Passive Investors are Passive Monitors

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ABSTRACT

Passively managed index funds now own more than 25% of U.S. mutual fund and ETF assets. Using a new research design based on index reconstitutions, we study the governance implications of passive investing by directly examining the voice and exit mechanisms. We find that index funds are more likely to vote with a firm's management. Moreover, while they do regularly exit positions and omit holdings in their target benchmark, they do not use the exit mechanism to enforce good governance. Our results show that passive investing shifts power from investors to firm managers.

Keywords: governance, exit, index investing, monitoring, passive investing, voting

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I. Introduction

In recent years public corporations have experienced a large increase in ownership by passively managed index funds (see Figure 1), and index funds are now the largest blockholders of many U.S. corporations (Azar, Tecu, and Schmalz (2018)). These facts raise important questions about monitoring and corporate governance. Notably, to what extent do index funds monitor their portfolio firms? Given the increasingly large positions held by index funds, principal-agent theories would argue that such investors have strong incentives to monitor (Jensen and Meckling (1976), Grossman and Hart (1980), Shleifer and Vishny (1986), Admati, Pfleiderer, and Zechner (1994)). Furthermore, since the need to minimize tracking error makes it costly for index funds to exit a position, index funds should have strong incentives to enforce good governance through the voice mechanism (e.g., Fisch, Hamdani, and Davidoff Solomon (2018)). Consistent with this view, a number of recent studies argue that index funds are "closet activists" who improve a variety of corporate policies, from dividends and disclosure to competitive strategy.[1]

However, the economics of index investing suggest that index funds might have weak incentives to monitor, since they typically have many firms in their portfolio and limited resources to invest in monitoring due to their low-cost structure.[2] Moreover, indexing creates a free-rider problem since improvements to firm value are shared with all the funds that follow the same benchmark, but the costs are borne only by the index fund that exerts monitoring effort (Bebchuk, Cohen, and Hirst (2017); Bebchuk and Hirst (2018)).

We contribute to the debate by examining the two main monitoring mechanisms predicted

[1]Boone and White (2015), Appel, Gormley, and Keim (2016), Crane, Michenaud, and Weston (2016), Azar et al. (2018). Yet, see also Schmidt and Fahlenbrach (2017) who find that index fund ownership leads to worse corporate governance.

[2]In our data, the average index fund holds 357 stocks while the average active fund holds 114 stocks. We discuss this point further in Sections II and IV.

by theory: voice and exit. In other words, rather than looking at various outcomes of corporate governance, we directly examine the monitoring behavior of index funds. We find that index funds are 10 percentage points less likely to vote against firm management compared to active funds. And while index funds do exit their positions, voluntarily exiting 14% of their portfolio stocks each year on average, they do not use the exit mechanism to enforce good governance. Specifically, unlike active funds, index funds are not more likely to exit a position after losing a vote. Thus, consistent with the theoretical predictions in Bebchuk et al. (2017) and Edmans, Levit, and Reilly (2018), our results on voting and exit indicate that passive investors are passive monitors.

The main difficulty in studying fund behavior is that fund holdings are endogenous. First, firm characteristics such as size and liquidity jointly affect ownership and governance. Second, different firm policies attract different types of investors.[3] Thus, there is the potential for endogeneity due to both omitted variables and reverse causality. More subtly, there is also the potential for selection bias: If a fund chooses not to hold a firm, we do not observe how that fund would have voted. Thus, if index funds tend to hold well-run firms whose management is often right or active funds tend to hold poorly-run firms whose management is often wrong, the differences in monitoring might simply reflect differences between firms.

To generate exogenous variation in fund holdings, we develop a new research design using Russell index reconstitutions from 2007 onward. In June of each year, Russell Investments reconstitutes their popular Russell 1000 (large-cap) and Russell 2000 (small-cap) indexes. In 2007 Russell implemented a new assignment regime ("banding"), which replaced the yearly

[3]Grinstein and Michaely (2005) find that higher firm payouts attract institutional holdings, while Brav, Jiang, Partnoy, and Thomas (2008), Aghion, Van Reenen, and Zingales (2013), and Michaely, Popadak, and Vincent (2015) find that active investors target firms with weak governance and high leverage.

discontinuity in index *membership* with two yearly discontinuities in index *switching*.[4] Our new methodology does not suffer from selection bias, which is a potential concern in studies of the pre-2007 regime (see Wei and Young (2017)), and allows us to examine the impact of index investing in recent years when it is most prevalent. We use the Russell research design in a two-stage Heckman (1979) model, which allows us to correct for selection bias in comparisons of fund behavior.

We first examine funds' voting behavior across all agenda items. On consensus votes (when proxy advisors and management agree), index funds and active funds vote identically. By contrast, on contentious votes (when proxy advisors and management disagree), index funds are 10 percentage points more likely than active funds to side with management.[5] Furthermore, index funds with lower expense ratios are more likely to side with management. This second result is informative for two reasons: First, it provides support for theoretical work arguing that index funds lack the incentives and resources to actively monitor their portfolio firms (Bebchuk et al. (2017)).[6] Second, it indicates that voting with management is indeed passive, because index funds that have less resources to invest in monitoring are more likely to cede authority to firm's management.[7]

Next, we examine voting on specific governance issues: board of directors elections, executive compensation, corporate disclosure, and managerial entrenchment. We find that

[4]We find that when a stock switches into the Russell 2000, index fund ownership increases by 1.3% of its market capitalization on average, and when a stock switches out of the Russell 2000 index fund ownership falls by 1.23% of its market capitalization. In both cases an opposite change in ownership by active funds accompanies the change in index fund ownership.

[5]In further analysis we examine voting at the fund family level. We find that fund families that have more assets under management (AUM) by index funds are more likely to side with firm management.

[6]The economics of index investing restricts the resources they have to employ in monitoring since index funds compete on providing a standardized product at the lowest price (i.e. expense ratio) possible.

[7]In other words, while it may not be clear *a priori* that voting with management should be considered passive, we find that index funds with higher expense ratios vote more like active funds do. Moreover, it is clear that from a principal-agent perspective voting with management cedes power from the investor (the principal) to firm management (the agent).

index funds are less likely than active funds to vote against management across all of these categories. This is particularly striking as it shows that index funds cede authority to managers on *all* categories of votes that affect corporate governance.

Three alternate hypotheses could explain these findings. First, index funds could use exit instead as a monitoring mechanism to enforce good governance. Second, index funds could engage with managers either publicly or behind the scenes, and then vote in support of management proposals that they proposed to managers in the first place.[8] Third, even if index funds do not actively engage with their portfolio firms, the managers of those firms might be driven to appease these large shareholders by following policies that are preferred by index funds (Fisch et al. (2018)).

We examine the exit hypothesis by directly examining funds' exit decisions. Overall we find that index funds are 25% less likely than active funds to exit a position. We document strong evidence that the selection bias in fund exit is upward: Active funds prefer to hold more liquid stocks, which they are more prone to exit.[9] More importantly, we find evidence of strategic substitution between voting and exit for active funds but not for index funds: When active funds lose a vote, they are more likely to exit the position subsequently, as theory predicts (Edmans et al. (2018)). Conversely, index funds do not exit a position after losing a vote. Thus, while we do find evidence that index funds regularly exit stocks in their benchmark index, they do not use exit to express their dissatisfaction with management.

We examine the engagement hypothesis in two ways. First, we split agenda items into shareholder proposals and management proposals. Behind the scenes engagement could explain index funds' voting behavior on management proposals, but it cannot apply to share-

[8]In a recent survey, McCahery, Sautner, and Starks (2016) find evidence of behind the scenes intervention by institutional investors. However, they don't distinguish between active funds and index funds.

[9]Coffee (1991), Bhide (1993), and Edmans, Fang, and Zur (2013) discuss the implications of liquidity for governance.

holder proposals. Hence, "active" index funds should be more willing to oppose management on shareholder proposals. Yet we find that relative to active funds, index funds are 7.5 percentage points more likely to vote with management on contentious shareholder proposals. These results are echoed in a contemporaneous working paper by Brav, Jiang, and Li (2018): They document that in proxy contests, an important and contentious subcategory of shareholder proposals, index funds do not support activist shareholders but instead side with firm management on average.

