

Corporate Governance Implications of the Growth in Indexing

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Abstract

Passively managed funds have grown to become some of the largest shareholders in publicly traded companies, but there is considerable debate about the effects of this growth on corporate governance. The goal of this paper is to review the literature on the governance implications of passive fund growth and discuss directions for future research. In particular, we present a framework to understand the incentives of passive and actively managed funds to engage in governance, review the empirical evidence in the context of this framework, and highlight the questions that remain unanswered.

Keywords: passive funds, index funds, corporate governance, institutional investors, shareholder activism, engagement, stewardship, Big Three, voting

JEL Classifications: G23, G34, K22

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Summary

Passively managed (index) funds have grown to become among the largest shareholders in many publicly traded companies. Their large ownership stakes and voting power have attracted the attention of market participants, academics, and regulators, and have sparked an active debate about their corporate governance role. While many studies explore the governance implications of passive fund growth, they often come to conflicting conclusions.

To understand how the growth in indexing can affect governance, it is important to understand fund managers' incentives to be engaged shareholders. These incentives depend on fund managers' compensation contracts, ownership stakes, assets under management, and costs of engagement. Major passive asset managers, such as the Big Three (BlackRock, State Street, and Vanguard), may have incentives to be engaged even though they track the index and their engagement efforts benefit all other funds that track the same index. This is because such funds' substantial ownership stakes in multiple firms can both increase the effectiveness of their engagement and create relatively large financial benefits from engagement despite the low fees they collect. However, there is a difference between large and small index fund families: the incentives of the latter are likely to be substantially smaller, and the empirical evidence appears to be consistent with this distinction.

The governance effects of passive fund growth also depend on where flows to passive funds come from, which investors are replaced by passive funds in firms' ownership structures, how passive funds interact with other shareholders, and how their growth affects other asset managers' compensation structures. Considering such aggregate effects and interactions can help reconcile the seemingly conflicting findings in the empirical literature. It also suggests that policymakers should be careful in using the existing studies to understand the aggregate governance effects of passive fund growth over the past decades.

Overall, the literature has made important progress in understanding and quantifying passive funds' incentives to engage, their monitoring activities and voting practices, and their interactions with other shareholders. Based on the findings in the literature, there is yet no clear answer to whether passive fund growth has been beneficial or detrimental for governance, and there are many open questions remaining. These open questions suggest several important directions for future research in this area.

Keywords: passive funds, index funds, voting, institutional investors, shareholder activism, engagement, monitoring, stewardship, Big Three, corporate governance

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Introduction

The last two decades featured a remarkable growth of assets under management of passively managed (index) funds – funds that follow preset rules to form their portfolio, typically by matching the composition of a stock index created by a third-party. Domestic index mutual funds and ETFs managed more than half of assets under management of all domestic equity mutual funds and ETFs at year-end 2021 (Investment Company Institute, 2022; Fig. 2.9), and the Big Three index fund managers (BlackRock, State Street, and Vanguard) alone control over a quarter of shareholder votes on S&P 500 companies (Bebchuk and Hirst, 2019a). The growth in the voting power of passive funds has attracted the attention of market participants, academics, and regulators. For example, concerns about their outsized influence have led a group of senators to propose the INDEX Act, which would require passive funds to vote proxies in accordance with the instructions of fund investors.¹

The question of how the rise in passive ownership affects the corporate governance landscape is very much unsettled. While some studies find evidence that passive funds give managers less power (e.g., Appel, Gormley, and Keim, 2016, 2019), others show evidence of opposite effects (e.g., Schmidt and Fahlenbrach, 2017; Heath et al., 2022). There is also a significant debate among legal scholars about whether passive funds have a financial incentive to engage in the first place (e.g., Bebchuk and Hirst, 2019b; Lund, 2018; Fisch, Hamdani, and Solomon, 2019; Kahan and Rock, 2020; Sharfman, 2022).

The goal of this article is to present an economic framework to think about the incentives of institutional investors (and passive funds in particular) to engage in governance, and to review the existing empirical evidence in the context of this framework. The article also highlights the questions that are underexplored and discusses directions for future research. Given its focus on passive funds, the article does not provide a comprehensive survey of shareholder activism in general. Several other reviews have covered related topics: Edmans and Holderness (2017) and Dasgupta, Fos, and Sautner (2021) provide excellent surveys of the broader literature on governance by blockholders and institutional investors; Brav, Jiang, and Li (2022) survey the literature on hedge fund activism; and Brav, Malenko, and Malenko (2022) provide a survey of shareholder voting. The article also abstracts from the literature on common ownership, which often ties the growth in indexing to the rise in common ownership (e.g., Vives, 2020; Azar and Vives, 2021).

The Determinants of Institutional Investors' Engagement

This section presents a framework, which is based on Lewellen and Lewellen (2022a) and Corum, Malenko, and Malenko (2022), for understanding what factors affect the incentives of an institutional investor to engage with portfolio companies, and discusses passive funds' incentives to engage in the context of this framework. It starts by outlining different technologies that shareholders can use to increase value.

¹ See <https://www.sullivan.senate.gov/newsroom/press-releases/sullivan-introduces-index-act-to-empower-investors-and-neutralize-wall-streets-biggest-investment-firms>.

In their survey of institutional investors, McCahery, Sautner, and Starks (2016) show that institutional investors use a variety of different monitoring measures, which can be grouped into three broad categories:

1. *Communication (pure engagement/communication without any intervention tactics)*. This is the most popular form of shareholder engagement. Discussions with top management are used by 63% of institutional investors (McCahery, Sautner, and Starks, 2016). Also important are discussions with boards of directors outside of management (45% of institutional investors), proposing specific actions to management (35%), and aggressively questioning management on conference calls (30%).
2. *Intervention (voting, submitting shareholder proposals, activist campaigns, and proxy fights)*. Institutional investors vote on a variety of issues at shareholder meetings, and voting against management is used as a shareholder engagement measure by 53% of institutional investors. Sometimes institutional investors publicize dissenting votes (18% of institutional investors) and submit shareholder proposals to be voted on (16%). Finally, a subset of investors (hedge fund activists in particular) uses more confrontational tactics, such as running public activist campaigns and organizing proxy fights.
3. *Exit (trading out of the firm, the threat of which imposes discipline on the manager)*. Actively managed funds can and often do sell shares if they are dissatisfied with the company's performance or corporate governance. According to McCahery, Sautner, and Starks (2016), this tactic is used by almost half of the surveyed institutional investors. Such exit can provide incentives for management because of the associated decline in the stock price (Admati and Pfleiderer, 2009; Edmans, 2009).

The literature often groups the first two categories together and refers to their combination as “governance through voice” (i.e., taking active actions to improve value), as opposed to “governance through exit” (third category), which is a more indirect form of influence. Some shareholders use only one technology, but most use two or more. For example, hedge fund activists often start with private communication but if unsuccessful, use more interventionist tactics (e.g., Gantchev, 2013).

Given its focus on the governance role of passive funds, who cannot actively exit, this survey focuses on governance through voice (broadly referred to as engagement) and does not extensively discuss governance through exit, which is covered in the surveys by Edmans and Holderness (2017) and Dasgupta, Fos, and Sautner (2021). Note, however, that index funds can share some of the surplus from active investors selling on negative information through the share lending market, a theme explored in Mitts (2020).

Consider an investor who owns shares in a company and is deciding how much effort to put into engagement. This decision depends on two key factors:

1. **Benefits from engagement.** By engaging with the company, a shareholder can increase its value. If the shareholder can capture some of this value increase, it will have private incentives to engage.

2. **Costs of engagement.** Achieving a certain increase in value, even if feasible, is costly for the shareholder. These costs can vary across shareholders and, for a given shareholder, across different engagement technologies.

Benefits of Engagement

Consider an institutional investor, for example, a passive or active mutual fund, that owns some fraction of the company's shares. Suppose that the fund manager can increase the value of the company by 1% (e.g., by voting informatively and engaging with management). Typically, the fund manager will capture less than the full value of this value increase. What will be the fund manager's next year's payoff from this engagement? Building on Lewellen and Lewellen (2022a), we can write down this payoff as

$$\underbrace{f \times AUM \times w \times 1\%}_{\text{direct incentives}} + \underbrace{f \times \lambda \times AUM \times (w - v) \times 1\%}_{\text{flow incentives}}, \quad (1)$$

where f is the fee of the fund manager, AUM is the assets under management of the fund, w is the weight of the stock in the fund's portfolio, λ is the flow-performance sensitivity (defined as the percentage increase in the fund's AUM per 1% of its return relative to a benchmark portfolio), and v is the weight of the stock in the benchmark portfolio.

This payoff consists of two terms. First, an increase in the value of the portfolio company increases the value of total AUM of the fund (by $AUM \times w \times 1\%$) and thus the fees that the fund manager earns for asset management (fraction f of this increase). This effect, captured in the first part of equation (1), is what Lewellen and Lewellen (2022a) call *direct incentives*.

Second, an increase in the value of the portfolio can result in additional flows into the fund. This effect, captured in the second part of equation (1), is called *flow incentives* by Lewellen and Lewellen (2022a). By increasing the company's value by 1%, the fund generates an additional return of $(w - v) \times 1\%$ relative to the benchmark. This additional return results in an inflow of capital of $\lambda \times AUM \times (w - v) \times 1\%$, which allows the fund to collect additional management fees (fraction f of this inflow).

If γ denotes the fraction of the firm owned by the fund and MV the market value of the company, then $AUM \times w = MV \times \gamma$, so the fund manager's next year's payoff from engagement can be rewritten as:

$$\underbrace{f \times MV \times \gamma \times 1\%}_{\text{direct incentives}} + \underbrace{f \times \lambda \times (MV \times \gamma - AUM \times v) \times 1\%}_{\text{flow incentives}}, \quad (2)$$

The total payoff from engagement then depends on the present value of the fund manager's future annual payoffs from this engagement (see Section "Ownership Stake in the Firm" for details).

Eq. (1) and (2) should be thought of as capturing the fund's benefits from engagement in partial equilibrium, keeping the efforts of other shareholders the same. Shareholders' engagement decisions can be either substitutes (if one shareholder's engagement reduces the need for others to engage) or complements (as in the case of voting, when accepting a controversial proposal requires the combined

approval of multiple shareholders). Hence, the equilibrium incentives to engage depend on the interactions between multiple shareholders (see Section “Interactions between Shareholders”).

