee structure	5	2%	License to operate	7	5%	Nuclear power safety	1	1%			
Conflicts of interest	2	1%	Other social and ethical	7	5%	Waste	1	1%			
Related party transaction	2	1%	Access to medicine	3	2%						
Voting rights not 1 share 1 vote	1	0.3%	Customer relations	2	1%						
			Labor Issues	2	1%						
			Political risk management	2	1%						
Total	328	100%	Total	144	100%	Total	120	100%	Total	90	100%
% of All Engagements (N=682)	48%			21%			18%			13%	

Table 2: Summary Statistics on Milestones and Engagement Duration

This table displays descriptive statistics on measures of engagement success (milestones) as well as engagement durations. We report engagement durations in months and by milestone and theme. We report means, standard deviations, minimums and maximums of engagement durations. As the average engagement duration equals 34 months and our data end in 2014, some engagements are still work-in-progress or pending, implying that Milestone 3 or 4 have not yet been achieved. The sample consists of 682 engagements across 296 targeted firms over the period 2005 to 2014.

Milestone 1: Concern Raised with Portfolio Firm				
Achieved Milestone 1 Only	# Engagements		%	
	102		15%	
Engagement Duration (in months)	Mean	STD	Min	Max
Governance engagement	4	10	1	87
Social & Ethical engagement	3	6	1	31
Environmental engagement	4	9	1	65
Strategy & Risk engagement	4	8	1	53
All Engagements	4	9	1	87
Milestone 2: Issue Acknowledged by Portfolio Firm				
Achieved Milestone 1 to 2	# Engagements		%	
	231		34%	
Engagement Duration (in months)	Mean	STD	Min	Max
Governance engagement	13	19	1	114
Social & Ethical engagement	9	13	1	85
Environmental engagement	7	12	1	72
Strategy & Risk engagement	11	16	1	74
All Engagements	11	16	1	114
Milestone 3: Actions Taken by Portfolio Firm				
Achieved Milestone 1 to 3	# Engagements		%	
	158		23%	
Engagement Duration (in months)	Mean	STD	Min	Max
Governance engagement	25	23	1	126
Social & Ethical engagement	21	16	1	71
Environmental engagement	16	15	2	59
Strategy & Risk engagement	28	25	2	91
All Engagements	24	22	1	126
Milestone 4: Engagement Successfully Completed				
Achieved Milestone 1 to 4	# Engagements		%	
	191		28%	
Engagement Duration (in months)	Mean	STD	Min	Max
Governance engagement	34	26	2	126
Social & Ethical engagement	38	21	2	77
Environmental engagement	27	25	2	74
Strategy & Risk engagement	34	28	1	95
All Engagements	34	25	1	126

Table 3: Summary Statistics of Engagement Actions and Targeted Individuals

This reports summary statistics on different engagement actions (Panel A) as well as the individuals that were targeted by the investor (Panel B). We report these statistics by engagement themes as well as by milestones achieved. The sample consists of 682 engagements across 296 targeted firms over the period 2005 to 2014.

