ESG Shareholder Engagement and Downside Risk

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Abstract

We examine whether engagement on environmental, social and governance (ESG) issues can benefit shareholders by reducing firms' downside risk, measured using lower partial moments and value at risk. Using a proprietary database, we provide evidence supporting this hypothesis. We further find that the measured risk effects vary across engagement success and engagement themes. Engagement appears most effective in lowering downside risk when addressing governance or strategy topics and when changes in firms' social policies are coupled with governance improvements. We find corroborating evidence in that successful engagement reduces the firm's exposure to a downside-risk factor.

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Direct institutional investor engagement on environmental, social and governance (ESG) issues has become increasingly prevalent in financial markets worldwide. Several factors contribute to this trend, including the increased public interest in ESG (or corporate social responsibility (CSR)), the growing size and importance of institutional shareholdings, and the still relatively low passing rates for shareholder proxy proposals on many of the ESG issues of importance to institutional investors.[1]

Both academics and practitioners have argued that firm's risk exposures are related to their ESG profiles. For example, Albuquerque, Koskinen, and Zhang (2018) develop a theoretical model in which a firm's efforts to increase product differentiation through higher CSR investments decreases the firm's systematic risk and increases the firm's value. They also provide empirical evidence that supports their theory. Similarly, Ilhan, Sautner, and Vilkov (2018) show that firms with worse ESG profiles, reflected in higher carbon emissions, have higher tail risk. These theoretical and empirical results are consistent with the practitioner argument that reducing the downside risks related to ESG factors is a major driver of direct shareholder engagement, because the shareholders are concerned about negative ESG exposures that imply substantial legal, reputational, operational, and financial risks (e.g., Blackrock and Ceres, 2015; Fortado, 2017). 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 (Dyck et al., 2018). Further, evidence shows that increased tail risk can have consequences for corporate investment and risk-taking (Gormley and Matsa, 2011; Gormley, Matsa, and Milbourn, 2013). More generally, lower tail risk increases the present value of expected cash flows, thereby generating value for investors.

Thus, it is perhaps not surprising that an increasing number of institutions actively engage with their constituent firms in order to reduce the risks of ESG exposures. These engagements commonly involve direct communications with management and/or the board. The goal of most of these engagements is to engender higher standards of corporate ESG practices that serve as an

[1] See, for example, Gillan and Starks (2000; 2007) or Grewal, Serafeim, and Yoon (2016).

insurance mechanism against harmful, risk-inducing events. The investors that strive to stimulate improved ESG standards thereby also mitigate the likelihood of regulatory, legislative or consumer actions taken against firms. Often the shareholders seeking such engagements are large institutional investors—also called "universal owners" due to their highly diversified and long-term portfolios—who are exposed to ESG risk not just because of events caused by individual portfolio firms that affect those firms and others, but also because of additional externalities from economy-wide factors, such as climate change or social unrest.

We examine whether these costly engagements on ESG topics result in successful conclusions for firm risk. That is, we test whether the engagements are associated with subsequent reductions in downside risk at portfolio firms. To do so, we employ proprietary engagement data provided by a large institutional investor with more than $200 billion in assets under advisement. This investor is considered to be one of the most influential activists when it comes to promoting and developing ESG standards at portfolio firms. Further, the investor not only has the weight of its own holdings, but also speaks on behalf of other large institutional investors. The data includes 682 engagements across 296 targeted firms worldwide, covering the years 2005 through 2014. The investor provided us with full access to the engagement database, including shareholdings, engagement activities, action reports, and their measures of success.

In the first part of the paper, we provide a detailed descriptive analysis of the investor's engagement process. The investor most commonly engages portfolio firms regarding corporate governance issues, which accounts for approximately half of all the engagements. These governance engagements most frequently center on concerns about board structure and remuneration. The next most common types of engagements cover what the investor terms as social issues (21%), and they contain mostly engagements over health and safety issues, supply chain topics, and illegal acts such as bribery and corruption. The 18% of the engagements that focus on environmental issues have a primary theme of climate risk, which has become a first-order topic for engagement among

many major institutional investors (Krueger, Sautner, and Starks, 2018). Blackrock, for example, has announced that portfolio firm disclosure on climate risk will be a focus area for their future engagements (Blackrock, 2017). The number of engagements on climate risk by our investor has increased to reach more than half the number of engagements on executive pay, which has traditionally been the focus of many engagement campaigns. These figures reflect a more general trend, namely that many institutional investors find climate risks difficult to price and hedge, making engagement on climate risk an important risk-management tool.[2] Finally, 13% of the engagements center on strategy topics which are mostly driven by concerns over a firm's business strategy and corporate risk management.

The investor uses four milestones to track the success of each intervention. These milestones reflect (i) whether the investor raises a concern with a target company (Milestone 1); (ii) whether the company acknowledges the concern that was raised (Milestone 2); (iii) whether the company takes actions to address the concern (Milestone 3); and (iv) whether the investor successfully completes the engagement (Milestone 4). In total, 28% of the investor's engagements successfully achieve all four milestones, 51% achieve Milestone 3 (but no further), 85% reach Milestone 2, and 15% remain at the stage of raising a concern. While it takes the investor, on average, four months to complete Milestone 1, it usually takes an average of 34 months until the entire engagement is successfully completed.

The investor primarily uses a private, non-public route to engage portfolio firms, consistent with the more general evidence on institutional engagement in McCahery, Sautner, and Starks (2016). Among the 2,927 interactions the investor has documented with portfolio firms, more than 60% take the form of private in-person meetings (1,778 interactions), followed by conference calls (606), emails (204), and letters (203). The strategy by the investor to prefer private negotiations to

[2] Given their prominent position as large shareholders in publicly-listed firms, institutional investors are also increasingly viewed as potent catalysts in driving firms to reduce carbon emissions (Andersson, Bolton, and Samama, 2016).

public engagements is consistent with recent theoretical reasoning in Levit (2018), who demonstrates that if an activist's information becomes public, the activist can lose credibility and consequently the ability to influence the manager's actions. The data on duration and meeting frequency confirm that engagement is costly for the investor, in terms of the time and resources needed to successfully close an ESG engagement (Gantchev, 2013).

The database identifies who at the portfolio firms is contacted by the investor when raising an ESG issue. The individuals most frequently contacted include senior executives (1,004 contacts), the board of directors (805), and the board chair (471). However, there exists substantial heterogeneity in the identity of the contacts, depending on the specific ESG topic. Dialogues over social and environmental issues are conducted most frequently with senior executives, the CSR department, and investor relations, whereas governance as well as strategy issues tend to be raised directly with the board, the board chair or senior executives.

In the second part of the paper, we examine whether and how ESG engagement reduces downside risk of the portfolio firm, which we measure in three different ways. 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 (Harlow, 1991). These measures also underline the potential wealth-protection motives of ESG engagements (Blackrock and Ceres, 2015; Fortado, 2017). As a third measure we calculate an investment's value at risk (VaR) (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., Krueger, 2015). We do not use options-based measures of tail risks as our international sample contains few firms for which liquid options data are available, especially not on out-of-the-money puts.

We document across all three measures that ESG engagements are associated with subsequent significant reductions in downside risk. We ascertain this risk-reduction effect using two complementary methodologies. Given the challenge that (unobserved) factors may affect both the investor's engagement decision and a target's downside risk, in our first approach we employ an endogenous treatment-effects model that addresses potential selection in the engagement decision (Wooldridge, 2010). This approach is also appropriate because some ESG engagements can be triggered by public events that occur more frequently in industries where ESG issues are more important. We estimate this model using a set of matched control firms that were not targeted by the investor, but have similar characteristics at the time of engagement in terms of their country origin, industry, and size.

After controlling for selection, we find that engagement has an average treatment effect of 6.9% (5.9%) in terms of reducing the LPMs of the second (third) order, which are economically meaningful, as they are equal to about 30% of each of these variables' means. We measure these risk-reduction effects over the two-year period after an initial engagement. Engagement reduces value at risks (5%-VaR) by 11% compared to matched control firms. This is again economically meaningful as the reduction in VaR equals about 23% of its mean value.

