The Economics of Investor Engagement

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ABSTRACT

Institutional investors engage with their portfolio companies to communicate information and preferences. Using a discrete choice model and novel engagement data, we quantify the costs and benefits of engagement and document substantial heterogeneity across funds and firms. Passive funds engage less than active funds because their lower fees reduce the value they capture. Counterfactual scenarios show that when passive funds gain market share from active funds, the value created through engagement increases because active funds exhibit diseconomies of scale while passive funds do not. However, when passive funds grow through consolidation with active funds, the total value created through engagement declines.

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I. Introduction

There are three main channels through which institutional investors influence the behavior of portfolio firms: voting, exiting, and engaging with management. Every year, institutional investors dedicate considerable resources to engagement activities.[1] For example, in 2022, Vanguard engaged with over 1,300 portfolio companies and BlackRock engaged with more than 2,500 companies worldwide. Yet because these activities are typically unobservable, little is known about the economics of investor engagement. In this paper, we estimate a discrete choice model using newly released data on the engagement activities of institutional investors to quantify the costs and benefits of engagement. Our results show that institutional investors choose to engage with portfolio companies in a manner that maximizes the value they capture from increasing firm value.

Investor engagement can occur through various channels, including letters, emails, phone calls, or meetings (either in-person or virtual) to gather information, express preferences, or propose specific actions. While interactions between investors and corporate executives have traditionally been unobservable, recently institutional investors have started discussing their engagement activities in their annual stewardship reports. We manually collect and process these reports to build a sample of engagement activities from 2019 to 2023. Our sample covers 11 major institutional investors: four majority-passive institutions including BlackRock, Vanguard, and State Street, and seven majority-active institutions including Dimensional Fund Advisors and T. Rowe Price.

The average institutional investor in our sample holds approximately 2,700 U.S. publicly listed firms, with passive families holding virtually the entire universe of firms on one extreme,

[1] McCahery, Sautner, and Starks (2016) show that engagement with management is used by 63% of institutional investors, voting against management is used by 53%, and nearly half of the investors surveyed use exit strategies.

and the most concentrated active investor (Robeco) holding around 1,100 firms. On average, institutional investors engage with 320 firms per year, approximately 12% of their portfolio. Consistent with the key insight in Lewellen and Lewellen (2022), we find that the dollar value of an investor's position is the most important determinant of engagement, even after controlling for investor time-varying characteristics (e.g., changes in preferences), firm time-varying characteristics (e.g., performance and visibility), and firm-investor fixed effects (e.g., persistent match quality). To put this into perspective, institutional investors engage with only 4.2% of the companies in which they hold $10 million or less, but with 86% of the companies in which they hold $10 billion or more.[2]

To understand why investors choose to engage, we develop a discrete choice model that estimates the costs and benefits of engagement. Our model builds on the framework developed by Lewellen and Lewellen (2022), which examines whether institutional investors have an economic incentive to conduct engagement activities. The framework assesses the returns to engagement based on the flow-performance sensitivity of each fund's assets under management (AUM) and each fund's fees. Motivated by this insight, we model the decision to engage as having two main components. First, raising the value of a firm via engagement will increase the value of a fund's AUM. Since funds typically earn fees as a fraction of their AUM, this will increase the fund's fee income. Second, increasing a firm's value will enhance fund performance, which may attract additional inflows. These increased inflows, in turn, raise AUM and generate additional fee income.

Our discrete choice model is flexible yet parsimonious. The model imposes minimal

[2]The dollar value of holdings is highly correlated with a firm's portfolio weight and the fraction of a firm's ownership held by a fund. However, when we consider all three measures jointly, we find that it is the dollar value of an investor's holdings that matters for engagement decisions. The intuition behind this finding is simple. Imagine that a fund's assets all increase in value by the same fraction. In this case, the portfolio weights and the part of each firm's equity held do not change, but the dollar values of its holdings and its expected fee revenue increase.

structure on those two components; it allows the benefits and costs to have a positive or negative value and to be small or large for any fund or firm. Formally, by engaging at a cost c, the investor expects to raise the firm's value by the fraction b. We assume funds engage with a portfolio company whenever the expected benefit b exceeds the expected cost c.[3] Since our data tracks which companies each fund engages with each year, and we can observe position sizes and fund fees, we can estimate the expected costs and benefits of engagement.

We find that, on average, investors act as though a $10,000 investment in engagement yields a 0.35 basis point increase in firm value. While the Big Three passive families (BlackRock, State Street, and Vanguard) engage with more firms annually than active fund families, they engage less once we control for other factors, particularly position size. Our model explains this: passive and active funds are equally effective at engagement, but although passive funds hold larger positions, their lower fees mean they capture less of the value they create. In other words, both the costs and expected increase in firm value are the same for passive funds and active funds, but the expected benefit to passive fund managers is much lower due to their fee structure. Consequently, passive investors engage relatively less.

When we examine firm-level heterogeneity in the costs and benefits of engagement, we observe that the expected benefits are significantly higher for smaller firms. Here, investors behave as though $12,248 spent on engagement leads to a 6.4 basis point increase in firm value. Yet, institutional investors are significantly less likely to engage with small-cap firms because they hold smaller dollar positions in those firms. We also find that the expected benefit of engagement is slightly lower for more profitable firms (while the costs remain

[3]The model's parameters are only identified up to a common scaling parameter. Following Dickstein and Morales (2018), we fix the value of one parameter and estimate the others. Specifically, we set the average cost per engagement to $10,000. Our estimates can also be interpreted as the implicit expected return to each $10,000 spent on engagement. We discuss this assumption in greater detail in Section III.

unchanged), suggesting they have less room for improvement. Conversely, firms with entrenched management face a slightly higher cost of engagement and no variation in benefits. As a result, engagement appears less effective when management is entrenched, likely due to the higher costs involved.

We also explore how the costs and benefits of engagement vary with institutional investor scale (total AUM) and scope (number of firms held), estimating models separately for passive and active investors. Our analyses reveal that passive investors exhibit small positive economies of scope in that costs decrease as they own more stocks, while the benefits remain constant. Moreover, while costs slightly increase as passive funds get larger, the benefits also increase. As a result, passive funds also exhibit small economies of scale. In contrast, active funds face significant diseconomies of scale, likely due to a finite supply of positive net present value opportunities (Berk & Green, 2004). Specifically, we estimate that a one standard deviation increase in AUM results in a 0.40 basis point decrease in value creation for active institutions.

Finally, we examine two counterfactual scenarios to study the role of engagement in light of the recent rise of passive investing. First, we examine a scenario in which passive investing continues to increase in line with the trend over the past twenty years, such that passive funds eventually hold 90% of all mutual fund and exchange-traded fund AUM. Second, we examine a scenario in which the largest passive fund family (BlackRock) expands through consolidation by acquiring a smaller active fund family (Robeco), which resembles BlackRock's acquisition of Barclays Global Investors in 2009. Both scenarios are of direct interest to regulators, including the U.S. Securities and Exchange Commission (SEC).[4] We then examine whether, and how, these scenarios affect engagement and value creation.

[4]See Commissioner Allison Herren Lee's Statement "Every Vote Counts: The Importance of Fund Voting and Disclosure" as well as recent a stance by the White House.

In the first scenario, we find that a continued rise in passive investing results in passive institutions increasing engagement with portfolio firms due to their larger holdings. Because passive funds do not exhibit diseconomies of scale, this shift enhances value creation for their investors. Conversely, we find that active institutions would engage less if they shrink, as lower AUM would result in reduced fee income. However, they would actually create more total value as they shrink because of diseconomies of scale in the active industry, consistent with Berk and Green (2004). In contrast, in the second scenario, the increase in BlackRock's AUM through the acquisition of Robeco raises its engagement slightly, but it also eliminates Robeco's engagement activity entirely. Because the economies of scale of passive institutions (including BlackRock) are small, the net effect on value creation is negative.[5]

Our paper contributes to the literature on the monitoring role of institutional investors. Since the foundational work by Admati, Pfleiderer, and Zechner (1994), this literature has primarily focused on investors' voting behavior and exit strategies (Edmans & Holderness, 2017). While Kakhbod, Loginova, Malenko, and Malenko (2023) theoretically examine investor engagement, and Krueger, Sautner, and Starks (2020) survey institutional investor engagement practices, large-sample empirical research has been limited due to data constraints.[6]

More closely related to our paper is Gantchev (2013), which studies activist campaigns and shows that the high cost of pursuing proxy contests significantly reduces the returns

[5]Our counterfactual simulations focus on shareholder value and do not capture potential externalities such as anticompetitive effects related to common ownership (e.g., Azar, Tecu, and Schmalz (2018)). If engagement raises firm value through channels that reduce product market competition or suppress innovation, then overall social welfare could decline even if shareholder wealth increases.

[6]Much of this research focuses on one fund (Becht, Franks, Mayer, & Rossi, 2009; Becht, Franks, & Wagner, 2023; Carleton & Weisbach, 1998; Dimson, Karakaş, & Li, 2015; Bauer, Derwall, & Tissen, 2023), one particular issue (Azar, Duro, Kadach, & Ormazabal, 2021; Dey, Starkweather, & White, 2024; Hoepner, Oikonomou, Sautner, Starks, & Zhou, 2024), or one portfolio company (Solomon & Soltes, 2015).

to activism;[7] Lewellen and Lewellen (2022), which analytically examine the incentives for institutional investors to engage with their portfolio companies (see also Brav, Malenko, and Malenko (2022)); and Aggarwal, Litov, and Rajgopal (2023), which study stock returns around announcements of engagement activities by the Big Three fund families. Aggarwal et al. (2023) find small abnormal returns that are not statistically different from zero and conclude that monitoring by the Big Three does not maximize the value of portfolio companies. We take a different approach. Because stock returns are noisy, making it difficult to detect effects, we develop a discrete choice model to estimate a revealed-preference measure of the costs and benefits of engagement. Moreover, our sample covers eleven major fund families, both passive and active, spanning a wide range of fund sizes. This broader sample allows us to contrast the economic incentives of passive and active funds and, using a flexible discrete choice model, to provide the first large-sample estimates of the costs and benefits of engagement, as well as the economies of scale and scope that shape engagement behavior.