Second, we examine funds' relative propensity to engage. Shareholders are required to disclose a holding above 5% of the firm's market cap via either Schedule 13D, which allows the fund to officially engage with the firm, or Schedule 13G, which does not. We find that index funds are significantly less likely to file Schedule 13D than active funds. This finding echoes the evidence in Bebchuk and Hirst (2018) that index funds do not meet with the majority of their portfolio firms. Also, engagement relies on the fund expending resources to become informed: funds must first do research on their portfolio firms to understand what policies need to be implemented and then they must engage with managers. In a recent working paper, Iliev, Kalodimos, and Lowry (2018) document that, relative to active funds, index funds conduct significantly less research about their portfolio firms. In sum, our results on shareholder proposals and 13D filings, together with the evidence in Brav et al. (2018) and Iliev et al. (2018), are inconsistent with the hypothesis that index funds engage with firm management.

Third, we examine the appeasement hypothesis that managers might implement positive governance changes without index funds' direct intervention. We find that when an index fund is randomly assigned to hold a firm, the fraction of consensus versus contentious proposals by both management and shareholders does not change. This result is inconsistent

with the hypothesis that firm governance changes as a direct consequence of index funds investing in a firm.

Thus, our results uniformly indicate that index funds are passive monitors of their portfolio firms. Relative to active funds, index funds are significantly less likely to vote against management, to use exit to influence corporate outcomes, or to engage with management. Finally, we study whether such passive monitoring behavior by index funds matters for capital market participants. Specifically, we examine stock market returns around votes to better understand whether passive monitoring creates or destroys firm value. We find a negative market reaction when an index fund votes in favor of an agenda item that passes. In other words, our results indicate that passive monitoring by index funds hurts firm value.

Our paper contributes to the literature in several ways. First, our study relates to the literature that examines agency costs and monitoring incentives arising from dispersed ownership (Berle and Means (1932); Jensen and Meckling (1976); Demsetz (1983); Shleifer and Vishny (1986); Admati et al. (1994); Maug (1998)). We contribute to this literature by directly examining the two main mechanisms predicted by theory: voice and exit. While recent work has examined voting behavior of institutional investors as a whole (e.g., Matvos and Ostrovsky (2010), Iliev and Lowry (2014)), our analysis focuses on index funds and examines the channels through which index funds monitor. Given the increasing trend toward index investing, and since index funds have become the largest blockholders of many U.S. corporations (Azar et al. (2018)), studying their monitoring incentives *vis-a-vis* active funds is of fundamental importance (Edmans (2014)). In this regard, our study provides the first direct evidence on the prediction that index funds are weaker monitors than active funds (Bebchuk et al. (2017), and Bebchuk and Hirst (2018)), and suggests that passive investing shifts power from investors to firm managers.

Second, we develop a novel Russell index-based methodology. In contrast to most existing papers (e.g., Boone and White (2015), Appel et al. (2016), Crane et al. (2016), Schmidt and Fahlenbrach (2017)), our approach enables us to examine the post-2006 index assignment regime specifically. This has several advantages. First, the amount of capital allocated to passive index funds has grown dramatically since 2006, so our approach allows us to examine the impact of index investing when it is most prevalent. Second, our approach avoids potential selection issues in studies that use pre-2007 Russell Index reconstitutions (see Wei and Young (2017) for a discussion).[10] Finally, our sample period means that our results can be viewed as out-of-sample relative to previous studies.

Finally, our paper adds to the literature examining the impact of index investing on corporate behavior (see Edmans (2014) for a recent review of this literature). While a number of papers have shown that corporate outcomes appear to be affected by index fund ownership, (e.g., Boone and White (2015), Appel et al. (2016), Crane et al. (2016)) it remains unclear how index funds actually cause these effects. Our study shows that index funds do not influence firm-level outcomes through the two main monitoring channels, voice and exit. Overall, we provide strong evidence that passive investors are passive monitors.

The remainder of the paper proceeds as follows: Section II describes the data used in this study and presents key summary statistics regarding the monitoring behavior of funds. Section III provides a detailed overview of our identification strategy. Section IV presents our main results. Section V concludes.

[10] We document this with extensive balance and robustness checks.

II. Data and Summary Statistics

To examine the governance implications of passive index investing, we combine data from the Center for Research in Security Prices (CRSP), Compustat, Institutional Shareholder Services (ISS), and the Frank Russell Company (Russell), as discussed in detail below.

A. Data

We use Russell Index membership lists provided directly from Russell and we match this data to firm and stock-level characteristics from CRSP and Compustat.[11] To measure fund voting behavior, we use the ISS Fund Voting data. Starting from 2003, ISS records the votes cast by individual mutual funds and exchange traded funds (ETFs) at shareholder meetings for the majority of publicly traded U.S. firms.[12] We link the ISS data by fund-year to the CRSP mutual fund database, requiring that all sample funds be U.S. equity mutual funds with at least $10 million in assets under management.

We measure funds' holdings by combining the CRSP mutual fund holdings database with the Thomson Reuters S12 database. We find that both databases omit some holdings of certain mutual funds in certain years, but the omissions are largely orthogonal across the two databases.[13] In unreported analyses, we find that all our results are similar when we use only S12 or only CRSP holdings data.

[11] We do not impose filters on firm or stock characteristics, because our identification strategy requires all firms that are in the Russell 1000 or Russell 2000 in cohort year t and year $t-1$.

[12] One potential challenge for studies of fund voting is that funds incorporated as a trust, such as SPY and QQQ, are not subject to NP-X reporting requirements. As such, their voting data is not publicly reported anywhere. None of the Russell 2000 index funds including IWM are incorporated as trusts, so our voting results are not affected by the omission of this data. We thank Tara Bhandari and Amy Edwards at the Security and Exchange Commission for helpful conversations on this topic.

[13] For example, S12 omits some data on the Vanguard Russell 2000 fund, which is well covered in CRSP. Conversely, prior to 2008 CRSP omits some data on the iShares Russell 2000 fund. Combining the two databases yields good coverage of both funds in all sample years.

B. Summary Statistics

We begin our analysis by examining the cross-sectional variation of voting outcomes between active and index funds using univariate summary statistics. Consistent with the literature, we define an index fund as a fund with fund flag "D" in the CRSP Mutual Fund Database, and we classify all other funds as active funds. Row 1 of Table I shows the distribution of fund votes across the entire set of agenda items (i.e., the full matched sample). We find that index funds vote Yes 91.3% of the time compared to 90.4% of the time for active funds.

Many votes are largely procedural, such as renewing the board of directors each year, or voting to adjourn the meeting. Accordingly, in the next four rows of Table I we analyze the distribution of fund votes broken into two categories: "consensus votes", i.e. items for which management and ISS made the same recommendation (rows 2-3), and "contentious votes", i.e. items for which management and ISS made opposing recommendations (rows 4-5). For items that management and ISS both approve, index funds vote Yes 96.8% of the time while active funds vote Yes 97.1% of the time. Similarly, for votes that management and ISS both oppose, index funds vote Yes 4.5% of the time while active funds vote Yes 5.3% of the time. The rates at which active and index funds abstain or fail to record a vote are also similar.[14] Thus, on consensus votes, index funds and active funds vote identically.

On contentious items the results are very different. For items which management supports but ISS opposes, index funds vote Yes 51.6% of the time compared to 44.6% for active funds. For items which management opposes but ISS supports, index funds vote No 50.1% of the time compared to 45.3% for active funds. Thus, in both cases index funds are more likely

[14] As noted in Maug and Rydqvist (2001), some institutions may be required to vote, and because they want to maintain a long-term relationship with management, voting "abstain" may be preferred to voting "against."

to side with management. Interestingly, index funds are also *less* likely than active funds to abstain on contentious items. Maug and Rydqvist (2001) argues that if voting is costless then no shareholder should ever abstain. Hence, the significant number of abstentions in our analysis implies that voting on contentious items is costly to funds. Across all contentious votes in the sample, index funds voted with management 52.7% of the time while active funds voted with management 47.4% of the time.

These results provide descriptive evidence that index funds are passive monitors, in that they are less likely than active funds to vote against firm management. While *a priori* it may be unclear if voting with management should be considered passive, it is important to note that this behavior transfers power from investors (the principals) to the firm's managers (the agents). Hence, from a principal-agent perspective (e.g., Berle and Means (1932), Jensen and Meckling (1976), Maug (1998)) such a voting strategy is clearly passive.

