# Passive Funds, Ownership Dynamics, and Corporate Governance[†]

Kevin D. Chen
Duke University
kevin.chen@duke.edu

John C. Heater
Duke University
john.heater@duke.edu

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**ABSTRACT**. The growth of passive index funds has fueled an ongoing debate about the governance impact of passive funds. Motivated by the theoretical framework in Corum, Malenko, and Malenko (2023), we provide empirical evidence that passive fund growth is more likely to harm governance when it crowds out active funds but is more likely to improve governance when it replaces non-fund investments. Further, we show that there are limits to the benefits of passive fund growth, as beyond a certain level it tends to crowd out investors' allocations to active funds. Our findings highlight how ownership dynamics matter for the governance effects of passive ownership and help reconcile conflicting evidence on this issue from prior studies.

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# 1. Introduction

Passively managed index funds have grown dramatically over the last two decades, now holding over 30% of managed assets in the U.S. equity market. This growth has sparked considerable debate about the effects of passive funds on corporate governance (Brav et al., 2023). The debate centers around whether passive funds can effectively engage with or enhance the monitoring of firms' management. Lewellen and Lewellen (2022) finds that there exist strong financial incentives for passive funds to engage in governance to increase fund fees. However, Bebchuk and Hirst (2019) argues that passive-investment companies spend only about 0.2% of the total fund fees they collect on portfolio company stewardship—approximately $4,762 for each constituent firm above $1 billion in value. Nonetheless, much of the possible monitoring by funds may be unobservable. For example, governance via "voice" (i.e., direct communication with management) by fund managers is unobservable, to the extent that there is no disclosure required.[1]

The existing empirical literature presents conflicting evidence on the impact of passive ownership—ownership by passive funds—on governance. Appel et al. (2016) finds an increase in monitoring after passive ownership increases, as captured by more independent directors, fewer takeover defenses, and more equal voting rights. In a follow-up study, Appel et al. (2019) finds that greater passive ownership increases the ability of activist investors to monitor the firm by increasing activist board representation. In contrast, both Schmidt and Fahlenbrach (2017) and Heath et al. (2022) document *opposite evidence*, finding that an increase in passive ownership results in less overall monitoring.

[1] Under Regulation Fair Disclosure (FD), any private conversation between a fund manager and management that includes material non-public information must be disclosed to the SEC via an 8-K filing. However, discussions related to managing the firm that do not involve details about material non-public information are not required to be disclosed per Reg FD, such as an owner's demand for changes in management practices.

In this paper, we provide new evidence on how the growth in passive index funds affects monitoring and corporate governance. Our analysis is novel in three main ways. First, most related literature examining the effects of passive ownership on governance exploits the Russell index reconstitution to isolate plausibly exogenous variation. However, the governance effects of passive ownership inferred from index reconstitution studies can be quite different from the effects of passive fund growth over time (Brav et al., 2023; Corum et al., 2023). Further, it is unclear whether the results generalize beyond the small number of firms that are just around the Russell reconstitution threshold. Our empirical approach mitigates these concerns by using time-series variation in passive fund growth across a broad sample of U.S. companies that are not necessarily near index inclusion thresholds. For identification, we decompose the variation in the passive ownership of a firm into three components: (i) inclusions or exclusions from indexes, (ii) changes in relative rankings within an index, and (iii) inflows or outflows of capital to index funds as an asset class. We argue that the total capital flow into and out of index funds—which are driven mainly by forces that are outside of an individual index constituent firm's control—is a key determinant of passive ownership levels. Therefore, our empirical analysis isolates plausibly exogenous variation in firm-level passive ownership using capital flows into and out of index funds and utilizes this variation to examine the governance effects of passive fund growth.

Second, motivated by the theoretical framework in Corum, Malenko, and Malenko (2023), henceforth CMM, we account for ownership dynamics in assessing the effects of passive fund growth on governance. CMM develops a model with three types of investors: passive funds, active funds, and liquidity investors. Funds charge an endogenous asset management fee, which is a fraction of the realized value of the fund's assets under management. Passive funds invest all assets under management in the value-weighted market portfolio, whereas active funds strategically

exploit trading opportunities due to liquidity investors' demand. After investments are made, fund managers select an effort to monitor companies in their fund portfolio, while liquidity investors do not monitor. The central prediction is that the effect of passive fund growth on governance depends on whether passive funds primarily compete with liquidity investors or with active funds for capital. To the extent that ownership dynamics differ across firms, CMM predicts cross-sectional heterogeneity in the effects of passive fund growth, which is empirically examined in our study.

Third, while our analysis includes standard governance proxies such as board independence and staggered boards, we also examine the effects of passive ownership on a separate dimension of governance: corporate transparency. Transparency plays a key role in mitigating governance-related agency conflicts among managers, directors, and shareholders (e.g., Armstrong et al., 2010; Armstrong et al., 2014). Our focus on corporate transparency is also motivated by the question of whether passive funds can effectively oversee difficult-to-monitor activities—as opposed to easily observable governance characteristics—and transparency is precisely this type of activity (we describe later the specific measure of transparency used in our study).

We construct a comprehensive dataset that contains ownership structure, index membership, standard governance proxies, and transparency data for a sample of 29,950 firm-year observations. Our sample is larger than those in prior studies because it is not constrained to firms near index inclusion thresholds. We begin our empirical analysis by examining the drivers of firm-level changes in passive ownership. Consistent with prior literature, we show that a firm's inclusion or exclusion in an index and its relative ranking within an index significantly predict changes in its passive ownership. Further, we show that the remaining variation in firm-level changes in passive ownership can be explained by changes in the amount of capital tracking index funds, which is then allocated to firms using pre-determined rules, outside of individual constituent firms' control.

Having demonstrated the viability of flow-induced passive ownership, we proceed to examine the effects of passive fund growth on corporate governance. We find that when growth in passive funds crowds out non-fund investors, an increase in passive ownership results in an improvement across standard governance indicators as well as corporate transparency. On the other hand, when growth in passive funds crowds out active funds, these results are reversed, suggesting that governance declines. Further, we show a non-monotonic relation between passive fund growth and governance: when existing passive ownership is relatively low, passive fund growth improves governance, but when existing passive ownership is relatively high, passive fund growth harms governance. We provide evidence that this non-monotonicity occurs because passive fund growth tends to crowd out active funds when existing passive ownership is relatively high. Overall, our results are consistent with CMM and highlight the crucial role of ownership dynamics in shaping the relationship between passive fund growth and corporate governance.

Our paper makes three contributions to the literature on the consequences of growing passive ownership in capital markets. First, we provide empirical evidence on how ownership dynamics matter for the governance effects of passive ownership, helping to reconcile the mixed findings in the literature. Specifically, we show that whether passive ownership has a positive or negative impact on governance depends on whether it crowds out active funds or non-fund investors.[2] Relatedly, we also document the stylized fact that passive ownership has a non-monotonic relation with active ownership: as passive ownership increases, active ownership first increases, reaches a peak, and then decreases.

[2] Appel et al. (2016) finds a positive relation between passive ownership and governance and *no difference in active funds* around the Russell index assignment cutoff, whereas Heath et al. (2022) finds a negative relation between passive ownership and governance and *a decrease in active funds* around the Russell index assignment cutoff. These contrasting results are consistent with our findings.

Second, we introduce an empirical approach to examine the effects of passive fund growth that relies on isolating variation in passive ownership due to capital flows into and out of index funds. This approach could be used in other contexts to examine the effects of passive fund growth for firms that are not near the Russell reconstitution thresholds. Finally, we examine the effects of passive ownership on corporate transparency, an activity that is likely more difficult to monitor relative to some standard governance proxies. Our analysis thus responds to Brav et al. (2023)'s call to provide a more holistic view on the monitoring efforts of asset managers using alternative measures of governance activities.

## 2. Background and Hypothesis Development

The rise of passive ownership in U.S. capital markets has been well-documented by researchers and financial media outlets alike. For example, Sushko and Turner (2018) and Fichtner and Heemskerk (2020) highlight the dramatic increase in passively managed fund ownership starting around 2008 and persisting through to today. In contrast, active fund ownership has decreased over the same period, with fund flows moving away from active ownership and towards passive ownership. There are several reasons attributed to the sharp increase in passive ownership. Passive funds often have lower fees, higher liquidity, more accessibility, and higher transparency compared to active funds (e.g., French, 2008; Ben-David et al., 2017). Another reason for the shift away from active fund management is the recent inability of active managers to outperform benchmark indexes during recessions. While prior literature shows that actively managed mutual funds do not persistently beat benchmarks on average (Jensen, 1968; Carhart, 1997; Wermers, 2000), Moskowitz (2000) suggests that the growth of active fund management during the 1980s and 1990s was due to the ability of active managers to outperform the market during recessionary periods.

However, during the 2008 financial crisis, active funds substantially underperformed relevant benchmarks, resulting in many investors diverting capital away from actively managed funds. Practitioners and the financial press raised similar concerns about the value of owning actively managed investments, with Alex Bryan (Director of Product Management at Morningstar) saying that many active managers, who were perceived to be able to protect investors during market downturns, "didn't deliver on that promise."[3]

Overall, the asset management industry has since experienced a shift of fund flows towards passive management. The consequences of an increasing level of passive ownership remain an open question and are of extraordinary importance to investors. Jack Bogle, the founder of Vanguard, issued a "last warning" to the asset management industry in his memoir raising concerns about the control of voting shares and corporate governance.[4] Bebchuk et al. (2017) argues that the rise of passive investing has created an increasingly concentrated ownership by a small number of fund managers, leading to major concerns about agency conflicts. They argue that such a shift of ownership can have consequences for the monitoring of firms, as it is not clear how much passive owners will engage in governance activities. However, Appel et al. (2016) finds evidence that passive owners use their concentrated voting power to elicit changes that improve firms' governance. In subsequent work, Appel et al. (2019) documents that increased passive ownership allows active owners to monitor the firm more effectively by increasing active owners' board representation, possibly assuaging initial concerns raised by Bebchuk et al. (2017). These findings are consistent with the results from Lewellen and Lewellen (2022) that passive fund managers

[3] Source, "The trillion-dollar ETF boom triggered by the financial crisis just keeps getting bigger" CNBC.com: https://www.cnbc.com/2018/09/14/the-trillion-dollar-etf-boom-triggered-by-the-financial-crisis.html
[4] Source, "Jack Bogle's last warning to the investment industry: 'Don't forget the little guy you serve'" CNBC.com: https://www.cnbc.com/2019/01/17/jack-bogles-last-warning-to-the-investment-industry-dont-forget-the-little-guy-you-serve---.html

have financial incentives to engage in governance that increases portfolio constituents' firm value. In contrast, Schmidt and Fahlenbrach (2017) finds firm managers make poor acquisitions and appoint fewer independent directors after an increase in passive ownership. Heath et al. (2022) finds evidence that increased passive ownership results in lower monitoring and governance via lower board independence and lower pay-for-performance sensitivity, allowing managers to "inherit the firm" (i.e., extract rents at their discretion).[5] A significant challenge for researchers is how to reconcile these mixed empirical results in the literature.