Finally, our results also build to the literature on the role of passive investors. Over the last 20 years, trillions of investor dollars have moved from individual holdings into professionally managed institutions. At the same time, there has been a shift away from actively managed investing into passively managed index funds, along with consolidation that has concentrated assets within the largest passive families. Research suggests that institutional investors have both the incentives and the resources to monitor more closely than individual investors (Brav et al., 2022). At the same time, passive investors have less incentives and resources to monitor than active funds do (Bebchuk, Cohen, & Hirst, 2017) and devolve more power to firm management (Heath, Macciocchi, Michaely, & Ringgenberg, 2022), thereby

[7]For additional work on shareholder activism, see Brav, Jiang, Partnoy, and Thomas (2008), Bebchuk, Brav, Jiang, and Keusch (2020), Wahal (1996), and Denes, Karpoff, and McWilliams (2017) for a survey of the literature.

impacting governance (Schmidt & Fahlenbrach, 2017). Our study expands this literature by providing direct evidence that *ceteris paribus*, passive funds engage less than active funds. Our estimates show that, compared to active funds, passive funds have similar engagement costs and produce similar expected improvements to firm value, but fund managers receive less of the value they create because of lower fund fees, and therefore are less likely to engage.

Importantly, our counterfactual simulations speak to shifts in market share between passive and active families, where scale economies are the key economic force. These results add nuance to the prediction of Corum, Malenko, and Malenko (2024) that the rise of passive investing leads to better monitoring if passive funds replace retail investment, but worse monitoring if passive funds replace active funds. Our results show that this conclusion requires that passive and active funds have similar economies of scale, or that the growth happens through consolidation. If active funds have diseconomies of scale, as our estimates suggest, then flows out of active funds and into passive funds could still result in improved monitoring and value creation.

II. Data and Stylized Facts about Engagement

A. Engagement Practices and Regulations

Before presenting our data and stylized facts on institutional investor engagement activities, we first discuss engagement practices and summarize the rules that govern the process. In the 2023 stewardship report, BlackRock states that "BlackRock Investment Stewardship (BIS) views engagement as a key mechanism for providing feedback or signaling concerns to companies about factors that affect long-term financial performance." As previously discussed, there are several ways institutional investors such as BlackRock can engage. In-

stitutional investors can write letters or emails to a company's management team.[8] They might communicate with corporate managers via phone calls. Or, institutional investors might meet with corporate managers in person or virtually. Our sample includes all such activities as reported by institutional investors in their stewardship reports. Figure 1 shows an example of engagement reporting from Dimensional Fund Advisors' 2023 stewardship report.

These reports define engagement as any direct interaction between the institutional investor and a portfolio company where meaningful dialogue occurred (BlackRock (2023)). Institutional investors typically identify specific issues that are important to them and often engage with companies that operate in ways inconsistent with their values. In such cases, the engagement process involves a dialogue between the fund and a firm's management team to learn more about the reasons behind the identified issues.[9]

Commonly, fund managers engage with companies around quarterly earnings calls. Stewardship teams may accompany fund managers or act independently, and the people involved may depend on whether the investor is passive or active. A significant portion of engagement activities relate to proxy voting issues, particularly when an issue might lead to a vote against a director or, more broadly, against management recommendations. Other engagement activities occur off-season or are non-ballot related, covering a range of topics from discussions on corporate governance practices that could create long-term value to requests for the disclosure of environmental or social policies.[10]

While existing regulations do not directly address engagement *per se*, both companies

[8]BlackRock's CEO Larry Fink is known for writing public letters that are the same for all companies held in BlackRock's portfolio. Because such letters do not address firm-specific issues, they are not counted as engagement in our sample.

[9]SEC Chair Mary Schapiro (2010) stated corporate directors should have "conversations with investors about how the company is governed – and why and how decisions are made."

[10]See Gatti, Strampelli, and Tonello (2024) for results from a survey on engagement practices.

and institutional investors are constrained in what they can communicate to each other. Much of the regulation governing communication between firms and investors consists of rules that restrict what corporate managers can disclose privately, without public disclosure. In particular, Regulation Fair Disclosure (Reg FD) constrains companies from selectively releasing material non-public information to investors unless the information is publicly released to everyone. If a company does reveal material non-public information to a subset of investors, then they are required to file a form 8-K. Similarly, institutional investors are constrained from trading on material non-public information according to Rule 10b5-1. Thus, even if an engagement activity led to the transfer of material non-public information from corporate managers to investors, the investors would be precluded from trading on it.

Engagement activities could also be constrained by rules governing proxy materials, in particular Rule 14a-6. If a company creates information for their investors about their actions related to an upcoming proxy vote, they are required to file that information with their proxy statement and publicly disclose the information. Finally, several companies have adopted bylaws that directly constrain their conduct when engaging with shareholders.

In general, while engagement between investors and corporate managers might initially appear to give investors an unfair advantage, existing regulation is designed to prevent any such advantage from occurring. Instead, engagement activities are intended to allow investors to communicate information and their preferences to corporate managers in a manner that benefits all investors in the firm. Indeed, the UN PRI (2023) defines investor stewardship as "the use of influence by institutional investors to maximise overall long-term value including the value of common economic, social and environmental assets, on which returns and clients' and beneficiaries' interests depend."

Of course, it remains unknown whether and how much the value of firms can be impacted

by engagement activities. However, since engagement activities are costly, it is rational to expect that institutional investors would undertake them only if the expected benefits outweigh the costs. Accordingly, we first use our hand-collected engagement data to examine stylized facts about engagement, including the factors that determine it. We then use our discrete choice model to provide the first general estimates of the costs and benefits of engagement.

B. Data

To examine the costs and benefits of engagement by institutional investors, we combine standard financial databases with newly released data on the engagement activities of investors that, to date, has not been extensively studied by academic research. As previously discussed, engagement activities by institutional investors were typically unobservable, making it difficult to study the economics of engagement. However, around 2019, several large asset managers started including detailed information about their engagement activities in their annual stewardship reports. Moreover, starting in 2021 the United Nations Principles for Responsible Investment (PRI) required signatories to release an annual stewardship report. As a result, it is now possible to collect data on the engagement activities of many large institutional investors. These reports are typically released annually or quarterly and, among other things, include a list of firms with which the fund-family engaged each period. Importantly, our analyses occur at the fund-family level because stewardship teams typically oversee all engagement actions for all funds within a fund-family and consequently, the stewardship data we use contains information at the fund-family level.

We hand-collect engagement data from the stewardship reports of eleven large institutional investors, including four passive institutions (BlackRock, Vanguard, State Street, and

Northern Trust) and seven active institutions (Allianz, Axa, Dimensional, Robeco, T-Rowe Price, UBS, and Wellington). Our sample spans from 2019 to 2023 and covers all publicly traded US firms, including small, medium, and large capitalization firms across all industries.[11]

We then combine the engagement data with data from the Center for Research in Security Prices (CRSP) and financial data from Compustat. Our sample of firms consists of all publicly traded US incorporated firms in the CRSP-Compustat merged data from 2019 to 2023 (i.e., CRSP share codes 10 and 11). We then obtain data on institutional investor holdings from the Thomson-Reuters 13F database, and data on individual funds and their holdings from the Thomson-Reuters S12 dataset and the CRSP mutual fund dataset. We first merge the S12 and CRSP MFDB holdings by taking the larger of the two holdings recorded for each fund-firm pair in December of each year. We then sum the holding of all funds offered in each year by each institution in our sample. We take the larger of the total holdings recorded for each institution-firm between the merged S12-MFDB (i.e., holdings of funds that disclose via Form S12) versus the institution-level 13F data, as of December of each year. In this way, we construct a comprehensive list of recorded holdings of US public firms for each institution in our sample.

We calculate the yearly weighted average fee for each institution as the average management fee across all funds offered by that institution, weighted by the total assets under management in each fund, dropping any fund-years that report a negative or missing fee. We get data on the cost of capital for asset management companies, which we use to capitalize expected fees in future years, from Aswath Damodaran's website.[12] Finally, we gather data on firms' governance practices, which we use in our cross-sectional tests based on firm

[11] Some institutions have engagement data available for a subset of years. See Table I for more details.

[12] `https://pages.stern.nyu.edu/~adamodar/New_Home_Page/home.htm`

characteristics, from the ISS governance database. Our final panel dataset comprises 110,116 observations at the institutional investor-firm-year level.

C. Stylized Facts about Engagement

Table I, Panel A, shows that the average institution in our sample holds approximately 2,700 firms, but there is substantial heterogeneity across different institutions. At the high end, passive investors each hold more than 3,000 firms, effectively encompassing the universe of US publicly listed equities, while at the low end one active investor, Robeco, holds an average of 1,145 US stocks. Moreover, we see that institutional investors differ significantly in the size of their holdings. On the one hand, passive investors such as BlackRock and Vanguard report the highest average holding sizes, which are $703 million and $847 million, respectively. On the other hand, active investors like Allianz and Axa hold smaller average positions of $54 million and $80 million, respectively.

Institutional investors in our sample engage with an average of 320 firms per year, or approximately 12% of their portfolio. Also here there is substantial heterogeneity within both active and passive families. For instance, among active investors, Wellington engages with 47% of its portfolio firms whereas Axa engages with only 2%. This suggests that the costs and benefits of engagement vary substantially.