Of course, it remains possible that index funds use the exit mechanism, instead of the voice mechanism, to monitor their portfolio companies. Put differently, to understand whether index funds are good monitors, it is necessary to examine both voice and exit behavior (e.g., Edmans et al. (2018)). Using the mutual fund holdings data we observe if each fund exits a given stock in a given year. We further distinguish between voluntary and involuntary exit: All funds must exit a position if a firm is acquired or delisted, so we code these as involuntary exits. Second, we infer that an index fund must exit a position if a firm moves out of the index, so we code these events as involuntary as well.[15]

In untabulated results, we find that each year on average an active fund voluntarily exits 36 (or 32%) of their 114 positions. By comparison, on average each year a Russell 2000

[15]If the mutual fund holdings databases are missing data for some fund-stock-years, then the level of our exit statistics will be biased upwards. However, our main estimates comparing the exit decisions of index funds relative to active funds should be unaffected.

index fund voluntarily exits 253 (or 15%) of its 1734 positions and a Russell 1000 index fund voluntarily exits 112 (or 13%) of its 891 positions. Thus, the data suggest that index funds do voluntarily exit from a significant number of their positions each year, although less than half as frequently as active funds. While it may seem surprising that index funds do not hold 100% of their benchmark stocks, we find that they are more likely to hold stocks with high index weights, so on a value-weighted basis they hold most of the stocks in their benchmark index.

However, a limitation of the results presented so far is that both active and index funds choose which stocks they hold. Hence, there is the potential for both an *endogeneity bias* – if fund holdings are correlated with firm governance – and a *selection bias* – since if a fund chooses not to hold a firm then we do not observe how the fund would have voted. To address these potential biases, in the next section we develop a new research design that uses post-2006 Russell index reconstitutions. We show that this empirical approach produces exogenous variation in fund holdings, and we use this variation to examine fund voting and exit behavior.

III. Research Design

A. Background on Russell Indexes

In June of each year Russell Investments reconstitutes their popular Russell 1000 (large-capitalization) and Russell 2000 (small-capitalization) indexes. To determine index assignment, Russell ranks all qualifying U.S. common stocks by their market capitalization as of

the last business day in May.[16] Before June 2007, index assignment followed a simple threshold rule: stocks ranked from 1-1000 were assigned to the Russell 1000, while stocks ranked from 1001-3000 were assigned to the Russell 2000. Figure 2 Panel A plots index assignments for 2006, the last year before the new reconstitution methodology was imposed. The figure shows a sharp discontinuity in index assignment at the threshold, which lends itself to a regression discontinuity design (RDD) as used in a number of extant studies (e.g., Boone and White (2015), Appel et al. (2016), Crane et al. (2016), etc.).

Starting in June 2007, Russell implemented a new assignment regime ("banding"). After sorting stocks by their market capitalization, Russell computes an upper and lower band around the Russell 1000 cutoff; the band is calculated as +/- 2.5% of the total market capitalization of the Russell 3000E.[17] Stocks within the bands do not switch indexes. That is, if a stock that ranks above the rank-1000 threshold but below the upper band was in the Russell 2000 last year, it will stay in the Russell 2000 the next year and similarly, if a stock that ranks below the rank-1000 threshold but above the lower band was in the Russell 1000 last year, it will stay in the Russell 1000 the next year.

Figure 2 Panel B plots index assignments in 2007, the first year of the banding regime, which eliminated the discontinuity near the threshold. Hence, an RDD around the threshold is no longer feasible. However, the figure shows there are two *new* discontinuities at the upper and lower bands (dashed vertical lines). These discontinuities correspond to whether

[16]Each year Russell reports their rankings based on their own proprietary calculations of market adjusted capitalization. However, Russell does not disclose its initial rankings based on May unadjusted market capitalization, hence we do not observe the unadjusted rankings. We thus compute proxy market capitalization and rankings at the end of May each year using CRSP and Compustat data following Chang, Hong, and Liskovich (2015). Our results are robust and very similar when we use alternative methods of imputing the Russell rankings based on their adjusted market capitalization. Our predicted Russell membership recovers the actual Russell Index membership for 99.7% of the sample firm-years. Details are in the Internet Appendix.

[17]The 3000E is an "extended" version of the Russell 3000 that includes microcap stocks.

nearby stocks *switched* indexes or stayed in their previous index (i.e., from the Russell 2000 into the Russell 1000 for stocks near the upper band, and from the Russell 1000 into the Russell 2000 for stocks near the lower band).

Consider a stock that was a member of the Russell 2000 as of May, and is nearby the upper band when the indexes are reconstituted. This stock's new index assignment depends on whether it ranks just above the upper band, in which case it will switch into the Russell 1000, or if it ranks just below the upper band, in which case it will stay in the Russell 2000. In sum, the stock's index assignment depends on four parameters as calculated by Russell:

1. The stock's overall ranking in the Russell 3000
2. The market capitalization of the rank-1000 stock
3. The total market capitalization of the Russell 3000E
4. The cumulative market capitalization of the stocks ranked above the focal stock

All four parameters are difficult to predict *ex ante* – indeed, Russell does not make the historical unadjusted market capitalizations or rankings available *ex post*. All four parameters are difficult or impossible to manipulate. This line of reasoning suggests that within a sufficiently small window of each band in each year, whether a stock ranks above or below the band – and therefore switches or stays – is as good as randomly assigned.

For each June index reconstitution from 2007 to 2015, we select a *cohort* which consists of two sets of treated and control stocks. Specifically, we select all stocks that are potential switchers in windows of 100 ranks around the upper and lower bands. Figure 3 plots the treated and control stocks in the 2007 cohort by market capitalization ranking. We examine those stocks for three years pre- and post- index assignment. Importantly, in order to select

potential switchers, we only condition on (i) lagged index membership (i.e., whether the stock was in the Russell 1000 or 2000 last year), and (ii) proximity to the bands.

To further confirm that firms close to the bands are similar *ex ante*, in Figure 4 we show the market capitalization of our sample stocks relative to the universe of all Russell 3000 stocks. We observe that both our upper and lower band samples represent narrow groups of mid-cap stocks, whose market capitalization is smooth across the bands.

Finally, in Table II we report summary statistics for firm characteristics in our Russell cohort sample. The average firm has a market capitalization of 2.4 billion dollars, a total ownership by mutual funds of 24.44% of the firm's market cap, and an entrenchment ("E")-index of 3.2. The average ownership by Russell 2000 index funds is 1.00% of market capitalization and the average ownership by active funds is 23.33% of market capitalization.

B. Effects of Index Switching on Fund Ownership

We examine the effect of Russell index assignment on mutual fund ownership. In Column 1 of Table III we report results for the effect of index assignment on ownership by Russell 2000 index funds. We find that ownership by Russell 2000 index funds rises by an average 1.54% of market capitalization for stocks that switch into the Russell 2000 relative to nearby stocks that stay in the Russell 1000. At the same time, we find that ownership falls by 1.46% of market capitalization for stocks that switch into the Russell 1000 relative to similar stocks that stay in the Russell 2000. The two coefficient estimates are very similar in magnitude, even though they are estimated from two *disjoint* sets of stocks.

In Column 2 of Table III we report the effect of index assignment on ownership by Russell 1000 index funds. As expected, we find the opposite effect (relative to the change in ownership by Russell 2000 funds shown in Column 1). However, the coefficient is smaller for

Russell 1000 fund holdings, falling by 0.20% of market capitalization in the first treatment group and rising by 0.20% of market capitalization in the second treatment group. This is as expected, because both Russell indexes are value-weighted and the weights of stocks near the bottom of the 1000 are orders of magnitude lower than the weights of stocks near the top of the Russell 2000.

As a placebo test, in Column 3 of Table III we examine the effect of Russell index assignment on ownership by index funds that replicate the S&P500 index. (This is by far the largest category of index funds both numerically and by assets under management). Russell index assignments should be irrelevant to the holdings of these funds. Indeed, though the assets under management of the S&P 500 index funds are much larger than those of the Russell index funds, the changes in holdings by S&P 500 index funds are tiny, on the order of 0.03% of the firm's market capitalization.

In Table III Column 4 we examine the effect of index assignment on ownership by active funds. The changes in ownership by active funds are opposite in sign and similar in size to those for the index funds, suggesting that on average, active mutual funds sell to the index funds that buy and buy from the index funds that sell. As a result, we find that total holdings by all mutual funds (see Table III Column 5) does not change significantly for treated stocks near either of the Russell bands.