Corum et al. (2023) [CMM] develops a theoretical framework for understanding the governance implications of passive fund growth, in which there are three types of investors: passive funds, active funds, and liquidity investors. Funds charge an endogenous asset management fee, which is a fraction of the realized value of the firm's assets under management. Passive funds invest all assets under management in the value-weighted market portfolio, whereas active funds strategically exploit trading opportunities due to liquidity investors' demand. After investments are made, fund managers select a monitoring effort, while liquidity investors do not monitor. The collective monitoring effort exerted by all investors shapes governance quality. In equilibrium, a fund's monitoring effort is determined by the fund's stake in the firm and the fees it charges: a higher stake and a higher fee increase the incentives for the fund manager to exert monitoring effort. Our empirical study is based on the theoretical framework in CMM, and we next develop hypotheses motivated by their theoretical insights.

A central result in CMM is that when passive funds replace active funds, governance decreases. Specifically, as opportunities for profitable active management decrease, capital flows from active

[5] We focus on the effects of passive fund growth on corporate governance. Other studies examine the effects of passive ownership on the information content of asset prices (e.g., Israeli et al., 2017; Glosten et al., 2021; Coles et al., 2022) and information disclosure (Schoenfeld, 2017; Rawson and Rowe, 2022).

funds into passive funds. Monitoring by active funds decreases because of their lower assets under management (AUM), while monitoring by passive funds increases because of their higher AUM. However, the aggregate effect on monitoring is negative because, for the same fund AUM, active funds are more engaged (i.e., monitor more) than passive funds due to their higher management fees, which they are able to charge due to higher returns.[6]

On the other hand, when passive funds replace liquidity investors but not active funds, governance increases. Specifically, suppose there is improved access to passive funds due to a combination of factors such as growing inclusion in 401(k) plans, increased investor awareness, and the introduction of ETFs. Consequently, capital flows from liquidity investors to passive funds.[7] Monitoring by passive funds increases because of their higher AUM. Liquidity investors do not engage in monitoring. Hence, overall monitoring increases. This leads to the following hypothesis:

*Hypothesis 1: Passive fund growth harms governance when it crowds out active funds but improves governance when it replaces liquidity investors.*

Another major implication from the CMM theoretical framework is that the effect of passive fund growth on governance may be non-monotonic. As access to passive funds becomes wider to the broader set of investors, there are two opposing effects. First, a positive governance effect occurs when capital flows from liquidity investors to passive funds. When passive funds replace liquidity investors in firms' ownership structures, increased monitoring of the firm occurs, all other

[6] Actively managed mutual funds charge higher fees on average. The Investment Company Institute (ICI) 2023 Factbook reports that the asset-weighted average expense ratio for actively managed equity funds is 0.66% and for passively managed equity funds is 0.05%. Source: https://www.ici.org/system/files/2023-05/2023-factbook.pdf

[7] Capital could also potentially flow from active funds to passive funds. To develop our first hypothesis, we focus on the scenario where passive funds replace liquidity investors but not active funds. We will next consider the scenario where passive funds replace liquidity investors and active funds simultaneously.

things equal, because liquidity shareholders have neither the ability nor incentives to monitor. Second, a negative governance effect occurs when capital flows from active funds to passive funds. Because active funds provide higher monitoring effort than passive funds due to their higher fees, governance decreases when passive funds replace active funds in firms' ownership structures, all other things equal. Plausibly, for the initial growth in passive funds (i.e., in the lower tail distribution of passive ownership), the positive effect dominates the negative effect due to the large fraction of liquidity investors available to provide capital; but, when a sufficiently high portion of capital is already invested in the funds (passive or active), further growth in passive funds is more likely to come from investors' allocation to active funds, resulting in the negative effect being dominant. This leads to the following hypothesis:

*Hypothesis 2: The effects of passive fund growth on governance are non-monotonic: growth in passive funds is beneficial for governance at first but becomes detrimental beyond a certain point.*

Notice that this hypothesis is based on two premises: the existence of the two opposing effects and the presumed ownership dynamics associated with the growth of passive funds.

## 3. Empirical Approach

In this section, we discuss three important considerations for our empirical analysis on the effects of passive fund growth on governance: variation in passive fund growth, identification, and measuring corporate governance.

### 3.1. Variation in Passive Fund Growth

Prior studies mainly use the Russell index reconstitution to infer the effects of passive ownership on governance. CMM indicates that the governance effects of passive ownership inferred from index reconstitution studies can be quite different from the effects of the growth in passive funds over time for two reasons. First, the type of investors that are crowded out by passive funds (active funds vs. non-fund investors) can be different in the time-series and upon index reconstitutions. As discussed above, accounting for who is crowded out is critical for understanding the effects of passive funds on governance. Second, the analysis in these studies aims to hold everything else (including fund fees) constant while increasing passive ownership. However, 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.

Further, there could be generalizability concerns for results based on the index reconstitution approach. The level of passive ownership for firms close to Russell inclusion thresholds is very different from that for firms that are not close to the threshold. CMM suggests that the effects of passive fund growth on governance are potentially non-monotonic, so effects documented using the index reconstitution approach may not extend to firms that are away from the threshold.

In this paper, we use time-series variation in passive fund growth across a broad sample of U.S. companies that are not necessarily near index inclusion thresholds. There are several advantages to our approach. First, it more directly addresses how passive fund *growth* impacts governance. Second, it can exploit greater cross-sectional variation in ownership dynamics and passive ownership levels to examine the theoretical implications of CMM. Third, it enables us to have a

larger sample because it is not constrained to firms near index inclusion thresholds, which gives our tests more power and generalizability.

### 3.2. Identification

In this subsection, we discuss our identification strategy. Identification is important as there can be correlations between passive ownership and governance choices that might not reflect a causal relation. For example, Appel et al. (2016) argues that passive ownership might be correlated with factors such as firms' investment opportunities or ownership by active funds. Heath et al. (2022) argues that holdings by passive and active funds are endogenous for two reasons: (i) firm characteristics may jointly affect ownership and governance and (ii) different firm policies may attract different types of investors, leading to the possibility of reverse causality.

While the Russell index reconstitution allows for identification within a narrow range of passive ownership levels, it is not suitable for our analysis (as discussed in Section 3.1). Therefore, we develop and adopt an alternative research design that accommodates all firms, not necessarily just the firms that are near Russell inclusion thresholds.

To motivate our identification strategy, we note that passive ownership in a firm can increase from one year to the next for three non-mutually exclusive reasons. First, the firm could be added or removed from a major index. Second, the firm could increase its relative ranking within an index by increasing its market capitalization. Because many indexes are value-weighted, a firms with higher market capitalization will receive a larger portfolio weight within an index. Third, there could be an inflow of capital to funds that track the index that a firm is a part of (which may be captured by an increase in the number of funds tracking the index). Capital inflows to passive funds are likely to be exogenous from an individual firm's perspective because the firm's

characteristics or policies are unlikely to affect the inflow of capital to an index fund, which is then allocated to buying the firm's stock in a rule-based process. It is also unlikely to suffer from concerns of reverse causality as index fund flows are not affected by constituent firm policies. Therefore, our research design aims to isolate this variation in passive ownership, which we call flow-induced passive ownership (FIPO), by directly accounting for the index inclusion effects and the market capitalization effects in all empirical specifications.

### 3.3. Measuring Corporate Governance

Measuring the quality of a firm's corporate governance is challenging. While frequently used measures capture some important dimensions of governance, it is unlikely that one measure completely captures governance quality. Brav et al. (2023) highlights the importance of studying the effects of passive ownership on a variety of governance measures, rather than making conclusions based on a single measure. Hence, we measure governance with three types of proxies. The cross-correlation across these three proxies is relatively low in our sample, suggesting that they are complementary in nature.

First, we analyze the impact of passive fund growth on the removal of staggered boards and poison pills. Staggered boards divide directors into classes, typically three, with only one class of directors coming up for re-election each year. As a result, shareholders cannot replace a majority of the directors in any given year, which makes staggered boards a powerful defense against a proxy fight or proxy contest. Poison pills entitle non-bidder shareholders to a special right, such as the right to purchase additional shares at a discount, in the event of an unsolicited takeover offer. Hence, they deter unsolicited takeovers that would result in the removal of incumbents.

Second, we examine the effect of passive ownership on board independence and whether the board has an independent chairman. Board independence is the proportion of independent directors on the board. An independent board is commonly viewed as necessary for the effective monitoring of management (with similar views about an independent chairman of the board). These two indicators, together with staggered boards and poison pills, are considered standard proxies for governance and have been examined in prior studies on passive ownership (Appel et al., 2016; Heath et al., 2022).

Third, building on the idea that transparency plays a key role in mitigating governance-related agency conflicts among managers, directors, and shareholders (e.g., Armstrong et al., 2010; Armstrong et al., 2014), we further use corporate transparency as a proxy for governance. One distinguishing feature of corporate transparency is that it is likely more difficult to monitor compared to standard governance measures such as staggered boards and board independence. Thus, by examining transparency, we can shed light on the question of whether passive investors can effectively oversee difficult-to-monitor activities as opposed to easily observable governance characteristics.