In Panel B, we report summary statistics regarding the assets under management (AUM), the fraction of AUM in passive funds, the average fees charged by the institutional investors in our sample, as well as our measure of investor's incentives to engage, denoted by κ, which is the present value of all expected fees from increasing firm value via engagement (we formally define κ in Section III). We find that there is a clear division between the four passive institutions in our sample—BlackRock, Vanguard, State Street, and Northern

Trust—and the seven active institutions. First, the passive institutions are larger, with an average 13F AUM of 2 trillion US dollars compared to an average of 300 billion US dollars for the active institutions. Second, the passive institutions have between 58% (Northern Trust) and 96% (State Street) of their S12 fund assets in passively managed index funds. In contrast, among the seven active institutions, UBS has the highest fraction of passive AUM, with an average of only 4% of its S12 fund assets in index funds. For four of the seven active families, the fraction of passive AUM is zero.

For each institution-year, we compute the fee as the average management fees across all funds offered by the institution that year, weighted by the AUM in each fund at the beginning of the year. As expected, the four passive families tend to have significantly lower fees compared to active families. Importantly, as a result, they also tend to have significantly lower incentives to engage. For the four passive institutions the average κ across all years is 0.055 basis points, while for the seven active institutions the average κ is 0.198 basis points, almost four times higher. Put simply, due to their lower fees, passive investors capture less than one fourth of the benefit that active investors do from increasing firm value through engagement.

C.1. What Determines Engagement?

Our data show that institutional investors engage with approximately 12% of their portfolio firms each year. However, relatively little is known about the determinants of their decision to engage. In other words, how do funds choose to engage with some portfolio firms and not others?

McCahery et al. (2016) survey institutional investors and find that when it comes to engagement, *"... the [factors] that are identified as important are related to incentives."*

Lewellen and Lewellen (2022) argue that institutional investors benefit from engaging with their portfolio firms through two channels. First, if engagement increases firm value, then the fund's AUM will also increase. This means the fund will increase its income through management fees, which are typically calculated as a fixed percentage of AUM. Second, if engagement increases firm value, it will enhance fund performance, potentially attracting additional investor flows into the fund and thereby further increasing fee income. Importantly, both of these benefits are primarily determined by the dollar value of the fund's position in the firm. Consequently, we begin our analyses by examining the relation between engagement and the dollar value of an institutional investor's position in a particular firm. Of course, it is possible that investors choose to engage for other, non-pecuniary, reasons. For example, investors might choose to engage for ethical reasons (i.e., a belief that a particular action is "good" even if it does not increase firm value). Ultimately, it is an open empirical question as to *why* investors choose to engage.

Figure 2 provides some of the first evidence on this point. Panel A shows a strong upward-sloping relation between engagement activities and the dollar value of the institutional investor's holding. For small holdings of $1 million or less, the average probability of engagement is just 4.2%. For large holdings of $10 billion or more, the probability of engagement is 87%. For the 43 largest holdings in our sample, institution investors engaged with the firm 100% of the time.

In Table II, we analyze our panel dataset at the institution-firm-year level and present ordinary least squares (OLS) regression estimates of the relation between engagement and the dollar value of the institutional investor's holding (*log($ Holding)*). We also consider two closely related variables that could plausibly influence engagement behavior: (i) the fraction of the firm's equity held by the institutional investor (*FractionFirmEquity*), and (ii)

the fraction of the institutional investor's portfolio that the holding represents (*Fraction-InstAUM*).[13] To ensure our estimates are not affected by time-varying investor traits, we include institution-by-year fixed effects. This approach means that we examine engagement decisions within each institution's portfolio at each point in time. We find that the dollar value of the holding is by far the strongest determinant of the decision to engage. In column 1, we find that a one standard deviation increase in *log($ Holding)* raises the probability of engaging by 10.6 percentage points (pp). By contrast, we observe that both the fraction of the firm's equity held and the fraction of the institutional investor's portfolio that the holding represents are less important. Those two variables have smaller associations of only 0.9 percentage points and 3 percentage points, respectively.

Since variation in firm characteristics could influence both how much a fund holds and whether it chooses to engage, in Table II column 2 we add firm-by-year fixed effects. These absorb all time-varying firm-level factors, such as performance, governance quality, visibility, or perceived need for oversight, ensuring that identification comes solely from differences in how funds allocate across firms within the same year. We find that the coefficient on the dollar value of the holding falls only slightly from 10.6pp to 7.6pp. Thus, firm characteristics do explain some amount of the association between holding size and the decision to engage: Some firm-years systematically have larger holding sizes *and* are more likely to be engaged, and vice versa. Still, the dollar value of the holding remains the single most important determinant of the investor's decision to engage. Furthermore, when firm-by-year fixed effects are added, the association with the fraction of the firm's equity held becomes stronger, while the association with the portfolio weight disappears. These estimates suggest that when comparing engagement decisions within a given firm-year, the largest shareholders are more

[13]For example, Cronqvist and Fahlenbrach (2008) show that large blockholders tend to have larger influences on company policies.

likely to engage, while the importance of the holding to the institution plays less of a role.

Next, in Table II column 3 we add firm-by-institution fixed effects, which sweep out any non-time-varying differences in the match quality between funds and firms. Put differently, this estimate examines engagement decisions within the same fund-firm pair over time. This further reduces the scope for omitted variables to drive both holding size and engagement. We see that the associations of engagement with both the holding size and the fraction of the firm's equity held fall by roughly 50%. However, the dollar value of the holding remains the most important determinant of engagement decisions, consistent with our model and with the predictions of Lewellen and Lewellen (2022).[14]

Finally, in Panel B of Figure 2 we examine whether the relation between dollar holdings and engagement differs between passive and active institutions. At the extremes, we see a pattern similar to that observed in Panel A: The frequency of engagement is low (around 4%) for small dollar holdings and high (around 100%) for very large dollar holdings for both types of investors. However, for all intermediate holding sizes, the frequency is lower for passive investors. In other words, conditional on holding size, passive investors are less likely to engage. Whether this difference is due to differences between passive and active institutions in their fees, holdings, or expected costs and benefits of engagement is a key question we investigate through the lens of our discrete choice model.

III. A Discrete Choice Model of Engagement

Discrete choice models are used to dissect the determinants of economic agents' decisions among a discrete set of choices. In our setting, the choice set is simple: Each institutional

[14]For robustness, in the Internet Appendix Section A1, we present estimates of the same relations using logit and probit models; the conclusions are the same.

investor j chooses to engage ($engage$=1) or not engage ($engage$=0) with each firm i in their portfolio in year t.

We model this choice based on Lewellen and Lewellen (2022) and the stylized facts we document above. Consider an institutional investor (j) who holds the dollar value $\$DV$ in firm i's traded equity, has total assets under management of AUM, and charges yearly management fees m as a percent of AUM. By engaging at a cost c, the investor could raise the value of firm i by the fraction b in expectation. Without loss of generality, we set the payoff of not engaging to zero.

If the institutional investor chooses to engage with a firm, it could benefit in two different ways. First, because funds fees m are calculated as a fraction of AUM, increasing the value of the firm via engagement will increase the fund's AUM, thereby increasing their fees. Formally, increasing firm value by b will lead to higher fees in the amount $b \times \$DV \times m$. Second, increasing the value of firm i in the fund's portfolio might also attract more capital into the fund. Formally, flows into the fund $= \eta \times (b \times \$DV/AUM)$ where η is the elasticity of flows to fund performance and $\$DV/AUM$ is the weight the fund has in a particular stock. Thus, inflows yield a benefit to the fund of (η × b × DV / AUM) × AUM × m = η × b × DV × m. We assume that the higher AUM from both channels and therefore the higher fee income is persistent; accordingly, the present value of higher fee income can be capitalized using the investor's cost of capital r_{jt}.

In addition, the institution receives a private signal ϵ about the expected value of engaging with each firm, which is drawn from some distribution centered at zero and with standard deviation σ, consistent with standard models of private information (e.g., Malenko and Malenko (2023)).

In total, the expected net benefits (ENB) from engaging are given by:

$$ENB = E[(b_{ijt} \cdot DV_{ijt} \cdot m_{jt}) \cdot (1+\eta) \cdot \frac{1}{r_{jt}} - c_{ijt} + \epsilon_{ijt}] \quad (1)$$

$$ENB = \kappa \cdot b \cdot DV - c + \epsilon \quad (2)$$

where $\kappa = m(1+\eta)/r$, is the present value to the institution of increasing the value of their stake in the firm by one dollar. We compute the average fee across all funds, weighted by assets under management, for each family-year. For the discount rate r we use the yearly cost of capital for asset management firms from Aswath Damodaran's website. Our values of η come from Dannhauser and Pontiff (2024). That paper estimates flow-to-performance elasticities of 1.162 for active funds and 1.025 for passive funds; that is, for active funds a 1% higher return is followed by higher inflows equal to 1.162% of the fund's AUM, and 1.025% for passive funds. These elasticities mean that the indirect flow-based incentive is slightly larger than the direct incentive, for both active and passive families. For passive (active) families, the direct incentive is 49% (46%) of the total incentive. In an unreported check, we use the elasticity of 1.39 across all funds estimated by Lewellen and Lewellen (2022); all conclusions are similar.

To illustrate, suppose that the management fee m is 10 basis points and the discount rate r is 5%. If an active fund takes an action that raises the value of its stake in firm X by one dollar, this raises the fund's AUM directly by one dollar. In addition, by the end of year 1, the active fund attracts \$1.162 in additional inflows. Since the fund collects 10 basis points of the additional AUM each year in perpetuity, the present value to the fund is $\kappa =$ 0.0010 * (1+1.162) / 0.05 = 0.0432.

The example above illustrates that (1) both active and passive funds have an incentive to engage as long as engagement is expected to be value-increasing; (2) the incentive varies

one-for-one with the dollar value of the holding; (3) the fraction of the value created that the fund's management captures varies one-for-one with the fund's fees; (4) value-increasing engagement also creates positive externalities for other shareholders of the same firm, which could generate a free-rider problem or a level of engagement that is below the social optimum.