Figure 5 plots index fund ownership across our four groups (switchers vs. stayers near the upper band; switchers vs stayers near the lower band) in event time, that is, the observation year minus the cohort year. The results clearly show that (i) switchers and stayers in both groups have the same pre-treatment levels *and* trends and (ii) switching into the Russell 2000 leads to higher passive ownership and vice versa. Because firms in any group may also switch indexes in post-treatment year 2 or 3, we see that the treated and control groups

converge toward each other. To summarize: index switching around both yearly Russell bands is followed by sharply timed and symmetric shifts in fund ownership.

B.1. Balance Tests

It is critical that our sample firms are similar *ex ante* and differ only by their index switching status. For example, if the firms just above the upper band were systematically worse governed than the firms just below, our results would be biased toward finding a spurious association between index fund investment and good governance. We run balance tests to check that treated and control firms on either side of both bands are similar *ex ante* on measures of ownership and governance.

In Panel A of Table IV we compare pre-treatment means of fund ownership for switchers versus stayers. In each case we measure fund ownership in the last pre-treatment year. We find no significant difference between firms that ultimately switch compared to those that stay, in all of the categories of fund ownership.

Similarly, Table IV Panel B compares measures of firm governance in the last pre-treatment year. Specifically, we examine the entrenchment index (*E-Index*) of Bebchuk, Cohen, and Ferrell (2008) as well as its six individual components. Again, we find no significant difference in any of the governance measures between treated and control firms *ex ante*. In sum, in Table IV we find no evidence of differences in the pre-treatment levels of fund ownership or firm governance between treated and control firms.

Complementary with the estimates in Table IV, Figure 6 presents formal regression discontinuity (RD) plots for fund ownership and firm governance, measured in the last pre-treatment year for each firm, with flexible local polynomials fitted on either side of each band. Again, we observe no significant difference at the treatment cutoff (the upper or lower

band respectively). Furthermore, in each case the treated and control firms also have similar overall *levels* of fund ownership and governance. Hence, we conclude that our treated and control groups are well-balanced and comparable *ex ante*, and that our Russell research design does not suffer from selection bias (Wei and Young (2017)).

IV. Results

In this section we examine the monitoring behavior of index funds, moving from broad cross-sectional comparisons to the cleanly identified estimates in our Russell cohort setting. We start by examining voting behavior and then we examine exit decisions. Our voting and exit results suggest that index funds are passive monitors. Accordingly, we then examine whether passive monitoring behavior has real implications for firm value. We find that passive monitoring by passive funds has a negative effect on firm value.

A. Voting

We first examine funds' voting behavior. In Table V Columns 1 and 2 estimate the difference in fund voting on all contentious votes across the universe of firms. The dependent variable *VotedWithMgmt* is an indicator equal to 1 if a fund votes following management's recommendation and 0 if it votes following ISS's recommendation.[18] The independent variable *IndexFund* is an indicator equal to 1 if the fund is an index fund and 0 if the fund is an active fund, as defined in Section II B. The estimates include firm fixed effects, which remove non-time-varying differences across sample firms in management quality or governance, and year fixed effects which remove aggregate trends.

[18]Voting in agreement is defined as voting Yes on a recommendation of Yes, and No or Abstain on a recommendation of No or Withhold.

In Table V Column 1 we see that compared to active funds, index funds are 8.9% more likely to side with management on contentious votes. This is a larger difference than in the summary statistics (Table I) and is due to the addition of firm fixed effects, so that we now compare index versus active funds' voting within each firm. The wider gap in voting between index and active funds suggests that index funds tend to hold relatively better-run firms where they are less likely to disagree with management.[19]

Table V Column 2 adds as an explanatory variable the fund's expense ratio (i.e., management fee plus trading costs). We estimate the coefficient on the expense ratio separately for index and active funds because of the different incentives that the two types of funds face and their very different distributions of expense ratios. Active funds' voting behavior does not vary significantly with their expense ratio. By contrast, among index funds, funds with higher expense ratios are significantly less likely to side with management on contentious votes. The coefficient of -0.249 means that an index fund with an expense ratio that is 25 basis points higher (about one standard deviation) is 6.2% less likely to side with management – two thirds of the overall difference between index and active funds. This result is strikingly consistent with the predictions of Bebchuk et al. (2017). The economics of index investing restricts the resources, such as salaries or headcount, that the fund has to employ in monitoring since index funds compete on providing a standardized product at the lowest price. This result also supports the interpretation that siding with management is passive: When index funds have more resources to employ in monitoring, they behave more like active funds, and side with managers less on contentious votes.

The firm and year fixed effects in Columns 1 and 2 mitigate concerns of endogeneity bias, since they compare how index funds and active funds vote within each firm. If all funds were

[19]In untabulated results we add firm-by-year fixed effects and the estimates are very similar. This suggests that differences in firm governance are persistent over time.

equally likely to hold all firms, these results would be plausibly unbiased. However, there is still the potential for selection bias because funds choose which firms they hold. If (as our results suggest) index funds on average hold better-run firms, then the gap in fund voting behavior might be due to selection.

To mitigate possible selection bias, we next compare fund voting on contentious votes within the Russell cohort sample. Table V Columns 3 and 4 repeat the regressions in Columns 1 and 2 in that subsample, and find similar results to those in the entire sample. Columns 5 and 6 present estimates of voting behavior that explicitly correct for selection bias in fund holdings ((Heckman, 1979)). Specifically, we estimate the following system:

$$\begin{aligned} Observed_{ijt} = Probit(&\tau IndexFund_i \\ &+ \xi_1 R1000 \rightarrow R2000_j \times Post_t \times IndexFund_i \\ &+ \xi_2 R2000 \rightarrow R1000_j \times Post_t \times IndexFund_i \\ &+ \mu_1 R1000 \rightarrow R2000_j \times Post_t + \mu_2 R2000 \rightarrow R1000_j \times Post_t \\ &+ \phi_j + \chi_t + \nu_{ijt}) \end{aligned} \tag{1}$$

$$Y_{ijt} = \beta IndexFund_i + \alpha InverseMillsRatio_{ijt} + \lambda_j + \kappa_t + \epsilon_{ijt} \tag{2}$$

In Equation (1) *Observed* is an indicator variable equal to 1 if a fund j holds a stock i on date t, and zero otherwise; *IndexFund* is an indicator variable equal to 1 if the fund is an index fund, and 0 otherwise; *R1000 → R2000* is an indicator variable equal to 1 if a stock switches from the Russell 1000 to the Russell 2000, whereas *R2000 → R1000* is an indicator variable equal to 1 if a stock switches from the Russell 2000 to the Russell 1000.

$Post_t$ is an indicator variable equal to 1 if the stock-year is post Russell assignment, and 0 if it is pre-Russell assignment. In Equation (2) the outcome variable is *VotedWithMgmt* (as defined above), *InverseMillsRatio* is the Heckman correction term from Equation (1). ϕ_j, λ_j are firm fixed effects and χ_t, κ_t are year fixed effects.

The results for the first stage (Equation (1)) are reported in Appendix Table A1. In sum, index switching generates significant variation in ownership by index versus active funds, which we have argued is exogenous for firms in the Russell cohort sample.

In Table V Columns 5 and 6 we report the second-stage estimates (2) in which we add the Heckman correction term (*InverseMillsRatio*). We find that index funds are 10.1% more likely than active funds to side with management over ISS, and again that index funds with higher expense ratios are less likely to side with management. The coefficient on the inverse Mills ratio is small and adding it does not significantly change the other coefficients in Column 5 or 6, which suggests there is little selection bias in comparisons of funds' voting behavior. In other words, when funds are exogenously induced to hold a firm, they vote in a similar fashion as they do for firms that they choose to hold.

In most cases mutual funds belong to fund families such as Fidelity or Vanguard, and voting might be decided at least partly at the fund-family level. This pattern is clear in the data: fund-family identity explains 25% of the variation in fund voting while fund identity (which is nested within fund-family identity) explains 32%. Thus, it is a question how much our results reflect variation in voting among fund families. Appendix Table A2 presents results when we examine voting policy at the fund-family level. The results are consistent with our main estimates in Table V, and indeed stronger: without any reference to individual fund characteristics, funds belonging to fund families with more passively managed assets are more likely to side with firm management on contentious votes.

