ESG Shareholder Engagement and Downside Risk*

Andreas G. F. Hoepner   Ioannis Oikonomou   Zacharias Sautner

Laura T. Starks   Xiao Y. Zhou

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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 the lower partial moment 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 environmental topics (primarily climate change). We find corroborating evidence in that successful engagement reduces the firm's exposure to a downside-risk factor.

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 (2019) 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 (2019) 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., 2019). 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).

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. Generally, the goal is to

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

engender higher standards of corporate ESG practices that serve as an insurance mechanism against harmful, risk-inducing events as well as mitigating the likelihood of regulatory, legislative or consumer actions against the firms. Often the engaging shareholders 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.

We examine whether these ESG engagements can be associated with subsequent reductions in downside risk at portfolio firms. We employ proprietary engagement data provided by a large institutional investor with more than $500 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 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 include 1,712 engagements across 573 targeted firms worldwide, covering the years 2005 through 2018. The investor provided us with full access to the engagement database, including shareholdings, engagement activities, action reports, and the investor's measures of engagement 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 account for 43% of all the engagements and frequently center on executive pay and board structure. Engagements over environmental issues constitute about 22% of the engagements. These engagements have a primary theme of climate risk, a theme that has become an important topic for engagement among many major institutional investors (Krueger, Sautner, and

Starks, 2019). Blackrock, for example, has announced that portfolio firm disclosure on climate risk will be a focus area for their future engagements (Blackrock, 2017). Moreover, our investor has increasingly engaged firms on climate risk, with such engagements reaching 80% of 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]

The third most common types of engagements cover social issues (20%), which mainly cover health and safety issues, supply chain topics, and illegal acts such as bribery and corruption. Finally, 16% of the engagements center on strategy topics, which are typically 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). While it takes the investor, on average, six months to reach Milestone 2, it usually takes an average of 35 months until the entire engagement is successfully completed. Out of the 1712 engagements for which the investor raises a concern, 538 (31%) successfully achieve all four milestones by the end of the sample period, 888 (51.8%) achieve Milestone 3, and 1410 (82.4%) reach Milestone 2.

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[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).

The investor primarily employs a private, non-public approach to engage the portfolio firms, consistent with the more general evidence on institutional investor engagement in McCahery, Sautner, and Starks (2016). Among the 11,254 documented interactions, more than 45% take the form of private in-person meetings (5,117), followed by substantive emails (2,055), conference calls (1,748), and letters (1,524). The investor's preference for private negotiations over public engagements is consistent with recent theoretical reasoning in Levit (2019), 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 (2,042 contacts), the board chair (1,527), and the board of directors (1,495). 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 the portfolio firm's downside risk, which we measure in two ways. Our first measure captures the distributions of returns that fall below the 0%-return-threshold. We calculate this measure as the lower partial moment (LPM) of the second order (Bawa, 1975; Fishburn, 1977). Different from stock-return volatility, this measure captures *negative* return fluctuations, reflecting many long-term

investors' perceptions of risk (Harlow, 1991). This measure also highlights the potential wealth-protection motives of ESG engagements (Blackrock and Ceres, 2015; Fortado, 2017). As a second 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).[3]

We document across both measures that the investor's ESG engagements are associated with subsequent significant reductions in the portfolio firms' downside risk. We ascertain this risk-reduction effect using two complementary methodologies. The first approach uses difference-in-differences (DiD) regressions to test whether ESG engagement is related to future downside-risk reduction. We compare how the downside risk changes from its level before the engagement to after, relative to a control group of similar firms. Our effects are estimated using monthly data for the risk variables over a two-sided two-year window around the investor's initial engagement. A concern with this analysis is that the investor may invest in certain firms expecting a decline in risks for reasons unrelated to its engagement. We address concerns about such selection effects by employing two approaches. First, we integrate into the DiD estimation a Heckman selection model to address endogeneity originating from omitted variables correlated with downside risk and the likelihood of being a target. To this end, we estimate both a selection equation modelling the investor's decision to engage a target, and a DiD outcome equation relating engagement to changes in downside risk. The outcome equation contains a correction factor (Inverse Mills Ratio) that accounts for potential selection effects (Heckman, 1979). Second, we apply entropy balancing to align the control-variable

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[3] We do not use options-implied measures of tail risks as our international sample contains few firms for which liquid options data, particularly out-of-the-money puts, are available.

distributions between firms in the treatment and control group. Entropy balancing establishes a covariate balance in treatment studies (Hainmueller, 2012). To achieve this, it applies weights so that the reweighted treatment and control group is more comparable (e.g., having identical first and second moments). The Heckman model and entropy balancing substantially increase the hurdle for an omitted variable to drive our results.

Across all 1,712 engagements we do not detect significant reductions in downside risk as a result of the engagement. However, this sharply changes once we condition on the extent to which the engagement has been judged to be a success. Notably, we show a substantial risk-reduction effect of ESG engagements for those targets where at least Milestone 2 was achieved (the target management, at the minimum, acknowledged the existence of an ESG issue).[4] The magnitude of this effect increases sharply, by a factor of five, if we impose a stricter definition of engagement success and consider only engagements where at least Milestone 3 was achieved (i.e., the target management started to take actions). For these successful engagements, the lower partial moment decreases by 0.419 from before to after the engagement, relative to control firms. This risk-reduction effect roughly equals 38% of the variable's standard deviation in the pre-engagement period.[5]

We determine which types of ESG engagements appear to be most effective in reducing downside risk by examining how the effects vary across engagement themes. Considering Milestone

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[4] In case of multiple simultaneous engagements at a given target, we calculate the average engagement-success rate across all engagements. For such engagements, we require that, on average, at least Milestone 2 was achieved.

[5] We confirm these results in OLS regressions that keep the DiD framework but do not impose a selection model. The downside-risk reductions are weaker for Milestone 2 if we do not adjust for the entropy balancing. However, we continue to find strong effects even without entropy balancing when we use our move restrictive definition of engagement success (Milestone 3).

3 as the success threshold, we find that engagement over environmental topics (primarily over climate change) delivers the highest benefits in terms of downside-risk reduction. This is consistent with the survey evidence in Krueger, Sautner, and Starks (2019), which indicates the engagement over climate change is an important channel through which institutions try to tackle climate risks. Our evidence suggests that such engagements can deliver substantial benefits for investors.

We complement this analysis with a second approach in which we explore changes in the engaged firms' stock-return loadings on a downside-risk factor. We test whether after the achievement of an engagement milestone 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 examine firms' exposures 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, and especially Milestone 3, have 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, 2019; 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. (2019), 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 in its active ownership. The aim of the investor's active ownership is to promote and develop ESG standards at portfolio firms. The 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 investor's team consists of more than 30 professionals who engage on behalf of its own assets as well as on behalf of clients.[6] These clients consist of more than 40 asset owners, the vast majority of which are public pension funds, and their assets exceed 500 billion US$ at the time of writing.

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[6] The engagement professionals usually have senior or mid-level management experience in consulting, financial services, legal services, natural sciences or relevant sectors. They originate from over a dozen countries and jointly speak well over a dozen languages.

The investor's proprietary database, which constitutes the core of our analysis, contains 1,712 engagements targeting 573 firms worldwide, covering the period between January 2005 and April 2018. We have full access to the investor's online engagement database, including the engagement reports, action reports, and success milestones. The investor states that the engagement occurs predominantly via a constructive, confidential dialogue.

1.2 ESG Engagement Process

The investor engages firms across geographic and industry boundaries. Figure 1 shows that the investor engages firms across more than 30 different countries, with the largest number of targets being headquartered in the United States (353 or 21% of the sample) and the United Kingdom (347 or 20%). These countries are followed by two large Asian economies (Japan with 139 or 8%; South Korea with 84 or 5%), two continental European countries (France and Germany, each about 4%), and Brazil (4%). Apart from Brazil, the investor also engages firms in several other emerging markets.

Figure 2 shows that engagements are concentrated in six sectors which account for nearly 80% of all engagements. In decreasing order of occurrence, these sectors are Financials, Basic Materials, Consumer Goods, Oil & Gas, Industrials, and Consumer Services. Heavily regulated sectors (e.g., Healthcare and Utilities) and environmentally less exposed sectors (Technology and Telecoms) are less frequently targeted.

The time series of the engagements, shown in Figure 3, indicates that the investor gradually increased the intensity of engagements since the beginning of our sample period in 2005, reaching a peak with 235 engagements in 2010, and then entering into somewhat lower number engagements in the remaining years (usually between 120 and 200). Although the number of engagements per year

has decreased since the peak, the investor has remains very active, commencing engagements with 151 firms in 2017, the last complete year in our sample period.

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 43% of all engagements. This is followed by engagements on environmental (22%), social (20%), and strategy issues (16%). This distribution generally mirrors the percentages of engagements by a different asset manager documented by Dimson, Karakas, and Li (2015), who also find for their investor that corporate governance engagements traditionally outpace those on environmental and social topics.

The engagement topics in Table 1 provide insights into the most pressing concerns of the investor within each of the more general themes. Within the governance area, the investor most frequently intervenes because of concerns over remuneration (28%), board independence (26%), board diversity (23%), and succession planning (12%). These concerns also reflect concerns of the broader institutional investor community, as shown in industry publications (Wilcox and Sodali, 2017).

Among all environmental topics, the investor focuses primarily on issues related to climate change (47%). The increasing importance of climate change is shown by the fact that the total number of engagements (179) amounts to more than 80% of the number of engagements on the most common "traditional" engagement topic: executive remuneration (206). This observation reflects a wider trend: Climate risk has become an important engagement topic for many institutions, caused by the 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, 2019).

Additionally, many institutions find climate risk difficult to price and hedge, making direct engagement, on more robust climate disclosure or to reduce emissions, an important risk-management tool.

In terms of social themes, the investor engages primarily over concerns regarding human rights (42%), labour rights (27%), and bribery and corruption (14%)—the investor examined in Dimson, Karakas, and Li (2015) engages on similar social themes. The primary intervention motives over strategy topics are improving business strategy (39%), risk management (35%), and accounting/auditing related issues (22%). This observation is in line with Khorana, Shivdasani, and Shigurdsson (2017), who find that activists are increasingly focusing on business strategy.

Figure 4 reports the time series of the engagement topics by year. In terms of the engagement developments over time, a few observations stand out. Engagement on governance topics has peaked in the years around 2010-2012, with much fewer engagements in the years before and slightly fewer engagements in the years after. There is also a steady increase in engagement on environmental topics, with spikes in the years 2010 and 2016 (which is the year right after the Paris Agreement on Climate Change).