Eq. (1) and (2) imply that the benefits from engagement are affected by the following factors: (i) ownership stake in the firm γ ; (ii) compensation structure of the fund manager f ; and (iii) flow incentives. These individual factors, as well as their interactions, are discussed next.

Ownership Stake in the Firm

Regardless of the nature of the shareholder (e.g., whether it is a passive or active fund, or an individual investor who directly holds shares), the shareholder’s incentives to engage increase in its ownership stake of the firm: Eq. (2) is increasing in stake γ . This is the well-known free-rider problem of dispersed ownership: the shareholder underinvests in engagement if $\gamma < 1$. This underinvestment relates to the common argument that index funds have little incentive to monitor because “any investment in improving the performance of a company will benefit all funds that track the index equally” (Lund, 2018). While this argument is often made in the context of multiple passive funds targeting the same index, it also holds more generally for all shareholders, both active and passive, both direct and indirect.

For direct shareholders, i.e., shareholders that own shares directly rather than through intermediaries, their ownership stake is the sole determinant of their benefits from engagement. Indeed, a direct shareholder fully captures all the value increase in his ownership stake: $f = 1$ in eq. (1) and (2). In addition, the flow incentives component is zero in this case because there are no flows.

However, for indirect shareholders, i.e., intermediaries such as mutual and hedge funds, which manage money on behalf of other investors, the compensation structure of the fund manager and flow considerations also affect their incentives to engage. These factors are discussed next.

Compensation Structure of the Fund Manager

Consider a fund manager deciding on engagement and, for a moment, leave the flow considerations aside. Eq. (1) and (2) show that there is a second layer of the free-rider problem: Even if the fund owns 100% of the shares, the fund manager captures only fraction f of the value increase from engagement (e.g., Bebchuk and Hirst, 2019b). In other words, fund investors “free-ride” on the engagement effort of the fund manager: the fund manager pays the full cost, but fund investors get part of the benefits (this is because the fund manager pays the costs of engagement out of the fee revenue it collects). The lower the fee that the fund manager charges for asset management, the more important is this second layer of the free-rider problem. Thus, the compensation structure of the fund manager is another determinant of engagement incentives.

Note that parameter f in eq. (1) and (2) measures the fraction from the 1% increase in firm value that accrues to the fund manager. For mutual funds, where the management fee is typically a constant fraction of the fund’s AUM, f is determined by this fee. For hedge funds, where the compensation contract includes both an annual management fee and an incentive compensation for beating the benchmark, f will capture both. To understand how the total (present value) payoff from engagement is affected by the

fund manager's compensation contract, consider a simple quantitative example. For simplicity, the example focuses on the direct incentive component.

Consider an all-equity financed company with the current book value of assets of \$10 billion,² a constant return on book equity (ROE) of 10%, a payout ratio of 0.5, and a cost of equity capital of 10%. Given the payout ratio of 0.5 and the ROE of 10%, this firm will grow its assets, earnings, and dividends at a constant rate of $0.5 \times 10\% = 5\%$. Using the dividend discount model, its market value is $\frac{0.5 \times 10\% \times \$10B}{10\% - 5\%} = \$10$ billion, and this market value will appreciate at a 5% annual rate.

Suppose that through better governance, the fund manager increases the ROE of the firm by 0.05 percentage points, from 10% to 10.05%, while holding the investment policy (i.e., the growth rate of assets of 5%) unchanged. Given that the new ROE is 10.05% and the firm grows its assets at 5%, the firm can increase its next period's dividends to $(10.05\% - 5\%) \times \$10B = \505 million and the payout ratio on all future dividends to 5.05%/10.05%. The resulting market value of the firm will increase to $\frac{\$505M}{10\% - 5\%} = \10.1 billion, i.e., by 1%. Since the ROE and the new payout ratio will then stay constant over time and the firm grows its assets at a 5% annual rate, the market value of the firm will also appreciate at a 5% annual rate.

What will be the effect of this governance improvement on the present value of the fee income captured by the fund?

Mutual funds. First, suppose that the asset manager is a mutual fund, with an annual management fee of 0.5%, and that the fund plans to hold a 4% stake in this company in perpetuity.³ Then, the governance improvement will increase the fund's fee income this year by $0.5\% \times 0.04 \times (\$10.1 - \$10)$ billion. In addition, since the market value of the company grows at 5%, the \$0.1 billion increase in its value today will also grow at 5%, so the fee income will also grow at 5%. Since the fee income is proportional to the market value of the company's equity, the appropriate discount rate for the fee income equals the discount rate for valuing the equity cash flows, i.e., the cost of equity 10%. Thus, the present value of the additional fee income to the fund manager from this governance change is

$$\frac{0.5\% \times 0.04 \times \$0.1B}{10\% - 5\%} = \$400,000. \quad (3)$$

Hedge funds. Second, consider a hedge fund, which owns the same 4% stake in the firm, but collects a 1.5% management fee and a 20% performance fee on the return exceeding the market benchmark. Then, the present value of additional fee income from a \$0.1 billion increase in firm value (and hence a \$4 million increase in the ownership stake) today is

² This is relatively close to the market capitalization of a firm that is at the cutoff between the Russell 1000 and Russell 2000 indices: according to the 2021 Russell US Indexes Reconstitution report, companies at this cutoff had a \$5.2 billion market value. See https://content.ftserussell.com/sites/default/files/2021_russell_us_indexes_reconstitution_recap.pdf.

³ According to Lewellen and Lewellen (2022a), 0.5% is close to the average advisory fee of U.S. equity mutual funds during 1980-2017, this is also the number that Lewellen and Lewellen (2022a) pick for their baseline measures. According to Lewellen and Lewellen (2022b), 4% is the average and median stake of a firm's top 10 institutional blockholders across U.S. firms in 2015-2017.

$$\$4M \times 20\% + \frac{\$4M \times (1-20\%) \times 1.5\%}{10\% - 5\%} = \$1.76 \text{ million.} \quad (4)$$

The first term represents the performance fee: the hedge fund captures 20% from the \$4 million increase in the value of the stake via the performance fee. Essentially, the governance intervention leads to an increase of firm value from \$10 billion to \$10.1 billion at the time of the intervention, representing a 1% excess return over the market benchmark. Given that the improvement in the ROE becomes priced in as soon as the intervention occurs, the firm is not expected to generate any excess return above the market benchmark after the intervention. Hence, the intervention only leads to a one-time performance fee of \$0.8 million. In addition, the intervention increases the value of the hedge fund's AUM by $\$4M \times (1 - 20\%)$, which results in higher management fees every year. Given that the market value of the firm is expected to grow at 5%, the present value of this higher management fee income is given by the second term in equation (4) and equals \$0.96 million.

Note that because the performance fee occurs only once, while the increase in management fees occurs in perpetuity, the management fee (second) term is larger than the first, even though the management fee of 1.5% is smaller than the performance fee of 20%.

While the details of this calculation depend on the form of the contract and the assumptions over how to discount fee income over time, the general point is that the fund manager's incentives to engage are determined by the contract and are lower if it charges lower fees.

The example also has several additional implications. First, the calculations have assumed that the fund manager intends to hold its stake in the company indefinitely. While this is a reasonable assumption in the context of index funds, an active fund is likely to sell its stake at a certain point relatively soon. Since the fund's engagement efforts allow it to sell the firm for a higher price, today's engagement will still increase the fund's AUM, and hence its management fees, even after the sale, so the perpetuity part in eq. (3) and (4) will remain. Moreover, the fund can reinvest these higher AUM into other companies and increase their value as well, which would amplify the return on its original engagement. Effectively, this means that the perpetuity growth rate in eq. (3) and (4) will be higher than 5%. Thus, for active funds, especially those that buy and engage with new companies frequently, the present value of additional fee income from a \$1 increase in the value of the current firm is even higher than eq. (3) and (4).

Second, eq. (3) and (4) imply that all other things equal, a lower cost of equity for the company increases the fund manager's incentives to engage because it leads to a higher present value of the payoff from engagement. This has potential time-series and cross-sectional implications. First, it suggests that if the market risk premium has declined over the past two decades (which is consistent with the observed high valuation multiples; see, e.g., Lettau, Ludvigson, and Wachter, 2008), then fund managers' incentives to engage should have increased. Second, in the cross-section, funds investing in different types of firms (e.g., small cap vs. large cap) may have different incentives to engage not only because they collect different fees or because their portfolio firms differ in their potential for improvement, but also because of their portfolio firms' different costs of equity.

The Combined Effect of Ownership Stakes and Fund Managers' Compensation

Since management fees are particularly low for index funds, the second layer of the free-rider problem – between the fund management and fund investors – is especially severe for index funds, leading to the argument that they have strong incentives to underinvest in stewardship (e.g., Bebchuk and Hirst, 2019b). However, the discussion of fees cannot be separated from the discussion of ownership stakes because the fund’s combined incentives to engage are the product of f and γ (see eq. (2)). While index funds have low fees, they are often the largest shareholders of the companies in their portfolio, and the product of f and γ could be larger for major index fund managers than for actively managed funds with small stakes. This can also be seen in eq. (1), which shows that the fund’s benefits from engagement depend on $f \times AUM$. A major index fund manager has very large AUM, which can compensate for its low management fees.

In particular, Kahan and Rock (2020) and Lewellen and Lewellen (2022a) estimate financial incentives of index funds to be engaged with their portfolio companies and compare them to other institutional investors. Kahan and Rock (2020) conclude that the Big Three index fund managers (BlackRock, Vanguard, and State Street) “have among the strongest direct financial incentives” to be engaged. Lewellen and Lewellen (2022a) find that for the five major index fund managers (The Big Three, Dimensional, and Schwab), their dollar incentives to engage exceed the incentives of an average institution: a 1% increase in the value of a typical stockholding increases their annual management fees by \$133,000 (compared to \$84,400 in direct incentives and \$129,000 in total incentives for the average institution in their sample). Moreover, as Lewellen and Lewellen (2022a) show, these large index funds’ incentives to increase value are comparable in magnitude to those of activists, i.e., 13D filers.