## 4. Data

We obtain data on passive and active mutual funds from the CRSP Mutual Fund Database. Following prior studies (e.g., Appel et al., 2016), we define a fund as a passive fund if the CRSP Mutual Fund Database explicitly classifies it as an index fund or its fund name includes a string that identifies it as an index fund. We classify all other funds in the CRSP Mutual Fund Database as active funds. We then link the CRSP Mutual Fund Database with the CRSP Mutual Fund Holdings Database to construct ownership-type percentages at the firm level. Next, we link mutual fund ownership data with institutional ownership data from Thomson Reuters and data on firm

characteristics from Compustat. We obtain data on S&P and Russell index membership from LSEG. We obtain data on board independence, board chairman independence, staggered boards, and poison pills from Institutional Shareholders Services.

To measure corporate transparency, we use a novel dataset compiled by *Institutional Investor* for their annual *All-America Executive Team Survey*. For this survey, *Institutional Investor* surveys over 3,000 buy-side analysts and money managers and ask them to rate the companies' investor relations programs on the following six transparency attributes: "Access to Senior Management," "Financial Disclosure," "Earnings Calls," "Credibility," "Responsiveness," and "Company Website."[8] These ratings are then aggregated to produce an overall investor relations program rank for each company. We use this measure as our proxy for corporate transparency.

Table 1 provides summary statistics for the variables used in our analysis. Our final sample contains 29,950 observations spanning the years 2010 to 2019.[9] For several of the governance variables, there are significantly fewer observations because Institutional Shareholders Services only covers S&P 1500 companies. *Passive Funds* is the fraction of shares outstanding in a company held by passive mutual funds. *Active Funds* is the fraction of shares outstanding in a company held by active mutual funds. *Non-Fund Investors* is the fraction of shares outstanding in a company held by investors who are not funds. We classify a firm's ownership structure in this way to correspond closely to CMM, where there are also three types of investors: passive funds, active funds, and non-fund investors. We consider alternative classifications in additional analyses (Section 5.2). The passive ownership for the average firm in our sample is 10%, while the active ownership for the average firm in our sample is 14%. The ownership by non-fund investors is 77%.

[8] See https://www.institutionalinvestor.com/section/research/all-america-executive-team/2023
[9] We are limited to this time frame due to the availability of data on corporate transparency from *Institutional Investor*.

We use the following variables as determinants of passive ownership in our analysis. *S&P 500* is an indicator variable equal to one if the firm belongs to the S&P 500 index. *S&P 400* is an indicator variable equal to one if the firm belongs to the S&P 400 index. *S&P 600* is an indicator variable equal to one if the firm belongs to the S&P 600 index. *Russell 1000* is an indicator variable equal to one if the firm belongs to the Russell 1000 index. *Russell 2000* is an indicator variable equal to one if the firm belongs to the Russell 2000 index. *Market Cap* is the natural logarithm of the firm's total market value of equity.

Additional control variables include the following. *Firm Size* is the natural logarithm of total assets. *BTM* is the book value of equity divided by the market value of equity. *Leverage* is total debt scaled by total assets. *CapEx* is capital expenditures scaled by total assets. *R&D* is research and development expense scaled by total assets (set to zero if missing). *ROA* is income before extraordinary items scaled by total assets. *Loss* is an indicator variable equal to one if income before extraordinary items is less than zero.

We use the following outcome variables in testing our hypotheses. *Board Independence*$_{t+1}$ is the proportion of independent directors on the board in year *t+1*. *Independent Chairman*$_{t+1}$ is an indicator variable equal to one if the board has an independent chairman in year *t+1*. *Staggered Board*$_{t+1}$ is an indicator variable equal to one if the firm has a staggered board in year *t+1*. *Poison Pill*$_{t+1}$ is an indicator variable equal to one if the firm has a poison pill in year *t+1*. *Overall Governance*$_{t+1}$ is the sum of the following four indicator variables: (i) whether the board is fully independent (i.e., everyone but the CEO is independent), (ii) the board has an independent chairman, (iii) the firm does not have a staggered board, and (iv) the firm does not have a poison pill. *Corporate Transparency*$_{t+1}$ is the firm's overall investor relations program rank compiled by *Institutional Investor's All-America Executive Survey*.

Table 2 provides additional descriptive statistics. Panel A displays how ownership has changed over time. Passive ownership has more than doubled from 2010 to 2019, increasing from 6% in 2010 to 14% in 2019. Active ownership has slightly decreased over time, decreasing from 15% in 2010 to 12% in 2019. Ownership by non-fund investors has decreased over time, decreasing from 79% in 2010 to 74% in 2019.

Panel B displays correlations between changes in ownership variables. There is a positive correlation between *ΔPassive Funds* and *ΔActive Funds* of 0.33, suggesting that increasing passive ownership does not crowd out active ownership in our sample on average. On the other hand, *ΔPassive Funds* has a negative correction with *ΔNon-Fund Investors* of -0.64, suggesting that increasing passive ownership primarily crowds out non-fund investors in our sample on average. However, there may still exist cross-sectional heterogeneity across firms.

Panel C displays correlations across the various governance measures. Interestingly, there is little correlation between the governance measures, suggesting that governance is multi-dimensional and each measure captures a separate dimension. Panel D provides additional sample statistics. In our sample, passive ownership on average increases by 1.45% each year, active ownership increases by 0.75% each year, and ownership by non-fund investors decreases by 2.21% each year. Finally, the large majority of observations in our sample exhibit an increase in passive ownership.

## 5. Results

### 5.1. Main Analysis

Table 3 examines the economic determinants of changes in firm-level passive ownership using the following regression specification:

$$Passive\ Fund = \alpha_0 + \alpha_1 S\&P\ 500 + \alpha_2 S\&P\ 400 + \alpha_3 S\&P\ 600 + \alpha_4 Russell\ 1000$$
$$+\alpha_5 Russell\ 2000 + \alpha_6 Market\ Cap + Firm\ Fixed\ Effects + \epsilon. \quad (1)$$

Consistent with expectations, each variable in Equation (1) explains substantial within-firm variation in passive ownership. The $R^2$ from this regression is 31%, indicating that index inclusion effects and market capitalization effects are significant determinants of passive ownership. We expect the residual from this regression, $Passive\ Fund\ Residual$, to capture variation in passive ownership that is due to the inflow of capital into funds that track indexes. In Columns (2-4), we examine whether variation in the capital tracking some of the most well-known index funds (VOO, IVV, and SPY) explains variation in the residual. We find that it does. For example, variation in capital tracking VOO can explain 44% of the variation in $Passive\ Funds\ Residual$.

The findings from Table 3 indicate that the residual from estimating Equation (1) indeed captures flow-induced passive ownership. We next proceed to examine the effects of passive fund growth on corporate governance using the following regression specification:

$$\Delta Governance_{t+1} = \beta_0 + \beta_1 \Delta Passive\ Funds + \beta_2 \Delta S\&P\ 500 + \beta_3 \Delta S\&P\ 400 + \beta_4 \Delta S\&P\ 600 +$$
$$\beta_5 \Delta Russell\ 1000 + \beta_6 \Delta Russell\ 2000 + \beta_7 \Delta Market\ Cap + \beta_8 \Delta Firm\ Size +$$
$$\beta_9 \Delta BTM + \beta_{10} \Delta Leverage + \beta_{11} \Delta CapEx + \beta_{12} \Delta RD + \beta_{13} \Delta ROA + \beta_{14} \Delta Loss + \epsilon. \quad (2)$$

Including the variables $S\&P500$, $S\&P\ 400$, $S\&P\ 600$, $Russell\ 1000$, $Russell\ 2000$, and $Market\ Cap$ in the regression specification allows us to isolate the variation in $Passive\ Funds$ that is attributable to capital flows into index funds (i.e., flow-induced passive ownership).

Including the variables $Firm\,Size$, $BTM$, $Leverage$, $CapEx$, $RD$, $ROA$, and $Loss$ in the regression equation allows us to account for other factors that prior literature has shown may influence a firm's governance choices (e.g., Boone et al., 2007; Linck et al., 2008). The dependent variable, $Governance_{t+1}$, is measured in year *t+1* relative to $Passive\ Fund$ because it is unlikely that any governance changes due to passive funds will be immediate.

We use a changes specification in Equation (2), as opposed to a specification with firm fixed effects, because it better allows us to identify situations where passive funds displace active funds vs. non-fund investors, as we discuss in more detail below. Conceptually, the identification of the effect of passive fund growth on governance, $\beta_1$, works as follows. If passive ownership affects governance, constituent firms should be more likely to make governance changes following years when there is relatively more capital flow into index funds; on the other hand, constituent firms should be less likely to make governance changes following years when there is relatively less capital flow into index funds.[10] In other words, identification is based on the *timing* of governance changes relative to capital inflows into index funds.

In the absence of other considerations, CMM does not provide a clear prediction on the effect of passive fund growth on governance, $\beta_1$, since passive funds could displace non-fund investors or active funds. To obtain clearer predictions, we account for ownership dynamics to explicitly identify situations where passive funds are more likely to displace a particular type of investor. Specifically, *Displace Non-Fund Investors* is an indicator variable equal to one if the change in passive ownership is greater than zero and if the change in active ownership is greater than or equal to zero. To see this, if ownership by passive funds increases while the change in ownership by active funds is non-negative, it must be that ownership by non-fund investors decreases by

[10] Note that CMM predicts that changes in passive ownership could have either a positive or negative effect on governance, so it is unclear whether governance will improve or decline.

construction. Similarly, *Displace Active Funds* is an indicator variable equal to one if the change in passive ownership is greater than zero and the change in ownership by non-fund investors is greater than or equal to zero. In this case, ownership by active funds must decrease by construction.