Using the four milestones that the investor employs to track the success of each individual firm engagement, Table 2, Panel A, reports the proportion of the engagements that reach each milestone by the end of sample period. Across all categories of engagements and dividing by the last milestone reached, 30.5% achieve at least Milestone 2 (the target acknowledges the concern), 20.4% go one step further and achieve at least Milestone 3 (target takes actions to address the concern), and 31.4% reach Milestone 4 (engagement is successfully completed). Thus, according to these milestones, the engagements have been met with varying success rates. A total of 18% of the engagements are still at the stage of raising a concern (Milestone 1).

While similar to the success rates in Dimson, Karakas, and Li (2015), the engagement success rates in our sample are lower than those 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 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 (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 they bring other institutional investors on board to lobby 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 it engages on a wide range of firms with typically lower ownership positions compared to activist hedge funds that often take concentrated positions in fewer firms.

In Table 2, Panel B, we show descriptive statistics on engagement durations, reported by milestone and theme. The figures show that the investor expends considerable efforts and time in trying to engender the desired changes at the portfolio firm. It takes on average two months to complete Milestone 1, four additional months until a portfolio firm also acknowledges an issue raised by the investor (Milestone 2), 18 additional months until the engagement target has also taken actions or developed a strategy to improve an issue (Milestone 3), and 35 months in total until all milestones are successfully completed.[7]

Regarding the length of engagement by theme, social, and then environmental, engagements

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[7] 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.

take the least time for targets to acknowledge an issue of concern (Milestone 2). Environmental engagements lead, on average, to the quickest actions to be implemented in response to the investor's demands (Milestone 3). In contrast, 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 a longer duration for Milestone 4 than governance or environmental engagements, probably as larger organizational changes are typically required in these types of engagements. Likewise, social issues take an equivalently long time for eventually accomplishing an engagement success (Milestone 4). These statistics reveal the interesting pattern that social issues are quickest to be acknowledged by targets, but targets are then slow in defining a suitable action and to implement changes. Governance engagements are the slowest to be acknowledged, and the slowest for an action to be defined. However, they are, on average, the quickest in terms of implementation, presumably because board resistance is overcome once an action has formally been defined.

In Table 3, Panel A, we provide information on 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 also report the number of actions per engagement. Among all 11,254 actions, about 45% take the form of meetings (5,117 actions), followed by substantive emails (2,055), conference calls (1,748), and letters (1,524). Milestones 1 and 2 can be completed, on average, with one or two meetings per engagement, while it takes on average three meetings to achieve Milestone 3 and five meetings to achieve Milestone 4. Moving from Milestone 2 to 3, and especially from Milestone 3 to 4, are the more difficult steps, requiring a larger number of meetings, emails, calls, and letters.

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 (2,042 contacts), as would be expected, but the investor also often contacts members of the boards of directors and its committees (1,495), and separately, the chairperson of the board (1,527). However, an interesting heterogeneity exists on who is contacted depending on the specific engagement topic, which reflects the decision-making authority for a specific topic. Statistics classified by theme show that the investor has dialogues over social, environmental and strategy topics mostly with senior executives, whereas the investor tends to communicate most with the board of directors and the chairperson over governance issues.

Actions classified by milestone further show that the investor usually raises issues of concern directly with senior management (Milestone 1). Senior management or the chairperson acknowledge in Milestone 2 the raised issue is of concern to the firm. To ensure that firms take measures to address the concerns (Milestones 3 and 4), the investor then more than doubles the number of interactions with all relevant parties, the chairperson, the board (especially those members in relevant committees), senior executives, and other shareholders.

2. Downside-Risk Measures

As previously discussed, an important motivation for ESG engagement is an interest in reducing firm risk, particularly downside risk (e.g., Fortado, 2017). Thus, our goal is to ascertain whether ESG engagement leads to reduction in downside risk at firms targeted by the investor. As has long been recognized in the academic literature, downside or left-tail risk is an important consideration in asset pricing, particularly given that that the distribution of stock returns is not normal,

and instead characterized by skewness and heavy tails.[8] In this case, risk measures such as stock-return volatility that do not distinguish between positive and negative outcomes may be uninformative for investors, while downside-risk measures, which reflect negative price fluctuations, capture many investors' perceptions of risk (Harlow, 1991). Moreover, as pointed out by Ang, Chen, and Sundaresan (2013) many institutional investors have a natural focus on left-tail risk due to their business interests.[9] Further, long-term institutional investors often try to hedge against downside risk, especially during times of economic turbulence (Hebb, 2011). Thus, if downside risk is an important consideration for ESG engagement outcomes, we should expect a relationship between ESG engagements and subsequent changes in measures of firms' downside risk.

To test this hypothesis, we employ two measures that are widely used to identify firm downside risk. Our first measure, the second-order lower partial moment (*LPM*), captures the distribution of returns that fall below a certain threshold value, which we set equal to 0% (i.e., we consider the negative return part of the distribution). *LPM* is calculated as the square root of the semi-variance below 0% (Bawa, 1975; Fishburn, 1977). More formally, it is defined as:

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

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[8] See, for example, Bawa (1975), Bawa and Lindenberg (1977), Singleton and Wingender (1986), Harlow and Rao (1989), and more recently, Ang, Chen, and Xing (2006) or Xiong, Idzorek, and Ibbotson (2016).
[9] 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.

where $r_{n,i}$ indicates the negative 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* returns for firm i during the measurement period. For our tests, we calculate the measure at the firm-month level from daily (log) stock return data.

As a second measure of downside risk, we calculate a firm's value at risk (*VaR*) (Duffie and Pan, 1997; Jorion, 2002). We measure *VaR* also at the firm-month level by calculating daily return outcomes ranked in the bottom fifth percentile (5%-VaR). This usually corresponds to the worst daily return during a month. We use absolute values of the resulting VaR. VaR is an important risk management concept that is promoted by various industry regulations.[10] Moreover, 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. ESG Risk-Reduction Effects: Evidence from Difference-in-Differences Estimates

3.1 Empirical Model

To test whether ESG engagement is related to future downside-risk reduction, we implement a difference-in-differences (DiD) model, comparing downside risk of engagement targets before and after the engagement, relative to a control group. We implement our empirical approach in four steps.

First, we create a set of control firms that have characteristics similar to those of the target but were not engaged by the investor. To identify such firms, we use the initial engagement date for each target and search for a control firm in the FTSE All-World index within the same country, industry and year. We use the FTSE All-World index as our targets come from many countries, as illustrated in

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

Figure 1. The FTSE All-World covers about 90-95% of the world's investable market capitalization and includes more than 5,000 firms from 47 different countries.

We match targets with control firms using three variables: country, industry, and size. Matching by country is important because of variation in ESG regulations and ESG performance across countries. Dyck et al. (2019) 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 by industry, as engagement may be more successful in reducing risk in industries that experience recent ESG scandals (e.g., the Deepwater Horizon oil spill in the United States) and less successful in highly regulated sectors where firms effectively need regulatory approval for changes to many relevant business processes.[11] Further, downside risk itself may vary across industry sectors. Finally, we match firms on size as the occurrence of ESG risks may have more adverse legal or reputational effects for larger firms. Moreover, larger firms tend to respond more positively to shareholder activists (Dimson, Karakas, and Li, 2015).

Second, we estimate a Heckman first-stage selection equation at the firm-year level for the set of targets and control firms using a probit model:

$$Target_{it} = \alpha + \beta_1\, X_{it-1} + \, + \eta_{it}, \tag{1}$$

where $Target_{it}$ takes the value 1 in year t if a firm is an engagement target, and 0 if it is a control firm. X_{it-1} is a vector of control variables, which includes a firm's size, market-to-book ratio, leverage, investment, the profit margin, dividend yield, free float, and the anti-director rights index (ADRI). We

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[11] Consistent with this conjecture, Dimson, Karakas, and Li (2018) find that the success rate in their sample varies across industries.

estimate this selection model to address endogeneity originating from omitted variables correlated with downside risk and the likelihood of being a target. For example, a concern could be that the investor invests in those firms where it expects a decline in risks for reasons unrelated to its engagement. Our main DiD regressions will therefore contain a correction factor (*Inverse Mills Ratio*), estimated from the selection regression, that accounts for such effects.

Third, before estimating the outcome equation, we apply entropy reweighting to improve the covariate balance between the treatment and control firms by applying a balancing requirement. Entropy balancing is a generalization of the propensity score weighting approach and establishes a covariate balance between treatment and control firms (Hainmueller, 2012). To achieve this, the method applies weights to the control variables so that the reweighted treatment and control group are more comparable. We require that the control variables in the control group have the same first and second moments as in the treatment group. This reduces the conditional model dependence for the subsequent analysis since it orthogonalizes the treatment dummy (i.e., whether a firm gets targeted or not) with respect to the pre-specified covariate moments. The benefit of this approach is that it improves the estimate of the treatment effect, as the treatment status is mean-independent of the conditioning variables after weighting.

Fourth, we analyse changes in downside risks using a DiD regression that estimates the effect of ESG engagement on downside risk at the firm-month level:

Downside Risk$_{it}$ = α + β$_1$ Target$_i$ x Post$_{it}$ + β$_2$ Target$_i$ + β$_3$ Post$_{it}$ + β$_4$ X$_{it}$ + β$_4$ Inverse Mills Ratio + ε$_{it}$ (2)

Downside Risk$_{it}$ represents one of our two measures of downside risk, that is *LPM$_{it}$* and *VaR$_{it}$*. *Target$_i$* equals 1 for all firm-month observations if a firm *i* 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. $Post_{it}$ equals 1 for all firm-month observations after a firm i has been targeted in month t, and 0 before.[12] We estimate the outcome regression for the two-sided 24-months window around the date in which a target is engaged by the investor for the first time.

X_{it} is a vector of control variables identical to one in the engagement selection equation, except that it excludes the anti-director rights index. We include industry, year, and country fixed effects. *Inverse Mills Ratio* is the self-selection parameter from the selection equation (1). For robustness, we also report results where we only estimate the outcome model (omitting *IVM*), and results for the Heckman model after omitting entropy balancing.

We impose two data filters before running our estimations. For some of our sample firms, we lack data on the downside-risk measures for some part of the event window.[13] We therefore restrict our estimation to firms with risk data spanning at least the two-sided 12-months window around the engagement. A shorter window around engagement is less suited for capturing the risk-reduction effects of engagements, as it usually takes some time until a success milestone is reached. It may also take some time until stock markets reflect the effects of engagement. We further exclude companies in the utilities sector as they operate in heavily regulated environments in which shareholder activists have lower chances to effect change. These two data filters reduce the number of targets included in the subsequent tests to 351 target firms that are matched to 1,577 control firms (leading to a total sample of 1,928 firms). Table 4 provides summary statistics for the sample.