If, as these results support, engagement leads to a subsequent reduction in a firm's downside risk, we should also find that the treatment effect of ESG engagement on downside risk is stronger for more successful engagements, which we define as those where at least Milestone 2 is achieved. Hence, the risk-reduction effect would come from engagements in which portfolio firms acknowledge that they have a problem, or even respond with actions to meet the investor's demands. Indeed, we find that the results are concentrated among such engagements, which supports the hypothesis that it is the intervention by the investor, rather than a selection effect, that reduces downside risk.

We further find that the measured risk reductions after ESG engagements vary across engagement themes, with more effective engagement, i.e., a stronger relationship with risk reduction, occurring when governance or strategy topics are addressed. Engagement is also associated with substantial reductions in social risks but only when the social engagement is combined with engagement to improve governance. This finding supports the hypothesis that changing a firm's sustainability agenda without addressing the firm's governance is unlikely to reduce downside risk, which is consistent with findings in Monks et al. (2004), who show that shareholder proposals combining CSR issues with suggested traditional governance improvements gain more shareholder support than proposals addressing CSR issues alone.

We complement this primarily cross-sectional analysis with a second approach in which we exploit the time-series relationship of the engaged firms' stock-return loadings on a downside-risk factor. We test whether after engagement a change occurs in the relationship between a target firm's weekly returns and exposures to a factor that reflects the difference in returns between portfolios of stocks with high minus low downside risk. This approach is motivated by Kelly and Jiang (2014) who also examine firm exposure to a downside-risk factor, but use tail risk estimated from the cross-section of returns instead of our downside-risk variables to construct the factor. We find that sensitivity to the downside-risk factor significantly decreases after Milestone 2 has been achieved, suggesting that the firms that respond to the investor are less sensitive to aggregate downside risk. This finding corroborates the evidence for a risk-reduction effect due to ESG engagement.

Our paper contributes to the literature on shareholder engagement. First, we provide insights into private engagement processes and practices and the apparent outcomes. Second, we provide evidence to support the hypothesis that intervention over ESG topics reduces downside risk. This finding complements work that focuses primarily on the effects of ESG engagements on first moments, i.e., firm values or returns (Smith, 1996; Carleton, Nelson, and Weisbach, 1998; Becht et

al., 2009; Dimson, Karakas, and Li, 2018; Barko, Cremers, and Renneboog, 2018). We also complement studies that show that voluntary ESG or CSR efforts by firms decrease the probability that negative events occur (Kim, Li, and Li, 2014; Krueger, 2015), and also reduce firm risk more generally (Albuquerque, Koskinen, and Zhang, 2018; Jo and Na, 2012; Godfrey, Merrill, and Hansen, 2009; Luo and Bhattacharya, 2009; Oikonomou, Brooks, and Pavelin, 2012; Monti et al., 2018). Our findings complement Dyck et al. (2018), who show that institutional ownership is positively associated with firm-level environmental and social performance, and Liang and Renneboog (2017) who trace standards of corporate CSR back to the legal origins in a country.

1. Engagement Data and Process

1.1 Engagement Data

Our institutional engagement data is obtained from a large institutional asset manager in the United Kingdom, who is considered to be a highly influential activist in promoting and developing ESG standards at portfolio firms. This investor has a stated goal of engaging firms to incorporate long-term sustainability and risk management into their 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 proprietary database, which constitutes the core of our analysis, contains 682 engagements across 296 targeted firms worldwide over the 2005 to 2014 period. We have full access to the investor's online engagement database, including the shareholdings, engagement reports, action reports, and success milestones. The investor states that the engagement occurs predominantly via a constructive, confidential dialogue. Further, the investor prefers not to take a public route when seeking to promote change in companies, an approach that is consistent with recent survey evidence on engagement by institutional investors in McCahery, Sautner, and Starks (2016).

1.2 ESG Engagement Process

The investor has widely engaged firms across geographic and industry boundaries. Figure 1 shows that the investor has engaged portfolio firms across 31 different countries, with the largest number of their engagements with firms headquartered in the United Kingdom (154 engagements or 23% of the sample) and the United States (137 or 20%). The next most common countries for engagements are also developed markets, with 6.7% each in France and Japan, and 4.8% in Canada. The investor also has engaged firms in a number of emerging markets.

Figure 2 shows that engagements tend to be concentrated in several industrial sectors with most interventions, 426 in total, having occurred among firms in the financial, oil & gas, basic materials, and consumer goods sectors (about two-thirds of all engagements). Firms in the industrial, consumer services, and utilities sector also received a number of engagements, while firms in health care, telecommunications, and technology attracted relatively fewer engagements.

The time series of engagements, shown in Figure 3, indicates that the investor gradually increased the intensity of engagements since the beginning of our sample period in 2004, reaching a peak with 155 engagements in 2010, and then entering into fewer engagements in the remaining years. Although the number of engagements per year has decreased since the peak, the investor has still remained very active, engaging over 50 firms per year through the end of our sample in 2014.

The investor engages firms according to four themes: (i) corporate governance, (ii) social, (iii) environmental, and (iv) strategy. In Table 1 we report the frequency of engagements across each of these themes, and we also list 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 engagements over social (21%), environmental (18%), and strategy issues (13%). This distribution generally mirrors the percentages of engagements by a different asset manager documented by Dimson, Karakas, and Li (2015), who also find for that

investor that corporate governance engagements traditionally outpace those on environmental and social topics.

The particular engagement topics shown in Table 1 provide insights into the most pressing concerns that the investor has within each of the more general themes. Within the governance area, the investor most frequently intervenes because of concerns over board structure (37%), remuneration (31%), succession planning (9%), and the separation of the chairman/CEO role (6%). These concerns of an investor involved in private engagement also reflect the broader institutional investor community concerns as shown in industry publications (Wilcox and Sodali, 2017).

In terms of social themes, the investor engages primarily over concerns regarding 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 this asset manager's engagement agenda. The investor examined in Dimson, Karakas, and Li (2015) engaged on similar social theme topics.

Among environmental topics, the investor focuses primarily on issues related to climate change (45%). The increasing importance of climate change as an engagement topic is shown by the fact that the total number of engagements (54) amounts to more than half the number of engagements on one of the most common engagement topics: executive pay (103). Climate risk has become an important engagement topic among many institutions, reflecting a belief that climate risk has the potential to adversely affect the values of assets managed by institutional investors, especially long-term investors (Krueger, Sautner, and Starks, 2018). Additionally, many institutional investors find climate risk difficult to price and hedge, making direct engagement to have more robust climate change disclosure or to reduce the carbon footprint of portfolio firms (and the impact of climate risk on business models more generally) an important risk-management tool.

The primary intervention motives over strategy topics are improving business strategy (47%) and risk management (40%) at portfolio firms. This observation is in line with Khorana, Shivdasani, and Shigurdsson (2017), who find that activists are increasingly focusing on business strategy.

Using the four milestones that the investor uses to track the success of each individual firm engagement, Table 2 reports the proportion of the engagements that reach each milestone at the end of sample period. Across all of the different categories of engagements, the table shows that, by sample construction, 100% reach Milestone 1 (the investor raises concern with the target company), 85% achieve at least Milestone 2 (company acknowledges the concern that is raised), 51% achieve at least Milestone 3 (company takes actions to address the concern), and in 28% of the cases the investor reaches Milestone 4 and successfully completes the engagement. Thus, according to these milestones, the engagements have been met with varying success rates. At the end of the sample period, 15% of the engagements are still at the stage of raising a concern.

Similar to the success rates shown in Dimson, Karakas, and Li (2015), the engagement success rate in our sample is lower than reported by activist hedge funds who engage in a different way and generally for different purposes (the hedge fund success rates are 60% in Brav et al., 2008 and 60% in Klein and Zur, 2011). One reason for the differences between our results and theirs could be that it is harder to persuade top management and the board to incorporate the requested ESG changes as compared to requested financial changes such as for capital structure or dividend policy, which traditionally have been the more typical focuses of activist hedge funds. Second, hedge funds typically target firms that are in need of the requested financial changes and are able to bring other institutional investors on board with lobbying firm management for changes (Kedia, Starks and Wang, 2017). Third, ESG engagements by our investor could be less aggressive and less influential on target firms because ownership positions are lower compared to those of activist hedge funds that often take more concentrated positions.