Appendix Table A3 presents an additional observation: as in the summary statistics, index funds were significantly *less* likely to abstain on contentious votes than active funds were. This observation is consistent with the argument of Bebchuk and Hirst (2018) that it is costly for shareholders to openly oppose firm management. That is, the lower rate of abstention by index funds is consistent with a voting strategy that is not passive in the sense of refusing to take a side, but is passive in the sense of ceding power to firm management.

In sum, uniformly across a range of comparisons, index funds are more likely than active funds to side with firm management on contentious agenda items. They are also less likely to abstain from voting on contentious items. Also, among index funds only, funds with higher expense ratios are less likely to side with firm management. These results are consistent with the prediction that owing to their incentives, index funds are passive monitors of the firms in their portfolios.

A.1. Types of Agenda Item and Proposals

In this section we expand our analysis by examining how index funds' voting differs within the set of contentious items. First, consistent with analyses in prior studies (e.g., Ertimur, Ferri, and Oesch (2017), Ertimur, Ferri, and Oesch (2015), and Ertimur, Ferri, and Oesch (2013), Larcker, McCall, Ormazabal, et al. (2012)), we focus on important subcategories of vote related to a firm's governance, and compare voting on contentious items. Specifically, we examine the following categories:

1. Board of Directors: Items whose description includes "director" or "board";

2. Compensation: Items whose description includes "executive compensation". This category is mostly (83%) made up of say-on-pay votes;

3. Disclosure: Items whose description includes "disclosure" or "reporting";

4. Entrenchment: Items whose description includes "staggered", "bylaw", "poison pill" or "parachute".

We report results for this analysis in Table VI Panel A. In Column 1 we find that index funds are 8.7% more likely to side with management on contentious items relating to the board of directors. A small subset of the items in Column 1 relate to formal proxy battles between the incumbent board and an activist shareholder. That is, our results in Column 1 are consistent with those of Brav et al. (2018), who focus on fund voting in proxy battles. The gap in fund voting between index and active funds is very similar for items related to compensation, disclosure and managerial entrenchment (Columns from 2 to 4). Thus, on four important categories of agenda items related to firm governance, we document that index funds consistently side with management. This finding suggests that the rise of passive investing has consequences for (at least) board structure, compensation, disclosure, and managerial entrenchment.

Second, we split contentious items between items proposed by shareholders and items proposed by management. Naturally, this split is perfectly correlated with management's and ISS's recommendations: all contentious shareholder proposals are approved by ISS and opposed by management, and vice versa. Table VI Panel B shows the results. We see that the pattern that index funds are more likely to side with management over ISS holds true regardless of who proposed the agenda item. On contentious shareholder proposals, index funds are 7.1% less likely to vote Yes while on contentious management proposals, index funds are 10% more likely to vote Yes. The results are not perfectly symmetric. On contentious management proposals, index funds are 5.6% less likely than active funds to vote No or abstain, while on contentious shareholder proposals, index funds are 7.5% more likely

to vote No, but no more likely to abstain. This asymmetry might relate to the relationship aspect of fund voting: abstaining might represent a "soft no" which does not support, but does not explicitly contradict, an unpopular management proposal (Maug (1998)).

The results in VI Panel B are also important because they allow us to address the hypothesis that index funds might vote in agreement with management because they engage with them behind-the-scenes. In other words, index funds might be active monitors that operate exclusively through corporate engagement, and therefore they end up voting in agreement with management after they coordinated with managers behind the scenes.[20] Arguably, such a story may apply to index funds' voting on proposals by management. However, it cannot apply to index funds' voting on proposals by shareholders. In other words, if an index fund is an active monitor, it should be willing to oppose management on contentious shareholder proposals. Yet we find the opposite: For contentious votes on shareholder proposals, index funds again cede authority to management.

When we further examine the alternative hypothesis of behind the scenes engagement by index funds *more* than active funds, it is important to note that such practice relies on funds devoting resources toward becoming informed: First, funds do research on the firms in their portfolio, and then they engage management to make changes. In a recent working paper Iliev et al. (2018) document that, relative to active funds, index funds conduct significantly less research about the firms in their portfolio. In sum, our results for shareholder proposals and the results in Iliev et al. (2018) make the argument that index funds engage with managers behind-the-scenes less credible.

[20]In a recent survey, McCahery et al. (2016) find evidence of such behind the scenes intervention by institutional investors. However, they don't distinguish between active funds and index funds.

B. Changes in the Supply of Agenda Items

Next, we examine the effect of changes in fund holdings on the types of agenda items that appear at the firm's annual meeting. In particular, if index funds engage with firm management behind the scenes – relatively more than active funds do – they might successfully twist management's arm before proposals are even proposed. Indeed, some authors (Fisch et al. (2018)) suggest that the mere fact of higher index fund ownership might drive firm managers to follow the index funds' stated preference, with no need for engagement.

To examine this possibility, we simply compare the number of different agenda items of different types on the annual shareholder meetings of our treated and control firms. This also gives a useful snapshot of how our Russell firms' shareholder meetings are changing over time, if at all.

Table VII presents the results. We can see that both sets of treated firms (i.e. switching indexes in either direction) slightly increased the number of agenda items at their annual meetings in the post-treatment period (Column 1) and this increase was entirely due to more proposals by firm management (Column 3). This might reflect added uncertainty about the optimal firm policy, in both directions, relative to firms that stayed in the same index.

However, we observe no change in the fraction of agenda items that were were favored by ISS (Column 4) or those that were favored by both ISS and management (Column 5). If index funds directly or indirectly encourage better governance in their portfolio firms, we would expect to see an increase in the fraction of agenda items that were approved by i) ISS alone and ii) ISS and management together. We see no such change in firm policy. Thus, Table VII Columns 4 and 5 are inconsistent with the hypothesis that index fund holdings lead to a change in the "supply" of agenda items that are up for a vote on firms' annual shareholder meetings.

C. Exit

Next we examine the second channel by which shareholders monitor and exert influence: exit. According to Edmans (2009) and others, in addition to voting, shareholders can influence a firm's actions by threatening to sell the stock or selling the stock when management disobeys.

In Table VIII we examine fund exit behavior. The dependent variable for this analysis is *VoluntaryExit*, which is equal to 1 if a given fund exits a stock voluntarily as defined in Section B, and 0 otherwise. The independent variables of interest are *IndexFund*, an indicator equal to 1 if a fund is an index fund, and 0 if a fund is an active fund, *ActiveFund*, an indicator equal to 1 if a fund is an active fund, and 0 if a fund is an index fund (as defined in Section II B), and *LostVote*, an indicator equal to 1 if a fund voted Yes on an item that failed (did not pass) or No on an item that passed. As in our prior analysis, we include firm and year fixed effects. First, in Columns 1, 3, and 5 we examine the probability of exit, whereas in Columns 2, 4, and 6 (see next section) we examine the probability of exit conditional on a voting outcome (i.e., we examine fund exit behavior subsequent to a lost vote).

In Column 1 we find that across the full sample index funds are 16% less likely to voluntarily exit a position relative to active funds. These findings are in line with the summary statistics in Section B and suggest that index funds might use the exit channel as a monitoring mechanism, but significantly less than active funds.

We next examine fund exit using our Russell research design, which allows us to address the *selection bias* concerns previously discussed. In Column 3 we estimate the probability of exit within our Russell cohort sample, and in Column 5 we add the Heckman correction term (*InverseMillsRatio*). Unlike the voting regressions in Table V, the coefficient on the

InverseMillsRatio is large and statistically significant, which suggests that there is selection bias in comparisons of fund exit behavior. After the correction, index funds are even less likely to exit a position than active funds (25% compared to 16% in the uncorrected OLS estimate). Thus, the OLS estimate understates the difference between index and active funds in their exit strategy. These findings suggest that active funds prefer to hold stocks that they are relatively more likely to exit (i.e., active funds have a stronger preference for liquid stocks).

Overall, in light of these empirical findings we conclude that via the exit channel as well, index funds are relatively passive monitors of the firms in their portfolios.

C.1. Voting and Exit as Strategic Substitutes

In Columns 2, 4 and 6 of Table VIII we examine fund exit behavior subsequent to a lost vote. With this analysis we aim at providing an empirical test to theoretical models that predict strategic substitution between *voice* and *exit* (e.g., Edmans et al. (2018)). Specifically, when a fund loses a vote (i.e., their vote is unsuccessful), theory would predict that they are more likely to exit the position subsequently.