The substantial direct incentives of the large index asset managers estimated in the data are due to the tension between fees and scale: although they charge substantially smaller management fees than actively managed funds, their large AUM and ownership stakes can offset the effect of small fees. This suggests that empirical research should not treat all index funds in the same way. For small index funds, the benefits from engagement are likely to be low (and lower than those for active funds) given the combination of their low fees and low ownership stakes. In contrast, this may not be true for the Big Three, whose ownership stakes are substantial and exceed those of active funds. Section “Evidence on Voting and Governance Research by Active and Passive Funds” reviews the evidence consistent with this distinction.

The tension between fees and scale also arises in Corum, Malenko, and Malenko (2022), who theoretically examine whether the growth of passive funds is beneficial for governance. In their model, investors allocate their wealth between three options: investing with an active fund, investing with a passive fund, and saving privately. To access a fund manager, investors need to pay a search cost, which is interpreted as the cost of searching for relevant information about funds and spending time to understand it. When trading in the market, the active fund exploits undervaluation of the shares due to the presence of liquidity (“noise”) traders. Thus, the active fund generates higher returns than the passive fund, but it also charges higher fees, so that in equilibrium, investors are indifferent between investing with an active and a passive fund.

Corum, Malenko, and Malenko (2022) study the effects of easier access to passive funds (stemming, for example, from their increased inclusion in 401(k) plans, increased investor awareness about index funds, or improved disclosure about fund fees), which they capture by a reduction in the corresponding search costs. Easier access to passive funds reallocates investor capital from the active fund and private savings to the passive fund, and also lowers the fees of both types of funds. The authors conclude that the effect of passive fund growth is non-monotonic: initial growth in passive funds improves governance, but further growth harms it. Intuitively, this is because initially, most of the capital that flows to the passive fund comes out of investors' private savings, and the reduction in fund fees is not very large. Hence, funds replace retail shareholders in firms' ownership structures and their combined ownership stakes increase, whereas fund fees do not decline too much, so funds' overall benefits from engagement (the product of fees and ownership stakes) increase. However, once access to passive funds improves even further, flows into the passive fund start coming at the expense of investors' allocations to the active fund. Then, the passive fund primarily replaces the active fund, rather than retail investors, in firms' ownership structures. Moreover, both active and passive fund fees decline significantly since funds start strongly competing for investor capital. As a result, funds' benefits from engagement decrease, both because of this reduction in fees, and because active funds (with higher fees and hence higher benefits from engagement) are replaced by passive funds. As a result, the overall degree of shareholder engagement declines.

The tension between fees and scale arises in Corum, Malenko, and Malenko (2022) as follows. They show that as access to passive funds becomes easier, fees decline, but this reduction in fees occurs simultaneously with an increase in passive funds' AUM and ownership stakes. In other words, fees do not change in isolation, and hence a decrease in fees is not necessarily accompanied by lower engagement incentives of fund managers. In particular, as their paper shows, passive fund engagement and the overall quality of corporate governance can improve even if fund fees decline.

To conclude this discussion, it is important to make four points.

1. First, the discussion of engagement incentives has focused on the benefits from engagement and has not accounted for the associated costs, which are covered in Section "Costs of Engagement." Lewellen and Lewellen (2022a) point this out and note that the dollar benefits from engagement (i.e., the present value in eq. (3) and (4)) can be interpreted as the upper bound on the costs that the fund manager would be willing to pay to increase firm value by 1%. Of course, the costs of increasing value by 1% are heterogeneous across firms. For example, such costs could be very large for well-governed and efficiently run firms; these costs are also likely to be larger for bigger firms. Since a fund manager's equilibrium effort depends on both costs and benefits of engagement, aggregating the incentives to engage across multiple firms in a fund's portfolio may be difficult: it needs to account for the heterogeneity in the corresponding costs.
2. Focusing on the benefits of engagement and not considering the costs may also complicate the comparison of incentives across shareholders of different size and different type. First, the costs of increasing firm value by 1% may be higher for a small shareholder compared to a large institutional blockholder (or, equivalently, the effectiveness of effort is higher for large blockholders). Second,

index funds do not choose which stocks to hold, whereas actively managed institutions do. For example, hedge fund activists specialize in holding underperforming and poorly governed firms. This endogenous portfolio selection implies that the cost of increasing firm value by 1% for an average firm in a hedge fund activist's portfolio will likely be smaller than the corresponding cost for a fund that does not specialize in holding underperforming companies (e.g., an index fund or an actively managed fund that primarily invests in high-quality firms undervalued by the market).

3. Third, a popular critique of index funds is that they lack financial incentives to engage because they only care about tracking the index rather than beating it. The framework and estimates presented in Section "Compensation Structure of the Fund Manager" suggest that this argument is not precise: engagement can increase the fees collected by the index fund manager by increasing the value of its AUM, and these "direct incentives" can be quantitatively significant for large index fund managers. Moreover, index funds may have incentives to engage even though multiple index funds track the same index and free ride on each other's efforts.⁴ The fact that index funds track the index becomes more important when thinking about index funds' flow incentives (see Section "Flow Incentives").
4. Finally, it is informative to benchmark the incentives of index funds against those of direct shareholders. On the one hand, direct shareholders fully internalize the value increase in their stake (i.e., $f = 1$ in the first term of eq. (2)), while index funds only internalize a small part of this value increase given their small fees. On the other hand, index funds collect higher management fees from the resulting increase in their AUM *in all subsequent years* (and these fees are even likely to grow over time; see eq. (3) and the related discussion), whereas direct shareholders' benefits are restricted to a one-time increase in firm value today. Combined with index funds' substantially larger ownership stakes, this second consideration implies that the incentives of index fund managers may be larger than those of many direct shareholders.⁵ Kahan and Rock (2020, p. 1786) make such a comparison, but also factor in the greater ability of index funds to affect outcomes given their larger ownership stakes. Assuming that a shareholder's ability to affect the voting outcome is proportional to its stake in the firm, they conclude that Vanguard's incentives to vote informatively are equivalent to those of a direct shareholder who owns about one-twelfth of the number of shares held by Vanguard.

Flow Incentives

⁴ To see this, suppose there are two index fund managers with identical portfolios. There can exist an asymmetric equilibrium in which one of the fund managers is "engaged" and the other does nothing. Indeed, anticipating that the second fund manager does not engage, the first fund manager's benefits from engagement are given by the first term in eq. (1) and (2). This benefit can be substantial and, if the costs of increasing value are not too large, will lead the fund to engage (this is because the fund manager's costs of engagement are subtracted from its fee revenues and do not decrease either the fund investors' returns or the fund's ability to track the index). It is then optimal for the second fund to do nothing.

⁵ For example, given stake γ , a 10% discount rate, a 5% growth rate, and a 0.15% management fee (which is approximately in the middle of the 0.11% to 0.24% fee range for indexers estimated by Lewellen and Lewellen, 2022a), the index fund manager's present value of the additional fee income from a 1% increase in firm value is $MV \times 1\% \times \gamma \times \frac{0.15\%}{0.10 - 0.05} = MV \times 1\% \times (0.03 \times \gamma)$. That is, the index fund manager's benefit from a 1% increase in firm value is similar to that of a direct shareholder with a stake of $0.03 \times \gamma$.

The second component of a fund manager's incentives to engage in eq. (1) and (2) captures flow considerations. Intuitively, by engaging with a portfolio company and increasing its value, the fund manager can generate additional returns, which can result in an inflow of additional capital into the fund, increasing the fee income of the fund manager in the future.

In general, it is difficult to estimate this component, because it is harder to observe compared to the direct benefits of engagement. Lewellen and Lewellen (2022a) measure it in the following way. They estimate the flow-to-performance relationship of fund flows to the benchmark-adjusted return, and the excess weight of a stock in the fund's portfolio compared to the benchmark. Assuming that this estimated flow-to-performance relationship is also valid for returns generated by engagement, they estimate the flow incentives for an average institution in their sample to have quantitatively about the same magnitude as the direct incentives from management fees.

Note that the flow incentives measured this way should be close to zero for index funds because the index funds' stockholdings are approximately equal to the benchmark (the index). This is exactly what Lewellen and Lewellen (2022a) conclude: in their data, only a small part of total incentives for index funds comes from flow incentives. Thus, while index funds need not have lower direct incentives than actively managed funds, their flow incentives will typically be lower. As Bebchuk and Hirst (2019b) put it, "competition with other index funds gives index fund managers precisely zero additional incentives to invest in stewardship for any of their portfolio companies."

Several further comments related to flow incentives are warranted.

1. First, the magnitude of flow incentives may depend on the underlying reason for flow-to-performance sensitivity. Such sensitivity arises because investors use the fund's current performance to update their beliefs about the fund's ability to generate returns in the future, which can arise for two broad reasons: (i) the fund's skill in stock selection and/or market timing (Berk and Green, 2004); and (ii) the fund's skill in monitoring and engagement. In general, the flow-to-performance sensitivity can differ depending on the source of performance (stock selection vs. engagement), and it is an important avenue for future research to study whether this is the case.⁶ For example, with rational capital markets, the fund's ability to generate superior future returns due to a skill in monitoring may be limited: any improvement in the fund's reputation for being a responsible steward will trigger immediate appreciation of the market value of the current and expected future stock holdings of the fund (e.g., Admati, Pfleiderer, and Zechner, 1994; Corum, Malenko, and Malenko, 2022). As a result, the fund can only create returns via governance through its future unanticipated trades. Hence, if the fund trades relatively rarely or its future trades are anticipated (like for index funds), its ability to generate superior returns in the future may be more limited.
2. The estimation of flow incentives is further complicated by the fact that it depends on investors' information set, which may be unknown to the researcher. Specifically, when investors see

⁶ As Lewellen and Lewellen (2022a) put it on p. 218, "An implicit assumption here is that *Flow* reacts the same to all sources of relative performance, whether from luck, stock-picking skill, engagement activities, etc."

overperformance relative to the benchmark, they can attribute it to (i) fund's stock selection skill or (ii) engagement. The flow-performance sensitivity that is observed in the data (and is estimated in Lewellen and Lewellen, 2022a) reflects both these effects. To quantify the fund manager's incentive to engage to attract flows with higher precision, it is important to know: 1) whether investors observe if overperformance is due to stock selection or engagement; 2) whether investors observe the fund's portfolio weights; and 3) assuming investors know that overperformance is due to shareholder engagement, whether they can easily attribute it to the engagement of specific fund managers. To expand on the last point, shareholders' engagements with management are often private, and each company has multiple shareholders, making it harder for investors to infer which shareholder was responsible for the value increase.⁷

A few theory papers go into more depth in exploring how fund managers' concerns about flows affect their incentives to engage. Brav, Dasgupta, and Mathews (2022) study parallel engagement by multiple funds that compete for investor capital. Funds can be of two types: skilled funds have relatively low costs of engagement, while unskilled funds' costs of engagement are very large. Assuming that all capital from fund investors is reallocated to the set of funds with the highest reputation for being skilled, the authors show that fund managers' concerns about attracting flows will increase their incentives to engage, overcoming the free-rider problem. On the other hand, Song (2017) points out that concerns about flows can, on the contrary, decrease fund managers' incentives to engage. In his model, a fund with poor stock selection skill is more likely to invest in a bad firm. Later, once the fund learns that the firm is bad, it can intervene to increase its value. However, the fund is reluctant to do so because its intervention reveals that the fund had invested in a bad firm, which leads investors to negatively update about its stock selection skill. In future research, it will be interesting to empirically examine whether each of these competing effects plays a role and in which circumstances. Finally, Burkart and Dasgupta (2021) highlight that competition for flow can trigger short-termism by activist investors.