In Table 2 we also report descriptive statistics on engagement durations, reported by milestone and theme. The details regarding the engagements show that the investor expends considerable efforts and time in trying to engender the desired changes at the portfolio firm. 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 in total until all milestones are successfully completed.[3] 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 issue of concern (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 Milestones 1 and 2. The difference may reflect that the investor faces more difficulty in completing the engagement when boards must be involved with regard to their own alleged shortcomings. Strategy engagements require the longest duration for Milestone 3, probably as larger organizational changes are typically required in these types of engagements. Finally, social issues take the longest time for eventually accomplishing an engagement success (Milestone 4).

In Table 3, Panel A, we provide the actions taken by the investor to achieve the engagement goals. These actions are divided by theme and milestone. Apart from the absolute number of actions, we report the number of actions per engagement. Among the set of 2,927 actions, more than 60% take the form of meetings (1,778 actions), followed by conference 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

[3] 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 months.

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.

In the engagement process, the investor contacts a variety of individuals at the portfolio firms. In Table 3, Panel B we present data on who is contacted. The positions most contacted are senior executives (1,004 contacts), as would be expected, but the investor also often contacts members of the boards of directors (805), and separately, the chairman of the board (471). However, an interesting heterogeneity exists on who is contacted depending on the specific engagement topic, which reflects the decision-making authority for the 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 the investor tends to directly communicate with the board of directors, chairmen, and senior executives over governance as well as strategy 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 in which interventions occur directly with the board, chairmen and senior executives.

2. Downside-Risk Measures

Downside or left-tail risk can be an important consideration for institutional investors in asset pricing, which has long been recognized in the academic literature.[4] In particular, evidence suggests that the distribution of stock returns is not normal, and instead characterized by skewness and heavy tails (Ang, Chen, and Xing, 2006; Singleton and Wingender, 1986). In this case, risk measures such as stock-return volatility that do not distinguish between positive and negative events may be uninformative for investors.

[4] See, for example, Bawa (1975), Bawa and Lindenberg (1977), Harlow and Rao (1989), and more recently, Ang, Chen, and Zing (2006) or Xiong, Idzorek, and Ibbotson (2016).

Downside-risk measures reflect negative price fluctuations, thereby capturing many investors' perceptions of risk (Harlow, 1991). As pointed out by Ang, Chen, and Sundaresan (2013) many institutional investors have a natural focus on left-tail risk. Pension funds, for example, face large liabilities towards their beneficiaries and the failure to meet those liabilities carries significant penalties. Thus, as wealth protection becomes important, institutions have incentives to engage portfolio firms in order to reduce downside risks. As pointed out earlier, many ESG activists also have specified downside-risk considerations in their activism decisions (e.g., Fortado, 2017). Further, long-term institutional investors often try to hedge against downside risk, especially during times of economic turbulence (Hebb, 2011). We hypothesize that if downside risk is an important consideration in asset pricing and ESG engagements, a relationship should exist between ESG engagements and firms' subsequent downside risk.

To test our hypothesis, we employ three measures that have been widely used to capture firm downside risk. Our first two measures, the lower partial moments of the second (LPM (0,2)) and third order (LPM (0,3)), capture the distribution of returns that fall below a certain threshold value, which we set equal to 0% for our analysis (i.e., we consider the negative return part of the distribution). That is, LPM (0,2) and LPM (0,3) are calculated as the square and cube root of the semi-variance below 0% (Bawa, 1975; Fishburn, 1977). More formally, *LPM (0,2)* is defined as:

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

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, which we define for our analysis as the two-year period after an initial engagement. LPM (0,3) measures the extreme negative-return dispersion and is defined as:

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

where $r_{n,i}$; $\overline{r_{n,i}}$ and N_1 are defined as above, and we use the absolute value of LPM (0,3). We annualized both LPM variables.

As a third measure, we calculate a portfolio firm's value at risk (VaR), by measuring the worst historical monthly return loss over the two-year period post engagement (Duffie and Pan, 1997; Jorion, 2002). We measure the VaR by taking monthly return outcomes ranked at the bottom fifth percentile (5%-VaR). We use absolute values of the resulting VaR and also annualized values. The concept of VaR has gradually gained importance in risk management and is promoted by various industry regulations.[5] More crucially, empirical evidence suggests that 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.

3. Cross-Sectional Risk-Reduction Effects

3.1 Empirical Framework

3.1.1 Treatment-Effects Model

In order to test whether ESG engagement is related to future downside-risk reduction, we need to consider potential bias that could arise because the selection of which firms to target for ESG intervention is endogenous. Consequently, we employ an endogenous treatment-effects model to address this selection bias (Wooldridge, 2010). Treatment-effects models are useful in our setting, as they extract experimental-style causal effects from observational data. We estimate the model through a risk-outcome equation (1) and an engagement-selection equation (2):

$$Downside\ Risk_{i,t+2} = \alpha_1 + \delta\ Engagement\ Target_{i,t} + x_{i,t}\beta + \varepsilon_{i,t} \qquad (1)$$

$$Engagement\ Target_{i,t} = \alpha_2 + z_{i,t-1}\gamma + u_{i,t,} \qquad (2)$$

[5] For example, the Federal Reserve and regulators in the European Union have accepted VaR as a risk measure in financial reporting.

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. $Downside\ Risk_{i,t+2}$ is one of our three measures capturing downside risk. We construct these three risk measures from monthly return data over the two-year period after an initial engagement (post-engagement period). $x_{i,t}\ and\ z_{i,t-1}$ are vectors of control variables for the outcome and engagement selection equations in t and *t-1*, respectively. Control variables are explained in detail below. In the selection equation control variables are measured based on annual data in the last year before the engagement, while in the outcome equation they are measured in the year of engagement. The variables $\varepsilon_{i,t}$ and $u_{i,t}$ are error terms. All parameters are estimated using maximum likelihood. Our main coefficient of interest in this model is δ, which represents the average treatment effect (ATE) of investor engagement on downside risk.

3.1.2 Firm Matching

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. We use this index given that the engagement targets are distributed across many countries, as shown in Figure 1. The index covers about 90-95% of the world's investable market capitalization and includes more than 3,000 firms from 47 different countries.

Similar to Brav et al. (2008) we match targets with firms using three variables, namely country, industry, and size. Matching by country is important because of the variations in ESG regulations and ESG firm performance across countries. Dyck et al. (2018) provide evidence that institutional ownership and its relation to E&S performance varies by social norms across countries. Similarly, Dimson, Karakas and Li (2018) show that the success of coordinated ESG engagements varies across countries. We additionally match firms on their industry sectors, as engagement may

be more successful in reducing risk in industries that experience recent governance, social, or environmental scandals (e.g., the Deepwater Horizon spill in the United States). Consistent with this conjecture, Dimson, Karakas, and Li (2018) find that the success rate in their sample varies across industries. Additionally, downside risk may vary across industry sectors. We further match firms on size, as the occurrence of ESG risks likely has more adverse legal or reputational consequences for larger firms. Moreover, larger firms have been shown to respond more positively to shareholder activists (Dimson, Karakas, and Li, 2015).

We use the largest number of possible matches available in the FTSE All-World index for our analysis.[6] We exclude 27 utilities firms from our subsequent analysis as they operate in heavily regulated environments in which shareholder activists have lesser chance to effect change. The resulting matched sample contains 1,131 firms, including 269 engagement targets and 862 control firms. To ensure comparability, we calculate our risk measures for targets and matched control firms over the same post-engagement period. Summary statistics of all variables are reported in Table 4.

3.2 Empirical Results

3.2.1 Determinants of the Engagement Decision

Table 5 provides OLS estimates of the selection equation, using the sample of matched treatment and control firms. The dependent variable in the regressions is a dummy variable that takes the value one if a firm is an engagement target, and zero otherwise.

We provide in Column (1) regressions that explain the engagement decision primarily with firm-level financial variables. We relate engagement in Column (1) with firm leverage, as Dimson, Karakas, and Li (2015) find that engagement targets have higher leverage than control firms. We also control for past performance using a firm's profit margin, calculated as operating income over sales.

[6] We first match on country, then on industry, and finally on size. To match on size, we use the index grouping of firms into two categories, medium and large size firms. We match only within the same size category.