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[12] If a firm gets targeted by the investor consecutive times, we continue to define the dummy such that we only consider the first engagement. For example, if the first engagement started in June 2015 and the second engagement in Jan 2016, then the dummy equals one for 24 months after July 2015, that is between July 2015-June 2017.

[13] For example, for some firms engagement started only in 2017 and 2018. Downside risk may also be missing because data on returns is unavailable for some period.

3.2 Empirical Results

Table 5 provides OLS estimates of the selection equation, using the sample of matched treatment and control firms. Column (1) explains the engagement decision only with firm-level variables, while Columns (2) to (4) add different sets of fixed effects. The estimates show that, after our first crude matching on country, industry and size, some firm characteristics remain significant in explaining the investor's engagement decision. Specifically, targets are generally larger than matched firms (despite matching on size), and they tend to have a higher free float. Targets also provide stronger anti-director rights to their shareholders. These remaining differences highlight the need to carefully address selection bias beyond simply matching firms.

We next estimate the effects of shareholder intervention on downside risk. Table 6 presents estimates of the overall effects of the ESG engagements, both across all engagements and by engagement success. If risk changes originate from the investor's direct engagement and the subsequent target response, then we should observe systematic variation across targets with different engagement successes. Columns (1) to (4) show results for LPM_{it}, while Columns (5) to (6) report results for VaR_{it}. We report results across all engagement success in Columns (1) and (5), and study effects conditional on the engagement success in the remaining columns. We consider two definitions of engagement success. The first definition classifies as successful those cases where, at the minimum, a target acknowledges an issue of concern raised by the investor (at least Milestone 2 has been achieved). The second definition is stricter and requires that the target not only acknowledges the issue but takes actions to address it (at least Milestone 3 has been achieved). If the investor's engagement itself does not drive a reduction in downside risk, then we should *not* see results that differ across success rates.

In some of our targets, more than one engagement was conducted by the investor at the same time. As we estimate regressions at the firm-month (rather than firm-engagement-month) level to avoid bias from overlapping treatment periods, we need to create a measure of success in such cases. The reason is that not all engagements may be equally successful. Using the milestone classification, we therefore calculate the average engagement-success rate across all engagements.[14]

The regressions control for a wide range of factors that may affect downside risks beyond shareholder engagement. For example, 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 the market-to-book ratio and sales growth, as growth firms may be more risky overall.

Columns (1) and (4) indicate that across all engagements, successful and unsuccessful ones, there is no detectable change in downside risk at targets from before to after engagement, relative to the control group—the effects are neither economically not statistically different from zero.

This sharply changes once we condition on the engagement success in the remaining columns. For both LPM_{it} and VaR_{it}, Columns (3) and (7) show that ESG engagements reduces downside risk among those engagements where at least Milestone 2 is achieved (or, in case of multiple engagements, on average at least Milestone 2), that is, among targets that acknowledged the existence of an ESG issue or even responded with actions to the investor's demands. The economic effects are meaningful

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[14] We calculate this average success rate as the sum of the milestones achieved, coding as 1 if Milestone 1 has been achieved, 2 for Milestone 2, etc., and divide the sum of these milestones by the number of engagements. For example, in case the investor reached at one target firm Milestone 2 for one engagement and Milestone 2 for another one, then the average success rate would be (Milestone) 2.5.

but not overly large: LPM_{it} decreases by 0.08 from before to after the ESG engagement, relative to control firms, which equals about 7% of the variable's standard deviation during the pre-engagement period (Table 4).

Notably, the economic magnitude of this effect increases sharply, by a factor of five, if we impose a stricter restriction and only consider as successful those engagement where at least Milestone 3 was achieved (i.e., the firm started to take actions).[15] Column (4) implies that LPM_{it} decreases by 0.419 from before to after the engagement, relative to control firms. This risk reduction equals 38% of the variable's standard deviation in the pre-engagement period. We find similar effects for the value at risk in Column (8). Overall, the regressions in Table 6 provide some first evidence for a wealth-protection effect of ESG engagements.

I.A. Table 1 confirms these results in simple OLS regressions that keep the DiD framework but do not impose a selection model. I.A. Table 2 shows that results are somewhat weaker for Milestone 2 if we do not adjust for the entropy balancing. However, we continue to find strong effects using our move restrictive definition of engagement success (Milestone 3).

To validate the DiD design, Figure 5 shows that target and control firms exhibit similar trends in the two-year period prior to the first engagement. This further mitigates the concern that our results are affected by some unobserved differences between firms in the treatment and control group.

Next, we show risk-reduction results according to the ESG engagement theme in order to understand which areas of engagement have the largest potential to reduce downside risk. Splitting

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[15] In case of multiple engagement at a target, we again require that on average across all engagement, at least Milestone 3 was reached. Note that, by imposing this high bar, we substantially reduce the sample size to be able to cleanly identify effect of successful engagements. However, such engagements should still have sufficient statistical power.

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.

In Table 7 we employ the lower partial moment as the dependent variable. Measuring success based on Milestone 2 in Columns (1) to (4), only engagement on environmental topics results in a statistically significant reduction in downside risk. Similarly, when we consider Milestone 3 in Columns (5) to (8) to define success, we continue to find a very large effect for environmental engagement. For engagements over such topics, which primarily have the theme of climate change, we find that LPM_{it} decreases by 0.470 from before to after the engagement, relative to control firms. This risk reduction roughly equals 40% of the variable's standard deviation in the pre-engagement phase.

One potential reason for the lack of statistical significance in downside risk reduction for the social topics could be that such themes (or ethical and cultural aspects in general) tend to reflect more subjective concerns. This means that it is rather easy for a company to make some verbal commitment regarding a cultural change or better gender balance, but it would be much harder to then actually define tangible actions and even implement them. This explanation could also be reflected in the time it takes to go from one milestone to the next (Table 2, Panel B): Social engagements are quickest when it comes to achieving Milestone 2, but they are tied for slowest in Milestone 4 achievement.

Table 8 replicates the analysis in Table 7, but uses the value at risk instead of the lower partial moment as the risk measure. While the results for Milestone 2 resembles those in Table 7, we now also find statistical significance for the engagements over governance topics. The point estimate for social engagements remains statistically insignificant.

4. ESG Risk-Reduction Effects: Evidence from Time-Series Exposure to a Downside-Risk Factor

We complement our treatment-effects 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 the lower partial moment or value at risk. 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 ($Post_t$) that equals 1 for stock-return observations from the two-year period after our investor initially achieved Milestone 2 for 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 to consider the achievement of engagement Nilestone 3. In this case the dummy variable takes the value 1 in the two-year period after Milestone 3 has been initially achieved, -1 in the two-year period before, and zero otherwise. We then run the following factor model explaining weekly excess returns ($r_{it} - r_f$):

$$r_{it} - r_f = \alpha_i + \rho_i\,Post_{it} \times DOWN_t + d_i\,DOWN_t + \Theta_i\,Post_{it}$$

$$+ b_i\,MKT_t + s_i\,SMB_t + h_i\,HML_t + r_i\,RMW_t + c_i\,CMA_t + \varepsilon_{it.} \qquad (3)$$

The key variable of interest in this model is ρ_i, the coefficient on the interaction term $Post_{it} \times DOWN_t$. 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.[16]

The regression results are reported in Table 9, with the *DOWN* factor being constructed based on the lower partial moment and value at risk, respectively (indicated accordingly). 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 achieves milestone 2, as reflected by the insignificant interaction term on $Post_{it}$ x $DOWN_t$. In contrast, there is strong evidence in Columns (2) and (4) that exposure to the downside-risk factor significantly decreases after Milestone 3 has been achieved. This suggests that the portfolio of firms for which Milestone 3 has been achieved become less tilted towards high downside risk, reflecting a reduction in risk due to the ESG engagement.

A concern regarding the analysis reported 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 find that engagement reduces downside risk of the target relative to the control as soon as Milestone 2 is reached, whereby the magnitude of downside risk reduction roughly double in case of milestone 3 achieved. In unreported results, we find that the effect of engagement on risk exposure is only present for successful engagements and does not only occur

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[16] http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html#International

after the initial engagement. Overall, these results strongly suggest that the reduction in firms' sensitivity to aggregate downside risk is due to the investor's engagement rather than stock picking.

This Fama-French style regression setting also allows us to comment on the question of whether the investor has to give up return to achieve the downside risk reductions. Specifically, the alpha coefficient reported in Table 9 can be interpreted as the adjusted average return differential between the engagement targets and the market benchmark in Columns (1) through (4) and the engagement targets and their peers in Columns (5) through (8). If we observe the alpha coefficient to be negative and statistically significant, this would indicate that the investor gives up return in achieving downside risk reductions. However, we observe none of the alpha coefficients to be significantly negative. This result suggests that the investor can achieve downside risk reductions through engagement without significantly compromising on return potential.

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 an influential institutional investor activist. Based on 1,712 engagements across 573 targeted firms worldwide over the 2005 to 2018 period, we find that the investor most commonly engages firms over corporate governance issues, accounting for 43% of the engagements. The investor also actively engages on environmental (22%), social (20%, and strategy (16%) themes.

Using two measures of downside risk, the lower partial moment and value at risk, we examine the hypothesis that the ESG shareholder engagements result in risk reductions. Consistent with the hypothesis, we find that after controlling for selection, engagement targets experience a decline in downside risk from before to after engagement, relative to control firms. Moreover, the estimated

effects of ESG engagement are economically meaningful. Successful engagements where the target

started to take actions to address the investor's ESG concern experience an average reduction in the

lower partial moment of 0.419 from before to after the engagement, relative to control firms. This

risk-reduction effect roughly equals 38% of the variable's standard deviation in the pre-engagement

period. We find similar effects for the value at risk measure.

The effects of ESG engagement on downside risk is concentrated among successful

engagement, which supports the contention that the investor's engagement leads to reduced

downside risk. The risk-reduction effects of ESG engagement vary across engagement themes, being

driven primarily by the effects from environmental topics. The prime issue within this engagement

category is climate change.