The investor engages with the firm if the expected net benefit is positive (i.e., $ENB_{ijt} > 0$). For the simplest case in which κ, b, c, σ are the same for all funds and firms:

$$0 < \kappa \cdot b \cdot DV_{ijt} - c + \sigma\epsilon_{ijt} \tag{3}$$

The fund engages with the firm with probability:

$$Pr\left(\epsilon_{ijt} > -\frac{1}{\sigma}[\kappa \cdot b \cdot DV_{ijt} - c]\right) = 1 - \Phi\left(-\frac{1}{\sigma}[\kappa \cdot b \cdot DV_{ijt} - c]\right) \tag{4}$$

where Φ is the cumulative distribution function of the private signal.

Identification of the costs and benefits is possible because the benefit of engaging varies directly with the dollar value of the holding. If some part of the cost of engaging varies with the portfolio weight then we include that in b which captures the "net variable benefits" of engaging. The cost per engagement can vary by fund and firm, as well as over time. If there is any fixed benefit of engaging with a firm that does not depend on its portfolio weight, then we include that in c which captures the "net cost" per engagement action.[15]

Our estimates are based on the revealed preferences of institutional investors. As such, our estimates might not have a causal interpretation. Rather, the actions we observe reflect equilibrium behavior given expected costs and benefits, on average across a fund family's entire portfolio of holdings. Nevertheless, our analysis still has identifying assumptions. First,

[15]In other words, c measures the net cost per engagement (i.e., costs less benefits) and the flexibility of our model allows the resulting estimates to be positive or negative.

if an omitted variable jointly impacts the decision to engage and the costs or benefits of engaging, then our estimates of the costs and benefits of engaging could be biased. However, we note that our panel regressions exploit the high dimensionality of our data to rule out a number of possible confounders. Specifically, in Table II we include a variety of fixed effects including institution $\times$ year fixed effects, which sweep out time varying characteristics in a fund family (including variation in the incentives to engage), firm $\times$ year fixed effects, which sweep out time varying characteristics within firms (such as CEO quality and performance), and even institution $\times$ firm fixed effects, which account for the possibility of endogenous matching between funds and firms. In all cases, our main estimates of the relation between the dollar value of holdings and engagement are stable, suggesting that the assumptions underlying our discrete choice model (which assumes the dollar value of holdings is the primary driver of engagement) are supported in the data. Section A2 of the Internet Appendix presents estimates when we instrument for total holdings with passive holdings, which are driven by aggregate fund flows and exogenous index weights. All of our conclusions hold, suggesting that omitted variables are unlikely to be first-order in the equilibrium behavior we observe.

Our analysis also assumes that funds decide to engage on a firm-by-firm basis. That is, the decision to engage with a particular firm is independent of the decision to engage with other portfolio firms; all that matters is the cost and expected benefit of engaging in that firm. There are two reasons this assumption is likely reasonable. First, as discussed above, our analysis in Table II finds that the dollar value of holdings is the primary driver of the decision to engage in a particular firm, suggesting that other motivations to engage, if they

exist, have a smaller impact.[16] However, it could be that institutions lack the bandwidth to engage with all firms for which the benefits exceed the costs. In such a case, our analysis implicitly assumes that investors could scale up their engagement activities (possibly by hiring a new employee) to handle the additional profitable engagement activities. Since the institutions in our sample are all profit maximizing firms, this assumption also seems plausible.

In estimating this type of model, the parameters are only identified up to a common scaling parameter. Following the existing literature (e.g. Dickstein and Morales (2018)), we fix the value of one parameter and estimate the others. Specifically, we scale our estimates so that the average cost per engagement across all institutions and all firms equals $10,000.[17] Importantly, the choice of scaling still allows both the costs and benefits to vary across funds and firms and all our main conclusions are invariant to this choice.

IV. Results

A. Baseline Estimates

In this section, we present the results of our discrete choice model, which allows us to estimate the benefits and costs of engagement across institutions, firms, and years. Formally, we estimate a discrete choice model of the form:

$$PrEngage_{ijt} = 1 - \Phi(b \cdot \kappa \cdot DV_{ijt} - c_{ijt}) \tag{5}$$

[16]Note that this evidence also suggests that several other explanations are unlikely. For example, behavioral motivations for engaging (e.g., a warm glow from engaging, private perquisites, etc.) should not generate a strong relation between the dollar value of holdings and the probability of engaging.

[17]The cost per engagement includes labor and overhead costs like data and travel. We thank two anonymous industry experts for helping us determine this number.

Recall that for each institution-year $\kappa_{it} = m_{it} \cdot (1 + \eta)/r_t$. We set $\eta = 1.162$ for active funds and 1.025 for passive funds following Dannhauser and Pontiff (2024), and r equal to the cost of capital for asset management firms in that year from Aswath Damodaran's website. Table I shows the sample average of κ for each institution, as well as the sample average of fees (m) for each institution. With κ, DV, and the observed engagement choices in hand, we estimate model (5) with a probit link function. The choice of model distribution does not drive our estimates; all estimates are similar if we use a logit link function instead.

We report the baseline estimates, by institution, in Table III. The estimated effect of engagement on firm value, averaged across institutions, is 0.35 basis points (bps). That is, the institutions in our data behave as if they expect engaging with a portfolio firm to raise the firm's value by 0.35 bps (0.000035) on average. The estimated effect of engagement on firm value is slightly larger for passive institutions (0.40 bps) than for active institutions (0.33 bps). There is substantial variation among institutions in the expected effect on firm value, ranging from 0.11 bps for T. Rowe Price to 0.85 bps for Vanguard. Overall, all of the expected benefit coefficients are strictly positive and are estimated with high precision.

On the costs side, the average cost of engagement for active institutions is \$10,148, compared to an average cost of \$9,705 for passive institutions. Active institutions have a higher average cost per engagement, with costs reaching \$13,907 for Axa. Wellington is an outlier with a very low estimated cost of engagement (\$1,410). In other words, relative to the dollar value of their holdings, Wellington engages much more frequently than the other institutions. We suspect this may be because Wellington prominently sub-advises funds at other institutions.

The findings beg a question: why do passive investors engage relatively less frequently than active investors? After all, the expected benefits of engagement to firm value are larger

for passive institutions (40 bps) compared to active institutions (33 bps) and passive institutions' costs are slightly lower on average. Column 3 of Table III provides the answer. We multiply each institution's estimated effect on firm value b by the expected fraction of value creation that the institution captures, κ, to produce the expected benefit of engagement to the institution itself. The results show that passive institutions expect to receive approximately one-quarter of the benefit from engagement (0.02 bps) that active institutions receive (0.07 bps). This is because passive institutions capture nearly four times less of *any* value creation at their portfolio firms, due to their lower fees (Table I, Panel B).

A.1. Endogeneity

Our discrete choice model provides an unbiased estimate of the benefits and costs of engagement under the standard identifying assumptions that (i) there are no unobserved confounders that jointly drive investor's holdings in a firm and engagement decisions (an omitted variable bias) and (ii) the costs and benefits of engagement do not determine holdings (a reverse causality bias). However, there are scenarios that could lead to violations of this assumption. For example, institutions might overweight portfolio firms with higher expected benefits and lower expected costs from engagement. To address these concerns, we instrument the holding size of each firm in each institution-year with the holdings of that same institution's passive funds. Because passive funds have little to no discretion to choose their holdings, it is unlikely an omitted variable could drive both their holding decisions and their engagement decisions. Moreover, passive funds cannot choose to overweight a company because of the cost or benefits from engagement since passive holdings are determined only by the weight of each firm in the fund's benchmark index and inflows and outflows to the

funds.[18]

The results are presented in the Internet Appendix Section A2. The instrumented estimates are similar to our main estimates presented in Table III, both on the cost and benefit side. We find similar results when we lag the instrumental passive holdings by one or more years, further distancing the holding size from the engagement decision. These findings suggests it is unlikely that an omitted variable bias or reverse causality bias significantly impacts our main conclusions.

As an additional check on our findings, the Internet Appendix Section A3 includes standard panel difference-in-differences estimates of the effects of engagement on firm value. In these estimates, we compare portfolio firms that were engaged versus those that were not, for two years before and after engagement. We find a small positive association between engagement and changes in firm value: engaged firms have equity returns that are 31 to 79 basis points higher per year post-engagement. However, due to the noise in stock returns, these estimates are less precise: none are statistically significant at conventional levels, and the 95% confidence intervals include both zero (indicating no effect of engagement) and our baseline estimates in Table III. That is, a standard panel difference-in-differences estimate yields results that are consistent with our baseline estimates, but less precisely estimated. This is because the structure that our discrete choice model imposes on the data leads to greater statistical power.

Another advantage of our model-based approach is that it is unclear over what time horizon we should expect engagement to improve firm value, or in what ways it should improve firm value. Instead, it is useful to know what implicit assumptions drive the engagement decisions of large institutional investors—that they act "as if" they expect engagement to

[18] "The unique feature of passive funds is that they are required to hold most public stocks regardless of whether their fund managers agree or disagree with the firms' policies." (Kakhbod et al., 2023)

produce small but non trivial increases in firm value. One may argue that perhaps institutions engage for reasons beyond strictly increasing firm value, such as addressing certain non-value-related social or environmental issues. However, funds' fiduciary duty largely rules this out. In survey responses, even dedicated ESG funds indicate that they would not sacrifice a *single basis point* of expected returns for socially beneficial aims (Edmans, Gosling, & Jenter, 2024). Additionally, Lowry, Wang, and Wei (2024) find strong support for the hypothesis that ESG engagement is value-driven.