		Engagement Themes					Engagement Progress by Milestones				
		Social & Ethical	Governance	Environ-mental	Strategy & Risk	Total	Milestone 1	Milestone 2	Milestone 3	Milestone 4	Total
Panel A. Action Types											
Meeting	#	435	823	217	303	1778	144	491	616	527	1778
	Per Engagement	*3.0*	*2.5*	*1.8*	*3.4*	*2.6*	*1.4*	*2.1*	*3.9*	*2.8*	*2.6*
Call	#	184	260	94	68	606	51	167	192	196	606
	Per Engagement	*1.3*	*0.8*	*0.8*	*0.8*	*1.0*	*0.5*	*0.7*	*1.2*	*1.0*	*0.9*
Email	#	62	91	31	20	204	16	78	55	55	204
Letter	#	39	86	40	38	203	24	58	51	70	203
Web update	#	14	30	17	6	67	1	15	22	29	67
AGM	#	1	16	1	0	18	2	4	2	10	18
Shareholder meeting	#	2	8	2	4	16	0	4	5	7	16
Announcement	#	2	10	5	0	17	0	7	3	7	17
Internal review	#	1	9	0	1	11	0	0	1	10	11
Site visit	#	2	0	2	1	5	0	1	2	2	5
Conference	#	2	0	0	0	2	0	0	2	0	2
Panel B. Targeted Individuals											
Chairman	#	80	251	44	96	471	27	124	163	157	471
	Per Engagement	*0.6*	*0.8*	*0.4*	*1.1*	*0.7*	*0.3*	*0.5*	*1.0*	*0.8*	*0.7*
Board of directors	#	132	474	58	141	805	54	211	267	273	805
	Per Engagement	*0.9*	*1.4*	*0.5*	*1.6*	*1.2*	*0.5*	*0.9*	*1.7*	*1.4*	*1.2*
Senior executives	#	275	410	153	166	1004	91	301	340	272	1004
	Per Engagement	*1.9*	*1.3*	*1.3*	*1.8*	*1.5*	*0.9*	*1.3*	*2.2*	*1.4*	*1.5*
CSR	#	173	49	121	39	382	39	105	144	94	382
	Per Engagement	*1.2*	*0.1*	*1.0*	*0.4*	*0.6*	*0.4*	*0.5*	*0.9*	*0.5*	*0.6*
Investor relations and legal	#	184	320	84	108	696	52	192	204	248	696
	Per Engagement	*1.3*	*1.0*	*0.7*	*1.2*	*1.0*	*0.5*	*0.8*	*1.3*	*1.3*	*1.0*
Secretary	#	57	187	21	46	311	18	86	105	102	311
	Per Engagement	*0.4*	*0.6*	*0.2*	*0.5*	*0.5*	*0.2*	*0.4*	*0.7*	*0.5*	*0.5*

Table 4: Summary Statistics on Engagement Targets and Control Firms

This table reports means and standard deviations (STD) of different firm characteristics of targeted companies as well as matched control group firms. All numbers are reported on an annual level. We report these statistics both as of one year before engagement (Panel A) and over the post-engagement period (Panel B). The post engagement period is defined as the period between the initial engagement and the end of the sample period. We also report these statistics by success rate. We thereby look at cases where the success rate was low (only Milestones 1 or 2 achieved) and those where it was high (Milestones 3 or 4 achieved). The sample consists of a total 1,210 firms, including 296 engagement targets and 914 control group firms. Control group firms are matched with engagement targets using country, industry, and size as matching criteria.

	All Firms						Engagement Success High (Milestones 3 or 4 achieved)						Engagement Success Low (Milestones 1 or 2 achieved)					
	Target Firms			Control Group Firms			Target Firms			Control Group Firms			Target Firms			Control Group Firms		
	Panel A. Pre-Engagement (one year before)																	
	Mean	STD	Obs.	Mean	STD	Obs.	Mean	STD	Obs.	Mean	STD	Obs.	Mean	STD	Obs.	Mean	STD	Obs.
Log(Market cap)	4.22	0.62	288	3.80	0.74	918	4.32	0.64	164	3.89	0.53	540	4.08	0.58	124	3.66	0.61	378
Market-to-book ratio	2.49	2.88	288	1.70	11.03	917	2.39	3.09	164	1.32	13.45	539	2.61	2.59	124	2.24	6.10	378
Profit margin (in %)	14.19	19.78	288	19.23	56.33	917	10.85	21.12	164	9.94	17.00	539	18.61	16.94	124	32.48	83.66	378
Dividend yield (in %)	2.64	2.01	288	2.36	1.95	917	2.68	1.97	164	2.20	1.88	539	2.58	2.07	124	2.57	2.03	378
Leverage (in %)	155	299	288	95	364	917	221	436	164	120	245	539	94	114	124	77	392	378
Free float (in %)	76.66	23.60	288	74.96	24.38	917	82.08	20.21	164	78.64	22.22	539	69.59	25.89	124	69.72	26.32	378
	Panel B. Post-Engagement																	
Log(Market cap)	4.10	0.79	288	3.80	0.74	906	3.96	1.19	165	3.67	1.01	540	4.04	0.68	123	3.66	0.65	366
Market-to-book ratio	2.25	3.72	289	2.42	9.88	908	2.12	4.03	165	2.69	12.62	536	2.43	3.26	124	2.05	2.92	372
Profit margin (in %)	13.35	16.61	275	14.86	23.74	868	12.86	17.23	153	12.51	26.88	509	13.96	15.84	122	18.25	17.89	359
Dividend yield (in %)	2.88	1.79	281	2.49	1.82	888	2.96	1.87	158	2.40	1.91	523	2.79	1.69	123	2.61	1.67	365
Leverage (in %)	135	230	275	118	322	868	149	221	153	104	245	510	100	109	122	102	138	359
LPM (0,2)	0.053	0.023	283	0.056	0.025	896	0.056	0.022	163	0.052	0.025	529	0.058	0.023	120	0.058	0.024	368
LPM (0,3)	0.077	0.031	283	0.075	0.034	896	0.076	0.031	163	0.071	0.035	529	0.077	0.031	120	0.078	0.032	367
VaR	0.131	0.057	283	0.140	0.063	892	0.134	0.057	163	0.132	0.066	526	0.141	0.057	120	0.144	0.058	366