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 for all firm-month observations 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
Post	Dummy variable that equals 1 for all firm-month observations after an engagement, and 0 for all firm-month observations before an engagement.	
LPM (0,2)	Variable that measures the lower partial moment of the second order, calculated at the firm-month level from daily log stock returns. 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 a negative daily return of firm i during a given month, and $\overline{r_{n,i}}$ is the mean value of $r_{n,i}$. N_1 is the number of observed negative daily returns for firm i during a given month.	Datastream
VaR	Variable that measures the value at risk, calculated at the firm-month level from daily log stock returns. We measure the VaR by taking daily return outcomes ranked at the bottom fifth percentile (5%-VaR). This essentially corresponds to the worst daily return during a month. We take the absolute values of the VaR.	Datastream
MV	Market value of equity, calculated at the firm-year level.	
Market-to-book ratio	Market value of equity divided by book value of equity, calculated at the firm-year level.	Datastream
Leverage	Total debt divided by common equity, calculated at the firm-year level. Total debt is the sum of long-term and short-term debt.	Datastream
Investment	Capital expenditures over assets, calculated at the firm-year level.	Datastream
Profit margin	Operating income over total sales, calculated at the firm-year level.	Datastream
Dividend yield	Dividends per share divided by the share price, calculated at the firm-year level.	Datastream
Freefloat	Number of shares available in the freefloat, divided by number of shares issued, calculated at the firm-year level.	Datastream
ADRI	Anti-director rights index measured based on shareholder-voting rights and minority shareholder protection, calculated at the firm-year level.	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 1,712 engagements across 573 targets over the period January 2005 through April 2018.
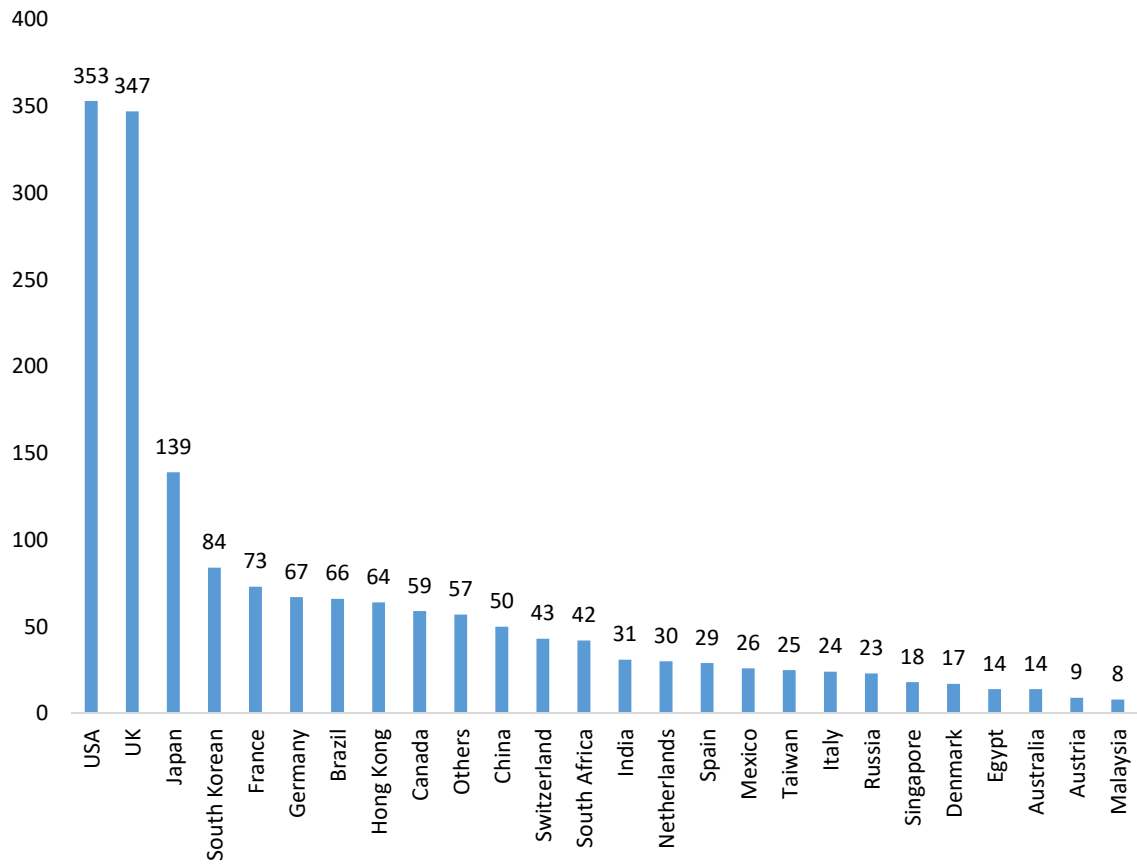
Figure 2: ESG Engagements by Industry

This figure reports engagements by the target firm's industry. The sample consists of 1,712 engagements across 573 targeted firms over the period January 2005 through April 2018.
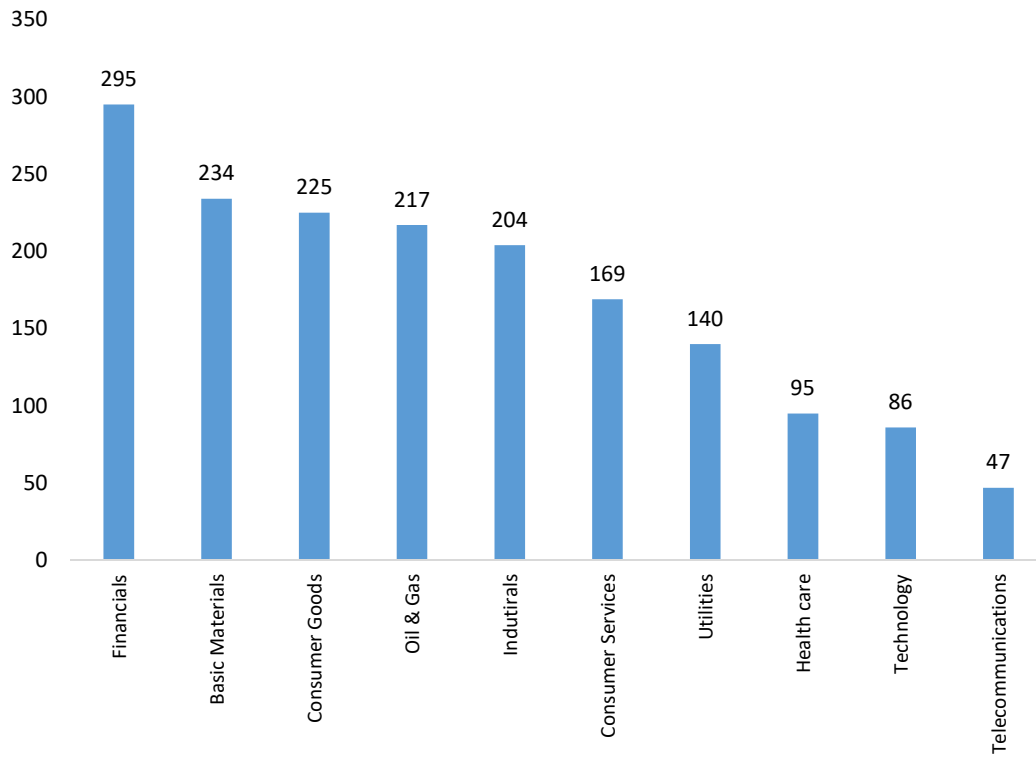
Figure 3: ESG Engagements by Year

This figure reports engagements by year of the initial engagement. The sample consists of 1,712 engagements across 573 targeted firms over the period January 2005 through April 2018. The year 2017 is the last year with complete engagement data in our sample.
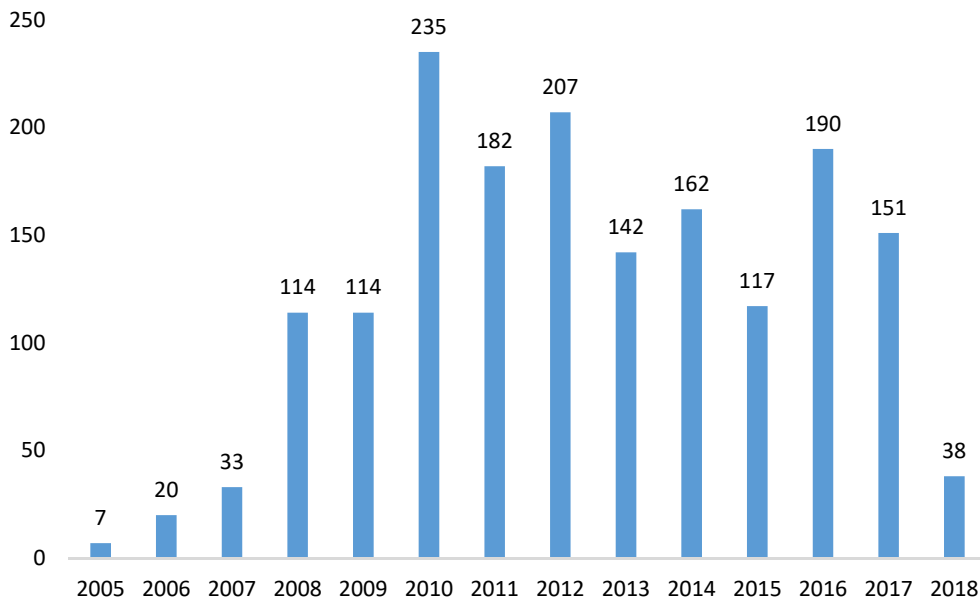
Figure 4: ESG Themes Engagements by Year

This figure reports engagements by theme and year of the initial engagement. The sample consists of 1,712 engagements across 573 targeted firms over the period January 2005 through April 2018. The year 2017 is the last year with complete engagement data in our sample.
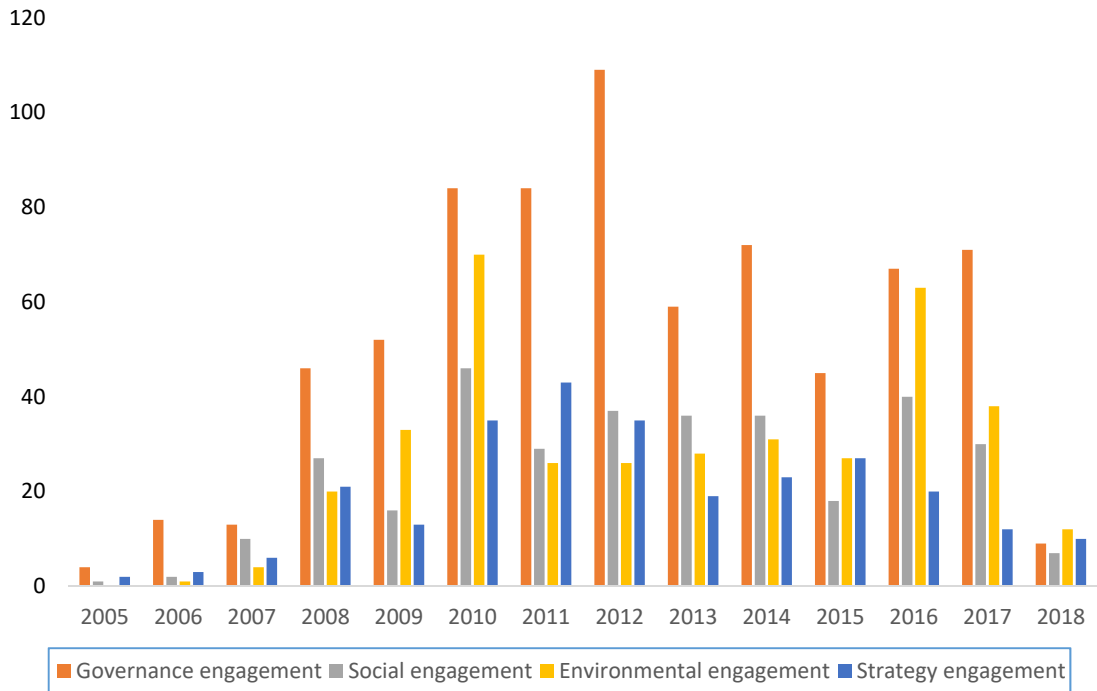
Figure 5: Evaluation of Parallel Trends

This figure reports the time-series evolution of our downside-risk measures, *LPM* and *VaR*, over the period prior to engagement for target firms and control firms.