Table 4 examines the effect of flow-induced passive ownership on governance when passive funds displace non-fund investors (i.e., *Displace Non-Fund Investors = 1*). Panel A shows the correlations between ownership variables in this subsample where passive funds displace non-fund investors. Consistent with expectations, $\Delta Passive\ Funds$ has a negative correlation with $\Delta NonFund\ Investors$ and a positive correlation with $\Delta Active\ Funds$. This mirrors the situation described in CMM where capital flows from non-fund investors to both passive and active funds. Panel B shows the effect of passive fund growth on governance in the subsample where non-fund investors are displaced. Column (1) shows that $\Delta Passive\ Fund$ has a positive and statistically significant effect on $\Delta Overall\ Governance$. In terms of economic magnitude, a five percentage point increase in passive ownership leads to an increase in $\Delta Overall\ Governance$ of 0.024 (5% of its standard deviation). Columns (2-5) show that the positive effect of passive fund growth in this subsample is concentrated in increases in the independence of the board chairman and decreases in staggered boards. The results are consistent with our hypothesis that passive fund growth improves governance when it displaces non-fund investors.

Table 5 examines the effect of flow-induced passive ownership on corporate governance when passive funds displace active funds (i.e., *Displace Active Funds = 1*). Panel B shows the correlations between ownership variables in this subsample where passive funds displace active funds. Consistent with expectations, $\Delta Passive\ Funds$ has a negative correlation with $\Delta Active\ Funds$ and a positive correlation with $\Delta NonFund\ Investors$. This mirrors the situation described in CMM where capital flows from active funds to both passive funds and non-fund

investors, due to a decline in the opportunities for active investment. Panel B shows the effect of passive fund growth on governance in this subsample. Column (1) shows that $\Delta Passive\ Fund$ has a negative and statistically significant effect on $\Delta Overall\ Governance$. In terms of economic magnitude, a five percentage point increase in passive ownership leads to a decrease in $\Delta Overall\ Governance$ of 0.064 (13% of its standard deviation). Columns (2-5) show that the negative effect of passive fund growth in this subsample is concentrated in increases in staggered boards and poison pills. The results are consistent with our hypothesis that passive fund growth harms governance when it displaces active funds.

Our second hypothesis is that the effects of passive fund growth on governance are non-monotonic: growth in passive funds is beneficial for governance at first but becomes detrimental beyond a certain point. Before explicitly testing this hypothesis, we first start by documenting at what point an increase in passive funds typically crowds out active funds. Specifically, we estimate the following regression specification for different levels of existing passive ownership ($Passive_{t-1}$):

$$\Delta Active\ Funds = \beta_0 + \beta_1 \Delta Passive\ Funds + \beta_2 \Delta SP500 + \beta_3 \Delta SP\ 400 + \beta_4 \Delta SP\ 600 + \beta_5 \Delta Russell\ 1000 + \beta_6 \Delta Russell\ 2000 + \beta_7 \Delta Market\ Cap + \beta_8 \Delta Firm\ Size + \beta_9 \Delta BTM + \beta_{10} \Delta Leverage + \beta_{11} \Delta CapEx + \beta_{12} \Delta RD + \beta_{13} \Delta ROA + \beta_{14} \Delta Loss + \epsilon. \quad (3)$$

Table 6 presents the results. When existing passive ownership is less than 10% (Column (1)), there is a positive relation between passive fund growth and change in active ownership, indicating that little crowding out of active funds occurs on average in this subsample. The relation between $\Delta Passive\ Funds$ and $\Delta Active\ Funds$ remains positive when existing passive ownership is

between 10% and 20% (Columns (2-3)), but the magnitude of the positive relation declines sharply, suggesting that there may be some crowding out occurring. When existing passive ownership is greater than 20% (Column (4)), there is a negative relation between passive fund growth and change in active ownership, indicating that significant crowding out of active funds occurs on average in this subsample. In terms of economic magnitude, a one percentage point change in passive ownership leads to a decline in active ownership of 0.13 percentage points.

Motivated by the findings in Table 6, we estimate Equation (2) in subsamples with varying levels of existing passive ownership. We expect there to be non-monotonicity in this relation because of the varying degrees to which passive funds displace active funds across the subsamples. Table 7 shows how the effect of an increase in flow-induced passive ownership on governance depends on the existing level of passive ownership. Column (1) shows that passive fund growth has a positive and statistically significant effect on governance when existing passive ownership is less than 10%. However, as existing passive ownership increases beyond 15%, the effect of increasing passive ownership on governance switches direction and becomes negative. Columns (3-4) show that passive fund growth has a negative and statistically significant effect on governance when existing passive ownership is between 15-20% and when it is greater than 20%. These findings are consistent with a non-monotonic relation between passive fund growth and governance, suggesting that there are limits to the benefits of passive fund growth.

Table 8 examines the effect of passive fund growth on corporate transparency, an alternative proxy for governance. Column (1) shows that passive fund growth has a positive and statistically significant effect on transparency when passive funds displace non-fund investors. Column (2) shows that passive fund growth has a negative, directionally consistent, coefficient estimate but is statistically insignificant. Column (3) shows that passive fund growth has a positive and

statistically significant effect on transparency when existing passive ownership is less than 15%. Column (4) shows that passive fund growth has a negative and statistically significant effect on transparency when existing passive ownership is greater than 15%. Overall, when using corporate transparency as a proxy for governance, the results reinforce our main findings that (i) passive fund growth improves (harms) governance when it displaces non-fund investors (active funds), and (ii) passive fund growth has a non-monotonic relation with governance.

### 5.2. Additional Analyses

In the main analysis (Table 4), we examined the effect of passive fund growth on governance when passive funds displace non-fund investors and find a positive relation. There are two non-mutually exclusive interpretations for such a positive relation. First, passive funds provide greater monitoring than non-fund investors, so capital flow from non-fund investors to passive funds improves governance. Second, when capital flows from non-fund investors to passive funds, capital also flows from non-fund investors into active funds, and active funds provide greater monitoring than non-fund investors. To shed light on these different interpretations, we further examine the effect of flow-induced passive ownership on governance when including $\Delta Active\ Funds$ as a control variable.

Table 9 presents the results with both $Overall\ Governance$ and $Corporate\ Transparency$ as dependent variables. The coefficient on $\Delta Active\ Funds$ is positive and statistically significant in all specifications, indicating that active funds provide greater monitoring than non-fund investors. The coefficient on $\Delta Passive\ Funds$ is positive but statistically insignificant in Column (1) and (3), while the coefficient on $\Delta Passive\ Funds\ Ventile$ is positive and statistically significant in Columns (2) and (4). This suggests passive funds can provide greater monitoring

than non-fund investors but only when the increase in passive ownership is large enough. Overall, Table 9 supports both interpretations for the positive relation between passive fund growth on governance.

In the main analysis, we defined active ownership as ownership by active funds. This is to correspond closely to CMM. However, there may be investors outside of passive and active funds who actively monitor the firm. To shed light on this, we also examine the effects of flow-induced passive ownership on corporate governance where active ownership is defined as the sum of ownership by active funds and non-fund investment advisors. Table 10 presents the results with both $Overall\ Governance$ and $Corporate\ Transparency$ as dependent variables. Consistent with our main analysis, passive fund growth improves governance when it displaces other investors. However, when passive funds displace active ownership in this case, there is no negative relation between passive fund growth and governance. This is consistent with passive funds providing equivalent or greater monitoring compared to investment advisors.

In the main analysis, we used a one-stage approach to examine the effect of flow-induced passive ownership on governance by including the variables $S\&P\ 500$, $S\&P\ 400$, $S\&P600$, $Russell\ 1000$, $Russell\ 2000$, and $Market\ Cap$ in the regression specification. An alternative would be to use a two-stage approach in which we first obtain the residual from the following regression:

$$\Delta Passive\ Funds = \alpha_0 + \alpha_1 \Delta S\&P\ 500 + \alpha_2 \Delta S\&P\ 400 + \alpha_3 \Delta S\&P\ 600 + \alpha_4 \Delta Russell\ 1000 + \alpha_5 \Delta Russell\ 2000 + \alpha_6 \Delta Market\ Cap + \epsilon. \quad (4)$$

We then use the residual in the second stage as our proxy for flow-induced passive ownership and examine its effects on governance. Table 11 presents the results when using this two-step approach.

The findings are consistent with and reinforce our main inferences that passive fund growth improves (harms) governance when it displaces non-fund investors (active funds) and that it has a non-monotonic relation with governance.

## 6. Conclusion

The growth of passive index funds has fueled an ongoing debate about the governance impact of passive investors. While some studies find evidence that passive funds improve governance (e.g., Appel et al., 2016; Appel et al., 2019), others provide evidence of opposite effects (e.g., Schmidt and Fahlenbrach, 2017; Heath et al., 2022). Corum et al. (2023) [CMM] provides a framework to reconcile the conflicting evidence and demonstrates theoretically that passive fund growth has heterogeneous effects across firms, depending on what the reasons for passive fund growth are and whether passive funds primarily compete with non-fund investors or active funds.

This paper has conducted an empirical analysis of the governance impact of passive fund growth and found evidence consistent with the theoretical implications of CMM. Specifically, we find that when growth in passive funds crowds out non-fund investors, an increase in passive ownership results in an increase across standard governance proxies as well as corporate transparency. On the other hand, when growth in passive funds crowds out active funds, these results are reversed, suggesting that governance decreases. Further, as predicted in CMM, we show that there are limits to the benefits of passive ownership, as beyond a certain point, growth in passive funds primarily crowds out investors' allocations to active funds. Our findings highlight the crucial role of ownership dynamics in shaping the relationship between passive fund growth and corporate governance, helping to reconcile the conflicting results from prior studies.

Our paper also contributes to the literature by introducing a new empirical method that uses flow-induced changes in passive ownership to examine the governance effects of passive fund growth. The method is intuitive, focusing on variation in passive ownership that is not tied to individual firm characteristics, and allows us to examine the effects of passive ownership beyond firms that are near index inclusion thresholds. Flow-induced passive ownership changes could be a useful tool to examine the effects of passive fund growth in other contexts, such as how it may affect real activities undertaken by firms or the information content of asset prices.