Past performance can affect an activist's engagement decision, as poor performance has been shown to trigger investor engagement (Karpoff, Malatesta, and Walkling, 1996; Smith, 1996). We further control for the market-to-book ratio and sales growth to capture growth opportunities and value potential, thereby capturing some investors' engagement preferences (see Brav et al., 2008). We control for dividend yields, as Dimson, Karakas, and Li (2015) show that target firms have relatively higher dividend yields. Finally, we account for capital expenditures, as firms may get targeted to reduce inefficient overinvestment, thereby increasing cash flows and dividend payouts.

Column (2) next accounts for investor concerns regarding target governance, which we capture using the free float (an inverse measure of large inside block ownership) and the anti-director rights index (ADRI) from La Porta et al. (1998) and Spamann (2009). Column (3) then includes both financial and governance variables in the regression. The regression in Column (4) additionally controls for industry fixed effects, while the one in Column (5) exclude firms located in the United Kingdom. We discuss the motivation to exclude firms from the United Kingdom below.

The estimates in Table 5 show that even after matching firms on size, country, and industry, some variables remain significantly related to the engagement decision. This highlights the need to carefully address selection bias beyond just matching firms through a selection-model model. We find that targeted firms have higher leverage and higher market-to-book ratios than control firms. They also seem to pay relatively higher dividends, consistent with Dimson, Karakas, and Li (2015), grow faster, and spend more on investment, though the latter affect disappears once we account for industry effects. Across all specifications we have little evidence that our proxies for corporate governance are related to the engagement decision by our investor. Our subsequent treatment-effects model uses the specification of Column (3) to estimate the selection equation.

3.2.2 Effects of Engagement on Downside Risk

We next estimate the effects of shareholder intervention on downside risk. We report three sets of results. First, we present estimates of the overall effects of ESG engagement on downside risk. We then provide results by engagement success. If our hypotheses are correct that the risk changes are driven by investor engagement and the target's subsequent response, then we should observe systematic variation across targets with different rates of engagement success. Finally, we show the results according to the engagement theme in order to understand which areas of engagement have the largest potential to reduce downside risk.

Average Effects of Engagement on Downside Risk

Constituting our first step, Table 6 reports regressions of the overall effect of ESG engagement on downside risk after accounting for engagement selection. Recall that we measure downside risk for each target-control-pair over the same time horizon, namely over the two-year period after an initial engagement. The regression in Column (1) uses OLS estimates without accounting for endogeneity in the engagement decision. Column (2) then provides estimates of the treatment-effects model. A comparison of the OLS estimator with the selection-corrected estimator allows us to evaluate the direction of selection bias.

The subsequent two columns contain specifications that address different concerns with our analysis. Next to matching firms on industry, the regression in Column (3) includes industry fixed effects, which further mitigate concerns about confounding effects that may arise if both engagement and firm risk are driven by industry factors. For example, firms in oil and gas may be more likely targets of shareholder activists that aim at reducing carbon emissions, but such firms may also have high tail risk in general (e.g., in anticipation of climate-related future regulation). Notably, the regression in Column (4) excludes firms located in the United Kingdom, the country where our investor is headquartered in. This regression addresses the concern that results are

largely driven by risk-reduction effects from engagement in the investor's home market. This concern is plausible as the investor may have better knowledge, more lobbying power, or wider support from beneficiary base when engaging local portfolio firms. Such benefits may not be present outside of the United Kingdom, implying that engagement has little effect there.

The regressions control for a wide range of factors that may affect downside risks beyond shareholder engagement. We account for differences in financial leverage, as more debt tends to increase the volatility of firm's earnings. We also control for profitability, which is related to firm risk as it reflects information about future cash flow streams which, in turn, drive returns (Wei and Zhang, 2006; Vuolteenaho, 2002). Similarly, we account for market-to-book and sales growth, as growth firms may be more risky overall.

The OLS regression is Column (1) indicates that engagement reduces tail risk, though the effect is only small and statistically insignificant. Once we account for selection bias in Column (2) we find that engagement has a negative and significant effect on downside risk. When estimated relative to control firms, the average treatment effect (ATE) of engagement on LPM (0,2) is -6.9%. This is a significant number, equal to 31% of the variable's mean during the sample period (see Table 4). The effect gets stronger in magnitude and statistical significance once we account for industry fixed effects in Column (3). Importantly, there is strong evidence that the effects are not confined to engagement in the United Kingdom. Column (4) shows that the ATE is virtually unchanged once we exclude firms from the country where the investor is located in. The fact that the coefficient estimate hard changes indicates that the effects are similar within and outside the United Kingdom. A comparison of the OLS and treatment-effects model suggests that OLS estimates are upward biased, understating the true effect of engagement. An omitted variable generates upward bias when it is either positively correlated with engagement and tail risk, or negatively correlated with both.

The remaining two columns of Table 6 show that results are unaffected when using our two alternative measures of downside risk. The average treatment effect (ATE) of engagement on LPM (0,3) is -5.9% in Column (5). This is again a meaningful number, equal to 31% of the variable's mean during the sample period (see Table 4). Economically, our results for both lower-partial moments measures imply that subsequent to the engagement, the negative returns of firms targeted by the investor are statistically less dispersed than those of the control firms.

Turning in Column (6) to the link between ESG engagement and value at risk, we find that engagement targets have a subsequent VaR that is 11% lower compared to the one at control firms. This is again a large number as it equals 23% of the average VaR. The control variables in Table 6 indicate that firms with higher market-to-book ratios, and more profitable firms tend to have lower downside risk, while leverage is positively associated with downside risk.

Overall, the regressions in Table 6 provide some first evidence for a wealth-protection effect of ESG engagements. This effect is obtained after controlling both for the endogenous engagement decisions of our investor, and for observable variables that may affect downside risk.

Effects of Engagement Success on Downside Risk

As our second step, we examine whether the apparent ESG-risk-reduction effect varies by success rate. We again use the treatment-effects model with matched control firms. The results are presented in Table 7. In Columns (1), (3), and (5) we report estimates for target firms at which the investor had a high engagement success. We consider engagement success to be high when at least Milestone 2 has been achieved. In Columns (2), (4), and (6) we show estimates for target firms where engagement success was low, i.e., only Milestone 1 has been achieved.[7] We conduct this sample split as a further test of whether the investor's engagement itself leads to reduced downside

[7] 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.

risk; if this were not the case we should *not* expect to see results that differ across success rates.[8] We continue to report results with and without industry fixed effects, as well as for the sample of firms that excludes target sand controls for the United Kingdom.

The results in Table 7 show that the risk-reduction effects of ESG engagements only exist for those engagements where at least Milestone 2 was achieved, that is, at target firms that have acknowledged the existence of an ESG issue or even responded with actions to the investor's demands. In economic terms, the ATE for successful engagements is between -9.1 and -9.3% for LPM (0,2), and the effects are highly statistically significant at the 1% level.

Interestingly, for the set of firms in which the investor's engagement was judged to be unsuccessful, we find an increase in all three downside risk 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.

Effects of Engagement Topics on Downside Risk

Constituting our third and final step, we investigate whether the effects of ESG engagement on downside risk vary across engagement themes. We report in Table 8 regressions by engagement theme. Splitting engagement by theme is an informative analysis, as it can indicate where engagement can yield the most effective results in terms of reducing downside risk. The estimates in Columns (1) and (5) show that ESG engagement reduces risk when concerns over governance are addressed by the investor. We also find risk-reduction effects for engagements over strategy topics in Columns (4) and (8).

Although we do not find a direct risk-reduction effect for engagement over social topics alone (not reported), we additionally find in Columns (3) and (7) that risk is reduced if social

[8] Appendix Table 1shows that engagement success is largely unrelated to firm characteristics, except that that success rates are higher if firms paid lower dividends or had higher free float (i.e., fewer inside blockholders).

engagement is combined with engagement to improve governance. This results suggest that changing a firm's sustainability agenda without addressing the corporate governance at the firm is unlikely to yield a risk-reduction effect. This finding echoes the results in Monks et al. (2004), who find that shareholder proposals which combine CSR issues with traditional corporate governance gain more support than proposals over CSR issues alone.

We do not find any significant risk-reduction effects for engagement over environmental themes, neither when we examine them individually (not reported) nor when in combination with governance engagements (Columns (2) and (6)). However, we note that the sample size for the analysis of such engagement is very small, limiting the power of such tests.