Panel A: Lower Partial Moments (LPM)
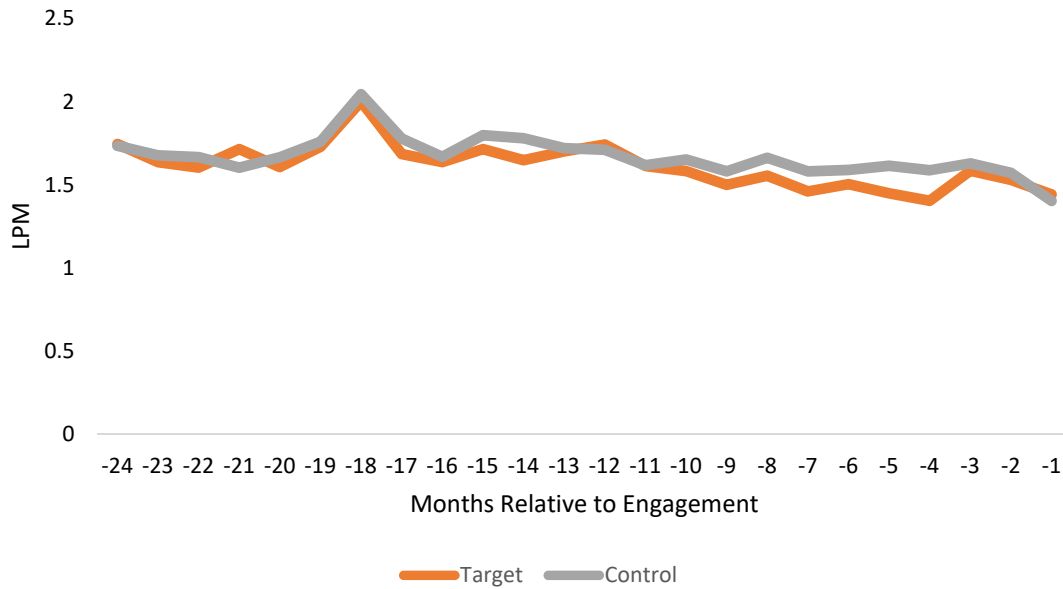
Panel B: Value at Risk (VaR)
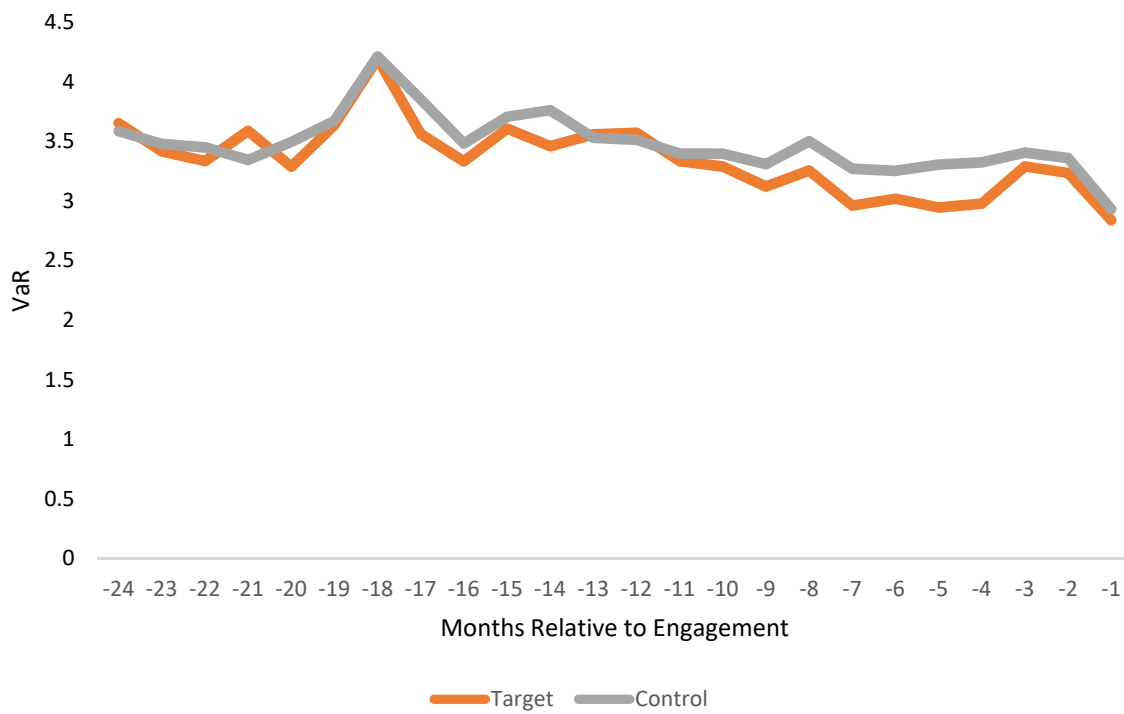
Table 1: Summary Statistics on Engagement Themes

This table provides summary statistics across four general engagement themes: (i) governance; (ii) social; (iii) environmental; and (iv) strategy. The table also breaks down these general themes into sub-themes, and we report the number (percentage) of engagements within each engagement theme. The sample consists of 1,712 engagements across 573 targeted firms over the period January 2005 through April 2018.

Panel A: Governance Engagement			Panel B: Social Engagement		
Sub-themes	#	%	Sub-themes	#	%
Executive remuneration	206	28	Human rights	142	42
Board independence	193	26	Labour rights	91	27
Board diversity skills and experience	165	23	Bribery and corruption	47	14
Succession planning	84	12	Conduct and culture	39	12
Shareholder protection and right	81	11	Other social	16	5
Total	729	100	Total	335	100
% of Engagements (N = 1,712)	42.6			19.6	

Panel C: Environmental Engagement			Panel D: Strategy Engagement		
Sub-themes	#	%	Sub-themes	#	%
Climate change	179	47	Business strategy	106	39
Environmental policy and strategy	51	13	Risk management	94	35
Supply chain management	44	12	Integrated reporting, accounting & auditing	59	22
Water	40	11	Cyber security	10	4
Pollution and waste management	38	10			
Forestry and land use	27	7			
Total	379	100	Total	269	100
% of Engagements (N = 1,712)	22.1			15.7	

Table 2: Summary Statistics on Milestones and Engagement Duration

This table displays in Panel A descriptive statistics on measures of engagement success (milestones). Panel B reports statistics on engagement durations. We calculate engagement durations in months, reported by milestone and theme. We report means, standard deviations, and maximums for the engagement durations. As the average engagement duration equals 35 months and our data end in 2018, 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 1,712 engagements across 573 targeted firms over the period January 2005 through April 2018.

| Panel A: Engagement Success		
Milestone 1: Concern Raised with Target		
Achieved Milestone 1 Only	302	17.6%
Milestone 2: Issue Acknowledged by Target		
Achieved Milestones 1 to 2	522	30.5%
Milestone 3: Actions Taken by Target		
Achieved Milestones 1 to 3	350	20.4%
Milestone 4: Engagement Successfully Completed		
Achieved Milestones 1 to 4	538	31.4%

Panel B: Engagement Duration (in months)			
	Mean	STD	Max
Milestone 1: Concern Raised with Target			
Governance engagement	2	4	24
Social engagement	3	8	57
Environmental engagement	2	6	43
Strategy engagement	3	9	54
All Engagements	2	6	57
Milestone 2: Issue Acknowledged by Target			
Governance engagement	9	17	109
Social engagement	3	6	31
Environmental engagement	4	9	62
Strategy engagement	7	13	68
All Engagements	6	13	109
Milestone 3: Actions Taken by Target			
Governance engagement	27	22	98
Social engagement	24	24	101
Environmental engagement	19	16	65
Strategy engagement	23	21	90
All Engagements	24	21	101
Milestone 4: Engagement Successfully Completed			
Governance engagement	32	25	119
Social engagement	41	26	118
Environmental engagement	35	27	108
Strategy engagement	41	24	109
All Engagements	35	25	119

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. We report the absolute numbers and below, in italics, the number per engagement. The sample consists of 1,712 engagements across 573 targeted firms over the period January 2005 through April 2018.