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## Appendix A: Variable Definitions

This appendix provides definitions for the key variables used in our analysis.

| | |
|---|---|
| *Passive Funds* | The fraction of the firm's market capitalization held by index funds or ETFs. Index funds are identified by the CRSP index fund flag or its fund name includes a string that identifies it as an index fund (Appel et al., 2016). |
| *Active Funds* | The fraction of the firm's market capitalization held by active mutual funds or ETFs. Active funds are all funds that are not index funds. |
| *Non-Fund Investors* | The fraction of the firm's market capitalization held by investors who are not funds. |
| *Firm Size* | The natural logarithm of total assets. |
| *BTM* | The book value of equity divided by the market value of equity. |
| *Leverage* | Total debt scaled by total assets. |
| *CapEx* | Capital expenditures divided by total assets. If missing, set to zero. |
| *R&D* | R&D expenditures divided by total assets. If missing, set to zero. |
| *ROA* | Income before extraordinary items divided by total assets. |
| *Loss* | An indicator variable equal to one if income before extraordinary items is less than zero. |
| *S&P 500* | An indicator variable equal to one if the firm belongs to the S&P 500 index. |
| *S&P 400* | An indicator variable equal to one if the firm belongs to the S&P 400 index. |
| *S&P 600* | An indicator variable equal to one if the firm belongs to the S&P 600 index. |
| *Russell 1000* | An indicator variable equal to one if the firm belongs to the Russell 1000 index. |
| *Russell 2000* | An indicator variable equal to one if the firm belongs to the Russell 2000 index. |
| *Market Cap* | The natural logarithm of market value of equity. |
| *Overall Governance*$_{t+1}$ | The sum of the following four indicator variables: (i) whether the board is fully independent (i.e., everyone but the CEO is independent), (ii) the board has an independent chairman, (iii) the firm does not have a staggered board, and (iv) the firm does not have a poison pill. All variables are evaluated in year *t+1*. |
| *Board Independence*$_{t+1}$ | The proportion of independent directors on the board in year *t+1*. |
| *Independent Chairman*$_{t+1}$ | An indicator variable equal to one if the board has an independent chairman in year *t+1*. |
| *Staggered Boards*$_{t+1}$ | An indicator variable equal to one if the firm has a staggered board in year *t+1*. |
| *Poison Pill*$_{t+1}$ | An indicator variable equal to one if the firm has a poison pill in year *t+1*. |
| *Corporate Transparency*$_{t+1}$ | The firm's overall investor relations program rank compiled by *Institutional Investor's All-American Executive Survey*. The rank is based on six transparency attributes: "Access to Senior Management," "Financial Disclosure," "Earnings Calls," "Credibility," "Responsiveness," and "Company Website." These ratings are then aggregated to produce an overall investor relations program rank for each company. |
| *Displace Non-Fund Investors* | An indicator variable equal to one if the change in passive ownership is greater than zero and the change in active ownership is greater than or equal to zero. |
| *Displace Active Funds* | An indicator variable equal to one if the change in passive ownership is greater than zero and the change in ownership by non-fund investors is greater than or equal to zero. |

**Table 1: Summary Statistics.** This table shows the summary statistics for the 29,950 firm-year observations in our sample. All variables are defined in Appendix A.

| | N | Mean | SD | P25 | P50 | P75 |
|---|---|---|---|---|---|---|
| **Ownership Variables** | | | | | | |
| Passive Funds | 29,950 | 0.10 | 0.07 | 0.04 | 0.09 | 0.14 |
| Active Funds | 29,950 | 0.14 | 0.10 | 0.04 | 0.12 | 0.21 |
| Non-Fund Investors | 29,950 | 0.77 | 0.15 | 0.65 | 0.76 | 0.90 |
| **Firm Characteristics** | | | | | | |
| Firm Size | 29,950 | 7.44 | 2.09 | 6.08 | 7.47 | 8.77 |
| BTM | 29,950 | 0.58 | 0.52 | 0.25 | 0.47 | 0.79 |
| Leverage | 29,950 | 0.25 | 0.22 | 0.05 | 0.20 | 0.38 |
| CapEx | 29,950 | 0.04 | 0.05 | 0.00 | 0.02 | 0.05 |
| R&D | 29,950 | 0.05 | 0.13 | 0.00 | 0.00 | 0.04 |
| ROA | 29,950 | -0.03 | 0.23 | -0.00 | 0.02 | 0.06 |
| Loss | 29,950 | 0.27 | 0.44 | 0.00 | 0.00 | 1.00 |
| S&P 500 | 29,950 | 0.15 | 0.36 | 0.00 | 0.00 | 0.00 |
| S&P 400 | 29,950 | 0.12 | 0.32 | 0.00 | 0.00 | 0.00 |
| S&P 600 | 29,950 | 0.17 | 0.38 | 0.00 | 0.00 | 0.00 |
| Russell 1000 | 29,950 | 0.30 | 0.46 | 0.00 | 0.00 | 1.00 |
| Russell 2000 | 29,950 | 0.48 | 0.50 | 0.00 | 0.00 | 1.00 |
| Market Cap | 29,950 | 7.21 | 1.96 | 5.88 | 7.23 | 8.49 |
| **Governance Measures** | | | | | | |
| Board Independence$_{t+1}$ | 12,771 | 0.81 | 0.10 | 0.75 | 0.83 | 0.89 |
| Independent Chairman$_{t+1}$ | 12,771 | 0.46 | 0.50 | 0.00 | 0.00 | 1.00 |
| Staggered Board$_{t+1}$ | 12,771 | 0.34 | 0.48 | 0.00 | 0.00 | 1.00 |
| Poison Pill$_{t+1}$ | 12,771 | 0.06 | 0.24 | 0.00 | 0.00 | 0.00 |
| Overall Governance$_{t+1}$ | 12,771 | 2.55 | 0.95 | 2.00 | 3.00 | 3.00 |
| Corporate Transparency$_{t+1}$ | 28,891 | 0.21 | 0.32 | 0.00 | 0.00 | 0.42 |

**Table 2: Descriptive Statistics.** This table provides additional descriptive statistics for the key variables in our analysis. All variables are defined in Appendix A.

**Panel A: Ownership Over Time.**

| | Passive Funds | Active Funds | Non-Fund Investors |
|---|---|---|---|
| **2010** | 0.06 | 0.15 | 0.79 |
| **2011** | 0.07 | 0.15 | 0.78 |
| **2012** | 0.07 | 0.15 | 0.78 |
| **2013** | 0.08 | 0.14 | 0.78 |
| **2014** | 0.09 | 0.15 | 0.76 |
| **2015** | 0.10 | 0.13 | 0.77 |
| **2016** | 0.11 | 0.13 | 0.76 |
| **2017** | 0.12 | 0.12 | 0.77 |
| **2018** | 0.13 | 0.12 | 0.75 |
| **2019** | 0.14 | 0.12 | 0.74 |

**Panel B: Correlations Across Ownership Variables.**

| | ΔPassive Funds | ΔActive Funds | ΔNon-Fund Investors |
|---|---|---|---|
| **ΔPassive Funds** | 1.00 | | |
| **ΔActive Funds** | 0.33*** | 1.00 | |
| **ΔNon-Fund Investors** | -0.64*** | -0.93*** | 1.00 |

**Panel C: Correlations Across Governance Measures.**

| | ΔBoard Independence$_{t+1}$ | ΔIndependent Chairman$_{t+1}$ | ΔStaggered Board$_{t+1}$ | ΔPoison Pill$_{t+1}$ | ΔCorporate Transparency$_{t+1}$ |
|---|---|---|---|---|---|
| **ΔBoard Independence$_{t+1}$** | 1.00 | | | | |
| **ΔIndependent Chairman$_{t+1}$** | 0.02* | 1.00 | | | |
| **ΔStaggered Board$_{t+1}$** | -0.01 | -0.00 | 1.00 | | |
| **ΔPoison Pill$_{t+1}$** | 0.02 | 0.00 | -0.00 | 1.00 | |
| **ΔCorporate Transparency$_{t+1}$** | -0.00 | -0.01 | 0.01 | -0.02* | 1.00 |

**Panel D: Other Sample Statistics.**

| | |
|---|---|
| **Average Yearly Change in Passive Funds** | 1.45% |
| **Average Yearly Change in Active Funds** | 0.75% |
| **Average Yearly Change in Non-Fund Investors** | -2.21% |
| **# Observations Where ΔPassive Funds > 0** | 23,987 |
| **# Observations Where ΔPassive Funds ≤ 0** | 5,963 |

**Table 3: Flow-Induced Passive Ownership.** This table examines the economic determinants for changes in firm-level passive ownership. *Passive Funds Residual* is the residual from the regression in Column (1). *Capital Tracking VOO* is the total capital (in billions) invested in Vanguard's S&P 500 Index Fund (VOO). *Capital Tracking IVV* is the total capital (in billions) invested in BlackRock's iShares Core S&P 500 Index Fund (IVV). *Capital Tracking SPY* is the total capital (in billions) invested in State Street's S&P 500 Index Fund (SPY). All other variables are defined in Appendix A. t-statistics based on standard errors clustered at the firm level are shown in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

| | **Passive Funds (%)** | **Passive Funds Residual (%)** | | |
|---|---|---|---|---|
| | **(1)** | **(2)** | **(3)** | **(4)** |
| **S&P 500** | 7.796*** | | | |
| | (16.59) | | | |
| **S&P 400** | 8.983*** | | | |
| | (27.84) | | | |
| **S&P 600** | 9.404*** | | | |
| | (37.36) | | | |
| **Russell 1000** | -0.606* | | | |
| | (-1.87) | | | |
| **Russell 2000** | 2.409*** | | | |
| | (16.93) | | | |
| **Market Cap** | 2.207*** | | | |
| | (27.51) | | | |
| **Capital Tracking VOO** | | 0.0559*** | | |
| | | (62.47) | | |
| **Capital Tracking IVV** | | | 0.0407*** | |
| | | | (62.13) | |
| **Capital Tracking SPY** | | | | 0.0302*** |
| | | | | (59.20) |
| **Firm Fixed Effects** | Yes | Yes | Yes | Yes |
| **N** | 29,950 | 29,950 | 29,950 | 29,950 |
| $R^2$ | 0.308 | 0.439 | 0.426 | 0.365 |