4. Time-Series Exposure to Downside-Risk Factor

The advantage of our treatment-effects analysis is that results are straightforward to interpret, but the disadvantage is that most variables are measured on an annual frequency only (e.g., the accounting variables). We next complement this analysis with tests that examine whether ESG engagement reduces firms' exposure to a downside-risk factor.

To measure exposure to downside risk, we construct the downside-risk factor (DOWN) as the return difference between stocks in our sample with high minus low downside risk. Stocks with high (low) downside risk in the previous period belong to the top (bottom) 30% of the downside-risk distribution, which we continue to measure using either LPM or VaR. We then use a firm's time-varying exposure to this factor to capture changes in firm riskiness resulting from ESG engagement by our investor. This approach is similar to Kelly and Jiang (2014), who estimate the exposure of firm's returns to an aggregate tail-risk factor derived from the cross-section of returns.

We capture the timing of engagement by creating a two-sided dummy variable (*Post*) that equals 1 for stock-return observations from the two-year period after our investor started to engage a target, -1 for stock-return observations from the two-year period before, and zero for all other

observations. We also use a modified version of this dummy variable which takes the value 1 in the two-year period after Milestone 2 has been achieved, -1 in the two-year period before, and zero otherwise. We then run the following factor model explaining weekly excess returns ($r_{i,t} - r_f$):

$$r_{i,t} - r_f = \alpha_i + \rho_i Post_{i,t} * DOWN_t + d_i DOWN_t + \Theta_i Post_{i,t} + b_i MKT_t \qquad (3)$$
$$+ s_i SMB_t + h_i HML_t + r_i RMW_t + c_i CMA_t + \varepsilon_{i,t}$$

The key variable of interest in this model is ρ_i, the coefficient on the interaction term *Post* * *DOWN*. A negative value of ρ_i would indicate that the exposure of targets to the downside-risk factor decreases after investor engagement, relative to the period before. The model accounts for the five factors proposed by Fama and French (2015): the MKT, SMB, and HML factors from the three-factor model (Fama and French, 1993), plus a profitability (RMW) and investment factor (CMA). These five factors are constructed using the data on international factors provided on Ken French's webpage.

The regression results are reported in Table 9, with the DOWN factor being constructed based on LPM (0,2) or VaR, respectively (indicated accordingly in the table). The regressions in Columns (1) through (4) explain excess returns of firms targeted by the investor. We find that targeted firms generally have positive exposure to the DOWN factor. Columns (1) and (3) further show that this exposure is not significantly altered when the investor makes an initial engagement contact, as reflected by the insignificant interaction term on *Post* * *DOWN*. In contrast, there is strong evidence in Columns (2) and (4) that exposure to the downside-risk factor significantly decreases after Milestone 2 has been achieved. This suggests that the portfolio of firms for which Milestone 2 has been achieved become less tilted towards high downside risk, reflecting a reduction in risk due to the ESG engagement.

A concern to the analysis in Columns (1) through (4) is that these results may partially reflect the ability of our investor to pick stocks that, independent of engagement, became less risky. To

mitigate this concern the remaining four columns in the table replace the excess returns of targeted firms with the return differences between targeted and matched firms. In these weekly difference-in-differences regressions we continue to find that engagement reduces downside risk. As in the previous columns, the effect of engagement on risk exposure is only present for successful engagements. Overall, these results strongly suggest that the reduction in firms' sensitivity to aggregate downside risk is the results of the investor's engagement rather than stock picking.

5. Conclusions

In this paper we examine whether shareholder engagement regarding ESG topics can reduce downside risk at portfolio firms. We present supporting evidence for such an effect using proprietary data provided by a large influential institutional investor activist. Based on 682 engagements across 296 targeted firms worldwide over the 2005-2014 period, we find that the investor most commonly engages firms over corporate governance issues, accounting for approximately half of the engagements. The investor also actively engages on social (21%), environmental (18%), and strategy (13%) themes.

We examine whether a risk-reduction effect exists from these ESG shareholder engagements. After controlling for selection, 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. Lower partial moments of the second (third) order are 6.9% (5.9%) lower at target firms subsequent to the engagement and as compared to matched control firms that were not targeted. In addition, subsequent to the engagement, the targeted portfolio firms have values at risk that are 11% lower compared to matched control firms.

The effects of ESG engagement on downside risk tend to be stronger for the engagements defined as more successful. This result supports the contention that the investor's engagement leads to reduced downside risk. The risk-reduction effects of ESG engagement vary across engagement

themes, with stronger effects when governance or strategy topics are addressed. Effects are also stronger for social engagements, but only when such engagements are combined with governance engagements. These results support the hypothesis that changing a firm's social agenda without addressing governance is unlikely to yield a risk-reduction effect. We find no significant effects for engagements over environmental themes.

We support the validity of these findings through a time-series tests that examine the effects of engagement on the exposure of targeted firms' returns to a downside-risk factor. We find that exposure to the downside-risk factor significantly decreases after successful engagement.

Given the increasing engagement by institutional investors on ESG issues, our analysis contributes new insights into understanding the channel through which ESG engagement can create value for investors.

Data Appendix

Variable	Definition	Data Source
Engagement Target	Dummy variable that equals 1 if a firm is an engagement target, and 0 if it is a control firm. Control firms are matched with engagement targets using country, industry, and size as matching criteria.	Self-constructed
LPM (0,2)	Variable that measures the lower partial moment of the second order over the 2-year period after an initial engagement. It is defined as: $$LPM\ (0,2) = \sqrt{\frac{1}{N_1 - 1}\sum_{i=1}^{N_1}(r_{n,i} - \overline{r_{n,i}})^2}$$ 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 two-year period after an initial engagement. Values are annualized. Winsorized at 5%.	Datastream
LPM (0,3)	Variable that measures the lower partial moment of the second order over the two-year period after an initial engagement. It thereby captures extreme negative return dispersion and is defined as: $$LPM(0,3) = \sqrt[3]{\left\lvert\frac{1}{N_1-1}\sum_{i=1}^{N_1}\left(r_{n,i}\right)^3\right\rvert}$$ where $r_{n,i}$; $\overline{r_{n,i}}$ and N_1 are defined as above for LPM (0,2). We use the absolute value of LPM (0,3). Values are annualized. Winsorized at 5%.	Datastream
VaR	Variable that measures the value at risk, measured as the worst historical loss over the two-year period after the initial engagement. He variable is constructed based on monthly returns data. We measure the VaR by taking return outcomes ranked at the bottom fifth percentile (5%-VaR). Values are annualized. We take the absolute values of the VaR. Winsorized at 5%.	Datastream
Leverage	Total debt divided by common equity. Total debt is the sum of long-term and short-term debt. Winsorized at 5%.	Datastream
Profit margin	Operating income over total sales. Winsorized at 5%.	Datastream
Market-to-book ratio	Market value of equity divided by book value of equity. Winsorized at 5%.	Datastream
Dividend yield	Dividends per share divided by the share price. Winsorized at 5%.	Datastream
Sales growth	Year-on-year change in sales. Winsorized at 5%.	Datastream
Investment	Capital expenditures over assets. Winsorized at 5%.	Datastream
Free float	Number of shares held by ordinary investors divided by number of shares issued. Winsorized at 5%.	Datastream
ADRI	Anti-director right index measured based on shareholder-voting rights and minority shareholder protection.	Spamann (2009)

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Figure 1: ESG Engagements by Country