Table 5: Effect of ESG Engagement on Downside Risk

This table reports results from endogenous treatment-effects models to estimate the effect of ESG engagement on downside risk. We report results from both the outcome equation (Panel A) and the engagement selection equation (Panel A). The sample consists of a total 1,210 firms, including 296 engagement targets and 914 control group firms. *Engagement target* is a dummy variable that equals 1 if a firm is and engagement target, and 0 if it is a control group firm. Control group firms are matched with engagement targets using country, industry, and size as matching criteria. We use three dependent variable to measure investment risk at firm in the outcome equations: (i) the lower partial moment of the second order (*LPM (0,2)*); (ii) the lower partial moment of the third order (*LPM (0,3)*); and (iii) the value at risk (*VaR*). *, **, and *** denote statistical significant at the 10%, 5% and 1% levels, respectively.

Panel A: Outcome Equation			
Dependent Variable:	LPM (0,2)	LPM (0,3)	VaR
	(1)	(2)	(3)
Engagement target	-1.10%***	-1.36%***	-2.74%***
	(-2.82)	(-2.80)	(-3.00)
Log(Market capitalization)	-0.21%***	-0.29%***	-0.49%***
	(-4.66)	(-3.00)	(-5.00)
Market-to-book ratio	-0.04%***	-0.05%***	-0.09%***
	(-5.27)	(-5.56)	(-4.95)
Profit margin	-0.01%***	-0.02%***	-0.03%***
	(-4.63)	(-5.00)	(-4.29)
Leverage	0.002%***	0.003%***	0.004%***
	(7.92)	(8.57)	(7.39)
Panel B: Selection Equation			
Dependent Variable:			
Log(Market capitalization)	73.08%***	73.65%***	74.66%***
	(9.49)	(9.57)	(9.70)
Market-to-book ratio	0.91%	0.91%	0.89%
	(1.13)	(1.13)	(1.13)
Profit margin	-0.17%	-0.16%	-0.16%
	(-1.26)	(-1.22)	(-1.16)
Dividend yield	7.46%***	7.26***	7.08%***
	(3.41)	(3.32)	(3.18)
Leverage	0.02%*	0.02%*	0.03%*
	(1.67)	(1.84)	(1.88)
Free float	0.18%	0.11%	0.13%
	(0.93)	(0.61)	(0.67)
Anti-director rights index	8.90%***	9.43%***	11.34%***
	(1.90)	(1.96)	(2.35)
Obs.	1210	1210	1210
Rho	0.394	0.355	0.349
Sigma	0.022	0.030	0.054
Lambda	0.009	0.011	0.019
Prob > Chi2	0.000	0.000	0.000