Across the full cross-section (Column 2) we find that, if over the previous year (during which a fund held the position in a firm) the fund "lost" a vote (that is, the fund voted Yes on an item that failed or No on an item that passed), an active fund is 1.4% more likely to exit that position the following year. On the other hand, an index fund that loses a vote is 0.5% *less* likely to exit and the latter coefficient is not statistically significant. In Column 4, we estimate the probability of exit conditional on a voting outcome within our Russell cohort sample and we find results similar to those in Column 2. Overall, these findings further support the notion that passive funds make less use of the exit channel compared to

active funds. Importantly, that index funds are less likely to use the exit channel relative to active funds supports the notion that voting in agreement with management is passive from a principal-agent perspective.

Finally, adjusting for both endogeneity and selection bias (Column 6), we continue to find that subsequent to a vote that went against their wishes, active funds are significantly more likely to exit the position while index funds are slightly less likely to exit. These results are consistent with strategic substitution between the voting and exit channels, but only by active funds. Active funds – who are more likely to oppose management – are also more likely to exit a position after a vote goes against them. Thus, the difference in exit behavior conditional on previous voting outcomes is again consistent with weaker monitoring by index funds – given that voice and exit are strategic substitutes for funds to affect firm policy (e.g., Admati and Pfleiderer (2009); Edmans et al. (2018)).

D. Disclosure: Schedule 13D vs Schedule 13G

Next, we examine funds' relative propensity to publicly signal their intention to be active monitors by filing a 13D schedule. The SEC requires shareholders to disclose a holding above 5% of any public company via either Schedule 13D or Schedule 13G. Schedule 13D, which is more detailed and frequent, is required if the shareholder has "the purpose or the effect" of influencing the control of the firm. This category includes actions such as *"proposing governance changes... or engaging with the portfolio company to propose or facilitate the appointment of particular individuals as directors."* (Bebchuk and Hirst (2018)). The short-form Schedule 13G, by contrast, requires that the shareholder has no such purpose or effect. A blockholder who files Schedule 13G and then engages with firm management opens

themselves up to SEC investigations or class action lawsuits.[21]

Because blockholdings are disclosed at the level of the fund family, we match disclosure filings to fund families and not to the individual funds. In all, we match 30,864 disclosure filings since 2004 to a fund family in our data.

Table IX presents the results. The dependent variable is an indicator variable for whether each filing is under the more costly, activist Schedule 13D ("Filed 13D"=1) or the short-form, passive Schedule 13G ("Filed 13D"=0). The independent variable $FracAUMPassive_{jt}$ is the fraction of fund family j's assets under management (AUM) that was managed by index funds in year t. Thus it ranges between 0 for a fund family entirely populated by active funds, to 1 for a fund family entirely populated by index funds. Column 1 shows that in a univariate probit regression, fund families with more index-fund assets under management are significantly less likely to file under Schedule 13D. The marginal effect (which corresponds to moving from 100% active to 100% passive) is -27% which is a large magnitude. The same conclusion holds when we control for the fund family's total AUM (Column 2) and for the number of blockholding disclosures the family filed in that year (Column 3).

Thus, more passive fund families (those with more index-fund assets under management) are less likely to file Schedule 13D and more likely to file Schedule 13G. However, because this analysis is at the fund-family level these results do not directly measure funds' propensity to engage. In a further step we match blockholdings by individual funds, as revealed in the merged S12 and CRSP holdings data, to SEC disclosure filings by that fund's parent family. We keep only matches that are unambiguous at the fund-firm-year level. In all, we match 4,436 disclosure filings to individual funds. For active mutual funds, 60 out of 4066 filings were under Schedule 13D. By contrast, for index funds, not a single filing (0 out of 370) was

[21] see e.g. Levie v Sears Roebuck & Co, 2009.

Schedule 13D (two-sample comparison of means t-statistic=7.8).

Thus, at both the fund family and the individual fund level passive funds are less likely to file the costly, activist Schedule 13D and more likely to file the short-form, passive Schedule 13G. These findings are inconsistent with the hypothesis that index funds affect governance through engagement with their portfolio firms.

E. Announcement Returns

As a final test, we examine the stock market reaction on the days when agenda items are decided, conditional on how different funds voted. The rationale behind this test is to provide additional evidence to rule out the alternative hypothesis that index funds intervene to improve firms' governance through unobserved channels. Alternatively, if firms simply do not react to fund voting or exit – at least on the margin – then index funds might be "rationally passive" monitors, who eschew costly monitoring actions that do not affect firm strategy. Hence, if i) index funds affect firm value positively by other means (e.g., engagement), or ii) the difference in voting between active and index funds is immaterial to firm outcomes, average announcement returns conditional on index funds' voting should be positive or zero respectively.

In Table X we present results for the comparisons of announcement returns to the firm's stock on the day each item is decided. We condition on (i) whether the fund voted for the item or against it (we use *VotedYes*, an indicator equal to 1 if a fund voted yes on an agenda item, and 0 otherwise), (ii) whether the item passed or failed (we use *ItemPassed*, an indicator equal to 1 if an agenda item passed, and 0 otherwise), and (iii) whether the fund was an index fund or active fund (we use *IndexFund* as previously defined). We estimate

the following equation, where i denotes funds and k denotes agenda items:

$$\begin{aligned} DailyRtn_{ik} = &\beta_1 IndexFund_i \times VotedYes_{ik} \times ItemPassed_k \\ &+ \beta_2 IndexFund_i \times VotedYes_{ik} \\ &+ \beta_3 ActiveFund_i \times VotedYes_{ik} \times ItemPassed_k \\ &+ \beta_4 ActiveFund_i \times VotedYes_{ik} \\ &+ \text{Main Effects} + \text{Fixed Effects} + \epsilon_{ik} \end{aligned} \tag{3}$$

Thus, the first two coefficients (β_1, β_2) compare the average announcement return for agenda items which index funds supported when the item passes versus when it failes to pass. The third and fourth coefficients β_3, β_4 compare the average return for agenda items which active funds supported when the item passes versus when it failes to pass.

We find that when an index fund votes for an item that passes the firm's stock falls by 6 basis points, while when an index fund votes in favor of an item that fails the firm's stock rises by 6 basis points (Column 1). By contrast, there is no difference in announcement returns conditional on active funds' voting. These results suggest that the difference in funds' voting behavior does have an impact on firm value: On average, the agenda items that index funds support reduce firm value when they pass, and raise firm value when they fail.

In Column 2 we repeat the same analysis within the Russell cohort sample. When an index fund supports an item, the average announcement return is -17 basis points if the item passes, compared to +14 basis points if the item fails. In Column 3 we add the Heckman correction term for potential selection bias. The results are similar to those reported in Column 2.

In sum, we find significant differences in the stock market's reaction when individual

agenda items either pass or fail, conditional on voting by index funds *only*. When index funds vote in favor of agenda items that pass, the average daily return to the firm's stock is negative. Conversely, when index funds vote in favor of an item that fails, the average return is positive. These results are inconsistent with a world in which fund voting is irrelevant to firm strategy or firm value; they are consistent with a world in which index funds' voting behavior relative to active funds is detrimental to firm value.

V. Conclusion

We examine the implications of the rise of index investing for monitoring and corporate governance. A number of recent papers find evidence that ownership by passive index funds influences a variety of corporate outcomes, including dividends and disclosure policy. Yet, it remains unclear *how* index funds cause these changes. Instead of looking at firm-level outcomes of corporate governance, we directly examine the mechanisms through which investors can influence corporate policy: voice (which includes voting and engagement) and exit. To account for the possibilities of reverse causality, omitted variables, and selection bias, we develop a new research design using post-2006 Russell index reconstitutions.

In sum, our results document that index funds are passive monitors of the firms in their portfolios, and support theoretical work that argues that index funds have weak incentives to monitor the firms in their portfolio (e.g., Bebchuk et al. (2017), Bebchuk and Hirst (2018)). We find that relative to active funds, index funds are significantly more likely to side with firm management on a wide variety of contentious votes. Index funds are also less likely to exit their position in a firm, both unconditionally and after they lose a vote. Index funds are also less likely to disclose blockholdings via Schedule 13D, which allows a large investor to

affect corporate control or governance, and more likely to disclose via Schedule 13G, which does not. Overall, our findings show that index funds cede power to firm managers. In other words, passive investors are (relatively) passive monitors.