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

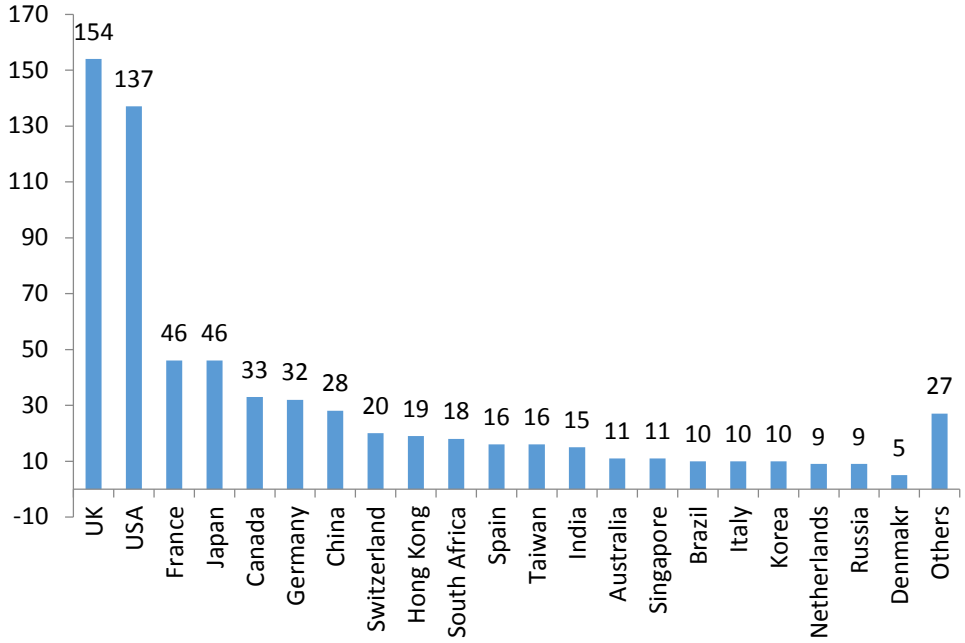

Figure 2: ESG Engagements by Industry

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

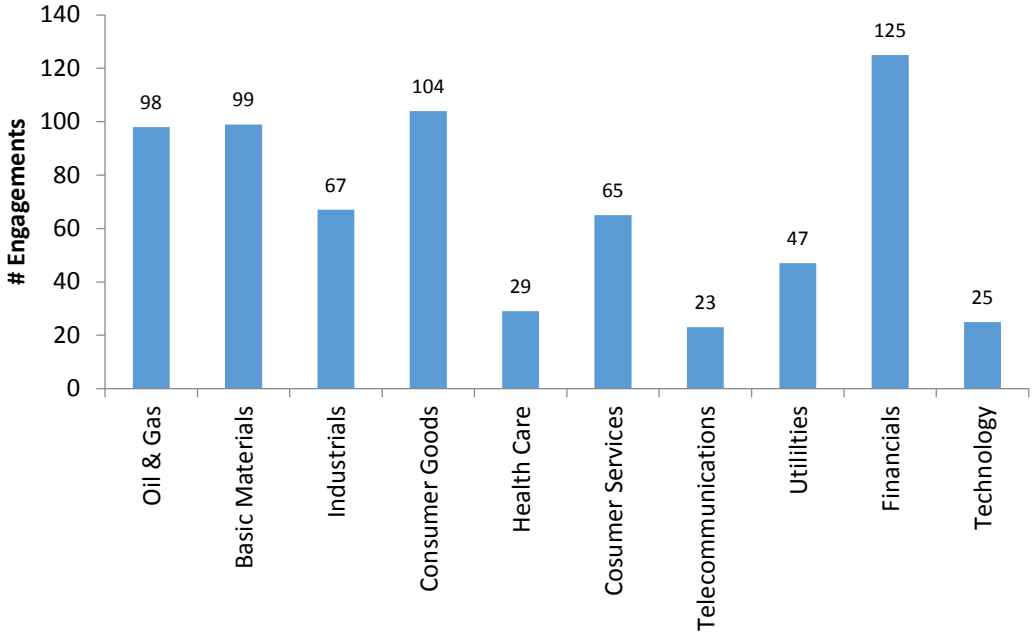

Figure 3: ESG Engagements by Year

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

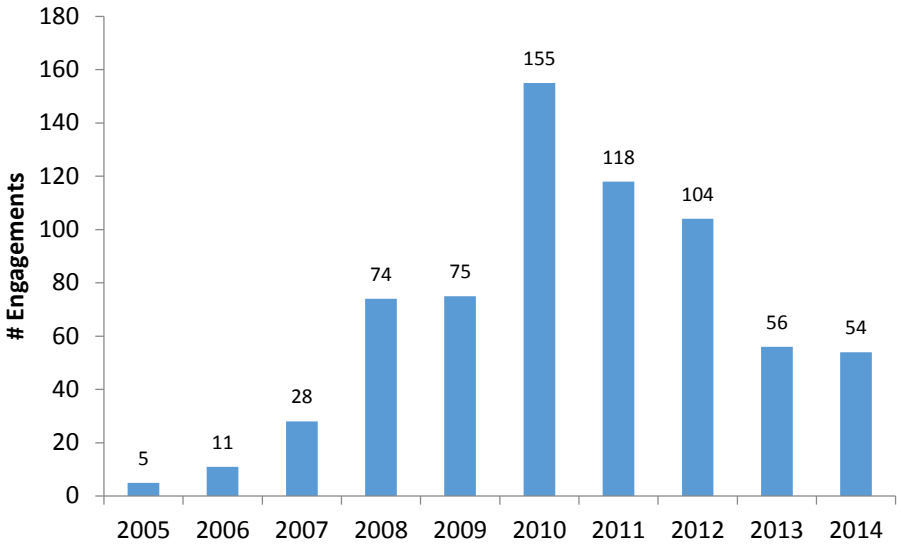

Table 1: Summary Statistics on Engagement Themes

This table provides summary statistics across four engagement themes: (i) governance; (ii) social; (iii) environmental; and (iv) strategy. 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 Engagement			Environmental Engagement			Strategy Engagement		
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 Milestones 3 or 4 may not yet have 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	4	10	1	87
Social	3	6	1	31
Environmental	4	9	1	65
Strategy	4	8	1	53
All	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	13	19	1	114
Social	9	13	1	85
Environmental	7	12	1	72
Strategy	11	16	1	74
All	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	25	23	1	126
Social	21	16	1	71
Environmental	16	15	2	59
Strategy	28	25	2	91
All	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	34	26	2	126
Social	38	21	2	77
Environmental	27	25	2	74
Strategy	34	28	1	95
All	34	25	1	126

Table 3: Summary Statistics of Engagement Actions and Targeted Individuals

This table 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	Governance	Environ-mental	Strategy	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 Engmt.	*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 Engmt.	*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 Engmt.	*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 Engmt.	*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 Engmt.	*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 Engmt.	*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 Engmt.	*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 Engmt.	*0.4*	*0.6*	*0.2*	*0.5*	*0.5*	*0.2*	*0.4*	*0.7*	*0.5*	*0.5*

Table 4: Summary Statistics

This table reports results summary statistics of the variables used in the outcome equation. Downside risk is measured over the two-year period after an initial engagement. Values are annualized. Control variables are at the annual level, measured at the time of the initial engagement. The sample in this analysis consists of a total of 1,131 firms, including 269 engagement targets and 862 control firms.

Variable	Mean	STD	Median	25th	75th	Obs.
Engagement Target	0.230					1076
LPM (0,2)	0.222	0.095	0.213	0.153	0.280	1058
LPM (0,3)	0.192	0.081	0.182	0.133	0.243	1058
VaR	0.480	0.209	0.451	0.321	0.607	1058
Leverage	0.957	1.032	0.607	0.308	1.184	1031
Profit margin	0.154	0.119	0.131	0.055	0.236	1048
Market-to-book ratio	1.979	1.436	1.465	1.000	2.406	1049
Dividend yield	0.024	0.016	0.022	0.012	0.034	1053
Sales growth	0.006	0.010	0.005	0.000	0.012	1017
Investment	0.044	0.040	0.034	0.010	0.065	1026

Table 5: Determinants of Effect: Selection Equation

This table reports results from different OLS regressions of the selection equation of an endogenous treatment-effects model to estimate the effect of ESG engagement on downside risk. The sample in this analysis consists of a total of 1,131 firms, including 269 engagement targets and 862 control firms. Engagement target is a dummy variable that equals 1 if a firm is an engagement target, and 0 if it is a control firm. Control firms are matched with engagement targets using country, industry, and size as matching criteria. *t*-statistics are reported in parentheses. Control variable are at the annual level, measured one year before the initial engagement *, **, and *** denote statistical significant at the 10%, 5% and 1% levels, respectively.