**Table 4: Displacing Non-Fund Investors.** This table examines the effect of flow-induced passive ownership on corporate governance when passive funds displace non-fund investors. *Displace Non-Fund Investors* is an indicator variable equal to one if the change in passive ownership is greater than zero and if the change in active ownership is greater than or equal to zero. All variables are defined in Appendix A. t-statistics based on standard errors clustered at the firm level are shown in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

**Panel A: Correlations in the Subsample Where Passive Funds Displace Non-Fund Investors.**

| | ΔPassive Funds | ΔActive Funds | ΔNon-Fund Investors |
|---|---|---|---|
| **ΔPassive Funds** | 1.00 | | |
| **ΔActive Funds** | 0.44*** | 1.00 | |
| **ΔNon-Fund Investors** | -0.71*** | -0.94*** | 1.00 |

**Panel B: Effect on Governance.**

| | ΔOverall Governance$_{t+1}$ | ΔBoard Independence$_{t+1}$ | ΔIndependent Chairman$_{t+1}$ | ΔStaggered Board$_{t+1}$ | ΔPoison Pill$_{t+1}$ |
|---|---|---|---|---|---|
| | Displace Non-Fund Investors | | | | |
| | (1) | (2) | (3) | (4) | (5) |
| **ΔPassive Funds** | 0.472* | 0.0239 | 0.245* | -0.393*** | 0.110 |
| | (1.87) | (0.88) | (1.90) | (-3.81) | (1.40) |
| **ΔS&P 500** | 0.0191 | 0.0279** | 0.000361 | 0.0250 | 0.0307*** |
| | (0.28) | (2.45) | (0.01) | (0.69) | (3.28) |
| **ΔS&P 400** | 0.0199 | 0.0125** | 0.0228 | 0.0414*** | 0.0297** |
| | (0.44) | (2.13) | (0.87) | (2.68) | (2.41) |
| **ΔS&P 600** | -0.0727** | -0.000812 | -0.00490 | 0.0412*** | 0.0251** |
| | (-2.09) | (-0.19) | (-0.27) | (4.57) | (2.19) |
| **ΔRussell 1000** | 0.113 | -0.00234 | -0.0101 | -0.0120 | -0.0474 |
| | (0.97) | (-0.20) | (-0.52) | (-0.18) | (-0.65) |
| **ΔRussell 2000** | 0.0973 | -0.000826 | -0.0121 | -0.0211 | -0.0439 |
| | (0.89) | (-0.07) | (-0.93) | (-0.32) | (-0.68) |
| **ΔMarket Cap** | -0.0471 | -0.00671* | -0.0133 | 0.00590 | 0.0161 |
| | (-1.44) | (-1.71) | (-0.77) | (0.44) | (1.15) |
| **ΔFirm Size** | -0.100** | 0.00426 | -0.0508* | 0.0205 | -0.0252 |
| | (-1.99) | (0.80) | (-1.89) | (1.09) | (-1.64) |
| **ΔBTM** | -0.0829 | -0.00566 | -0.0214 | 0.0370* | 0.0160 |
| | (-1.65) | (-1.02) | (-0.79) | (1.66) | (0.91) |
| **ΔLeverage** | -0.0861 | -0.0244** | 0.112* | 0.0409 | 0.103*** |
| | (-0.80) | (-2.10) | (1.87) | (1.24) | (2.77) |
| **ΔCapEx** | 0.404 | 0.0284 | 0.185 | 0.0186 | -0.345** |
| | (1.41) | (0.90) | (1.41) | (0.20) | (-2.43) |
| **ΔR&D** | 0.558 | 0.0417 | -0.0489 | 0.271 | -0.285 |
| | (0.82) | (0.66) | (-0.17) | (0.98) | (-1.09) |
| **ΔROA** | -0.00154 | -0.0196 | 0.0393 | 0.0125 | -0.0273 |
| | (-0.01) | (-1.29) | (0.52) | (0.31) | (-0.64) |
| **ΔLoss** | 0.0302 | -0.00283 | 0.0454*** | 0.00781 | 0.00933 |
| | (1.18) | (-1.10) | (3.52) | (0.78) | (1.08) |
| **N** | 5,522 | 5,522 | 5,522 | 5,522 | 5,522 |
| $R^2$ | 0.007 | 0.006 | 0.006 | 0.008 | 0.006 |

**Table 5: Displacing Active Funds.** This table examines the effect of flow-induced passive ownership on corporate governance when passive funds displace active funds. *Displace Active Funds* is an indicator variable equal to one if the change in passive ownership is greater than zero and the change in ownership by non-fund investors is greater than or equal to zero. All variables are defined in Appendix A. t-statistics based on standard errors clustered at the firm level are shown in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

**Panel A: Correlations in the Subsample Where Passive Funds Displace Active Funds.**

| | ΔPassive Funds | ΔActive Funds | ΔNon-Fund Investors |
|---|---|---|---|
| **ΔPassive Funds** | 1.00 | | |
| **ΔActive Funds** | -0.41*** | 1.00 | |
| **ΔNon-Fund Investors** | 0.10*** | -0.93*** | 1.00 |

**Panel B: Effect on Governance.**

| | ΔOverall Governance$_{t+1}$ | ΔBoard Independence$_{t+1}$ | ΔIndependent Chairman$_{t+1}$ | ΔStaggered Board$_{t+1}$ | ΔPoison Pill$_{t+1}$ |
|---|---|---|---|---|---|
| | | | Displace Active Funds | | |
| | (1) | (2) | (3) | (4) | (5) |
| **ΔPassive Funds** | -1.277* | -0.0171 | 0.0482 | 0.279* | 0.474** |
| | (-1.83) | (-0.25) | (0.12) | (1.69) | (2.09) |
| **ΔS&P 500** | 0.0868 | 0.0238** | 0.0106 | -0.00162 | 0.0103 |
| | (0.91) | (2.40) | (0.16) | (-0.10) | (0.29) |
| **ΔS&P 400** | 0.136 | 0.0181** | 0.0452 | -0.00769 | -0.00552 |
| | (1.57) | (2.28) | (0.94) | (-0.40) | (-0.24) |
| **ΔS&P 600** | 0.146* | 0.0223*** | 0.0278 | -0.00567 | -0.00662 |
| | (1.87) | (2.67) | (0.69) | (-0.40) | (-0.25) |
| **ΔRussell 1000** | -0.282 | 0.0409 | 0.00755 | 0.00902 | 0.0193 |
| | (-1.48) | (0.97) | (0.11) | (0.40) | (0.76) |
| **ΔRussell 2000** | -0.311* | 0.0362 | 0.00185 | -0.00141 | 0.00648 |
| | (-1.72) | (0.87) | (0.04) | (-0.09) | (0.43) |
| **ΔMarket Cap** | -0.0452 | 0.00283 | -0.0307 | -0.0135 | -0.0113 |
| | (-1.06) | (0.58) | (-1.21) | (-1.12) | (-0.69) |
| **ΔFirm Size** | -0.255*** | -0.0148** | -0.0657 | 0.0252 | 0.0206 |
| | (-3.34) | (-2.17) | (-1.64) | (1.47) | (0.93) |
| **ΔBTM** | -0.0999 | 0.00730 | -0.108*** | -0.0182 | -0.0238 |
| | (-1.63) | (0.84) | (-2.74) | (-1.08) | (-0.87) |
| **ΔLeverage** | 0.142 | 0.00436 | 0.0143 | -0.0869* | -0.0546 |
| | (0.92) | (0.27) | (0.18) | (-1.71) | (-0.93) |
| **ΔCapEx** | -0.0802 | -0.000592 | -0.350 | 0.0116 | -0.0182 |
| | (-0.21) | (-0.01) | (-1.57) | (0.10) | (-0.16) |
| **ΔR&D** | -0.626 | -0.00596 | 0.0201 | 0.0475 | 0.192 |
| | (-1.13) | (-0.10) | (0.06) | (0.35) | (0.50) |
| **ΔROA** | 0.204 | 0.0244 | 0.0293 | -0.00951 | -0.0202 |
| | (1.11) | (1.24) | (0.31) | (-0.22) | (-0.28) |
| **ΔLoss** | -0.00783 | -0.00344 | 0.00496 | 0.00479 | -0.0149* |
| | (-0.24) | (-1.10) | (0.26) | (0.59) | (-1.65) |
| **N** | 3,374 | 3,374 | 3,374 | 3,374 | 3,374 |
| $R^2$ | 0.013 | 0.007 | 0.009 | 0.002 | 0.004 |