B. Firm Characteristics and the Costs and Benefits of Engagement

When interpreting our baseline estimates, it is also important to consider heterogeneity in the expected benefits and costs of engagement. These are estimated from the dependence of the engagement decision on the dollar value of the holding, as highlighted in Figure 2. If the relative costs and benefits of engagement are heterogeneous across firms, then the estimate is a weighted average of the underlying values weighted by how marginal the engagement decision is. Put differently, if some firms have zero expected benefits of engagement they will never be engaged and their true benefit will not enter into the probit estimate. If some firms have large benefits of engagement, they will always be engaged and similarly their true benefit will not enter into the probit estimate. It follows that our model estimates are an average of the institution-firm-year expected benefits, weighted by how much they are on the margin of the engagement decision.[19]

Thus, in this section we examine how the costs and benefits of engagement vary with firm characteristics. We focus on three firm fundamentals: firm size measured by market capitalization, profitability measured by the return on assets (ROA), and corporate gover-

[19]Numerical simulations confirm that in the presence of heterogeneous expected benefits, our estimates are not an upper or lower bound on those benefits, but a weighted average as described above.

nance quality measured by the E-Index of Bebchuk, Cohen, and Ferrell (2008). We report the results in Table IV.

Our analysis reveals that, on average across all institutions, the cost of engagement is substantially higher for small firms compared to large firms ($12,248 compared to $7,501, respectively). However, engaging with small firms yields expected benefits of 6.4 bps, whereas engaging with large firms results in a benefit of only 0.42 bps. Thus, while engaging with smaller firms is more costly, the benefits of engaging with small firms are more than an order of magnitude larger. But even though the benefits are significantly higher, the small dollar value of positions in these firms make them less likely to be engaged. As a result, for small companies, the social benefit of engagement is likely much larger than the private benefit.

We also explore the interaction between corporate governance, firm performance, and the costs and benefits of engagement. The marginal effects in Table IV highlight that poorly governed firms with a higher E-index incur slightly higher engagement costs, without a significant increase in benefits. In other words, engagement is less effective when dealing with management that is entrenched. Additionally, we find that engaging with more profitable firms yields slightly lower expected benefits compared to engaging with less profitable firms, suggesting profitable firms have limited room for improvement.

C. Economies of Scale and Scope in Investor Engagement

In this Section, we examine how the costs and benefits of engagement vary with characteristics of the investing institution. We focus on institutional investor attributes that capture the scale and the scope of their portfolio. Kahan and Rock (2020) argue that large passive fund families have strong incentives to become informed because they have both economies of scale and scope. We empirically test this by examining the total AUM of the

institution (scale), as well as the number of firms in the institution's portfolio (scope). We estimate the model parameters separately for passive and active investors, and report the results in Table V.

In Panel A, we report the estimate for the four passive institutions in our sample. We find that a one standard deviation increase in the number of firms held (corresponding to an additional 80 firms) is associated with a $624 lower cost and zero change in the benefit of engagement. Conversely, a one standard deviation increase in total assets under management (corresponding to an additional $349B) is associated with a $566 higher cost and a 0.10 bps higher benefit of engagement. These marginal effects are all small and the marginal changes in benefits are not statistically different from zero. We conclude that passive institutions have slightly positive economies of scope and slightly positive, although statistically insignificant, economies of scale.

In Panel B, we report the estimate for the seven active institutions in our sample. We find that a one standard deviation increase in the number of firms held (corresponding to an additional 451 firms) is associated with a $149 higher cost and a 14 bps higher benefit of engagement. Further, a one standard deviation increase in total assets under management (corresponding to an additional $156B) is associated with a $2,437 lower cost but also with a 0.40 bps lower benefit of engagement. These findings suggest that as these institutions grow in assets under management, their marginal engagement decision becomes significantly less valuable. That is, for active institutions there are diseconomies of scale. This finding is intuitive, as there is a finite supply of positive net present value investments for active funds to take (Berk & Green, 2004). As a result, a larger fund will struggle to generate the same value as a smaller fund.

V. Counterfactual Scenarios

Finally, we use our model estimates to examine how institutional size affects engagement and value creation for the mutual fund industry. A prevailing concern is that the Big Three passive institutions wield too much power in corporate boardrooms by virtue of the fact that they control more than 20% of voting shares at nearly every U.S. public firm (Coates, 2024). The SEC has long expressed concerns about the rise of passive funds and the implications for monitoring (Lee (2021)),[20] and the rise of passive is ongoing: as of 2024 passive funds held just over 50% of all mutual fund assets (see link here). To speak to this issue, we explore two counterfactual scenarios for the continued growth of passive investing: growth through flows and growth through consolidation.

A. Growth through Flows

First, we analyze a counterfactual scenario in which passive investing increases to 90% of all mutual fund assets. Specifically, we take the holdings of each of our eleven sample families as of 2022 (the last year in which we have engagement data for all families). We then remove 80% of each holding by each active family, and split those shares equally among the four passive families.[21] This simulates the effect of a continued rise of passive investing to the point where 90% of mutual fund assets are held by passive institutions.

These changes have multiple effects on the economics of engagement with portfolio firms. First, the holding sizes of active funds decrease, which decreases their incentive to engage. Meanwhile, the holding sizes of passive funds increase, which increases their incentive to engage (Figure 2). Second, the benefits and costs of engaging at each institution change, es-

[20] Even the White House is exploring new measures to curb the influence of index-fund managers (link).

[21] Note: because we find that passive funds have little to no diseconomies or economies of scale or scope, equally allocating this capital to the four passive fund families should not significantly impact our estimates.

pecially for active funds because the benefits and costs vary with institutional characteristics, in particular scale (total assets under management) as shown in Table V.

Table VI displays the results of the counterfactual simulation. The first three columns replicate the actual engagement frequency for each institution, as displayed in Table I Panel A. Column 4 (Estimated) shows that our baseline model matches the actual engagement frequencies (column 3) closely for each institution. Columns 5 and 6 (Counterfactual) show the predicted propensity to engage and the delta relative to the baseline model of Column 4 when we move 80% of active families' assets into the passive families. We find that passive families are more likely to engage with their portfolio firms for two reasons: first, they have larger dollar holdings in each firm which provides a greater incentive to engage. Second, passive families benefit from a slight positive economy of scale. In other words, they experience slightly higher benefits from engaging as their total AUM increase, as shown in Table V. Both of these factors enhance passive families' tendency to engage with their portfolio firms as their holdings expand.

By contrast, active families experience large outflows in our simulation and their dollar holdings shrink. As a result, the active families all become less prone to engage with their portfolio firms. There is an opposing effect because active families have significant diseconomies of scale, as shown in Table V. Thus, shrinking their holdings increases their expected benefits to engagement and their incentive to engage. However, we see that this effect is dominated by the direct incentive effect from shrinking their holding size. As a result, as their holdings shrink, active families become less prone to engage.

Our model and data allow us for the first time to estimate the costs and benefits of fund engagement, and therefore the net value creation, for the mutual fund industry. We assume that the institutions in our sample have rational expectations—that is, the expected

costs and benefits are correct on average. In the counterfactual scenario, as passive investing increases to 90% of the industry, what happens to value creation both for fund investors and for society as a whole?

Table VII presents the implied costs and benefits of engagement in dollar terms across our sample. Overall, our estimates imply that the mutual fund industry spent $28.7 million on engagement activities in 2022. This engagement activity was estimated to produce $9.7 billion in additional firm value in total. Since each family holds a fraction of each firm, the value created for the investors of those families was $436 million.

In the counterfactual simulation, the *total* value created by passive families' engagement increases by $0.8 billion (from $5.7 billion to $6.5 billion) and the value created for the investors of passive funds increases by $99 million while the cost for passive funds increase only by $1 million. The results are explained by two reasons. First, because holding sizes increase passive funds are more likely to engage. Second, as passive families grow, the expected increase in firm value from engaging also increases due to their small but positive economy of scale. As a result, total value creation increases.

At the same time, the total value created by active families' engagement increases even more, by $6.4 billion (from $4 billion to $10.4 billion). This perhaps surprising prediction arises because, although active funds' holdings and engagement probability both decrease, the expected benefits of their engagement increase. Due to active families' diseconomies of scale, reducing their size enhances their expected value creation across all firms and investors. Consequently, the spillovers generated by shrinking active funds are greater than if the funds were larger, making the reduction of the active fund industry beneficial overall. However, the value generated for active fund investors by the fund engagement actually decreases by $16 million (from $42 to $26 million) while the cost decrease by only $5 million. This

suggests that it is not in the interests of active fund investors, nor in the interests of the fund's management (which collects a fixed fraction of that value creation) for active funds to shrink.

B. Growth through Consolidation

Next, we explore a second counterfactual scenario in which passive investing grows by consolidation. Specifically, we assume that the smallest active fund family in our sample (Robeco) is acquired by BlackRock and becomes part of the BlackRock fund family. This scenario echoes BlackRock's acquisition of Barclays Global Investors in 2009, for example.

Table VIII presents the results. The increase in BlackRock's AUM means that their incentive to engage grows slightly, both because of the increase in holding sizes and because passive funds have small positive economies of scale (Table V). The overall effect is that BlackRock's value creation increases from \$871 to \$899 million and BlackRock's total costs paid, value created for fund investors, and value captured by management all slightly increase as well. However, these increases, in particular value creation, are not sufficient to offset by the loss in value related to the disappearance of Robeco. As a result, value creation by all funds decreases by over \$200 million.[22]

Taken together, the data show clearly that passive funds engage less than active funds *ceteris paribus*, consistent with the findings in Heath et al. (2022) that passive funds are less active monitors. However, our model estimates and counterfactual scenarios suggest that the picture is more nuanced. Passive and active funds differ not only in their tendency to engage, but also in their economies of scale and in the fraction of value creation that they capture.

[22] At the same time, we observe that the total value captured by fund investors and fund management both increase slightly, suggesting that such consolidation could be incentive compatible for investors and fund managers while being detrimental to the market as a whole.

In particular, passive funds (but not active funds) become more efficient at improving firm value via engagement as their AUM increases, consistent with the theoretical predictions in Kakhbod et al. (2023). It is important to note, however, that our counterfactual simulations focus on shareholder value and do not capture potential externalities such as anticompetitive effects related to common ownership (Azar et al., 2018).