3. Third, empirical evidence suggests that mutual fund flows respond to unadjusted raw return performance, not only to excess performance over a market benchmark (Del Guercio and Tkac, 2002). Relatedly, while there are many index funds tracking the same index, empirical evidence suggests that the market is far from the case of perfect competition because of substantial search and switching costs (Hortacsu and Syverson, 2004; Choi, Laibson, and Madrian, 2010), especially regarding retirement savings in 401(k) plans. Thus, it is possible that the most relevant outside option to investing a dollar in a Fidelity S&P 500 fund is not investing a dollar in a Vanguard S&P 500 fund, but rather saving a dollar less for retirement. In this case, improving the performance of an index can result in flow incentives because investors save more, even though the improved performance is shared by all funds tracking the same index. This suggests that flow incentives may be present for index funds as well.

⁷ This inference problem is somewhat similar to the inference problem about fund managers' stock selection skill: superior portfolio performance could be due to stock selection skill but could also be due to pure luck.

4. Fourth, fund flows may respond to funds' engagement efforts not only because investors care about performance, but also because they have non-monetary incentives (e.g., Sharfman, 2022). This consideration can explain why certain asset managers, such as BlackRock, regularly advertise their engagements with companies.⁸ As Fisch, Hamdani, and Solomon (2019) put it, "active governance may serve a branding or marketing function."
5. Fifth, in the discussion of the effects of fund flows, it is important to think about the sources of flows: if, by engaging, an institution attracts capital from other institutional investors, then those other investors' AUM, and hence their direct incentives, are likely to decrease. It is thus important to think about the aggregate effects of flows, taking into account which types of institutional investors are crowded out, and how this affects all shareholders' combined incentives to engage. This aspect is discussed in more detail in Section "Indirect Interactions."
6. Finally, our framework focuses on how concerns about flows affect investors' incentives to engage in voice. Flow concerns can also affect the effectiveness of governance through exit, as has been pointed out by Dasgupta and Piacentino (2015) and Cvijanovic, Dasgupta, and Zachariadis (2022).

Access to Private Information

There is one other component of benefits from engagement, which is absent from eq. (1) and (2). Monitoring and intervention can generate private information to the shareholder, which it could later exploit through trading activities. For example, Becht, Franks, Wagner (2021) use proprietary data from a large active asset manager and show that its trading and engagement activities are tightly linked, concluding that engagements generate information advantages that are used for trading. While this component is absent for passive funds since they have no trading discretion, it may be relevant for active funds, as well as for fund families that have at least some active funds. The magnitude of this component is limited if the law restricts selective disclosure of important information, such as, for example, Regulation FD (Fair Disclosure). Moreover, as Fisch, Hamdani, and Solomon (2019) point out, the fear of losing access to valuable information for stock-picking may even act in the opposite direction and lead the fund family to refrain from voting against or criticizing management. It will therefore be interesting to understand how the incentives coming from this last component compare to the incentives coming from direct and flow incentives.

Costs of Engagement

While engagement with portfolio companies comes with benefits, it does not come without costs. These costs depend on the specific technology a shareholder uses to engage. To understand how the costs vary

⁸ For example, BlackRock reveals detailed information about its engagements with portfolio companies and voting practices in its annual stewardship reports, and BlackRock's CEO Larry Fink's annual letters to CEOs receive substantial public attention.

across shareholders, it is useful to first list the types of costs involved in engagement. They can be broadly classified into the following categories:

1. **Costs of acquiring information.** To make suggestions to the management on how the company should be run or to vote in a value-maximizing way, a shareholder needs to have information on what the right course of action should be.
2. **Direct costs of engagement.** These costs include a variety of explicit costs involved in engaging with management or running an activist campaign: time and effort spent in communication and negotiations; legal costs; costs of disclosure; filing costs; hiring proxy solicitors, governance experts, and public relations firms. The magnitude and types of these costs depend on the specific activism tactics used and how confrontational they are (e.g., private engagement vs. a proxy fight).
3. **Indirect costs of engagement.** Examples include the costs of alienating the management (and hence jeopardizing potential business ties with the company or losing access to valuable information) or reputational costs of being known for a confrontational approach.

How do these costs differ between index funds and other types of shareholders?

Differences in Costs of Engagement

1. Costs of information. Kahan and Rock (2020) and Fisch, Hamdani, and Solomon (2019) point out that index funds differ from actively managed funds in the types of information they have expertise in collecting and analyzing, which, in turn, affects their engagement strategies. In particular, hedge funds and actively managed mutual funds are likely to have an advantage over index funds in identifying *firm-specific* operational or financial issues since they either specialize in collecting such type of information or generate such information as a byproduct of their investment activities. In contrast, as these papers argue, index funds are in a good position to be informed about *broad, market-wide* issues, such as corporate governance standards, because of their diversified portfolios: they can enjoy the economies of scale in collecting such information and can also use information from past votes in one company to be more informed about future votes at other companies.

In addition, index funds may differ from other shareholders in the type of information they have incentives to collect, because unlike actively managed funds, index funds cannot exit and can only govern through voice. For example, negative information about the firm that is already known to the market will not allow exiting at a profit but may still be useful for governance through voice, so an index fund may have relatively stronger incentives to acquire such information compared to an actively managed fund.

2. Direct costs of engagement. Index funds are also likely to differ from actively managed funds in their direct costs. On the one hand, hedge fund activists have the expertise, infrastructure, and connections to be efficient at running activist campaigns and proxy contests. Moreover, engagement on issues that can be classified as having “a purpose or effect of changing or influencing control of the issuer” (such as proposing to sell the firm or appoint new directors) could require a fund to file Schedule 13D as opposed to Schedule 13G (see SEC Regulation 13D). As Bebchuk and Hirst (2019b) and Morley (2018) highlight, 13D filings are significantly more extensive than 13G filings and need to be filed much more frequently, so

given the frequency of trading by index funds, making these additional extensive disclosures would be prohibitively costly and time consuming.⁹ Together, these arguments suggest that index funds are likely to have large costs of engaging on issues that are the common focus of hedge fund activists' campaigns.

On the other hand, given their large, diversified holdings, large passive asset managers are likely to enjoy the economies of scale in setting market-wide standards (e.g., Kahan and Rock, 2020; Fisch, Hamdani, and Solomon, 2019). Such economies of scale can be realized through passive fund managers' own proxy voting guidelines (e.g., Couvert, 2021); through broad influence campaigns (e.g., Gormley et al., 2021); through funds' communication with proxy advisors and influencing proxy advisors' voting guidelines; or through spillover effects, whereby companies in their portfolios preemptively adopt certain practices after seeing their stance on these practices at other companies.¹⁰

Another advantage of the major passive fund managers relative to actively managed funds is their large stakes in portfolio firms. Large stakes not only increase their benefits from engagement, but may also decrease their costs. For example, large passive asset managers are likely to be pivotal voters in proxy contests (Brav et al., 2022) or votes on contentious shareholder proposals, allowing them to have a strong impact through voting without incurring the costs of soliciting other shareholders' votes. Furthermore, the substantial voting power of large passive asset managers that they can use if management is unresponsive to their demands gives them stronger leverage in their communication and negotiations with management, decreasing the costs of such engagements as well. This argument further emphasizes the important difference between large and small index fund families: not only their benefits from engagement, but also their costs of engagement, can be very different.

3. Indirect costs of engagement. Whether the indirect costs of engagement are higher or lower for passive funds compared to other shareholders is not clear. On the one hand, Bebchuk and Hirst (2019b), Fisch, Hamdani, and Solomon (2019), and Lund (2018) argue that the Big Three index fund managers have incentives to be especially deferential to management because of business ties, notably, their benefits from managing companies' 401(k) plans or by having their funds being included in the menu of investment options available to the company's employees (e.g., Davis and Kim, 2007; Ashraf, Jayaraman, and Ryan, 2012; Cvijanovic, Dasgupta, and Zachariadis, 2016). In addition, Bebchuk and Hirst (2019b) highlight the potential indirect costs coming from public and political backlash, as a reaction to the Big Three's growing power, and argue that they can reduce such costs by being deferential toward management. On the other hand, Kahan and Rock (2020) hypothesize an opposite effect: the Big Three are likely to "have strong

⁹ Specifically, form 13D needs to be filed within 10 days after each acquisition and subsequent change in holdings, whereas form 13G only needs to be filed once a year. Consistent with the idea that 13D filings would be prohibitively for index funds given their business model, Heath et al. (2022) find that in the subsample of filings in their data that are verifiably by index funds, not a single index fund filed form 13D. Bebchuk and Hirst (2019b) present similar evidence on 13D filings; they also show that out of 3,800 director nominations over 2007-2018, not a single nomination was made by any of the Big Three.