Dependent variable	Engagement Target				
	(1)	(2)	(3)	(4)	(5)
Leverage	0.155**		0.151**	0.195***	0.113*
	(2.40)		(2.32)	(2.79)	(1.65)
Profit margin	-0.018		-0.006	0.029	-0.063
	(-0.20)		(-0.06)	(0.28)	(-0.67)
Market-to-book ratio	0.020**		0.019**	0.013	0.022**
	(2.13)		(2.07)	(1.27)	(2.21)
Dividend yield	2.104***		2.108***	1.892**	2.427***
	(2.61)		(2.60)	(2.29)	(2.79)
Sales growth	1.759**		1.791***	1.829***	1.624**
	(2.58)		(2.62)	(2.63)	(2.23)
Investment	1.001***		1.031***	0.193	0.839***
	(3.30)		(3.36)	(0.47)	(2.64)
Free float		0.034	0.051	0.048	0.059
		(0.60)	(0.84)	(0.79)	(0.93)
ADRI		-0.005	-0.001	0.006	-0.014
		(-0.36)	(-0.08)	(0.39)	(-0.80)
Constant	0.033	0.225***	-0.002	0.100	0.050
	(0.72)	(2.83)	(-0.02)	(0.94)	(0.48)
Matched sample	Yes	Yes	Yes	Yes	Yes
Industry FE	No	No	No	Yes	No
Excluding U.K.	No	No	No	No	Yes
Obs.	1019	1076	1019	1019	915
adj. R-sq	0.023	-0.001	0.022	0.034	0.020

Table 6: Effect of ESG Engagement on Downside Risk: Outcome Equation

This table reports results from the outcome equation of an endogenous treatment-effects model to estimate the effect of ESG engagement on downside risk. Downside risk is measured over the two-year period after an initial engagement, and then annualized. The engagement selection equation has been estimated as in Table 5, Column (3). The sample in this analysis consists of a total of 1,131 firms, including 269 engagement targets and 862 control firms. Engagement target is a dummy variable that equals 1 if a firm is an engagement target, and 0 if it is a control firm. Control firms are matched with engagement targets using country, industry, and size as matching criteria. Control variables are at the annual level, measured at time of the initial engagement. We use three dependent variables to measure subsequent firm downside risk 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). *t*-statistics are reported in parentheses. *, **, and *** denote statistical significant at the 10%, 5% and 1% levels, respectively.

Dependent variable	LPM (0,2)				LPM (0,3)	VaR
	(1)	(2)	(3)	(4)	(5)	(6)
Engagement Target	-0.005	-0.069**	-0.070***	-0.068**	-0.059**	-0.110*
	(-0.85)	(-2.42)	(-2.70)	(-2.12)	(-2.44)	(-1.68)
Leverage	0.012***	0.013***	0.011***	0.012***	0.011***	0.025***
	(4.13)	(4.38)	(3.54)	(3.96)	(4.11)	(3.84)
Profit margin	-0.157***	-0.161***	-0.192***	-0.178***	-0.127***	-0.334***
	(-6.53)	(-6.44)	(-6.51)	(-6.84)	(-5.97)	(-6.07)
Market-to-book ratio	-0.020***	-0.019***	-0.017***	-0.019***	-0.016***	-0.039***
	(-10.01)	(-9.51)	(-7.46)	(-8.72)	(-9.31)	(-8.74)
Dividend yield	-0.174	-0.048	-0.025	-0.046	-0.020	-0.178
	(-0.98)	(-0.25)	(-0.13)	(-0.22)	(-0.12)	(-0.42)
Sales growth	-0.376	-0.437	-0.335	-0.319	-0.280	-1.465**
	(-1.35)	(-1.56)	(-1.21)	(-1.08)	(-1.17)	(-2.34)
Investment	0.374***	0.408***	0.413***	0.410***	0.357***	0.800***
	(5.19)	(5.40)	(4.04)	(5.26)	(5.51)	(4.76)
Constant	0.269***	0.279***	0.275***	0.281***	0.237***	0.596***
	(32.24)	(29.13)	(17.49)	(27.64)	(29.18)	(28.55)
Matched sample	Yes	Yes	Yes	Yes	Yes	Yes
Correction bias corrected	No	Yes	Yes	Yes	Yes	Yes
Industry FE	No	No	Yes	No	No	No
Excluding U.K.	No	No	No	Yes	No	No
Obs.	1007	997	997	901	997	997
adj. R-sq	0.171	n/a	n/a	n/a	n/a	n/a

Table 7: 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 firms' downside risk, and then annualized. Downside risk is measured over the two-year period after an initial engagement. We report results from the outcome equation only. The engagement selection equation has been estimated as in Table 5, Column (3). We split the sample based on a measure of engagement success. We consider the engagement success to be high if Milestones 2, 3 or 4 have been achieved. We consider the engagement success to be low if only Milestone 1 has been achieved. The sample in this analysis consists of a total of 1,131 firms, including 269 engagement targets and 862 control firms. Engagement target is a dummy variable that equals 1 if a firm is an engagement target, and 0 if it is a control firm. Control firms are matched with engagement targets using country, industry, and size as matching criteria. To measure subsequent firm downside risk in the outcome equations we use the lower partial moment of the second order (LPM (0,2)). *t*-statistics are reported in parentheses. *, **, and *** denote statistical significant at the 10%, 5% and 1% levels, respectively.

Dependent variable	LPM (0,2)					
	Engagement Success		Engagement Success		Engagement Success	
	High	Low	High	Low	High	Low
	(1)	(2)	(3)	(4)	(5)	(6)
Engagement Target	-0.093***	0.162***	-0.091***	0.135***	-0.093***	0.164***
	(-3.85)	(8.07)	(-3.84)	(8.20)	(-3.71)	(9.45)
Leverage	0.014***	0.012**	0.011***	0.008	0.013***	0.010*
	(4.02)	(1.98)	(3.22)	(1.41)	(3.58)	(1.82)
Profit margin	-0.142***	-0.168***	-0.183***	-0.139***	-0.169***	-0.157***
	(-4.79)	(-3.59)	(-5.18)	(-3.10)	(-5.37)	(-3.33)
Market-to-book ratio	-0.019***	-0.023***	-0.016***	-0.013***	-0.018***	-0.023***
	(-7.64)	(-6.12)	(-5.97)	(-2.82)	(-6.66)	(-6.04)
Dividend yield	0.223	-0.992**	0.341	-1.000***	0.214	-0.777*
	(0.99)	(-2.42)	(1.51)	(-2.67)	(0.89)	(-1.83)
Sales growth	-0.557*	-0.290	-0.426	-0.327	-0.460	-0.106
	(-1.75)	(-0.56)	(-1.34)	(-0.68)	(-1.36)	(-0.21)
Investment	0.385***	0.332**	0.381***	0.252	0.372***	0.275*
	(4.26)	(2.28)	(3.17)	(1.48)	(3.89)	(1.82)
Constant	0.280***	0.253***	0.283***	0.241***	0.284***	0.250***
	(25.99)	(14.75)	(14.32)	(10.86)	(24.88)	(14.84)
Matched sample	Yes	Yes	Yes	Yes	Yes	Yes
Correction bias corrected	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	No	No	Yes	Yes	No	No
Excluding U.K.	No	No	No	No	Yes	Yes
Obs.	789	208	789	208	705	196

Table 8: 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 across engagement themes. Downside risk is measured over the two-year period after an initial engagement, and then annualized. We report results from the outcome equation only. The engagement selection equation has been estimated as in Equation (2). The sample in this analysis consists of a total of 1,131 firms, including 269 engagement targets and 862 control firms. Engagement target is a dummy variable that equals 1 if a firm is an engagement target, and 0 if it is a control firm. Control firms are matched with engagement targets using country, industry, and size as matching criteria. To measure subsequent firm downside risk in the outcome equations we use the lower partial moment of the second order (LPM (0,2)). *t*-statistics are reported in parentheses. *, **, and *** denote statistical significant at the 10%, 5% and 1% levels, respectively.