Our results also add nuance to the important prediction in Corum et al. (2024) that the rise of passive investing leads to better monitoring if passive funds replace retail investment, but worse monitoring if passive funds replace active funds. Our first counterfactual scenario shows that this conclusion depends critically on an assumption that passive and active funds have similar economies of scale. If active funds have diseconomies of scale, as our estimates suggest, then investor flows out of active and into passive funds could still result in improved monitoring and value creation. However, this scenario results in reduced fee income to active fund management, and thus can be expected to be opposed by the active fund industry. By contrast, our second scenario shows that growth through consolidation reduces aggregate value creation, but may benefit passive fund families and may not be opposed by acquired active families if the transaction is beneficial for fund managers. These results highlight the very large wedges between the socially optimal and privately optimal engagement decisions for large institutional investors.

VI. Conclusion

Institutional investors can monitor and influence the behavior of managers at their portfolio firms through three main activities: voting, exiting their positions, and engaging with managers. We provide the first estimate of the costs and benefits of engagement by em-

ploying a discrete choice model and novel data on the engagement activities of eleven large institutional investors.

Our results shed new light on the economics of investor engagement. We show engagement is a commonly used monitoring tool: both active and passive fund families engage with an average of 12% of their portfolio firms each year. Moreover, we find that engagement is primarily a financial decision: funds engage in a manner that maximizes the value they capture from improving the performance of their portfolio firms. Both active and passive fund families behave as if they expect engagement to have a modest but positive impact on firm value. Yet, we find passive institutions are less prone to engage because they internalize a smaller fraction of the benefits they create due to their low fees.

Using two counterfactual scenarios, we examine the implications of the continued rise of passive investing. While many academics, practitioners, and commentators argue that the rise of passive investing generates negative externalities, our findings show that its effects are more nuanced and depend on how passive funds grow and active funds shrink. When growth occurs through flows, value creation increases due to diseconomies of scale in active funds; when growth occurs through consolidation, value creation declines.

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DIMENSIONAL FUND ADVISORS

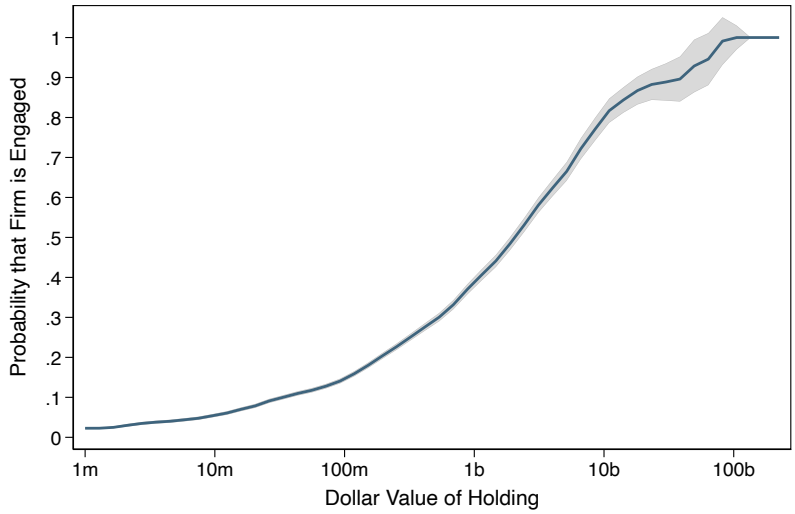
Appendix: Portfolio Companies Engaged in 2023

Dimensional conducted at least one engagement[11] with each of the following global portfolio companies during proxy year 2023.

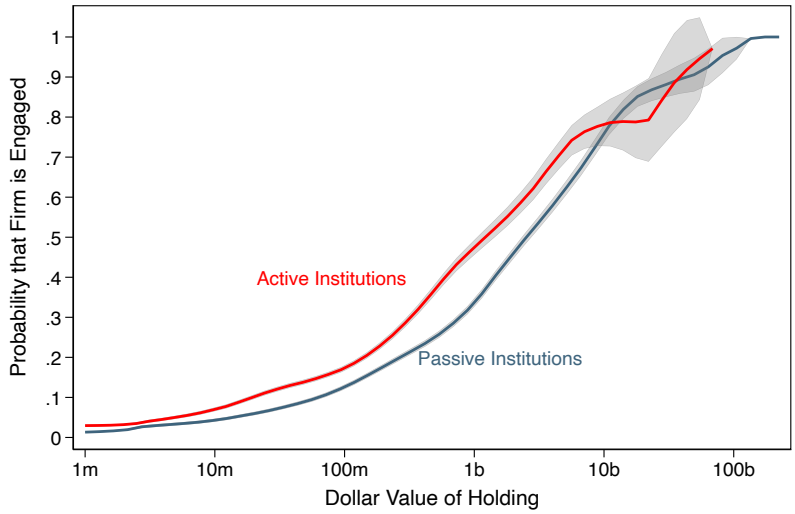
Company Name

2U Inc.
888 Holdings plc
A.G. BARR plc
AAR Corp.
Aareal Bank Group
Abbott Laboratories
ABM Industries Inc.
Acciona SA
Accor SA
Acer Inc.
Acerinox SA
Activision Blizzard Inc.
Alkermes plc
Allegiant Travel Co.
Alliance Pharma plc
Alphabet Inc.
Alto Ingredients Inc.
Altria Group Inc.
Amazon.com Inc.
Ambac Financial Group Inc.
Ambarella Inc.
AMC Networks Inc.
Amcor plc
Amerant Bancorp Inc.
APA Group
Apartment Investment and Management Co. (Maryland Incorporation)
Apogee Enterprises Inc.
Apple Inc.
Applied Materials Inc.
ARATA Corp.
ArcBest Corp.
Arcosa Inc.
Argan Inc.
Argo Group International Holdings Ltd.

Figure 1. Engagement Reporting. The figure shows a sample from the 2023 Stewardship Report for Dimensional Fund Advisors.



(a) Panel A: All Institutions



(b) Panel B: Active Institutions (Red) vs. Passive Institutions (Blue)

Figure 2. Engagement and Dollar Value Held. The figure plots the relation between the dollar value of an institutional investor's holding of a given firm (horizontal axis) and the probability that the firm is engaged by the institutional investor (vertical axis). Panel A shows the relation across all institutions in our sample, while Panel B splits the results into active institutions (Red) and passive institutions (Blue). Gray shaded areas represent 95% confidence intervals.

Table I
Summary Statistics

The table displays summary statistics of our sample. Panel A displays the average holding and engagement statistics for each institution. Panel B provides statistics for each institutions' AUM, fraction of passive AUM, the average annual management fee, weighted by the AUM for each fund offered by the institution, as well as the average κ, which represents the present value to the institution of increasing a portfolio firm's value by one dollar.

Panel A: Holdings and Engagement					
	(1) # Firms held	(2) Holding size ($m)	(3) # Firms engaged	(4) Fraction Engaged	(5) Sample period
BlackRock	3761.2	703.1	759.8	0.20	2019-2023
Vanguard	3776.0	847.0	614.8	0.16	2019-2023
State Street	3740.0	483.3	360.5	0.10	2022-2023
Northern Trust	3493.0	131.6	70.3	0.02	2020-2022
Axa	2583.2	79.5	63.6	0.02	2019-2023
Allianz	1387.0	54.2	55.3	0.04	2021-2023
Robeco	1145.0	91.8	71.3	0.06	2021-2023
Dimensional	2972.3	88.8	326.5	0.11	2020-2023
T Rowe Price	2803.7	309.2	313.0	0.11	2021-2023
UBS	2330.7	88.1	95.7	0.04	2021-2023
Wellington	1679.3	291.0	794.0	0.47	2020-2023
Average - All	2697.4	288.0	320.4	0.12	
Average - Passive	3692.6	541.2	451.4	0.12	
Average - Active	2128.7	143.2	245.6	0.12	

Panel B: Fund Characteristics				
	13F AUM ($B)	Fraction Passive	Weighted Fee (bps)	κ
BlackRock	2,792	0.87	16.9	0.064
Vanguard	3,120	0.78	5.1	0.019
State Street	1,516	0.96	8.9	0.034
Northern Trust	456	0.58	28.1	0.103
Axa	214	0.00	31.7	0.127
Allianz	77	0.00	75.7	0.298
Robeco	107	0.00	102.1	0.402
Dimensional	266	0.02	22.5	0.088
T Rowe Price	759	0.03	48.1	0.193
UBS	180	0.04	50.5	0.198
Wellington	482	0.00	20.5	0.081
Average - All	907	0.33	37.3	0.146
Average - Passive	1,972	0.80	14.8	0.055
Average - Active	298	0.02	50.2	0.198

Table II
Dollar Value Holdings and Institutional Engagement

The table displays OLS estimates of the relation between engagement by institutional investors and measures of the importance of the stock holding. *log($ Holding)* is the dollar value of the holding, *FractionFirmEquity* is the fraction of the firm's equity that is held by the institutional investor. *FractionInstAUM* is the weight in the institutional investor's portfolio that the holding represents. All independent variables have been standardized to have a standard deviation equal to 1. Robust standard errors clustered by firm are shown in parentheses.

	(1) Engaged	(2) Engaged	(3) Engaged
log($ Holding)	0.106***	0.076***	0.042***
	(0.004)	(0.004)	(0.006)
FractionFirmEquity	0.009***	0.041***	0.023***
	(0.003)	(0.003)	(0.006)
FractionInstAUM	0.030***	0.004	0.003
	(0.006)	(0.004)	(0.006)
Observations	110,166	109,641	103,488
Adjusted R-squared	0.256	0.319	0.382
Institution × Year FE	Yes	Yes	Yes
Firm × Year FE	No	Yes	Yes
Firm × Institution FE	No	No	Yes

Table III
Costs and Benefits of Engagement

The table displays estimates of the expected costs and benefits of engagement for institutional investors using the discrete choice model:

$$PrEngage_{ijt} = 1 - \Phi(b \cdot \kappa \cdot DV_{ijt} - c_{ijt})$$

The cost per engagement is expressed in dollars. The expected change in firm value and benefit to the institution are expressed in basis points (bps) per dollar invested. Robust standard errors clustered by firm are shown in parentheses.