¹⁰ Fos (2017), Gantchev, Gredil, Jotikasthira (2019), and Zhu (2013) explore such preemptive adoption in the context of hedge fund activism, and Del Guercio and Hawkins (1999) discuss it in the context of activism by indexed pension funds. He, Huang, and Zhao (2019) explore a related effect, highlighting that if there are positive governance spillovers across firms, then a fund manager who holds shares in multiple firms has a particularly high return on effort in any given firm. See also Gordon (2022), who discusses the role of portfolio risk and suggests that engagements by highly diversified (e.g., broad-based index) fund managers should focus on addressing systematic risk in their portfolios, rather than firm-specific issues.

reputational interests in being perceived—by investors, regulators, and politicians—as responsible actors and forces for good.”

Empirical Evidence on the Costs of Engagement

The discussion in Section “Differences in Costs of Engagement” suggests that passive funds and actively managed institutional investors have different types of costs and hence are likely to specialize in different types of engagement: passive funds are less likely to run activist campaigns in individual firms but are more likely to have impact by setting broad, market-wide governance standards. The evidence on passive fund engagement is consistent with this idea. For example, three recent papers analyze market-wide engagement by index funds on broad ESG issues. Gormley et al. (2021) study the influence campaigns of the Big Three to increase board gender diversity. By exploring the timing of the campaigns and the Big Three’s ownership stakes, they conclude that these campaigns are successful in promoting diversity and the appointment of female directors to key board positions. Pawliczek, Skinner, and Wellman (2021) examine Larry Fink’s annual letters to the CEOs and conclude that BlackRock’s portfolio firms are responsive to its public engagement efforts. Azar et al. (2021) analyze data on the Big Three’s engagements from their investment stewardship reports and show that the Big Three focus their engagement on companies with high carbon emissions and that there is a negative association between their ownership stakes and subsequent carbon emissions. At the same time, passive funds do not use the more activist and confrontational tactics that are usually adopted by hedge fund activists, such as nominating directors or submitting Schedule 13D filings (see footnote 9). Given this specialization, the interactions and collaboration among active and passive fund managers become especially important; see Section “Interactions between Shareholders” for a detailed discussion.

The evidence on the magnitude of engagement costs is scarce: estimating these costs is difficult because they are not typically observed, especially the costs of time, effort, or costs related to reputation. We are aware of two studies that try to measure these costs. Gantchev (2013) estimates the cost of hedge fund activist campaigns by modeling the campaign process as a sequential process, which starts with the stage of demand negotiations, followed (if unsuccessful) by a request for board representation, and (if again unsuccessful) by a proxy contest. At any stage, the activist can give up the campaign and exit. Using a discrete-choice framework, the paper estimates that an average campaign that ends in a proxy contest costs \$10.7 million, including both observable and unobservable costs, and that the proxy contest stage is most expensive of all – almost \$6 million for an average campaign.

Bebchuk and Hirst (2019b) use the data from Morningstar and the Big Three fund families’ stewardship reports to measure the number of stewardship personnel. Assuming that the cost of each personnel member is \$300,000 a year, they conclude that each family’s investment in stewardship forms less than 0.2% of the fees that it collects. They also estimate that to oversee their U.S. portfolio investments (assuming proportional stewardship allocation per \$1 billion position in U.S. firms), BlackRock spends less than 4 person-days and less than \$5,000 per year, and these investments are at least twice smaller for State Street and Vanguard. The authors conclude that there are “significant concerns that the Big Three substantially underinvest in stewardship.” Sharfman (2022, p. 13) provides a related discussion.

It is important to note (as Bebchuk and Hirst (2019b) note as well) that the allocation of resources may not be proportionate: for example, funds' governance teams may focus on firms with poor financial performance or those targeted by activist investors. If that is the case, the Big Three's stewardship investments in important situations could be larger.

Overall, more research is needed to quantify the costs of engagement and understand how they compare to the benefits of engagement across different types of investors.

Interactions between Shareholders

So far, the discussion has focused on a single shareholder's decision to engage. In reality, there are multiple shareholders of different types, and what ultimately matters for governance are the interactions between index funds and other shareholders beyond the general free-rider problem emphasized in Section "Benefits of Engagement."

Interactions between shareholders can be classified into *direct* and *indirect* interactions. The former refer to explicit interactions, such as providing support through voting, coordination, and sharing information. The latter refer to indirect effects due to, for example, changes in firms' ownership structures (such as index funds replacing other shareholders in firms' ownership structures or indirectly affecting other shareholders' incentives to engage).

Direct Interactions

Several papers have modeled direct interactions between shareholders, in the form of collaboration between shareholders in their engagement efforts. Brav, Dasgupta, and Mathews (2022) focus on wolf pack activism and the beneficial incentive role of activist fund managers' concerns about flows. Doidge, Dyck, and Yang (2022) study explicit coordination by a collective action organization of investors (ICAO) through cost sharing and information sharing. In their model, the formation of the ICAO resolves the free-rider problem among its members, but solo activists continue to exist, free-riding on the activism by the ICAO. Pi (2021) also studies cost-sharing between activists within a coalition but focuses on how the size of the coalition affects other, more passive shareholders' support for the campaign by conveying a signal about the activists' private information.

Theoretical work has not yet explicitly studied direct interactions between index funds and other shareholders.¹¹ The empirical evidence, however, suggests that such interactions are important. Appel, Gormley, and Keim (2019) examine corporate activist campaigns and find that higher passive fund ownership is associated with greater success of hedge fund activists in achieving board representation, facilitating the sale of the target, and reaching a settlement, as well as with increased use of proxy fights. The authors conclude that the growth of passive funds facilitates activism. Brav et al. (2022) focus on proxy contests and find that while passive funds are more likely to vote against dissidents compared to

¹¹ The passive shareholders in Pi (2021) are passive in the sense of not joining the campaign and sharing its costs, rather than being passive in their investment strategies.

active funds, they are active monitors: passive funds support dissidents in underperforming firms and they express their dissent using more subtle channels rather than directly confronting the management. Dissidents also need to be confident that they can win over a significant mass of passive investors when they consider launching a contest. Indeed, the paper shows that dissidents are more likely to achieve their goals via a settlement with management if passive funds provide them with support (see Section “Evidence on Voting and Governance Research by Active and Passive Funds” for more details).¹²

The growth in passive funds, and the Big Three in particular, may also affect activist campaigns by leading to a more concentrated shareholder base: it may be easier for an activist to obtain the support of one large investor than the support of multiple small investors. Consistent with this idea, Brav et al. (2022) show that compared to firms that were not targeted by activists, targeted firms where the proxy contest proceeds to the voting stage have a smaller number of mutual funds required to reach a given percentage voting support (see their Internet Appendix Table IA5, “Concentration of Mutual Fund Holdings”). If a more concentrated investor base indeed facilitates coordination between activists and the firm’s shareholders, then the growth in ownership by large index asset managers could allow activists to target increasingly larger firms without increasing their own ownership stakes.

It is also interesting to understand the interactions between passive funds and other types of shareholders beyond hedge fund activists. Bena and Wang (2022) hypothesize that conflicts between passive funds and actively managed funds can negatively affect firm value and explore the voting of these two groups of investors to study the extent of their disagreements. One important and underexplored question is the interaction between passive and active funds within the same family. As Fisch, Hamdani, and Solomon (2019) point out, fund families differ in their mixtures of active and passive funds and fees, and a family’s overall incentives to engage depend on the AUM and fees of each of its funds and the relative role of its passive and active funds in generating revenues. Moreover, funds within a family often vote in a coordinated way (e.g., Morgan et al., 2011; Hsieh, Li, and Tang, 2021; Lakkis, 2021), for example, because some families coordinate their voting and engagement activities at the level of their stewardship teams, rather than individual fund managers.¹³ How does such coordination affect shareholder engagement? One effect is through the benefits of engagement: a fund family that is deciding how much (coordinated) effort to exert maximizes the combined fees collected by all its funds. This alleviates the free-rider problem and increases the family’s incentives to engage compared to the case of individual fund managers who are separately deciding on their engagement efforts. As for the costs of engagement, the effect is ex ante unclear. On the one hand, coordinated effort increases the family’s voting power and probability of being pivotal, which in turn can increase the effectiveness of its engagement via a higher threat of voting against management. On the other hand, large fund families may require substantial costs of coordination. Lakkis (2021) explores some of these questions and finds that when a family’s passive AUM increase, its active funds vote against management more frequently, concluding that greater passive ownership facilitates

¹² Kedia, Starks, and Wang (2021), Foroughi (2018), Flugum, Lee, and Souther (2022), He and Li (2022), and Wong (2020) present related evidence on the collaboration between hedge fund activists and institutional investors in general, without focusing on passive funds per se; and Crane, Koch, and Michenaud (2019) study coordination between institutional shareholders in general.

¹³ The exact extent to which voting decisions are centralized or delegated to individual fund managers varies across families and has also changed over time. See pp. 44-46 in Fisch, Hamdani, and Solomon (2019).

the fund family's engagement.¹⁴ Farizo (2022) shows that passive funds are more likely to oppose management at firms that their family does not concurrently hold in its active funds.

Indirect Interactions

While theoretical research has not yet examined direct interactions between index funds and other shareholders, it has emphasized the importance of indirect interactions.

One channel, examined in Corum, Malenko, and Malenko (2022) and Baker, Chapman, and Gallmeyer (2022), is the crowding out effect: as passive funds grow, they crowd out other investors in firms' ownership structures, which affects shareholders' combined incentives to engage.¹⁵ In Corum, Malenko, and Malenko (2022), the crowding out of retail investors improves governance, whereas the crowding out of active funds is generally harmful since these funds have stronger incentives to engage given higher fees. Moreover, passive fund growth leads to lower active and passive fund fees, which decreases funds' incentives to engage. As a result, in their paper, the growth in indexing is beneficial at first, but becomes harmful once their competition with active funds becomes acute.