**Table 6: When Do Passive Funds Crowd Out Active Funds?** This table examines at what point an increase in passive funds crowds out active funds. The analysis uses observations where ownership by passive funds increases. The coefficient for *ΔRussell 2000* is missing in Columns (4) and (8) because the variable is zero for all observations in the subsamples. All variables are defined in Appendix A. t-statistics based on standard errors clustered at the firm level are shown in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

| | ΔActive Funds | | | |
|---|---|---|---|---|
| | **$Passive_{t-1}$<10%** | **10%< $Passive_{t-1}$<15%** | **15%< $Passive_{t-1}$<20%** | **$Passive_{t-1}$>20%** |
| | **(1)** | **(2)** | **(3)** | **(4)** |
| **ΔPassive Funds** | 1.113*** | 0.117*** | 0.00756 | -0.131* |
| | (39.30) | (2.58) | (0.15) | (-1.76) |
| **ΔS&P 500** | -0.0254*** | -0.0244*** | -0.0476*** | -0.0329** |
| | (-3.10) | (-2.83) | (-4.17) | (-2.40) |
| **ΔS&P 400** | -0.0344*** | -0.0160** | -0.0284*** | -0.0190* |
| | (-3.98) | (-2.13) | (-3.05) | (-1.82) |
| **ΔS&P 600** | -0.0465*** | -0.0172** | -0.0236** | -0.00799 |
| | (-9.38) | (-2.42) | (-2.57) | (-0.76) |
| **ΔRussell 1000** | 0.00464 | -0.00231 | 0.0200 | -0.000192 |
| | (0.79) | (-0.19) | (0.92) | (-0.02) |
| **ΔRussell 2000** | -0.0260*** | -0.0123 | 0.0214 | |
| | (-13.25) | (-0.98) | (1.10) | |
| **ΔMarket Cap** | 0.0152*** | 0.0168*** | 0.0269*** | 0.0225*** |
| | (9.59) | (4.78) | (5.32) | (3.88) |
| **ΔFirm Size** | 0.00350 | 0.00730 | -0.00742 | 0.00319 |
| | (1.51) | (1.42) | (-1.15) | (0.28) |
| **ΔBTM** | 0.00265 | 0.00646 | 0.0128* | 0.00278 |
| | (1.34) | (1.30) | (1.96) | (0.39) |
| **ΔLeverage** | -0.0149*** | -0.0134 | 0.0184 | 0.0423** |
| | (-2.62) | (-1.18) | (1.26) | (1.97) |
| **ΔCapEx** | 0.0473*** | 0.0953*** | 0.117* | 0.0434 |
| | (2.92) | (3.02) | (1.92) | (0.53) |
| **ΔR&D** | 0.000309 | 0.0110 | -0.0764 | 0.0388 |
| | (0.04) | (0.30) | (-1.00) | (0.30) |
| **ΔROA** | -0.00340 | 0.00421 | -0.0225 | 0.0342 |
| | (-1.01) | (0.37) | (-1.01) | (1.12) |
| **ΔLoss** | -0.00684*** | -0.000591 | -0.00589* | -0.000653 |
| | (-4.82) | (-0.25) | (-1.92) | (-0.14) |
| **N** | 14,892 | 5,270 | 2,632 | 1,193 |
| **$R^2$** | 0.219 | 0.024 | 0.036 | 0.053 |

**Table 7: Limits to the Benefits of Passive Ownership.** This table examines how the effect of an increase in flow-induced passive ownership on corporate governance depends on the existing level of passive ownership. The analysis uses observations where ownership by passive funds increases. The coefficient for *ΔRussell 2000* is missing in Column (4) because the variable is zero for all observations in the subsample. All variables are defined in Appendix A. t-statistics based on standard errors clustered at the firm level are shown in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

| | **ΔOverall Governance$_{t+1}$** | | | |
|---|---|---|---|---|
| | **Passive$_{t-1}$<10%** | **10%< Passive$_{t-1}$<15%** | **15%< Passive$_{t-1}$<20%** | **Passive$_{t-1}$>20%** |
| | **(1)** | **(2)** | **(3)** | **(4)** |
| **ΔPassive Funds** | 0.642** | 0.676 | -1.765*** | -1.907** |
| | (2.35) | (1.24) | (-3.39) | (-2.24) |
| **ΔS&P 500** | -0.0425 | 0.0538 | -0.0999 | 0.0578 |
| | (-0.62) | (0.44) | (-0.74) | (0.44) |
| **ΔS&P 400** | 0.0563 | -0.00617 | 0.0261 | -0.00873 |
| | (1.09) | (-0.07) | (0.25) | (-0.16) |
| **ΔS&P 600** | -0.0672** | -0.00541 | 0.0743 | 0.0217 |
| | (-2.12) | (-0.08) | (0.66) | (0.47) |
| **ΔRussell 1000** | -0.0364 | 0.154 | -0.0419 | 0.0997 |
| | (-0.29) | (0.69) | (-0.70) | (0.60) |
| **ΔRussell 2000** | -0.0163 | 0.165 | -0.0508 | |
| | (-0.16) | (0.73) | (-1.01) | |
| **ΔMarket Cap** | -0.0484 | -0.0250 | -0.0413 | -0.00612 |
| | (-1.16) | (-0.54) | (-0.78) | (-0.10) |
| **ΔFirm Size** | -0.135** | -0.240*** | -0.0732 | -0.103 |
| | (-2.06) | (-3.42) | (-0.97) | (-0.69) |
| **ΔBTM** | -0.101* | -0.111 | -0.0497 | -0.0164 |
| | (-1.73) | (-1.59) | (-0.68) | (-0.18) |
| **ΔLeverage** | -0.0680 | 0.0711 | 0.166 | 0.0398 |
| | (-0.47) | (0.47) | (1.00) | (0.14) |
| **ΔCapEx** | -0.333 | 0.489 | 0.136 | -0.382 |
| | (-0.80) | (1.19) | (0.37) | (-0.64) |
| **ΔR&D** | 0.419 | -0.946 | 0.743 | 0.561 |
| | (0.69) | (-1.33) | (0.96) | (0.46) |
| **ΔROA** | 0.164 | -0.0966 | 0.0394 | 0.761* |
| | (0.98) | (-0.48) | (0.21) | (1.74) |
| **ΔLoss** | 0.0162 | -0.0120 | 0.0267 | 0.0753 |
| | (0.55) | (-0.34) | (0.76) | (1.20) |
| **N** | 3,730 | 3,898 | 2,251 | 1,087 |
| $R^2$ | 0.011 | 0.010 | 0.011 | 0.013 |

**Table 8: The Effect of Passive Ownership on Corporate Transparency.** This table examines the effect of flow-induced passive ownership on an alternative proxy for governance: corporate transparency. The analysis uses observations where ownership by passive funds increases. All variables are defined in Appendix A. t-statistics based on standard errors clustered at the firm level are shown in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

| | **ΔCorporate Transparency$_{t+1}$** | | | |
|---|---|---|---|---|
| | **Displace Non-Fund Investors** | **Displace Active Funds** | **Passive$_{t-1}$<15%** | **Passive$_{t-1}$>15%** |
| | **(1)** | **(2)** | **(3)** | **(4)** |
| **ΔPassive Funds** | 0.290*** | -0.131 | 0.285*** | -0.588** |
| | (2.93) | (-0.46) | (3.23) | (-2.05) |
| **ΔS&P 500** | 0.0431 | -0.0483 | 0.00858 | 0.0126 |
| | (1.14) | (-1.15) | (0.30) | (0.22) |
| **ΔS&P 400** | -0.00157 | -0.0200 | -0.00908 | 0.00187 |
| | (-0.06) | (-0.57) | (-0.42) | (0.04) |
| **ΔS&P 600** | -0.0173 | -0.0580 | -0.0299** | 0.0124 |
| | (-0.97) | (-1.61) | (-2.09) | (0.29) |
| **ΔRussell 1000** | -0.0228 | 0.0322 | -0.00569 | 0.143** |
| | (-0.96) | (1.16) | (-0.30) | (2.19) |
| **ΔRussell 2000** | -0.0110 | -0.00591 | -0.0109* | 0.117* |
| | (-1.57) | (-0.37) | (-1.91) | (1.92) |
| **ΔMarket Cap** | 0.0552*** | 0.0618*** | 0.0521*** | 0.102*** |
| | (7.79) | (5.59) | (9.01) | (4.80) |
| **ΔFirm Size** | 0.00649 | -0.00794 | -0.000532 | -0.0432 |
| | (0.64) | (-0.51) | (-0.07) | (-1.29) |
| **ΔBTM** | 0.00751 | 0.0292** | 0.0134** | 0.0223 |
| | (0.89) | (2.33) | (2.00) | (0.91) |
| **ΔLeverage** | 0.0676*** | 0.0313 | 0.0382* | 0.270*** |
| | (2.61) | (0.84) | (1.95) | (3.80) |
| **ΔCapEx** | 0.175** | 0.0304 | 0.0894 | 0.285 |
| | (2.50) | (0.30) | (1.53) | (1.38) |
| **ΔR&D** | 0.0498 | -0.0479 | 0.0244 | -0.0230 |
| | (1.51) | (-0.70) | (0.92) | (-0.06) |
| **ΔROA** | -0.0346** | -0.00308 | -0.0210 | -0.0202 |
| | (-2.10) | (-0.11) | (-1.61) | (-0.27) |
| **ΔLoss** | -0.0110* | 0.0105 | -0.00591 | 0.0311* |
| | (-1.72) | (1.11) | (-1.12) | (1.91) |
| **N** | 13,075 | 6,429 | 19,526 | 3,565 |
| $R^2$ | 0.011 | 0.010 | 0.009 | 0.018 |

**Table 9: Controlling for Changes in Active Ownership.** This table examines the effect of flow-induced passive ownership on corporate governance when controlling for changes in active ownership. All variables are defined in Appendix A. t-statistics based on standard errors clustered at the firm level are shown in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