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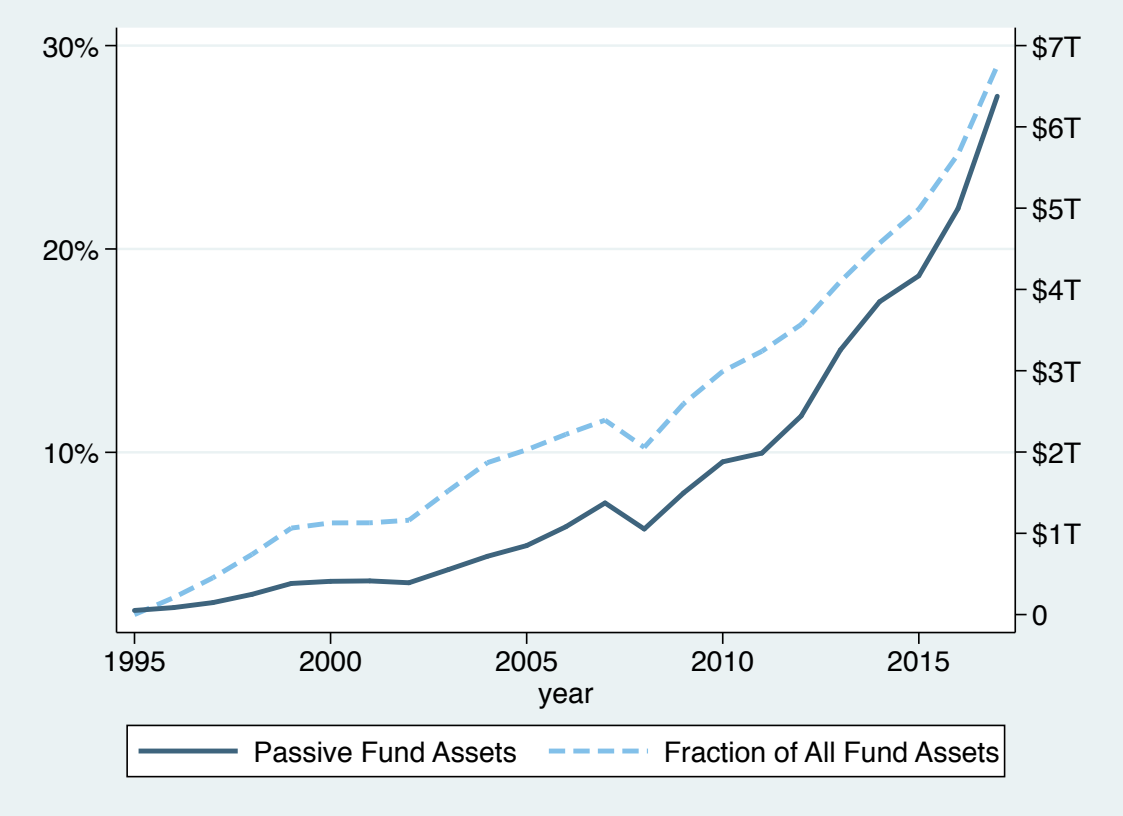
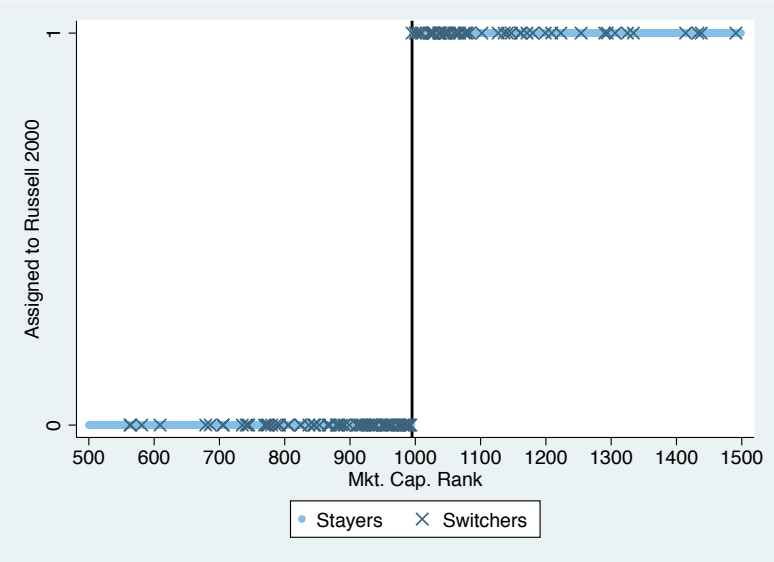
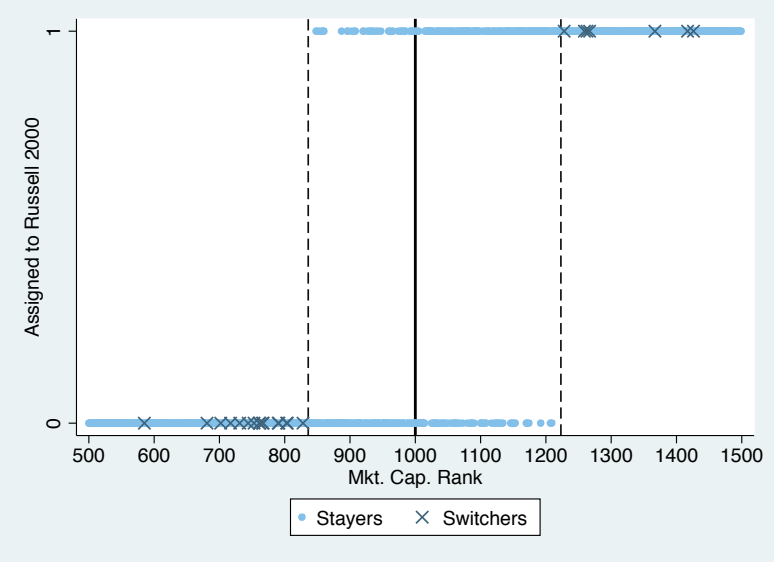


Figure 1. Yearly Passive Assets Under Management

The figure plots the total assets under management (AUM) for index funds in the CRSP Mutual Fund database, by year, as a total dollar figure and as a fraction of AUM across all funds.



(a) 2006 Index Assignments



(b) 2007 Index Assignments

Figure 2. Index Assignment Pre- and Post-Banding

The figure plots assignments to the Russell 1000 and 2000 indexes in June of 2006 and 2007 (vertical axes) against our proxy for Russell's proprietary market cap rankings (horizontal axis). In 2006, the last year before banding was introduced, there is a sharp discontinuity in index assignment at the index threshold (solid line). In 2007, stocks near the threshold all stayed in their previous years' index, breaking the discontinuity in index assignment. Close to the estimated upper and lower bands (dashed lines), however, there are sharp discontinuities in index switching.