	(1)	(2)	(3)
	Cost ($)	Δ Firm Value (bps)	Benefit to Fund Mgmt (bps)
Institution	c	b	$b \cdot \kappa$
BlackRock	$6,521 ($534)	0.18 (0.03)	0.02
Vanguard	$8,158 ($256)	0.85 (0.08)	0.02
State Street	$9,547 ($321)	0.45 (0.09)	0.01
Northern Trust	$14,593 ($384)	0.14 (0.04)	0.03
Axa	$13,907 ($375)	0.20 (0.06)	0.08
Allianz	$12,708 ($450)	0.21 (0.05)	0.10
Robeco	$12,328 ($534)	0.28 (0.03)	0.03
Dimensional	$9,147 ($287)	0.75 (0.11)	0.19
T. Rowe Price	$9,286 ($353)	0.11 (0.02)	0.03
UBS	$12,396 ($402)	0.14 (0.05)	0.01
Wellington	$1,410 ($331)	0.59 (0.11)	0.07
Average - All	$10,000 ($384)	0.35 (0.06)	0.05
Average - Passive	$9,705 ($374)	0.40 (0.06)	0.02
Average - Active	$10,148 ($390)	0.33 (0.06)	0.07
# Obs.	110,166		
Pseudo R^2	0.193		

Table IV
Costs and Benefits of Engagement: Firm Characteristics

The table displays the average estimated costs and benefits across the eleven institutions in the data, when the costs and benefits of engagement are allowed to depend on firm characteristics using the discrete choice model:

$$PrEngage_{ijt} = 1 - \Phi(b \cdot \kappa \cdot DV_{ijt} - c_{ijt})$$

Both accounting profit (ROA) and entrenchment (E-Index) have been standardized to have a zero mean and unit standard deviation. The cost per engagement is expressed in dollars. The expected change in firm value is expressed in basis points (bps) per dollar invested. Robust standard errors clustered by firm are shown in parentheses.

	(1) Cost ($) c	(2) Δ Firm Value (bps) b	(3) Benefit to Fund Mgmt (bps) $b \cdot \kappa$
Baseline:			
Small Cap	\$12,248 (\$2,237)	6.36 (2.52)	1.23
Mid Cap	\$11,314 (\$2,226)	1.63 (0.16)	0.32
Large Cap	\$7,501 (\$2,237)	0.42 (0.07)	0.08
Marginal Effects:			
ROA	\$-213 (\$236)	-0.08 (0.02)	-0.02
E-Index	\$729 (\$109)	0.01 (0.01)	0.00
#Obs.	49,388		
Pseudo R^2	0.231		

Table V

Costs and Benefits of Engagement: Economies of Scale and Scope

The table displays the average estimated costs and benefits across the four majority-passive institutions (Panel A) and the seven majority-active institutions (Panel B), when the costs and benefits of engagement are allowed to depend on institutional characteristics using the discrete choice model:

$$PrEngage_{ijt} = 1 - \Phi(b \cdot \kappa \cdot DV_{ijt} - c_{ijt})$$

Specifically, we examine economies of scale and scope by testing how costs and benefits vary as a function of the number of stocks held (scope) and by the log of total assets under management (scale). The number of stocks held (# Stocks Held) and log total assets under management (log(AUM)) have been standardized to have a zero mean and unit standard deviation. The cost per engagement is expressed in dollars. The expected change in firm value is expressed in basis points (bps) per dollar invested. Robust standard errors clustered by firm are shown in parentheses.

Panel A: Passive Institutions			
	(1)	(2)	(3)
	Cost ($)	Δ Firm Value (bps)	Benefit to Fund Mgmt (bps)
	c	b	$b \cdot \kappa$
Baseline - Passive	$9,819 ($641)	0.42 (0.08)	0.03
Marginal Effects:			
# Stocks Held	$-624 ($119)	0.00 (0.02)	0.00
log(AUM)	$566 ($394)	0.10 (0.08)	0.01
# Obs	55,645		
Pseudo R^2	0.144		
Panel B: Active Institutions			
	Cost ($)	Δ Firm Value (bps)	Benefit to Fund Mgmt (bps)
	c	b	$b \cdot \kappa$
Baseline - Active	$9,877 ($743)	0.33 (0.09)	0.06
Marginal Effects:			
# Stocks Held	$149 ($295)	0.14 (0.03)	0.04
log(AUM)	$-2,437 ($278)	-0.40 (0.08)	-0.10
#Obs.	54,521		
Pseudo R^2	0.254		

Table VI

Counterfactual: Growth through Flows – Probability of Engagement

The table displays the results of a counterfactual simulation using the estimates from our discrete choice model, assuming active funds shrink and passive funds grow until passive investing represents 90% of total assets under management in the U.S. mutual fund industry. The first three columns show statistics for our actual sample in 2022, the last year in which we have complete data for all eleven fund families. Columns (4), (5), and (6) show results using the model data. Column (4) shows the model's fitted estimates of propensity to engage. Columns (5) and (6) show the average rate of engagement with portfolio companies.

	(1)	(2)	(3)	(4)	(5)	(6)
	Data			Model		
	Held	Engaged		Estimated	Counterfactual	
Institution	#	#	%	%	%	Δ
BlackRock	4044	931	23.0%	24.3%	24.9%	+0.6%
Vanguard	4052	754	18.6%	19.2%	19.6%	+0.4%
State Street	3776	329	8.7%	10.9%	11.3%	+0.4%
Northern Trust	3801	52	1.4%	2.5%	3.0%	+0.5%
Axa	2635	120	4.6%	3.2%	0.6%	-2.6%
Allianz	1515	51	3.4%	5.1%	1.1%	-4.0%
Robeco	1168	61	5.2%	6.5%	1.5%	-5.0%
Dimensional	3029	310	10.2%	12.1%	2.2%	-9.9%
T. Rowe Price	3103	296	9.5%	12.5%	4.4%	-8.1%
UBS	2426	103	4.2%	4.5%	0.9%	-3.6%
Wellington	1763	862	48.9%	51.2%	21.6%	-29.6%

Table VII
Counterfactual: Growth through Flows – Value Creation

The table displays our model estimates for 2022, the last year in which we have complete data for all eleven fund families, and a counterfactual simulation assuming active funds shrink and passive funds grow until passive investing represents 90% of total assets under management in the U.S. mutual fund industry. The analysis shows the total fixed costs incurred (columns (1) and (2)), value created (columns (3) and (4)), value that accrues to fund investors (columns (5) and (6)), and value that accrues to fund management (columns (7) and (8)).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Total Costs ($M)		Value Created ($M)		Value to Fund Shldrs ($M)		Value to Fund Mgmt ($M)	
Institution	Estimated	Counterfactual	Estimated	Counterfactual	Estimated	Counterfactual	Estimated	Counterfactual
BlackRock	5.9	6.2	870.7	985.7	59.4	77.4	4.5	5.9
Vanguard	6.0	6.2	3372.2	3530.2	279.6	328.5	6.1	6.2
State Street	3.9	4.1	1278.6	1492.1	53.2	76.7	2.0	2.9
Northern Trust	1.3	1.6	211.7	538.2	2.4	11.2	0.2	1.6
Axa	1.1	0.3	78.2	905.7	0.5	1.1	0.1	0.2
Allianz	0.9	0.3	113.4	965.6	0.2	0.4	0.1	0.1
Robeco	0.9	0.3	233.8	730.1	0.5	0.3	0.2	0.3
Dimensional	3.2	1.0	1335.6	1217.5	5.9	0.9	0.5	1.0
T.Rowe Price	3.5	2.0	353.1	2202.9	9.7	13.0	2.2	2.9
UBS	1.3	0.4	59.3	1020.6	0.3	1.0	0.1	0.2
Wellington	0.7	2.4	1828.0	3418.5	24.5	9.3	2.2	0.9
Total – Passive	17.1	18.1	5733.2	6546.1	394.6	493.8	12.9	17.0
Total – Active	11.6	6.6	4001.4	10460.9	41.7	26.0	5.3	4.4
Total – All	28.7	24.7	9734.6	17007.1	436.3	519.7	18.2	21.5

Table VIII
Counterfactual: Growth Through Consolidation – Value Creation

The table displays our model estimates for 2022, the last year in which we have complete data for all eleven fund families, and a counterfactual simulation assuming that Robeco (the smallest active manager in our sample) is acquired by BlackRock (the largest passive manager in our sample). The analysis shows the total fixed costs incurred (columns (1) and (2)), value created (columns (3) and (4)), value that accrues to fund investors (columns (5) and (6)), and value that accrues to fund management (columns (7) and (8)).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Total Costs ($M)		Value Created ($M)		Value to Fund Shldrs ($M)		Value to Fund Mgmt ($M)	
Institution	Estimated	Counterfactual	Estimated	Counterfactual	Estimated	Counterfactual	Estimated	Counterfactual
BlackRock	5.9	6.0	870.7	899.1	59.4	63.3	4.5	4.8
...								
Robeco	0.9	0	233.8	0	0.5	0	0.2	0
...								
Total – Passive	17.1	17.2	5733.2	5761.6	394.6	398.4	12.9	13.2
Total – Active	11.6	10.7	4001.4	3767.6	41.7	41.1	5.3	5.1
Total – All	28.7	27.9	9734.6	9529.2	436.3	439.6	18.2	18.3

Internet Appendix: The Economics of Investor Engagement

December 13, 2025

Contents

A1 Robustness: Engagement with Dollar Value of Holdings

In this section, we replicate the analysis reported in Table 2 of the manuscript using a probit or logit model instead. Results are reported in Table A1.[1] We find that the dollar value of holding size continues to be the most important determinant of the decision to engage. The fraction of the firm's equity held by the institutional investor (*FractionFirmEquity*), and the fraction of the institutional investor's portfolio that the holding represents (*FractionInstAUM*) remain much weaker determinants of the decision to engage, and their addition does not significantly alter the relation with the dollar value of holding.