In Baker, Chapman, and Gallmeyer (2022), skilled fund managers decide whether to become stock selectors or activists: stock selectors identify better investment opportunities, whereas activists improve firm performance. Households decide how to allocate their capital between stock selectors, activists, and index funds, where the merit of index funds is in providing diversification for their investors. The paper shows that an exogenous reduction in index fund fees changes the endogenous composition of the managed money sector and could have either a negative or a positive effect on governance (as captured by the endogenous number of activists and their AUM). The negative effect is that lower index fund fees lead to an outflow of households' investments from actively managed funds to index funds, and index funds do not engage in governance in their model. The positive effect is that lower index fund fees change the composition of the actively managed fund industry in the direction of more activists and fewer stock selectors.

Levit, Malenko, and Maug (2022a) and Kakhbod, Loginova, Malenko, and Malenko (2022) highlight another characteristic of index funds that affects their interactions with other shareholders: index funds are unique in that unlike other types of investors, their ownership stake in the firm does not depend on their preferences or beliefs about how the firm should be run. As a result, their ownership can lead to less extreme voting outcomes (Levit, Malenko, and Maug, 2022a) and can also ensure a wide and diverse shareholder base, which is important for effective engagement (Kakhbod et al., 2022).

¹⁴ Gormley and Jha (2022) explore another dimension of fund families' portfolios – their bond holdings. They find that a family's bond holdings in a firm are positively associated with measures of its attention to voting in that firm, especially for the Big Three institutions. The authors conclude that measures of an asset manager's overall incentives to engage should account for both debt and equity holdings of its funds.

¹⁵ Friedman and Mahieux (2021) study a different type of indirect interactions. In their paper, funds sequentially commit to their future monitoring efforts, and fund investors then decide how to allocate their money. They show that considerations about fund flows can lead the active and passive fund to either concentrate their monitoring efforts on the same firm or on different firms.

Finally, another, broader form of indirect impact of passive fund growth is through trading in financial markets. There is growing evidence that passive fund growth may change information production and the information content of asset prices (e.g., Israeli, Lee, and Sridharan, 2017; Glosten, Nallareddy, and Zou, 2021; Coles, Heath, and Ringgenberg, 2022). This, in turn, may have first-order effects on other shareholders' ability and willingness to influence corporate policies. For example, when asset prices are more efficient, firms are less undervalued. This may reduce the profits that shareholders, such as hedge fund activists, make by buying undervalued firms and increasing their value through intervention. Market efficiency also affects the speed at which the price incorporates information about the activist's future intervention once his position in the firm is revealed, as well as the activist's ability to profitably exit his investments. All these forces are likely to affect the extent of shareholder activism. A related channel is that the informational efficiency of asset prices has a first-order effect on shareholders' ability to govern via the threat of exit.¹⁶ Discussing such effects in depth is beyond the scope of the survey, but they are important when thinking about the governance implications of passive fund growth.

Empirical Evidence on Passive Fund Engagement

Taken together, the discussion in the previous sections suggests that to understand the governance effects of index fund growth, one needs to understand the following. First, which investors are replaced from firms' ownership structures when index funds grow, and how do these investors' costs and benefits of engagement compare to those of index funds? Second, how does the increasing presence of index funds affect the ability and incentives of other firms' shareholders to engage?

This section summarizes the evidence in the empirical literature on the governance role of index funds and tries to explain it in the context of these questions.

Evidence on the Effects of Higher Passive Ownership

Empirical studies that examine the effects of greater passive ownership on governance have produced conflicting findings, and the literature is yet to settle this debate. Several papers conclude that greater passive fund ownership reduces managerial power. In particular, Appel, Gormley, and Keim (2016) show that greater passive ownership is associated with more independent directors, lower shareholder support for management proposals, and greater support for shareholder proposals. Appel, Gormley, and Keim (2019) conclude that greater passive ownership facilitates hedge fund activism campaigns, and Filali-Adib (2019) finds that it is associated with the adoption of value-increasing proposals. On the other hand, Schmidt and Fahlenbrach (2017) and Heath et al. (2022) conclude that passive fund ownership increases the power of the CEO: it is associated with a greater likelihood of CEO-chairman positions being combined, less independent director turnover (Schmidt and Fahlenbrach, 2017), lower performance sensitivity of CEO pay, and lower board independence (Heath et al., 2022).

¹⁶ Overall, a large literature studies how shareholders use their private information to both trade and engage in governance (e.g., Maug (1998); Kahn and Winton (1998); see the survey by Edmans and Holderness (2017)). Relatedly, Cocoma and Zhang (2021) and Meirowitz and Pi (2022) study how shareholders' private information affects their trading and voting decisions.

The empirical literature has tried to reconcile these contradictory findings by arguing that the methodologies used in some of the papers do not provide unbiased estimates of the causal effect of passive ownership. Specifically, all the above studies exploit the assignments of stocks to the Russell 1000 vs. 2000 indices as a source of exogenous variation in passive ownership. The idea is that there can be large differences in index fund ownership across these two groups of stocks because: (1) the indexes are value-weighted, and (2) passive assets tracking the R2000 index account for a larger share of its total market capitalization than passive assets tracking the R1000 index (Appel, Gormley, and Keim, 2019). However, the exact methods that are used to exploit the Russell setting are different across papers. For example, earlier studies (e.g., Appel, Gormley, and Keim, 2016) instrument passive fund ownership by an indicator variable for the Russell 2000 index assignment, whereas subsequent studies use a difference-in-differences regression that compares firms that switch indexes to similar firms that start in the same index but do not switch (e.g., Heath et al., 2022). There is a substantial debate about the right methodology, which the survey abstracts from; see Appel, Gormley, and Keim, 2020; Wei and Young, 2020; and Heath et al., 2022 for in-depth discussions.

Corum, Malenko, and Malenko (2022) use their framework to propose a different way to reconcile the findings. It relies on the idea that whether an increase in passive ownership (e.g., due to an index reassignment) improves governance depends on which shareholders are being replaced by passive funds: active funds or retail investors. As they point out, since the papers in the literature use different methodologies and consider slightly different samples and time periods, they differ in the type of shareholders that are being replaced by passive funds in a way that can explain the seemingly conflicting conclusions. In Appel, Gormley, and Keim (2016, 2019) and Filali-Adib (2019), higher passive fund ownership is not accompanied by lower active fund ownership. Hence, passive funds are likely replacing retail shareholders (who are too small and dispersed to engage), which is consistent with passive funds' overall positive effect on governance found by these papers. In contrast, Heath et al. (2022) show that higher passive fund ownership upon index reconstitutions is accompanied by substantial decreases in active fund ownership, and Schmidt and Fahlenbrach (2017) do not find any changes in overall institutional ownership, suggesting that active funds are being replaced in their sample as well. These patterns are consistent with the documented negative effects of passive funds in these papers, as long as active funds' incentives to engage are stronger. Relatedly, Bennett, Stulz, and Wang (2020), who analyze increases in passive ownership due to S&P 500 index additions, find strong contemporaneous reductions in active fund ownership and conclude that index "inclusion worsens ... some aspects of governance."

In future empirical work, it may be interesting to more directly tie the type of shareholders who are being replaced by passive funds to the resulting changes in firms' governance. In addition, it will be interesting to quantify the magnitudes of ownership changes and the corresponding changes in funds' benefits from engagement and to relate them to the observed changes in governance. For example, a quick way to calculate the magnitude of increased incentives upon index reconstitution is to use eq. (3). Suppose that switching the index increases the fund's ownership stake by 1.7% (according to Heath et al. (2022), this is by how much the switch to Russell 2000 increases the combined index ownership). Assuming that the index fund charges a 0.15% management fee and that the firm's market capitalization is \$5 billion, eq. (3)

implies that index switching increases the present value of the index fund manager's additional fee income from engaging (and increasing value by 1%) by \$25,500.¹⁷

It is useful to make two further comments about Russell reconstitution studies.

1. The first point, highlighted in Corum, Malenko, and Malenko (2022), is that the governance effects of passive ownership inferred from index reconstitution studies can be quite different from the effects of the growth in passive ownership over time. This is for two reasons. First, the type of investors that are crowded out by passive funds (active funds vs. retail investors) can be different in the time-series and upon index reconstitutions, and who is crowded out is crucial for shareholders' combined incentives to engage. Second, the analysis in index reconstitution papers aims to increase passive ownership holding everything else (including fund fees) constant. In contrast, in the time-series, fees change together with changes in ownership, and fees have important effects on funds' incentives to engage. Thus, one needs to be careful about applying results from index reconstitution studies to draw conclusions about broad time-series questions such as whether index fund growth over time is likely to make governance better or worse. This is further complicated by the fact that in the time-series, firms adjust as well and are likely to preemptively change their governance practices in anticipation of the changing engagement by their shareholders.
2. The second point concerns the interpretation of the results. Suppose that selection and omitted variable bias concerns (which are the focus of the methodological debate in the literature) are addressed by the right methodology, and this methodology generates exogenous variation in the firm's ownership structure and not in any other firm characteristic. Even then, it may not be as easy to interpret the results. This is because in addition to passive funds, active funds, and retail investors, there are many other shareholder types, such as pension funds, insurance companies, hedge funds, endowments, corporations, and insiders.¹⁸ The exact distribution of ownership between these other shareholders is only partially observed by researchers. Even if index reconstitution only affects the firm's ownership structure and not any other firm characteristic, there is no guarantee that it only affects ownership by mutual funds and retail investors. For example, Chinco and Sammon (2022) argue that a large percentage of ownership tied to an index is missed in standard calculations based on mutual fund holdings, i.e., investors other than index mutual funds substantially rebalance their portfolios around index reconstitutions.

While this observation does not invalidate the research design per se, it can complicate the interpretation of the observed findings. For example, it might be that it is not the increase in passive fund ownership that drives the observed corporate policy changes upon index reconstitutions, but

¹⁷ This number follows from (3) if we keep the 10% cost of equity and 5% growth rate assumptions, but replace 0.5% by 0.15% (management fee for index funds; see footnote 5), 0.04 by 0.017 (increase in the ownership stake), and \$0.1B by \$0.05B (firm size). The assumed \$5 billion is the approximate market value of firms at the cutoff between Russell 1000 and Russell 2000, according to the 2021 Russell US Indexes Reconstitution report.