Table 6: Effect of ESG Engagement on Downside Risk: Results by Success Rates

This table reports results from endogenous treatment-effects models to estimate the effect of ESG engagement on downside risk. We report results from the outcome equation only. The engagement selection equation has been estimates as in Table 5. We split the sample based on a measure of the engagement success. We consider the engagement success to be high (low) if Milestones 3 or 4 (Milestone 1 or 2) have been achieved. The sample consists of a total 1,210 firms, including 296 engagement targets and 914 control group firms. *Engagement target* is a dummy variable that equals 1 if a firm is and engagement target, and 0 if it is a control group firm. Control group firms are matched with engagement targets using country, industry, and size as matching criteria. We use three dependent variable to measure investment risk at firm in the outcome equations: (i) the lower partial moment of the second order (*LPM (0,2)*); (ii) the lower partial moment of the third order (*LPM (0,3)*); and (iii) the value at risk (*VaR*). *, **, and *** denote statistical significant at the 10%, 5% and 1% levels, respectively.

Dependent Variable:	LPM (0,2)	LPM (0,3)	VaR	LPM (0,2)	LPM (0,3)	VaR
	(1)	(2)	(3)	(4)	(5)	(6)
Sample:	Engagement Success High (Milestones 3 or 4 achieved)			Engagement Success Low (Milestones 1 or 2 achieved)		
Engagement target	-0.93%**	-1.20%**	-2.67%**	1.90%**	2.67%**	-1.54%
	(-1.96)	(-1.83)	(-2.34)	(2.33)	(2.29)	(-0.67)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Engagement selection bias corrected	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	646	646	646	474	474	474
Rho	0.383	0.35	0.375	-0.5	-0.521	0.161
Sigma	0.022	0.03	0.054	0.021	0.029	0.05
Lambda	0.008	0.01	0.02	-0.011	-0.015	0.008
Prob > Chi2	0.013	0.000	0.007	0.301	0.372	0.617

Table 7: Effect of ESG Engagement on Downside Risk: Results by Engagement Themes

This table reports results from endogenous treatment-effects models to estimate the effect of ESG engagement on downside risk. We report results from the outcome equation only. The engagement selection equation has been estimates as in Table 5. We split the sample based on a measure of the engagement success. The sample consists of a total 1,210 firms, including 296 engagement targets and 914 control group firms. *Engagement target* is a dummy variable that equals 1 if a firm is and engagement target, and 0 if it is a control group firm. Control group firms are matched with engagement targets using country, industry, and size as matching criteria. We use three dependent variable to measure investment risk at firm in the outcome equations: (i) the lower partial moment of the second order (*LPM (0,2)*); (ii) the lower partial moment of the third order (*LPM (0,3)*); and (iii) the value at risk (*VaR*). *, **, and *** denote statistical significant at the 10%, 5% and 1% levels, respectively.

Dependent Variable:	Governance Engagement			Social & Ethical and Governance Engagement			Environmental and Governance Engagement			Strategy & Risk Engagement		
	LPM (0,2)	LPM (0,3)	VaR	LPM (0,2)	LPM (0,3)	VaR	LPM (0,2)	LPM (0,3)	VaR	LPM (0,2)	LPM (0,3)	VaR
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Engagement target	-0.80%*	-1.11%*	-2.47%**	0.33%	0.56%	-2.07%	-1.97%***	-2.50%***	-6.15%***	-1.20%*	-1.94*	-4.09%**
	(-1.86)	(-1.78)	(-2.28)	(0.09)	(0.04)	(-1.10)	(-2.78)	(-2.53)	(-3.91)	(-1.91)	(-2.11)	(-2.44)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Engagement selection bias corrected	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	758	758	758	186	186	186	128	128	128	284	284	284
Rho	0.307	0.301	0.329	-0.024	-0.031	0.22	0.598	0.577	0.692	0.351	0.383	0.418
Sigma	0.022	0.03	0.055	0.019	0.027	0.05	0.02	0.027	0.047	0.022	0.03	0.057
Lambda	0.007	0.009	0.018	-0.000	-0.001	0.011	0.012	0.015	0.032	0.008	0.112	0.024
Prob > Chi2	0.035	0.032	0.019	0.947	0.936	0.510	0.013	0.014	0.003	0.123	0.106	0.042