[1] Note that estimates with firm-by-year fixed effects are not numerically feasible for either the logit or probit model.

Table A1: The table presents estimates of what determines an institution's decision to engage with a portfolio firm. The three key measures of the importance of the holding are the log dollar value of the holding, the fraction of the firm's equity value, and the weight in the institution's portfolio. Robust standard errors clustered by firm are in parentheses. *: p <0.10, **: p <0.05, ***:p <0.01.

	(1)	(2)	(3)	(4)
	Engaged	Engaged	Engaged	Engaged
log($ Holding)	0.106***	0.101***	0.109***	0.104***
	(0.002)	(0.003)	(0.002)	(0.003)
FractionFirmEquity		-0.001		-0.001
		(0.002)		(0.002)
FractionInstAUM		0.009***		0.008***
		(0.003)		(0.003)
Observations	110,166	110,166	110,166	110,166
Pseudo R^2	0.318	0.319	0.319	0.320
Model	Probit	Probit	Logit	Logit
Institution x Year FE	Yes	Yes	Yes	Yes

A2 Instrumenting for Portfolio Holdings

One concern with our estimates is the potential for an endogeneity bias. Our discrete choice model provides an unbiased estimate of the benefits and costs of engagement under the standard identifying assumptions that there are no unobserved confounders that jointly drive investor's holdings in a firm and engagement decisions (an omitted variable bias) and that the costs and benefits of engagement do not determine holdings (a reverse causality bias). Alternatively, it could be that institutions increase their dollar holdings in anticipation of engaging with a particular firm, or that holding decision and engagement decisions are co-determined by unobservable factors.

To address this concern, we instrument each institution's total holdings of a given stock in a given year with the holdings from only its passive fund offerings. The motivation behind using passive fund holdings as an instrument is rooted in the notion that passive funds, by design, track a predetermined index. Thus, their holdings are unlikely to be influenced by the institution's active decision to engage with a firm, or any other unobservable factor. Passive funds typically adjust their holdings based only on inflows, outflows, and changes in index composition rather than specific strategic decisions about engagement with individual firms. Therefore, passive holdings are likely to be exogenous to the firm's specific characteristics that might prompt engagement, making them a valid instrument.

The implementation of this instrumental variables strategy involves two stages. In the first stage, we regress the institution's total holdings of each stock on the instrument, which is the institution's holdings within their passive funds. This regression allows us to isolate the portion of total holdings that can be attributed to exogenous factors unrelated to the institution's active engagement strategy. In the second stage, we use the predicted values from the first stage as an instrumented measure of total holdings in our discrete-choice model. By doing so, we can better estimate the causal effect of dollar holdings on the decision to engage with a firm, mitigating concerns about endogeneity and ensuring that our results reflect the true relationship between holdings and engagement. For all four of the passive families in our sample, the IV is strong because the majority of their holdings come from their passive funds. Among the active families for which we have data, only two (Dimensional and T. Rowe Price) have large enough passive holdings so that the IV is feasible.

Table A2 presents the results. We find that for all six institutions, the estimated costs and benefits are similar to the main estimates presented in the paper. The similarity in the estimates reinforces our confidence that our primary findings are robust and are unlikely to be contaminated by endogeneity. Thus, we conclude that the relationship between institutions' dollar holdings and their engagement decisions is indeed plausibly causal, and not explained by reverse causality or omitted variables.

Table A2: **Costs and Benefits of Engagement, Instrumenting for Institutional Holdings**

The table displays estimates of the expected costs and benefits of engagement for institutional investors. The "Baseline" column shows the baseline estimates using actual realized holding sizes as of December just prior to the year of engagement. In the"IV" column, the institution's December holding of each U.S. public firm is instrumented with the institution's December holdings by its passive fund offerings.

	Fixed Cost c ($)		Δ Firm Value b (bp)	
Institution	Baseline Estimate	IV	Baseline Estimate	IV
BlackRock	$6,521	$6,549	0.18	0.18
Vanguard	$8,158	$8,357	0.85	0.90
State Street	$9,547	$9,668	0.45	0.53
Northern Trust	$14,593	$14,832	0.14	0.17
Dimensional	$9,147	$9,061	0.75	0.57
T. Rowe Price	$9,286	$9,326	0.11	0.12

A3 Diff-in-Diff: Effects of Engagement Firm Value

In this section, we examine the consequences of engagement by institutional investors with conventional panel regressions. To conduct these analyses, we construct a stacked-cohort dataset. For each institution-firm-year observation in our main sample, we expand the sample to include the two firm-years before and the two firm-years after that engagement is observed. This allows us to compare engaged firms to those that are not engaged. For example, suppose that in 2021 BlackRock holds positions in Apple (AAPL) and Tesla (TSLA), and engaged with Apple but not with Tesla. We construct a new panel that contains Apple and Tesla in 2019, 2020, 2021, 2022 and 2023. Apple is coded as treated in the years 2021, 2022 and 2023, while Tesla acts as the control.

To the best of our knowledge, our sample represents the largest and most representative dataset of institution-by-firm engagement that has been examined to date. We caveat that engagement is naturally related to many firm characteristics and to endogenous information and expectations, so our comparisons cannot be considered as showing the causal effects of engagement.

However, even with the inherent endogeneity in the decision to engage, our analysis in this section is still informative. If institutions engage with all firms that are expected to yield positive returns, then we might see positive associations of engagement with firm value, but at the margin the causal effect of engagement might be zero or even negative. Conversely if engagement is pushing firms to sacrifice short-term gain for long-term or social payoffs that are not capitalized in the stock price, then we might see negative associations in the data. Yet neither of these scenarios is what we find. Instead we find zero associations, precisely estimated, between institutional shareholder engagement and subsequent changes to firm value, which is consistent with institutions' revealed expectations as estimated by our discrete choice model.

The results are reported in Table A3. In Panel A, we compare the yearly stock returns of engaged versus not-engaged firms held by the Big Three passive institutions. Column 1 shows that the average difference in unadjusted stock returns between engaged and not-engaged firms is 31 basis points per year. Columns 2 and 3 report the Fama-French 3- and 5-factor adjusted returns respectively. We find that the average difference in stock returns between engaged and not-engaged firms ranges between 73 and 94 basis points per year. Hence, engaged firms had modestly higher stock returns than not-engaged firms, but the point estimates are noisy and lack statistical power.

As a result, they are not statistically different from zero.

Importantly, these associations between engagement and firm value are also similar in size to the expected change in firm value that comes from our model estimates. Indeed, all of our estimates of the expected benefits of engagement for passive institutions in the main paper are within the 95% confidence intervals of the realized stock returns in Table A3.

In Panel B, we compare the yearly stock returns of engaged versus not-engaged firms held by active institutions in our sample. The conclusions are the same. There is no statistically significant association between engagement and firm value. The point estimates suggest modest increases in firm value on average (except in the case of the Fama-French 5 factor adjusted returns, which suggest no difference). Again, all of our estimates of the expected benefits of engagement are within the 95% confidence intervals of the realized stock returns in Table A3. Alternative estimates with or without firm, institution or firm-by-institution fixed effects and controls (not tabulated for brevity) show the same conclusion.

Overall, the fund-level discrete choice model and the firm-level ex post realized returns point to the same conclusion: On average, engagement by institutional shareholders has (at most) a modest positive impact on firm value, consistent with the institutions' revealed expectations.

Table A3: **Engagement and Firm Value**

The table displays estimates of the association between engagement and firm equity value (shareholder returns). The panel consists of the yearly log equity returns for engaged and not-engaged firms, for two years prior, the focal year, and two years after the focal year in which the firm was held by the institution. Standard errors clustered by firm are in parentheses; confidence intervals clustered by firm are in brackets.

Panel A: Passive Institutions

	(1) log(Rtn)	(2) log(Rtn^{FF3F})	(3) log(Rtn^{FF5F})
$Engaged_{ijt} \times PostFocalYear_{\tau}$	0.0031	0.0073	0.0094
	(0.0074)	(0.0074)	(0.0079)
	[-0.0114 , 0.0176]	[-0.0072 , 0.0218]	[-0.0061 , 0.0249]
$Engaged_{ijt}$	-0.0071	-0.0084*	-0.0085*
	(0.0049)	(0.0047)	(0.0050)
$PostFocalYear_{\tau}$	-0.0078***	0.0006	0.0012
	(0.0028)	(0.0029)	(0.0033)
Observations	113,464	112,787	112,787
Adjusted R-squared	0.2401	0.1804	0.1928
Firm FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes

Panel B: Active Institutions

	(1) log(Rtn)	(2) log(Rtn^{FF3F})	(3) log(Rtn^{FF5F})
$Engaged_{ijt} \times PostFocalYear_{\tau}$	0.0052	0.0020	-0.0002
	(0.0066)	(0.0065)	(0.0070)
	[-0.0076 , 0.0181]	[-0.0107 , 0.0147]	[-0.0140 , 0.0135]
$Engaged_{ijt}$	-0.0029	-0.0009	0.0002
	(0.0036)	(0.0035)	(0.0038)
$PostFocalYear_{\tau}$	-0.0195***	-0.0082***	-0.0071***
	(0.0021)	(0.0022)	(0.0025)
Observations	188,686	187,800	187,800
Adjusted R-squared	0.2567	0.1959	0.2072
Firm FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes

Variable	Cost ()	s.e. ()	Δ Firm Value (bp)	se (bp)
Size quintile 1	$18,821	($829)	19.940000	(4.51)
Size quintile 2	$16,600	($821)	7.710000	(1.1)
Size quintile 3	$14,979	($828)	2.190000	(0.3)
Size quintile 4	$13,918	($814)	1.050000	(0.09)
Size quintile 5	$11,903	($829)	0.320000	(0.07)
N Other Families Engaged	$-2,133	($39)	-0.010000	(0.003)