	Engagement Themes					Engagement Progress by Milestones				
	Governance	Social	Environmental	Strategy	Total	Milestone 1	Milestone 2	Milestone 3	Milestone 4	Total
Panel A: Action Types										
Meeting	2,053	1,073	1,073	918	5,117	544	709	991	2,873	5,117
	2.8	*3.2*	*2.8*	*3.4*	*3.0*	*1.8*	*1.4*	*2.8*	*5.3*	*3.0*
Email	844	483	413	315	2,055	193	331	331	1,100	2,055
	1.2	*1.4*	*1.1*	*1.2*	*1.2*	*0.6*	*0.6*	*0.9*	*2.0*	*1.2*
Call	716	403	345	284	1,748	206	274	274	928	1,748
	1.0	*1.2*	*0.9*	*1.1*	*1.0*	*0.7*	*0.5*	*0.8*	*1.7*	*1.0*
Letter	677	299	299	249	1,524	159	254	254	795	1,524
	0.9	*0.9*	*0.8*	*0.9*	*0.9*	*0.5*	*0.5*	*0.7*	*1.5*	*0.9*
Others	383	174	228	125	810	111	176	176	456	986
	0.5	*0.5*	*0.6*	*0.5*	*0.5*	*0.4*	*0.3*	*0.5*	*0.8*	*0.6*
Panel B: Targeted Individuals										
Chairman	788	276	214	249	1,527	149	216	225	937	1,527
	1.1	*0.8*	*0.6*	*0.9*	*0.9*	*0.5*	*0.4*	*0.6*	*1.7*	*0.9*
Committee member	564	165	161	130	1,020	92	109	221	598	1,020
	0.8	*0.5*	*0.4*	*0.5*	*0.6*	*0.3*	*0.2*	*0.6*	*1.1*	*0.6*
Board of directors	225	101	74	75	475	44	64	82	285	475
	0.3	*0.3*	*0.2*	*0.3*	*0.3*	*0.1*	*0.1*	*0.2*	*0.5*	*0.3*
Senior executives	769	523	348	402	2,042	211	285	368	1,178	2,042
	1.1	*1.6*	*0.9*	*1.5*	*1.2*	*0.7*	*0.5*	*1.1*	*2.2*	*1.2*
Shareholders	418	183	193	201	995	100	143	209	543	995
	0.6	*0.5*	*0.5*	*0.7*	*0.6*	*0.3*	*0.3*	*0.6*	*1.0*	*0.6*
Middle management	482	384	364	301	1,531	170	255	267	839	1,531
	0.7	*1.1*	*1.0*	*1.1*	*0.9*	*0.6*	*0.5*	*0.8*	*1.6*	*0.9*
CSR	585	439	484	250	1,758	205	274	331	948	1,758
	0.8	*1.3*	*1.3*	*0.9*	*1.0*	*0.7*	*0.5*	*0.9*	*1.8*	*1.0*
Investor relations and legal	251	125	102	123	601	83	105	110	303	601
	0.3	*0.4*	*0.3*	*0.5*	*0.4*	*0.3*	*0.2*	*0.3*	*0.6*	*0.4*
Secretary	335	89	88	80	592	72	88	109	323	592
	0.5	*0.3*	*0.2*	*0.3*	*0.3*	*0.2*	*0.2*	*0.3*	*0.6*	*0.3*
Others	127	108	73	63	371	38	50	79	204	371
	0.2	*0.3*	*0.2*	*0.2*	*0.2*	*0.1*	*0.1*	*0.2*	*0.4*	*0.2*

Table 4: Summary Statistics

This table reports summary statistics at the firm-month level for the variables used in the difference-in-difference model over the two-sided 24-month window around an initial engagement. The sample consists of 1,928 firms, including 351 targeted firms and 1,577 control firms. Not all 573 targets of our initial sample are included in this analysis due to missing data.

Variable	Mean	STD	25th	50th	75th	Obs.
Panel A: Summary Statistics for the 2-Year Period Post Engagement						
Target	0.18					45,151
LPM	1.50	1.11	0.84	1.24	1.83	45,151
VaR	3.11	2.45	1.73	2.57	3.80	45,151
Log(MV)	8.37	1.43	7.49	8.37	9.24	45,151
Market-to-book ratio	3.19	13.30	1.07	1.75	3.18	45,096
Leverage	34.68	23.06	16.53	33.93	50.42	45,151
Investment	10.23	21.91	2.35	4.54	9.40	45,151
Profit margin	11.96	27.10	4.71	10.30	18.77	45,151
Dividend	2.19	2.41	0.74	1.77	2.99	45,151
Free float	74.93	24.56	57	84	95	45,151
Panel B: Summary Statistics for the 2-Year Period Pre Engagement						
Target	0.18					44,912
LPM	1.66	1.16	0.92	1.37	2.05	44,912
VaR	3.46	2.50	1.90	2.84	4.26	44,912
Log(MV)	8.28	1.43	7.41	8.26	9.15	44,912
Market-to-book ratio	3.11	10.38	1.18	1.92	3.21	44,874
Leverage	33.42	23.06	14.60	32.32	49.36	44,912
Investment	11.17	30.61	2.45	4.64	9.75	44,912
Profit margin	12.54	22.69	4.89	10.36	18.86	44,912
Dividend	2.18	3.27	0.60	1.56	2.89	44,912
Free float	75.23	24.37	48	83	95	44,912

Table 5: Determinants of Engagement: Selection Equation

This table reports probit regressions of the engagement selection equation. Regressions are estimated at the firm-firm level. We estimate the likelihood of being engaged by the investor. The sample in this analysis consists of 1,928 firms, including 351 targeted firms and 1,577 control firms. Not all 573 targets of our initial sample are included in this analysis due to missing data. *Target* equals 1 for all firm-year observations 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, calculated based on robust standard errors, are reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5% and 1% levels, respectively.

Dependent variable	Target			
	(1)	(2)	(3)	(4)
Log(MV)	0.585***	0.616***	0.677***	0.830***
	(15.63)	(15.52)	(16.91)	(16.91)
Market-to-book ratio	0.004	0.006**	0.005*	0.007***
	(1.52)	(2.12)	(1.86)	(2.58)
Leverage	0.003**	0.001	0.001	0.002
	(2.01)	(0.64)	(0.78)	(0.77)
Investment	0.001	0.003	0.003*	0.004*
	(0.44)	(1.60)	(1.83)	(1.90)
Profit margin	0.000	0.001	0.001	0.001
	(0.22)	(0.47)	(0.43)	(0.28)
Dividend	0.031*	0.035*	0.036*	-0.035
	(1.73)	(1.84)	(1.80)	(-1.45)
Freefloat	0.004**	0.004**	0.005**	0.012***
	(2.10)	(2.34)	(2.56)	(5.03)
ADRI	0.244***	0.230***	0.215***	-0.528
	(4.52)	(4.09)	(3.56)	(-0.69)
Constant	-7.439***	-7.868***	-6.997***	-4.523
	(-14.57)	(-13.94)	(-6.24)	(-1.14)
Model	Probit	Probit	Probit	Probit
Matched sample	Yes	Yes	Yes	Yes
Industry FE	No	Yes	Yes	Yes
Year FE	No	No	Yes	Yes
Country FE	No	No	No	Yes
Obs.	1,928	1,928	1,928	1,928
pseudo R-sq.	0.229	0.253	0.278	0.367

Table 6: Effect of ESG Engagement Success on Downside Risk

This table reports difference-in-differences regressions to estimate the effect of ESG engagement on downside risk. Regressions are estimated at the firm-month level. We report results across all engagement milestones and by engagement success. We report results from the second-stage outcome regression of a Heckman model. The engagement selection equation has been estimated as in Table 5. We estimate the outcome regression for the two-sided 24-month window around the month in which a target is engaged. The sample in this analysis consists of 1,928 firms, including 351 targeted firms and 1,577 control firms. Not all 573 targets of our initial sample are included in this analysis due to missing data. We use two dependent variables to measure downside risk: *LPM* is the lower partial moment of the second order and *VaR* is the 5% value at risk. Both measures are calculated at the firm-month level from daily return data. *Target* equals 1 for all firm-month observations 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. *Post* equals 1 for all firm-month observations after a firm has been targeted, and 0 before. We measure engagement success based on whether certain milestones have been achieved. In case of multiple engagement at a target, we calculate an average success rate (in terms of milestones achieved) average across all engagement. *t*-statistics, calculated based on robust standard errors clustered by firm, are reported in parentheses. *, **, and *** denote statistical significant at the 10%, 5% and 1% levels, respectively.

Dependent variable	LPM				VaR			
Engagement success	All	Below Milestone 2	Milestone 2 and above	Milestone 3 and above	All	Below Milestone 2	Milestone 2 and above	Milestone 3 and above
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Target x Post	-0.004	0.038	-0.080*	-0.419***	-0.009	0.066	-0.151*	-0.799***
	(-0.15)	(1.05)	(-1.83)	(-3.05)	(-0.15)	(0.89)	(-1.69)	(-2.95)
Target	1.022***	1.100***	1.043***	2.607***	2.124***	2.318***	2.094***	5.502***
	(8.39)	(6.97)	(5.54)	(3.79)	(8.72)	(7.46)	(5.46)	(3.74)
Post	0.038	0.031	0.069**	0.176**	0.073	0.079	0.102	0.249*
	(1.53)	(0.99)	(2.30)	(2.39)	(1.48)	(1.23)	(1.60)	(1.70)
Log(MV)	-0.362***	-0.359***	-0.383***	-0.666***	-0.741***	-0.746***	-0.770***	-1.396***
	(-15.09)	(-12.21)	(-9.44)	(-4.61)	(-15.45)	(-12.84)	(-9.31)	(-4.38)
Market-to-book ratio	-0.001***	-0.002***	-0.017***	-0.014	-0.003***	-0.003***	-0.029**	-0.005
	(-5.12)	(-4.78)	(-3.07)	(-1.21)	(-4.45)	(-4.37)	(-2.08)	(-0.26)
Leverage	0.001	0.001	0.000	0.000	0.001	0.001	-0.000	-0.001
	(0.72)	(0.80)	(0.07)	(0.08)	(0.55)	(0.78)	(-0.12)	(-0.13)
Investment	0.000	0.001	-0.001**	-0.001	0.001	0.002*	-0.001	0.003
	(0.20)	(1.56)	(-1.98)	(-0.21)	(0.51)	(1.87)	(-1.34)	(0.35)
Profit margin	-0.001	-0.001	0.000	0.001	-0.001	-0.002	-0.000	0.001
	(-0.36)	(-0.62)	(0.07)	(0.25)	(-0.26)	(-0.41)	(-0.01)	(0.18)
Dividend	0.019	0.029	0.005	0.000	0.019	0.027	0.016	0.007
	(1.17)	(1.28)	(0.42)	(0.00)	(1.25)	(1.47)	(0.66)	(0.09)
Free float	-0.002***	-0.002***	-0.002	-0.009**	-0.005***	-0.005***	-0.006*	-0.017**
	(-2.60)	(-2.65)	(-1.62)	(-2.32)	(-3.08)	(-3.12)	(-1.89)	(-2.38)
Inverse Mills Ratio	-0.484***	-0.566***	-0.431***	-1.144***	-1.020***	-1.209***	-0.862***	-2.440***
	(-7.12)	(-6.58)	(-4.30)	(-3.51)	(-7.50)	(-7.04)	(-4.22)	(-3.47)
Constant	4.289***	3.831***	6.903***	8.092***	8.930***	8.161***	14.183***	15.989***
	(14.18)	(10.52)	(18.52)	(8.56)	(15.05)	(11.46)	(18.78)	(7.85)
Model	Heckman	Heckman	Heckman	Heckman	Heckman	Heckman	Heckman	Heckman
Matched sample	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Entropy balancing	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	89,970	56,644	33,326	5,843	89,970	56,644	33,326	5,843
adj. R-sq.	0.303	0.285	0.367	0.388	0.276	0.252	0.348	0.388