¹⁸ For example, according to Investment Company Institute (2022), at the end of 2021, passive mutual funds and ETFs held 16% of the value of U.S. stocks, active mutual funds and ETFs held 14%, and the remaining 70% were held by other investors, including hedge funds, pension funds, life insurance companies, and individuals.

rather some simultaneous, unobserved changes in ownership by other types of shareholders.¹⁹ More generally, any changes in ownership that take place upon index reconstitutions (e.g., a change in the number and/or relative concentration of shareholders of a given type) could be partly responsible for the observed effects.²⁰ For example, Levit, Malenko, and Maug (2022b) theoretically show that when a blockholder's ownership stake increases (e.g., the passive fund's stake increases upon the index reconstitution), the composition of other shareholders changes as well: anticipating the resulting future changes in the company's policies and governance, shareholders whose views and preferences are more aligned with those of the blockholder increase their ownership stakes, whereas other shareholders sell. The overall changes in governance are thus the combined effect of the increased ownership by the blockholder (e.g., the passive fund) and of the shareholder base that is more aligned with the blockholder. Overall, in future research, it will be interesting to explore the index reconstitution-induced ownership changes in more depth and use them to improve the understanding of the economic forces driving the results.

Evidence on Voting and Governance Research by Active and Passive Funds

Several other papers study the governance role of passive funds by focusing on their voting practices. The literature has examined three aspects of voting behavior: the propensity to vote against management, the extent of performing independent governance research, and the frequency of following proxy advisors' recommendations.

The Propensity to Vote Against Management

Brav et al. (2022) and Heath et al. (2022) compare the votes of passive and active funds for the same proposal at the same shareholder meeting and conclude that passive funds vote for management more frequently than active funds. For example, Heath et al. (2022) show that passive funds are 11.3 (11) percentage points more likely than active funds to vote with management on compensation proposals (director elections) on which ISS and management disagree. Brav et al. (2022) find that the active-passive voting gap in proxy contests is 9.5 percentage points, and that it is mostly driven by the Big Three: their exclusion shrinks the gap to 4.4 percentage points. Similarly, Boone, Gillan, and Towner (2020) show that the votes of the Big Three are more pro-management than those of both large active fund families and those of smaller funds.²¹

¹⁹ As Appel et al. (2016) discuss in Section 7.2, if other institutional investors "also adopt passive investment strategies," then "attempting to back out the implied change in governance structure for a given percentage change in passive ownership might lead to an overestimation of the actual economic magnitude of interest." Similarly, Heath et al. (2022) note that their "interpretation requires the assumption that index switching affects governance only through its effects on fund ownership."

²⁰ In the sample of Pavlova and Sikorskaya (2022), there is no discontinuity in total ownership by active funds around the Russell 1000/2000 cutoff, but there is a discontinuity in the type of active funds, namely, the index they are benchmarked to (see Table A.29 in their paper). If active fund managers' compensation contracts and ownership stakes differ depending on the benchmark they are compared to, such heterogeneity may have important effects on funds' combined incentives to engage. See also Israelsen, Schwartz-Ziv, and Weston (2022), who highlight that ownership by non-financial blockholders that do not file form 13F is discontinuous around the Russell cutoff.

²¹ Hshieh, Li, and Tang (2021) compare the votes of active and passive funds within the same fund family and find that they vote similarly on most agenda items. The only exception is that in non-Big Three fund families, passive funds support the renewal of poison pills more than active funds. This evidence is consistent with other papers, which show that funds within the same family often vote similarly (see Section "Direct Interactions"), suggesting that voting decisions are often coordinated at the family level.

One interpretation of this evidence is that passive funds, especially the Big Three, are excessively deferential towards management. However, the analysis in some of these and other papers suggests a more nuanced view.

First, Bubb and Catan (2022) highlight that even though the Big Three are deferential to management on issues that have traditionally been viewed as issues for the board and not for shareholders to decide on (e.g., executive compensation), they often vote against management on issues related to fundamental shareholder rights (e.g., antitakeover defenses) and proxy contests. Second, Brav et al. (2022) find that while passive funds are more likely to vote for management on average, the sensitivity of their support for management to firm performance is similar to that of active funds. They also show that passive funds are more likely to withhold their votes from certain managerial candidates (rather than the entire slate), which is a less confrontational way of expressing dissatisfaction, and such withholding reduces the probability that the weakest managerial candidates are elected in the proxy contest.

Furthermore, Brav et al. (2022) point out that the observed active-passive voting gap may overstate the actual differences between active and passive funds' votes because of the endogenous selection of proxy contests that proceed to a vote. To show this, they exploit a unique feature of how votes are disclosed: their sample includes funds' votes in a subset of proxy contests that were settled or withdrawn before the contested election took place. Such settlements or withdrawals typically occur shortly prior to the scheduled vote, so many funds have already cast their votes in preceding weeks with the expectation that the vote will proceed as planned. The observed votes thus show how funds would have voted had the contested election taken place. The paper finds that the inclusion of such votes results in a considerably smaller active-passive gap. While passive funds' support for dissidents is 9.5 percent lower than active funds' support based on voted contests, this differential falls to 2.4 percent (1.6 percent) for settled (withdrawn) contests. This evidence is consistent with the idea that when dissidents manage to convince passive funds to support their agenda, management is forced into a settlement to avert a likely loss.

This conclusion of Brav et al. (2022) could potentially generalize to other votes as well. If management expects its major shareholders to support a shareholder proposal, it is more likely to implement the proposal sponsor's demands privately, which would lead the sponsor to withdraw the proposal (e.g., Chidambaran and Woidtke, 1999). Similarly, management is less likely to bring its own (management) proposal to a vote if it expects low support from its major investors. Such selection of proposals brought to a vote implies a potentially different interpretation of the higher management support by the Big Three institutions: since they are often among the major shareholders of the firm, proposals on which they would have been less supportive of management may simply not be brought to a vote.

Pinnington (2022) and Malenko, Malenko, and Spatt (2022) provide two additional reasons why the relatively more frequent support for management by large asset managers cannot, on its own, be interpreted as evidence of their pro-management bias. Pinnington (2022) shows that an unbiased blockholder that maximizes firm value and votes strategically, without knowing other shareholders' information, may optimally vote for management more frequently than small shareholders. He estimates a structural model of voting on say-on-pay proposals that accounts for such strategic voting effects and

concludes that despite being more likely to support management, the Big Three fund families are not biased towards management. Malenko, Malenko, and Spatt (2022) show theoretically that an unbiased shareholder may vote for management more frequently relative to proxy advisors' recommendations. This is because proxy advisors may have incentives to "create controversy" and bias their recommendations against management in order to increase the probability of a close vote and thereby maximize profits. Thus, the fact that the Big Three support management more often than funds following proxy advisors' recommendations may have a second interpretation: not that the Big Three are biased towards management, but that proxy advisors' recommendations may not be the right benchmark. Together, these two papers and the argument about the selection of proposals brought to a vote suggest caution in using the propensity to vote against management as a measure of strong monitoring.

Independent Governance Research

In addition to studying the actual votes, the literature has also studied the extent to which funds become informed about the issues being voted on. Iliev, Kalodimos, and Lowry (2021) measure the extent of independent governance research by analyzing how frequently investors view firms' proxy statements on the SEC's Electronic Data Gathering, Analysis, and Retrieval ("EDGAR") system prior to voting. The authors show that fund families with larger ownership stakes perform more governance research, and that families with a larger share of index funds perform less research. They also show that indexers tend to focus their research on more important shareholder meetings, such as those when there is a 13D or an exempt solicitation filing, or when ISS recommends against more issues.

Brav et al. (2022) follow the methodology proposed by Iliev, Kalodimos, and Lowry (2021), but focus on proxy contests. Given that proxy contests often result in close voting outcomes and a large potential change in firm value, this is a setting in which shareholders are best incentivized to gather information about the plans proposed by the dissident and the management. The authors find that during the five-year proxy event period (beginning two years before and ending two years after the contest year), passive institutions' probability of viewing management (dissident) proxy materials is 19.6 percent (17.1 percent), which is higher than that of active fund families (7.5 percent and 6.8 percent, respectively).²² These differences remain in specifications with meeting fixed effects. The higher propensity for search activity is manifested even for proxy materials in regular annual meetings within this event period; it also increases in the period leading to the event period.

Notably, Brav et al. (2022) find that the Big Three differ in their search activity from other passive fund families. In particular, the passive-active differential viewership of proxy materials is driven primarily by the higher search activity of the Big Three. The smaller passive fund families, however, search less than the active fund families prior to the five-year event period, and it is only during the five-year event period that they increase their search activity surpassing that of active fund families. These findings are consistent with the Big Three's higher ownership stakes and, therefore, greater benefits from engagement (Section "Benefits of Engagement"), as well as potentially smaller costs of achieving their goals (Section "Costs of Engagement"), compared to small passive fund families.

²² A fund family is classified as passive if no less than fifty percent of its funds are passive funds.

Propensity to Vote with Proxy Advisors

Investors that perform more governance research are less likely to blindly rely on the recommendations of proxy advisory firms. Accordingly, the literature has also studied investors' propensity to follow proxy advisors. Consistent with the results of Brav et al. (2022) on governance research, Bubb and Catan (2022) and Bolton et al. (2022) point out that the Big Three do not passively follow proxy advisors' recommendations. Bubb and Catan (2022) contrast large and small passive fund families and conclude that while small passive funds appear to take a "compliance approach" to voting and outsource voting to proxy advisors, the Big Three tend to vote differently from proxy advisors. Likewise, Bolton et al. (2020) use the approach from political science to classify investors' voting preferences based on their "ideal points" along two dimensions (money-conscious vs. pro-social and management-disciplinary vs. management-friendly) and show that the ideal points of the Big Three are different from those of both proxy advisors (see, e.g., Figure 2D in their paper).

Note that the propensity to deviate from ISS recommendations might be positively correlated with the propensity to vote in a more pro-management way. For example, Heath et al. (2022) show that when ISS and management agree, active and passive funds vote similarly to each other and mostly agree with ISS and management. The higher propensity of passive funds to vote for management in their sample is only apparent for proposals on which ISS and management disagree. If this is generally the case, then a potential way to view the evidence that the Big Three are relatively more supportive of management is that they tend to deviate more from ISS recommendations. This, in turn, could signal a more active approach to voting (e.g., Iliev and Lowry, 2015; Pinnington, 2022), be consistent with their greater propensity to perform research on important votes (Brav et al., 2022), as well as represent a way to correct the bias and/or the one-size-fits-all approach in proxy advisors' recommendations (Malenko, Malenko, and Spatt, 2022).