Dependent variable	LPM (0,2)							
Engagement type	Governance	Gov. & Env.	Gov. & Social	Strategy	Governance	Gov. & Env.	Gov. & Social	Strategy
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Engagement Target	-0.110***	0.091	-0.174***	-0.176***	-0.102***	0.034	-0.158***	-0.217***
	(-5.64)	(1.39)	(-4.10)	(-6.86)	(-4.67)	(0.51)	(-3.83)	(-6.48)
Leverage	0.014***	0.006	0.022**	0.033***	0.011***	-0.001	0.012	0.033***
	(3.95)	(0.61)	(2.48)	(5.00)	(3.05)	(-0.07)	(1.29)	(4.82)
Profit margin	-0.190***	-0.071	-0.035	0.049	-0.202***	-0.132*	-0.084	-0.010
	(-6.20)	(-1.00)	(-0.41)	(0.67)	(-6.34)	(-1.79)	(-0.88)	(-0.13)
Market-to-book ratio	-0.018***	-0.012*	-0.013*	-0.033***	-0.017***	-0.008	-0.005	-0.028***
	(-7.01)	(-1.82)	(-1.84)	(-6.23)	(-5.94)	(-1.29)	(-0.67)	(-4.84)
Dividend yield	0.096	-0.315	0.509	0.386	0.120	-0.076	0.428	0.517
	(0.42)	(-0.52)	(1.12)	(0.89)	(0.48)	(-0.13)	(0.83)	(1.14)
Sales growth	-1.210***	-1.006	-1.151*	-2.258***	-1.198***	-1.211	-0.689	-1.997***
	(-3.39)	(-1.28)	(-1.71)	(-3.68)	(-3.10)	(-1.50)	(-0.89)	(-3.18)
Investment	0.331***	-0.153	0.179	0.522***	0.330***	-0.117	0.113	0.598***
	(3.42)	(-0.66)	(0.79)	(2.73)	(3.23)	(-0.53)	(0.48)	(2.71)
Constant	0.287***	0.258***	0.280***	0.290***	0.288***	0.283***	0.280***	0.286***
	(26.24)	(7.16)	(10.78)	(14.76)	(24.74)	(8.62)	(10.65)	(13.58)
Matched sample	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Correction bias corrected	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Excluding U.K.	No	No	No	No	Yes	Yes	Yes	Yes
Obs.	675	116	175	248	594	95	140	211

Table 9: Effect of ESG Engagement on the Stock-Return Exposure to a Downside-Risk Factor

This table shows in Columns (1) through (4) results from regressions of engagement targets' weekly excess stock returns (stock return minus risk-free rate) on a downside risk factor, the Post dummy, and an interaction of the two. Columns (5) through (8) replace the returns of engagement targets with the return difference between engagement targets and matched control firms. We construct the downside-risk factor (DOWN) as the difference between the returns of portfolios of stocks with high versus low downside risk. Sample stocks with high (low) downside risk are in the highest (lowest) 30% of the respective downside-risk measure distribution. The DOWN factor is based on LPM (0,2), the lower partial moment of the second order or on the VaR, the value at risk (indicated accordingly). In Columns (1), (3), (5), and (7) the dummy variable Post equals 1 for stock-return observations from the two-year period after our investor started to engage a target, -1 for stock-return observations from the two-year period before, and zero for all other observations. In Columns (2), (4), (6), and (8) the Post dummy takes the value 1 in the two-year period after Milestone 2 has been achieved, -1 in the two-year period before, and zero otherwise. We include in all regressions the five factors proposed by Fama and French (2015), i.e., the market (MKT), size (SMB), value (HML), profitability (RMW), and investment (CMA) factors. These factors are constructed using the data on international factors provided on Ken French's webpage. The sample includes 269 engagement targets. *, **, and *** denote statistical significant at the 10%, 5% and 1% levels, respectively.

Table 9 (continued)

	LPM (0,2)		VaR		LPM (0,2)		VaR	
Time period used to measure	Initial	Milestone	Initial	Milestone	Initial	Milestone	Initial	Milestone
Post dummy:	Engagement	2	Engagement	2	Engagement	2	Engagement	2
	Excess Return		Excess Return		Excess Return		Excess Return	
	Target		Target		Target - Control		Target - Control	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post * DOWN	-0.007	-0.042***	-0.004	-0.041***	-0.004	-0.031***	-0.008	-0.029***
	(-0.89)	(-4.49)	(-0.55)	(-5.32)	(-0.49)	(-2.92)	(-1.10)	(-3.33)
DOWN	0.033***	0.031***	0.076***	0.074***	-0.012*	-0.012*	0.008	0.008
	(5.46)	(5.23)	(15.06)	(14.64)	(-1.76)	(-1.79)	(1.47)	(1.33)
Post	0.003***	0.003***	0.003***	0.002***	0.000	-0.000	0.000	-0.000
	(12.46)	(12.71)	(13.38)	(5.76)	(0.31)	(-1.07)	(0.33)	(-0.96)
MKT	1.058***	1.059***	1.035***	1.036***	-0.011	-0.011	-0.021***	-0.021***
	(157.23)	(157.42)	(156.28)	(156.36)	(-1.47)	(-1.44)	(-2.81)	(-2.81)
SMB	0.268***	0.270***	0.254***	0.256***	-0.095***	-0.094***	-0.098***	-0.097***
	(20.19)	(20.29)	(19.07)	(19.25)	(-6.34)	(-6.28)	(-6.53)	(-6.45)
HML	0.366***	0.359***	0.306***	0.296***	0.080***	0.075***	0.064***	0.058***
	(25.04)	(24.51)	(20.17)	(19.46)	(4.87)	(4.55)	(3.72)	(3.40)
RMW	0.207***	0.203***	0.239***	0.233***	0.052**	0.051**	0.075***	0.073***
	(10.23)	(10.02)	(12.36)	(12.05)	(2.27)	(2.21)	(3.45)	(3.34)
CMA	-0.319***	-0.311***	-0.230***	-0.217***	-0.078***	-0.071***	-0.047*	-0.041*
	(-15.13)	(-14.73)	(-10.61)	(-10.01)	(-3.28)	(-3.00)	(-1.94)	(-1.66)
Constant	-0.015***	-0.015***	-0.015***	-0.015***	0.000	0.000	0.000	0.000
	(-133.44)	(-133.43)	(-131.23)	(-131.23)	(0.79)	(0.76)	(1.22)	(1.19)
Obs.	225,295	225,295	225,295	225,295	225,295	225,295	225,295	225,295
R-squared	0.199	0.199	0.200	0.200	0.000	0.000	0.000	0.000

Appendix Table 1: Explaining Success Rates

This table shows results from regressions that explain whether firm characteristics are related to engagement success. We consider the engagement success to be high if Milestones 2, 3 or 4 have been achieved. We consider the engagement success to be low if only Milestone 1 has been achieved. The sample in this analysis consists of a total of 1,131 firms, including 269 engagement targets and 862 control firms. Control firms are matched with engagement targets using country, industry, and size as matching criteria. *t*-statistics are reported in parentheses. *, **, and *** denote statistical significant at the 10%, 5% and 1% levels, respectively.

Dependent variable	Engagement Success High				
	(1)	(2)	(3)	(4)	(5)
Leverage	0.044		0.044	0.066	0.039
	(0.52)		(0.58)	(1.13)	(0.51)
Profit margin	-0.266		-0.246	-0.163	-0.235
	(-1.53)		(-1.49)	(-1.35)	(-1.37)
Market-to-book ratio	0.011		0.010	0.006	0.007
	(1.20)		(1.15)	(0.70)	(0.89)
Dividend yield	-2.159**		-2.279***	-2.200***	-2.451***
	(-2.41)		(-2.84)	(-3.25)	(-3.20)
Sales growth	-0.541		-0.495	-0.609	-0.277
	(-0.74)		(-0.68)	(-0.89)	(-0.39)
Investment	-0.502		-0.404	-0.486	-0.405
	(-1.01)		(-0.85)	(-1.01)	(-0.86)
Free float		0.158**	0.122**	0.129**	0.103
		(2.31)	(2.05)	(2.20)	(1.60)
ADRI		0.013	0.019	0.018	0.004
		(0.38)	(0.61)	(0.62)	(0.11)
UK firm					0.094
					(1.33)
Constant	0.725***	0.477***	0.557***	0.525***	0.628***
	(6.92)	(3.40)	(4.12)	(3.78)	(4.18)
Matched sample	Yes	Yes	Yes	Yes	Yes
Industry FE	No	No	No	Yes	No
Obs.	1019	1076	1019	1019	1019
adj. R-sq	0.059	0.019	0.071	0.077	0.079