Table 7: Effect of ESG Engagement Themes on Downside Risk

This table reports difference-in-differences regressions to estimate the effect of ESG engagement on downside risk. Regressions are estimated at the firm-month level. We report results across by engagement topic and engagement success. We report results from the second-stage outcome regressions of a Heckman model. The engagement selection equation has been estimated as in Table 5. We estimate the outcome regression for the two-sided 24-month window around the month in which a target is engaged. The sample in this analysis consists of 1,928 firms, including 351 targeted firms and 1,577 control firms. Not all 573 targets of our initial sample are included in this analysis due to missing data. *LPM* is the lower partial moment of the second order, calculated at the firm-month level from daily return data. *Target* equals 1 for all firm-month observations 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. *Post* equals 1 for all firm-month observations after a firm has been targeted, and 0 before. We measure engagement success based on whether certain milestones have been achieved. In case of multiple engagements at a target, we calculate an average success rate (in terms of milestones achieved) averaged across all engagements. *t*-statistics, calculated based on robust standard errors clustered by firm, are reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5% and 1% levels, respectively

Dependent variable	*LPM*				*LPM*			
Engagement success	Milestone 2 and above				Milestone 3 and above			
Engagement topic	Governance	Environment	Social	Strategy	Governance	Environment	Social	Strategy
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Target x Post	-0.044	-0.108**	-0.054	-0.062	-0.276	-0.470***	-0.626	-0.018
	(-0.85)	(-1.98)	(-0.75)	(-1.11)	(-1.65)	(-3.34)	(-1.58)	(-0.14)
Target	0.987***	1.638***	1.555***	1.362***	2.648***	3.142**	3.074*	2.865**
	(4.62)	(5.96)	(4.40)	(4.61)	(2.65)	(2.68)	(2.10)	(2.31)
Post	0.041	0.068	0.088	0.129***	0.089	0.354*	0.029	0.002
	(1.24)	(1.22)	(1.49)	(2.87)	(0.90)	(2.00)	(0.12)	(0.02)
Log(MV)	-0.392***	-0.448***	-0.538***	-0.462***	-0.695***	-0.965***	-1.210**	-0.784***
	(-7.47)	(-8.80)	(-6.68)	(-6.84)	(-3.71)	(-3.16)	(-2.72)	(-2.91)
Market-to-book ratio	-0.018***	-0.024***	-0.015***	-0.016**	-0.017	-0.027	-0.027***	-0.011
	(-2.92)	(-3.13)	(-3.10)	(-2.41)	(-1.58)	(-1.20)	(-3.60)	(-1.07)
Leverage	0.000	0.003**	0.001	0.000	0.002	0.006	0.001	0.004
	(0.27)	(2.29)	(0.66)	(0.06)	(0.59)	(1.11)	(0.10)	(1.10)
Investment	-0.000	-0.001**	-0.002***	-0.002***	-0.024**	-0.008	-0.016	0.026
	(-0.72)	(-2.12)	(-2.97)	(-5.08)	(-2.28)	(-1.30)	(-0.93)	(0.78)
Profit margin	0.001	0.001	0.003*	0.002	-0.007*	0.000	0.002	0.008
	(0.84)	(0.72)	(1.68)	(1.32)	(-1.67)	(0.02)	(0.12)	(1.24)
Dividend	0.008	0.011	-0.013	-0.017	-0.004	0.049	-0.010	-0.046
	(0.62)	(0.80)	(-0.78)	(-1.33)	(-0.09)	(0.77)	(-0.14)	(-0.81)
Freefloat	-0.001	-0.003*	-0.004**	-0.002	-0.004	-0.017**	0.012	0.001
	(-0.75)	(-1.93)	(-2.01)	(-1.23)	(-1.24)	(-2.48)	(1.66)	(0.20)
Inverse Mills Ratio	-0.429***	-0.762***	-0.713***	-0.704***	-1.239**	-1.644**	-1.491*	-1.628**
	(-3.56)	(-4.95)	(-3.58)	(-4.38)	(-2.57)	(-2.40)	(-1.90)	(-2.30)
Constant	6.858***	4.952***	7.884***	5.469***	9.084***	9.394***	11.506***	9.583***
	(17.08)	(9.43)	(12.43)	(10.94)	(6.64)	(4.08)	(3.53)	(4.70)
Model	Heckman	Heckman	Heckman	Heckman	Heckman	Heckman	Heckman	Heckman
Matched sample	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Entropy balancing	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	20,997	13,874	7,019	11,464	4,172	1,010	680	1,862
adj. R-sq.	0.366	0.392	0.376	0.373	0.419	0.480	0.437	0.382

Table 8: Effect of ESG Engagement Themes on Downside Risk

This table reports difference-in-differences regressions to estimate the effect of ESG engagement on downside risk. Regressions are estimated at the firm-month level. We report results across by engagement topic and engagement success. We report results from the second-stage outcome regressions of a Heckman model. The engagement selection equation has been estimated as in Table 5. We estimate the outcome regression for the two-sided 24-month window around the month in which a target is engaged. The sample in this analysis consists of 1,928 firms, including 351 targeted firms and 1,577 control firms. Not all 573 targets of our initial sample are included in this analysis due to missing data. *VaR* is the 5% value at risk, calculated at the firm-month level from daily return data. *Target* equals 1 for all firm-month observations 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. *Post* equals 1 for all firm-month observations after a firm has been targeted, and 0 before. We measure engagement success based on whether certain milestones have been achieved. In case of multiple engagements at a target, we calculate an average success rate (in terms of milestones achieved) averaged across all engagements. *t*-statistics, calculated based on robust standard errors clustered by firm, are reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5% and 1% levels, respectively

Dependent variable	*VaR*				*VaR*			
Engagement success	Milestone 2 and above				Milestone 3 and above			
Engagement topic	Governance	Environment	Social	Strategy	Governance	Environment	Social	Strategy
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Target x Post	-0.078	-0.194*	-0.027	-0.128	-0.566*	-0.856***	-0.995	0.002
	(-0.76)	(-1.67)	(-0.17)	(-1.02)	(-1.81)	(-2.84)	(-1.32)	(0.01)
Target	1.895***	3.332***	2.992***	2.854***	5.904***	6.747**	4.685*	4.851***
	(4.43)	(5.94)	(4.19)	(4.62)	(2.67)	(2.67)	(1.84)	(2.74)
Post	0.034	0.109	0.140	0.266***	0.113	0.535	-0.049	-0.056
	(0.48)	(0.92)	(1.03)	(2.64)	(0.57)	(1.54)	(-0.09)	(-0.27)
Log(MV)	-0.770***	-0.909***	-1.055***	-0.944***	-1.497***	-2.058***	-1.963**	-1.316***
	(-7.39)	(-8.67)	(-6.66)	(-6.61)	(-3.50)	(-3.13)	(-2.75)	(-3.58)
Market-to-book ratio	-0.029*	-0.048***	0.000	-0.009	-0.004	-0.084*	0.002	0.021**
	(-1.87)	(-3.20)	(0.02)	(-0.48)	(-0.18)	(-1.82)	(0.10)	(2.05)
Leverage	0.000	0.006**	0.002	-0.000	0.001	0.013	-0.004	0.008
	(0.15)	(2.27)	(0.61)	(-0.11)	(0.17)	(1.33)	(-0.44)	(0.97)
Investment	-0.000	-0.002*	-0.003**	-0.003***	-0.042*	-0.014	-0.039	0.043
	(-0.30)	(-1.76)	(-2.39)	(-4.19)	(-1.89)	(-1.11)	(-1.12)	(0.67)
Profit margin	0.003	0.001	0.003	0.003	-0.018**	0.002	0.002	0.007
	(0.92)	(0.31)	(0.80)	(0.88)	(-2.14)	(0.13)	(0.09)	(0.69)
Dividend	0.020	0.031	-0.015	-0.029	-0.009	0.070	0.037	-0.026
	(0.81)	(1.00)	(-0.43)	(-1.09)	(-0.11)	(0.52)	(0.30)	(-0.26)
Freefloat	-0.002	-0.009*	-0.011*	-0.004	-0.010	-0.039**	0.020	0.001
	(-0.79)	(-1.86)	(-1.90)	(-1.47)	(-1.34)	(-2.70)	(1.49)	(0.11)
Inverse Mills Ratio	-0.813***	-1.539***	-1.353***	-1.485***	-2.761**	-3.567**	-2.145	-2.771***
	(-3.37)	(-4.94)	(-3.34)	(-4.43)	(-2.58)	(-2.43)	(-1.66)	(-2.72)
Constant	13.830***	10.611***	16.424***	11.062***	18.768***	20.076***	20.600***	17.232***
	(17.47)	(9.01)	(12.26)	(10.74)	(5.85)	(4.00)	(4.00)	(5.57)
Model	Heckman	Heckman	Heckman	Heckman	Heckman	Heckman	Heckman	Heckman
Matched sample	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Entropy balancing	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	20,997	13,874	7,019	11,464	4,172	1,010	680	1,862
adj. R-sq.	0.351	0.356	0.344	0.353	0.417	0.453	0.508	0.383

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*, 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 milestone 2 has been achieved, -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 3 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 1928 sample firms and following the method described in Ken French's webpage. The sample includes 351 engagement targets. *, **, and *** denote statistical significance at the 10%, 5% and 1% levels, respectively.