| | **ΔOverall Governance$_{t+1}$** | | **ΔCorporate Transparency$_{t+1}$** | |
|---|---|---|---|---|
| | **Displaces Non-Fund Investors** | | | |
| | **(1)** | **(2)** | **(3)** | **(4)** |
| **ΔPassive Funds** | 0.0463 | | 0.0548 | |
| | (0.16) | | (0.51) | |
| **ΔPassive Funds Ventile** | | 0.00594* | | 0.00250** |
| | | (1.68) | | (2.04) |
| **ΔActive Funds** | 0.476*** | 0.346** | 0.251*** | 0.216*** |
| | (3.50) | (2.40) | (4.51) | (3.90) |
| **ΔS&P 500** | 0.0250 | 0.0125 | 0.0455 | 0.0408 |
| | (0.36) | (0.18) | (1.21) | (1.08) |
| **ΔS&P 400** | 0.0267 | 0.0114 | 0.00163 | -0.00366 |
| | (0.59) | (0.25) | (0.06) | (-0.13) |
| **ΔS&P 600** | -0.0593* | -0.0760** | -0.0106 | -0.0160 |
| | (-1.69) | (-2.15) | (-0.60) | (-0.90) |
| **ΔRussell 1000** | 0.111 | 0.109 | -0.0238 | -0.0269 |
| | (0.93) | (0.92) | (-1.01) | (-1.14) |
| **ΔRussell 2000** | 0.108 | 0.101 | -0.00467 | -0.00902 |
| | (0.97) | (0.92) | (-0.66) | (-1.26) |
| **ΔMarket Cap** | -0.0489 | -0.0501 | 0.0533*** | 0.0531*** |
| | (-1.50) | (-1.54) | (7.56) | (7.53) |
| **ΔFirm Size** | -0.104** | -0.105** | 0.00452 | 0.00375 |
| | (-2.08) | (-2.11) | (0.45) | (0.37) |
| **ΔBTM** | -0.0808 | -0.0780 | 0.00668 | 0.00706 |
| | (-1.61) | (-1.56) | (0.80) | (0.84) |
| **ΔLeverage** | -0.0728 | -0.0690 | 0.0702*** | 0.0711*** |
| | (-0.67) | (-0.64) | (2.72) | (2.75) |
| **ΔCapEx** | 0.375 | 0.383 | 0.163** | 0.164** |
| | (1.32) | (1.34) | (2.33) | (2.35) |
| **ΔR&D** | 0.553 | 0.542 | 0.0497 | 0.0480 |
| | (0.81) | (0.79) | (1.51) | (1.46) |
| **ΔROA** | -0.0109 | -0.0181 | -0.0327** | -0.0334** |
| | (-0.08) | (-0.13) | (-1.99) | (-2.03) |
| **ΔLoss** | 0.0324 | 0.0325 | -0.00982 | -0.00976 |
| | (1.27) | (1.28) | (-1.53) | (-1.52) |
| **N** | 5,522 | 5,522 | 13,075 | 13,075 |
| $R^2$ | 0.009 | 0.010 | 0.013 | 0.014 |

**Table 10: Alternative Classification of Active Ownership.** This table compares the effect of flow-induced passive ownership on corporate governance when passive funds displace other investors vs. displace active ownership, where active ownership is defined as the sum of ownership by active funds and non-fund investment advisors. In this analysis, *Other Investors* is the fraction of the firm's market capitalization held by investors who are neither funds nor investment advisors. *Displacing Other Investors* is an indicator variable equal to one if the change in passive ownership is greater than zero and the change in active ownership is greater than or equal to zero. *Displacing Active Funds & Investment Advisors* is an indicator variable equal to one if the change in passive ownership is greater than zero and the change in ownership by other investors is greater than or equal to zero. All other variables are defined in Appendix A. t-statistics based on standard errors clustered at the firm level are shown in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

**Panel A: Summary Statistics.**

| | N | Mean | SD | P25 | P50 | P75 |
|---|---|---|---|---|---|---|
| **Ownership Variables** | | | | | | |
| Passive Funds | 29,950 | 0.10 | 0.07 | 0.04 | 0.09 | 0.14 |
| Active Funds | 29,950 | 0.14 | 0.10 | 0.04 | 0.12 | 0.21 |
| Investment Advisors | 27,055 | 0.17 | 0.10 | 0.10 | 0.16 | 0.22 |
| Other Investors | 27,055 | 0.60 | 0.21 | 0.44 | 0.57 | 0.75 |

**Panel B: Effect on Governance.**

| | $\Delta$Overall Governance$_{t+1}$ | | $\Delta$Corporate Transparency$_{t+1}$ | |
|---|---|---|---|---|
| | **Displaces Other Investors** | **Displace Active Funds & Investment Advisors** | **Displaces Other Investors** | **Displace Active Funds & Investment Advisors** |
| | **(1)** | **(2)** | **(3)** | **(4)** |
| **ΔPassive Funds** | 0.477* | -0.262 | 0.279*** | 0.168 |
| | (1.88) | (-0.47) | (2.89) | (1.04) |
| **ΔS&P 500** | -0.0350 | -0.0524 | 0.0540 | -0.0259 |
| | (-0.54) | (-0.68) | (1.56) | (-0.83) |
| **ΔS&P 400** | 0.0178 | 0.0412 | -0.0145 | -0.0105 |
| | (0.35) | (0.66) | (-0.55) | (-0.41) |
| **ΔS&P 600** | -0.0711* | 0.0516 | -0.0359* | -0.0388* |
| | (-1.90) | (1.00) | (-1.94) | (-1.75) |
| **ΔRussell 1000** | 0.0959 | -0.0898* | -0.00686 | -0.00543 |
| | (0.78) | (-1.80) | (-0.31) | (-0.22) |
| **ΔRussell 2000** | 0.129 | -0.110*** | -0.00982 | -0.0155 |
| | (1.10) | (-2.68) | (-1.40) | (-1.47) |
| **ΔMarket Cap** | -0.0518 | -0.0557 | 0.0541*** | 0.0508*** |
| | (-1.59) | (-1.44) | (7.76) | (6.00) |
| **ΔFirm Size** | -0.151*** | -0.187*** | 0.00290 | -0.00243 |
| | (-2.77) | (-3.00) | (0.30) | (-0.22) |
| **ΔBTM** | -0.116** | -0.105* | 0.00602 | 0.0157* |
| | (-2.21) | (-1.76) | (0.74) | (1.78) |
| **ΔLeverage** | -0.00428 | 0.116 | 0.0686*** | 0.0268 |
| | (-0.04) | (0.82) | (2.83) | (0.99) |
| **ΔCapEx** | 0.0792 | -0.198 | 0.132* | -0.0160 |
| | (0.25) | (-0.54) | (1.87) | (-0.20) |
| **ΔR&D** | 0.196 | -0.150 | 0.0594* | -0.0198 |
| | (0.40) | (-0.33) | (1.82) | (-0.56) |
| **ΔROA** | 0.146 | 0.105 | -0.0208 | -0.00157 |
| | (1.03) | (0.67) | (-1.25) | (-0.10) |
| **ΔLoss** | 0.0460* | -0.0288 | -0.00682 | 0.00809 |
| | (1.75) | (-0.91) | (-1.08) | (1.04) |
| **N** | 5,675 | 3,843 | 14,224 | 9,252 |
| $R^2$ | 0.010 | 0.011 | 0.011 | 0.007 |

**Table 11: Two-Stage Approach.** This table examines the effect of flow-induced passive ownership on corporate governance when using the two-stage approach. *ΔPassive Funds Residual* is the residual from the following regression:

$$\Delta Passive\ Funds = \alpha_0 + \alpha_1 \Delta S\&P\ 500 + \alpha_2 \Delta S\&P\ 400 + \alpha_3 \Delta S\&P\ 600 + \alpha_4 \Delta Russell\ 1000 + \alpha_5 \Delta Russell\ 2000 + \alpha_6 \Delta Market\ Cap + \epsilon.$$

The analysis uses observations where ownership by passive funds increases. All variables are defined in Appendix A. t-statistics based on standard errors clustered at the firm level are shown in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

| | **ΔOverall Governance$_{t+1}$** | | | | **ΔCorporate Transparency$_{t+1}$** | | | |
|---|---|---|---|---|---|---|---|---|
| | **Displaces Non-Fund Investors** | **Displaces Active Funds** | **Passive$_{t-1}$<15%** | **Passive$_{t-1}$>15%** | **Displaces Non-Fund Investors** | **Displaces Active Funds** | **Passive$_{t-1}$<15%** | **Passive$_{t-1}$>15%** |
| | **(1)** | **(2)** | **(3)** | **(4)** | **(5)** | **(6)** | **(7)** | **(8)** |
| **ΔPassive Funds Residual** | 0.494** | -1.328* | 0.769*** | -1.790*** | 0.274*** | -0.166 | 0.268*** | -0.675** |
| | (1.96) | (-1.89) | (3.27) | (-4.02) | (2.79) | (-0.62) | (3.06) | (-2.36) |
| **ΔFirm Size** | -0.134*** | -0.289*** | -0.211*** | -0.119** | 0.0500*** | 0.0376*** | 0.0404*** | 0.0439 |
| | (-3.02) | (-4.42) | (-5.39) | (-2.05) | (6.17) | (2.66) | (6.35) | (1.50) |
| **ΔBTM** | -0.0409 | -0.0470 | -0.0684** | 0.00402 | -0.0450*** | -0.0295*** | -0.0362*** | -0.0736*** |
| | (-1.12) | (-1.16) | (-2.25) | (0.10) | (-6.78) | (-3.26) | (-7.29) | (-3.85) |
| **ΔLeverage** | -0.0288 | 0.207 | 0.0378 | 0.180 | -0.000907 | -0.0512 | -0.0261 | 0.127** |
| | (-0.28) | (1.43) | (0.40) | (1.29) | (-0.04) | (-1.41) | (-1.41) | (2.04) |
| **ΔCapEx** | 0.428 | -0.0765 | 0.0877 | -0.0170 | 0.168** | 0.0381 | 0.0832 | 0.271 |
| | (1.49) | (-0.20) | (0.30) | (-0.05) | (2.40) | (0.37) | (1.43) | (1.32) |
| **ΔR&D** | 0.565 | -0.571 | -0.226 | 0.680 | 0.0549* | -0.0671 | 0.0274 | 0.0294 |
| | (0.82) | (-1.03) | (-0.47) | (1.00) | (1.70) | (-0.99) | (1.05) | (0.07) |
| **ΔROA** | -0.0255 | 0.169 | 0.00808 | 0.230 | -0.0293* | 0.00709 | -0.0151 | 0.0361 |
| | (-0.18) | (0.94) | (0.06) | (1.16) | (-1.81) | (0.26) | (-1.16) | (0.50) |
| **ΔLoss** | 0.0285 | -0.00856 | 0.000596 | 0.0399 | -0.0146** | 0.00604 | -0.00973* | 0.0295* |
| | (1.12) | (-0.27) | (0.03) | (1.23) | (-2.30) | (0.65) | (-1.86) | (1.81) |
| **N** | 5,522 | 3,374 | 7,628 | 3,338 | 13,075 | 6,429 | 19,526 | 3,565 |
| $R^2$ | 0.006 | 0.011 | 0.009 | 0.007 | 0.006 | 0.003 | 0.004 | 0.011 |