Summary. Overall, the evidence suggests that the votes of passive funds, including the Big Three, are generally more pro-management compared to the votes of active funds. However, several studies conclude that this is not necessarily evidence of a passive approach to voting or a bias towards management. More research is therefore needed to provide a more definite and precise interpretation of these findings.

In addition, the evidence highlights a difference between the Big Three and other passive fund families: the Big Three appear to perform more governance research and vote more independently from proxy advisors. These differences between large and small passive fund families suggest caution in interpreting the analyses performed at the fund family level. Suppose, for example, that a researcher compares the voting of passive and active asset managers at the fund family level, rather than at the fund level. If the Big Three's voting practices are different from those of small passive families, the researcher needs to be careful in using the estimated coefficient to make conclusions about how passive ownership affects *aggregate* voting outcomes. This is because the Big Three constitute only a small percentage of the sample of families that is used to estimate the coefficient. However, the voting power of the Big Three substantially exceeds the voting power of small passive fund families, and they are often pivotal voters in important votes. In other words, while the behavior of the Big Three has a strong effect on aggregate

outcomes, the estimated coefficient will be more indicative of smaller fund families. More generally, this discussion suggests that the unit of observation should be guided by the question a researcher is asking.

Conclusion and Directions for Future Research

Overall, the existing research suggests the following key conclusions. First, passive funds may have incentives to be engaged monitors even though they track the index and collect low fees. Specifically, for major passive asset managers such as the Big Three, their large ownership stakes in multiple firms can counteract the effects of low fees and imply relatively large benefits from engagement (via the direct incentives) and potentially lower costs (from being pivotal voters, as well as the ability to have a market-wide impact). However, there is a difference between large and small passive fund families: the incentives of the latter are likely to be substantially smaller. The empirical evidence appears to be consistent with this conclusion: the Big Three perform more governance research and vote more independently from proxy advisors compared to smaller passive funds. Directionally, passive funds, especially the Big Three, tend to support management more often than actively managed funds. However, more research is needed to provide a precise interpretation of this evidence: the existing studies conclude that it may signal either a pro-management bias in their voting practices or an active and independent approach to voting. Passive funds may also have influence that is complementary to that of traditional activist investors: rather than focusing on firm-specific operational improvements, on which they may lack the necessary firm-specific information, they may be in a better position to address market-wide issues, such as setting broad governance standards. Such specialization is consistent with the observed activities of passive funds as compared to more actively managed investors.

Second, to understand the overall governance effects of passive fund growth, it is important to consider the following forces: (1) which investors are replaced by passive funds in firms' ownership structures and how these investors' incentives to engage compare to those of passive funds; (2) how passive fund growth affects active and passive fund fees and fund managers' compensation contracts more generally; (3) how passive funds interact with other shareholders, e.g., by supporting activist campaigns or by indirectly affecting how other shareholders trade, vote, and engage with management.

The forces highlighted in this survey are also relevant for the consideration of potential policy proposals concerning the governance role of asset managers.²³ The two layers of the free-rider problem—with other shareholders and with fund investors—imply that fund managers have incentives to underinvest in stewardship compared to the social planner's optimum (e.g., Bebchuk and Hirst, 2019b). One possible benchmark to consider is the scenario where the second layer of the free-rider problem is removed, i.e., the fund manager exerts effort as if it owns its stake in the firm directly, $f = 100\%$. While this would bring the equilibrium level of engagement closer to the social planner's optimum, it is important to note that it may not be a realistic benchmark for policy proposals because the fund manages its beneficiaries' capital. Removing the second layer of the free-rider problem requires moving to the situation where the large

²³ See, e.g., Bebchuk and Hirst (2019b) and Sharfman (2022), who put forward several policy proposals.

number of fund beneficiaries, each with his own small stake, make individual decisions on costly information gathering and then try to reach an agreement with the rest of the fund beneficiaries. It is therefore important to carefully think about the most efficient ways to encourage more engagement by fund managers.

Our discussions also highlight several directions for future research.

First, while Lewellen and Lewellen (2022a) have made important progress in estimating shareholders' incentives to engage, more research is needed. The costs of engagement, which are a crucial determinant of the incentives to engage, are not yet well understood and measured. In addition, refining the estimates of flow incentives (Section "Flow Incentives"), as well as quantifying the benefits from trading on information related to engagement (Section "Access to Private Information"), could help measure active funds' total benefits from engagement more precisely. Deriving more precise estimates of funds' incentives would allow to understand how shareholders' incentives to engage have been changing over time, for example, because of changes in fund fees or aggregate discount rates. Furthermore, by jointly analyzing the engagement incentives of different types of shareholders and the observed changes in firms' ownership structures (e.g., passive funds replacing other types of investors), researchers could study how the growth in passive ownership may have affected all shareholders' combined incentives to engage.

Second, the literature is yet to explore the governance implications of passive fund growth through its effects on ownership structures beyond the overall passive share, such as its effects on the number and relative size of shareholders of different types. One underexplored aspect is related to ownership concentration. The passive fund industry is more concentrated than the active fund industry, likely due to the homogeneous products offered by passive funds, as well as the economies of scale they can exploit (active funds, in contrast, are likely to have decreasing returns to scale (Berk and Green, 2004)). The differential concentration of the passive and active fund industries implies that as the aggregate share of passive ownership in the economy increases, firms' ownership structures—the number of shareholders of each type and the overall ownership concentration—will likely change as well. Such changes may have important effects on shareholder engagement and governance (see related discussions in Sections "Direct Interactions" and "Evidence on the Effects of Higher Passive Ownership").

Third, to study the governance implications of passive fund growth, it is important to have good measures of the quality of their governance activities. These measures are often challenging to come up with. For example, there is little data on passive funds' private engagements with portfolio companies (beyond the summaries in their stewardship reports) and the effectiveness of these engagements. Yet, such engagements are an important part of passive funds' monitoring activities. It may also be difficult to measure the quality of funds' voting decisions. For example, as the discussion in Section "Evidence on Voting and Governance Research by Active and Passive Funds" suggests, the propensity to vote against management may not be a precise measure of whether a fund's votes are informed and unbiased (e.g., Brav et al., 2022; Malenko, Malenko, and Spatt, 2022; Pinnington, 2022).²⁴ Some recent approaches in the literature include estimating fund votes' sensitivity to proxy advisors' recommendations (Iliev and Lowry,

²⁴ See also the survey by Brav, Malenko, and Malenko (2022) for a more in-depth discussion.

2015); measuring funds' governance research (Iliev, Kalodimos, and Lowry, 2021); and relating funds' voting decisions to the stock price reaction to voting outcomes (Gao and Huang, 2022) or to subsequent operating performance of the firm (Brav et al., 2022). Refining the existing measures and coming up with additional measures would be a worthwhile direction for future work. In addition, it is important to study a variety of measures, rather than make conclusions based on a single measure. This is because asset managers optimally resort to monitoring strategies that give the highest expected payoff given the institutional setting in which they operate, so different types of asset managers will often use very different strategies. For example, as discussed in Section "Costs of Engagement," passive funds never nominate directors given their business model, but rather engage through broad public and private campaigns and voting. This heterogeneity in monitoring strategies complicates the comparison of monitoring efforts by different types of asset managers and requires more careful analysis.

Fourth, as discussed in Sections "Access to Private Information" and "Indirect Interactions," passive fund growth is likely to affect shareholder engagement and monitoring by changing the informativeness of asset prices, the horizon of an average shareholder, and different shareholders' trading activities and trading profits. This aspect of passive fund influence on governance has been underexplored.

Fifth, the focus of this survey has been on funds' incentives to engage in order to increase firm value. Another aspect of shareholder engagement concerns environmental and social (E&S) issues. To the extent that certain E&S activities are not aligned with shareholder value maximization, the framework outlined in Section "Benefits of Engagement" needs to be enriched to account for E&S engagements.²⁵ Moreover, heterogeneity in shareholders' preferences becomes a first-order issue in the context of E&S policies. Thus, the interactions among shareholders on E&S issues are likely to be different compared to their interactions on governance issues, on which shareholders' interests are relatively more aligned. Future research would benefit from understanding active and passive funds' incentives to engage on E&S issues, exploring the heterogeneity in their preferences, and studying the implications of passive fund growth for E&S policies and shareholder and stakeholder welfare.

Finally, another underexplored area is the political economy aspect of index fund growth. The fact that major index fund managers have grown to become the biggest shareholders of most large U.S. public firms and are pivotal in many important votes has led to regulatory concerns about their outsized power. The INDEX Act mentioned in the Introduction is one example of proposals that are made to curb this power.²⁶ Bebchuk and Hirst (2019b) hypothesize that concerns about potential regulatory backlash may

²⁵ In this context, Sharfman (2022) cautions that index managers' incentives to vote in a way that increases their market share by appealing to millennials may prevent value-maximizing voting behavior, and Fisch (2021) puts forward several market-based and regulatory proposals to increase the alignment between the E&S preferences of fund investors and voting outcomes.

²⁶ Coates (2019), for example, cautions that "a small number of unelected agents, operating largely behind closed doors, are increasingly important to the lives of millions who barely know of the existence much less the identity or inclinations of those agents." Senator Sullivan, who introduced the INDEX Act, writes: "Currently, the three largest investment advisers vote nearly one-quarter of all shares cast at annual meetings, and are the largest shareholders in over 90 percent of S&P 500 companies. The INDEX Act would correct this extreme market distortion by simply requiring that the power to vote shares resides with the fund investors, not the advisers. This would democratize corporate governance and largely eliminate the influence that these firms wield at shareholder meetings, often to push political agendas" (<https://www.sullivan.senate.gov/newsroom/press-releases/sullivan-introduces-index-act-to-empower-investors-and-neutralize-wall-streets-biggest-investment-firms>).

lead the Big Three to be excessively differential to corporate managers. Understanding how such political economy considerations may affect asset managers' stewardship behavior and studying the implications of proposed regulatory changes for governance and investor welfare are important directions for future research.

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