	LPM		VaR		LPM		VaR	
Time stamp used to measure *Post* dummy:	Milestone 2	Milestone 3	Milestone 2	Milestone 3	Milestone 2	Milestone 3	Milestone 2	Milestone 3
	Excess Return		Excess Return		Excess Return		Excess Return	
	Target		Target		Target - Control		Target - Control	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post * DOWN	-0.011	-0.058***	-0.009	-0.057***	-0.036***	-0.075***	-0.034***	-0.074***
	(-1.33)	(-4.80)	(-1.13)	(-4.83)	(-4.07)	(-5.72)	(-3.82)	(-5.70)
DOWN	0.067***	0.066***	0.076***	0.075***	0.004	0.004	0.006	0.006
	(10.29)	(10.19)	(11.47)	(11.37)	(0.56)	(0.61)	(0.77)	(0.81)
Post	-0.000	-0.000	-0.000	0.000	0.000	0.000	0.000	-0.001*
	(-1.15)	(-0.09)	(-1.37)	(-0.08)	(0.27)	(1.50)	(0.25)	(1.66)
MKT	1.006***	1.006***	1.002***	1.002***	-0.008	-0.008	-0.009	-0.009
	(151.89)	(151.89)	(151.35)	(151.34)	(-1.04)	(-1.03)	(-1.25)	(-1.24)
SMB	0.337***	0.337***	0.334***	0.334***	-0.189***	-0.189***	-0.189***	-0.189***
	(22.87)	(22.90)	(22.70)	(22.73)	(-11.52)	(-11.52)	(-11.54)	(-11.53)
HML	0.172***	0.172***	0.160***	0.159***	0.102***	0.103***	0.101***	0.101***
	(13.59)	(13.54)	(12.63)	(12.58)	(7.31)	(7.31)	(7.18)	(7.18)
RMW	0.159***	0.158***	0.160***	0.159***	0.055***	0.055***	0.056***	0.056***
	(12.00)	(11.96)	(12.04)	(12.00)	(3.71)	(3.75)	(3.78)	(3.80)
CMA	-0.008	-0.007	-0.007	-0.006	0.010	0.010	0.009	0.009
	(-1.14)	(-1.11)	(-0.99)	(-0.95)	(1.38)	(1.37)	(1.19)	(1.18)
Alpha	0.001***	0.001***	0.002***	0.002***	-0.001	-0.001	-0.001	-0.001
	(2.70)	(2.69)	(3.54)	(3.52)	(-1.04)	(-1.03)	(-1.18)	(-1.18)
Obs.	218,429	218,429	219,181	219,181	214,948	214,948	215,716	215,716
Adj. R-sq.	0.273	0.273	0.274	0.274	0.001	0.001	0.001	0.001

Internet Appendix

for

ESG Shareholder Engagement and Downside Risk

I.A. Table 1: Effect of ESG Engagement on Downside Risk: OLS Model

This table reports difference-in-differences regressions to estimate the effect of ESG engagement on downside risk. Regressions are estimated at the firm-month level. We report results across all engagement milestones and by engagement success. We report results from OLS regressions. We estimate the regression for the two-sided 24-month window around the month in which a target is engaged. The sample in this analysis consists of 1,928 firms, including 351 targeted firms and 1,577 control firms. Not all 573 targets of our initial sample are included in this analysis due to missing data. We use two dependent variables to measure downside risk: *LPM* is the lower partial moment of the second order and *VaR* is the 5% value at risk. Both measures are calculated at the firm-month level from daily return data. *Target* equals 1 for all firm-month observations 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. *Post* equals 1 for all firm-month observations after a firm has been targeted, and 0 before. We measure engagement success based on whether certain milestones have been achieved. In case of multiple engagements at a target, we calculate an average success rate (in terms of milestones achieved) averaged across all engagements. *t*-statistics, calculated based on robust standard errors clustered by firm, are reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5% and 1% levels, respectively.

Dependent variable	LPM				VaR			
	All	Engagement Success			All	Engagement Success		
		Below Milestone 2	Milestone 2 and above	Milestone 3 and above		Below Milestone 2	Milestone 2 and above	Milestone 3 and above
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Target x Post	0.003	0.049	-0.079*	-0.350***	0.007	0.089	-0.148*	-0.652**
	(0.12)	(1.37)	(-1.82)	(-2.83)	(0.12)	(1.23)	(-1.68)	(-2.61)
Target	0.183***	0.127***	0.286***	0.519***	0.357***	0.242***	0.582***	1.049***
	(5.20)	(3.00)	(5.30)	(3.52)	(5.13)	(2.87)	(5.40)	(3.59)
Post	0.033	0.031	0.061**	0.105	0.064	0.077	0.087	0.096
	(1.34)	(0.96)	(2.14)	(1.42)	(1.28)	(1.20)	(1.43)	(0.65)
Log(MV)	-0.200***	-0.175***	-0.236***	-0.290***	-0.399***	-0.353***	-0.474***	-0.594***
	(-15.17)	(-12.76)	(-11.22)	(-4.28)	(-15.55)	(-13.18)	(-10.98)	(-4.19)
Market-to-book ratio	-0.001***	-0.001***	-0.018***	-0.017	-0.002***	-0.002***	-0.031**	-0.012
	(-4.12)	(-3.78)	(-3.41)	(-1.59)	(-3.68)	(-3.57)	(-2.27)	(-0.59)
Leverage	0.001	0.002	0.000	0.003	0.002	0.003*	0.001	0.005
	(1.44)	(1.60)	(0.50)	(1.25)	(1.36)	(1.69)	(0.30)	(1.05)
Investment	0.000	0.001**	-0.000	0.002	0.001	0.003**	-0.001	0.010
	(0.84)	(2.05)	(-1.25)	(0.40)	(1.20)	(2.45)	(-0.67)	(0.96)
Profit margin	-0.001	-0.001	-0.000	0.003	-0.001	-0.001	-0.001	0.005
	(-0.40)	(-0.49)	(-0.30)	(0.76)	(-0.31)	(-0.27)	(-0.34)	(0.67)
Dividend	0.031**	0.041*	0.019*	0.042	0.044***	0.052***	0.044*	0.097
	(1.98)	(1.81)	(1.73)	(1.11)	(3.02)	(2.82)	(1.91)	(1.26)
Freefloat	-0.001	-0.001	-0.001	-0.007*	-0.002	-0.002	-0.003	-0.015*
	(-0.94)	(-1.04)	(-0.71)	(-1.76)	(-1.41)	(-1.40)	(-1.07)	(-1.75)
Constant	3.480***	2.974***	5.898***	5.789***	7.226***	6.331***	12.173***	11.078***
	(13.55)	(9.70)	(21.11)	(9.66)	(14.54)	(10.69)	(21.47)	(9.07)
Model	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS
Matched sample	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Entropy balancing	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	89,970	56,644	33,326	5,843	89,970	56,644	33,326	5,843
adj. R-sq.	0.296	0.276	0.361	0.367	0.269	0.244	0.343	0.364

I.A. Table 2: Effect of ESG Engagement on Downside Risk: No Entropy Balancing

This table reports difference-in-differences regressions to estimate the effect of ESG engagement on downside risk. Regressions are estimated at the firm-month level. We report results across all engagement milestones and by engagement success. We report results from the second-stage outcome regression of a Heckman model. The engagement selection equation has been estimated as in Table 5. We estimate the outcome regression for the two-sided 24-month window around the month in which a target is engaged. The sample in this analysis consists of 1,928 firms, including 351 targeted firms and 1,577 control firms. Not all 573 targets of our initial sample are included in this analysis due to missing data. We use two dependent variables to measure downside risk: *LPM* is the lower partial moment of the second order and *VaR* is the 5% value at risk. Both measures are calculated at the firm-month level from daily return data. *Target* equals 1 for all firm-month observations 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. *Post* equals 1 for all firm-month observations after a firm has been targeted, and 0 before. We measure engagement success based on whether certain milestones have been achieved. In case of multiple engagement at a target, we calculate an average success rate (in terms of milestones achieved) averaged across all engagements. *t*-statistics, calculated based on robust standard errors clustered by firm, are reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5% and 1% levels, respectively.

Dependent variable	*LPM*				*VaR*			
		Below Milestone 2	Milestone 2 and above	Milestone 3 and above		Below Milestone 2	Milestone 2 and above	Milestone 3 and above
Engagement success	All				All			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Target x Post	-0.001	0.026	-0.050	-0.277**	0.003	0.051	-0.087	-0.536**
	(-0.03)	(0.83)	(-1.21)	(-2.32)	(0.06)	(0.79)	(-1.03)	(-2.23)
Target	0.745***	0.905***	0.551***	1.212**	1.537***	1.859***	1.172***	2.551***
	(7.70)	(7.20)	(3.77)	(2.54)	(7.81)	(7.30)	(3.91)	(2.65)
Post	0.047***	0.048**	0.040*	-0.013	0.089***	0.109**	0.044	-0.105
	(3.14)	(2.41)	(1.67)	(-0.21)	(2.78)	(2.50)	(0.87)	(-0.88)
Log(MV)	-0.248***	-0.269***	-0.227***	-0.322***	-0.509***	-0.552***	-0.470***	-0.657***
	(-14.50)	(-12.15)	(-8.70)	(-4.04)	(-14.68)	(-12.38)	(-8.77)	(-4.01)
Market-to-book ratio	-0.002***	-0.001***	-0.003***	-0.001	-0.004***	-0.003***	-0.006***	-0.004
	(-3.66)	(-4.91)	(-2.94)	(-0.90)	(-3.40)	(-4.62)	(-2.69)	(-1.07)
Leverage	0.002***	0.003***	0.001*	0.001	0.004***	0.006***	0.002	0.001
	(4.82)	(5.03)	(1.78)	(0.51)	(4.56)	(5.00)	(1.36)	(0.14)
Investment	-0.000	0.000	-0.001	0.004	-0.000	0.001	-0.001	0.013
	(-0.55)	(0.64)	(-1.42)	(0.91)	(-0.13)	(0.94)	(-0.96)	(1.28)
Profit margin	-0.002***	-0.002***	-0.001	-0.002	-0.004***	-0.004***	-0.002	-0.003
	(-6.04)	(-5.89)	(-1.40)	(-0.59)	(-5.60)	(-5.95)	(-1.00)	(-0.53)
Dividend	0.008	0.009	0.007	0.034	0.013	0.016	0.012	0.048
	(1.36)	(1.24)	(0.77)	(1.29)	(1.44)	(1.39)	(0.75)	(1.29)
Freefloat	-0.002***	-0.002***	-0.002	-0.003	-0.004***	-0.004***	-0.004**	-0.007
	(-2.99)	(-2.67)	(-1.63)	(-0.99)	(-3.32)	(-2.83)	(-2.05)	(-1.16)
Inverse Mills Ratio	-0.319***	-0.436***	-0.175**	-0.387	-0.671***	-0.914***	-0.385**	-0.847*
	(-5.69)	(-6.16)	(-2.05)	(-1.65)	(-5.83)	(-6.27)	(-2.21)	(-1.80)
Constant	3.723***	3.535***	4.678***	4.711***	7.811***	7.442***	9.887***	9.491***
	(19.00)	(14.90)	(6.00)	(7.43)	(19.13)	(14.76)	(6.52)	(8.10)
Model	Heckman	Heckman	Heckman	Heckman	Heckman	Heckman	Heckman	Heckman
Matched sample	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Entropy balancing	No	No	No	No	No	No	No	No
Obs.	89,970	56,644	33,326	5,843	89,970	56,644	33,326	5,843
adj. R-sq.	0.260	0.250	0.296	0.302	0.236	0.222	0.282	0.301