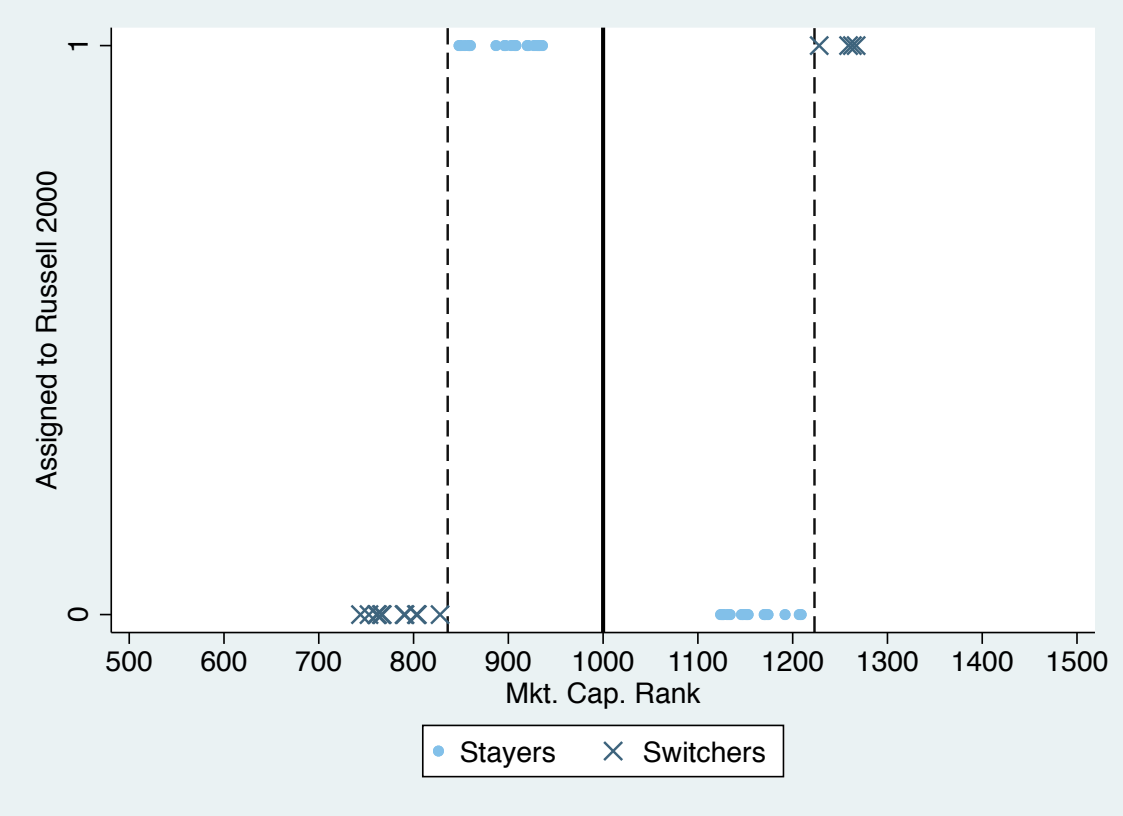


Figure 3. Sample Selection

The figure plots the sample for the 2007 cohort consisting of all Russell stocks that lay within a +/-100 rank window of the upper and lower bands, and are potential switchers, i.e. were in the Russell 2000 in 2006 for those near the upper band or were in the Russell 1000 in 2006 for those near the lower band.

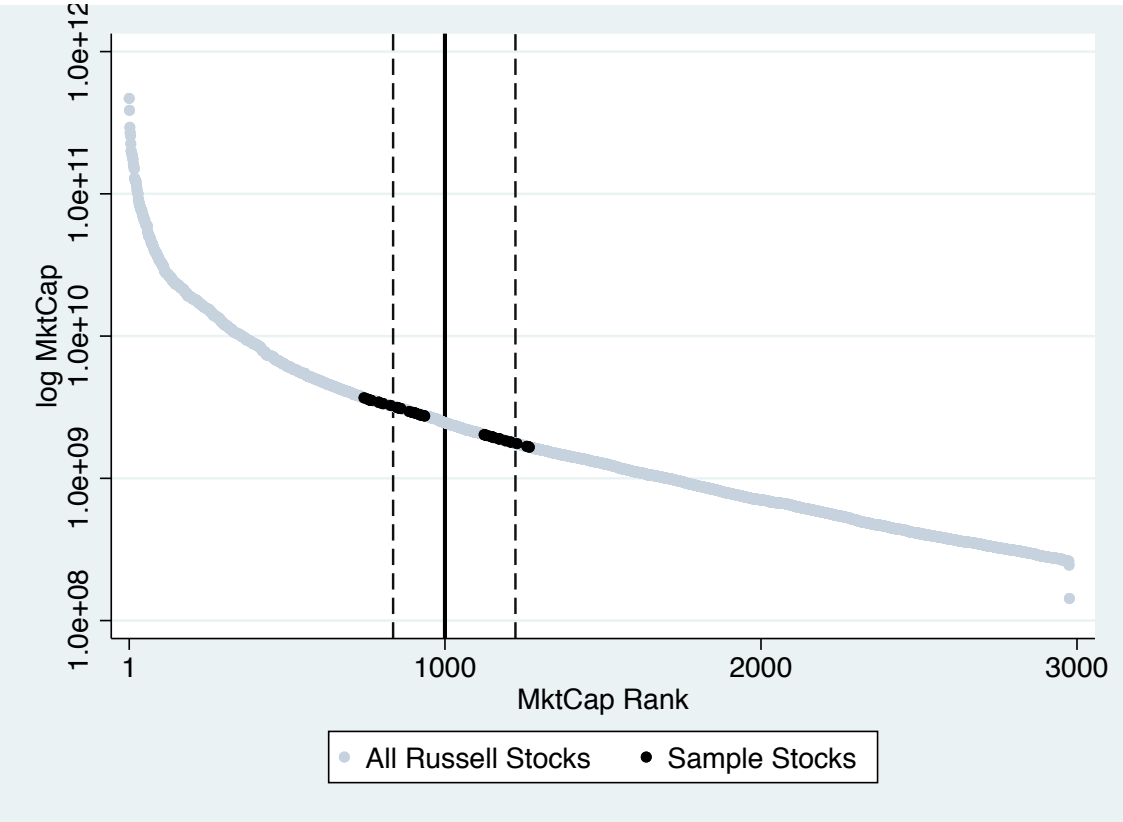


Figure 4. Sample Selection

The figure plots the sample for the 2007 cohort consisting of all Russell stocks that lay within a +/-100 rank window of the upper and lower bands, relative to the entire set of all Russell 3000 stocks that were subject to the Russell index assignment in 2007.

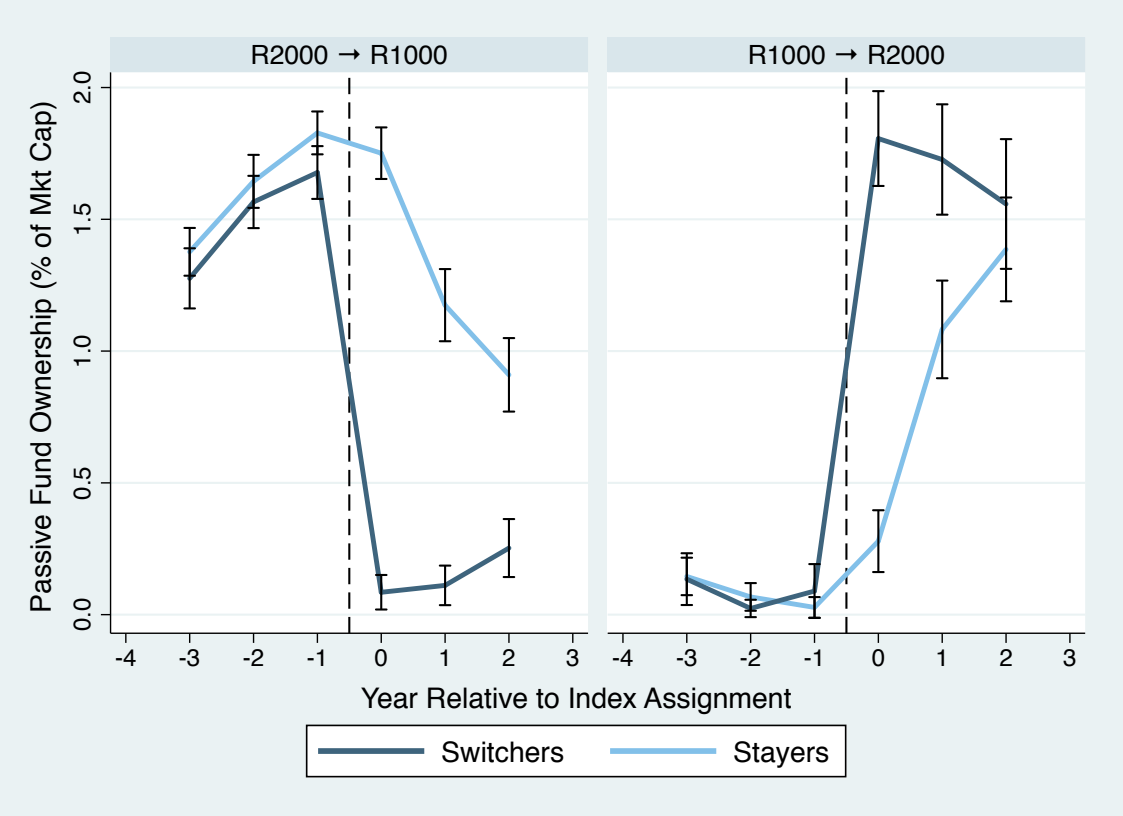
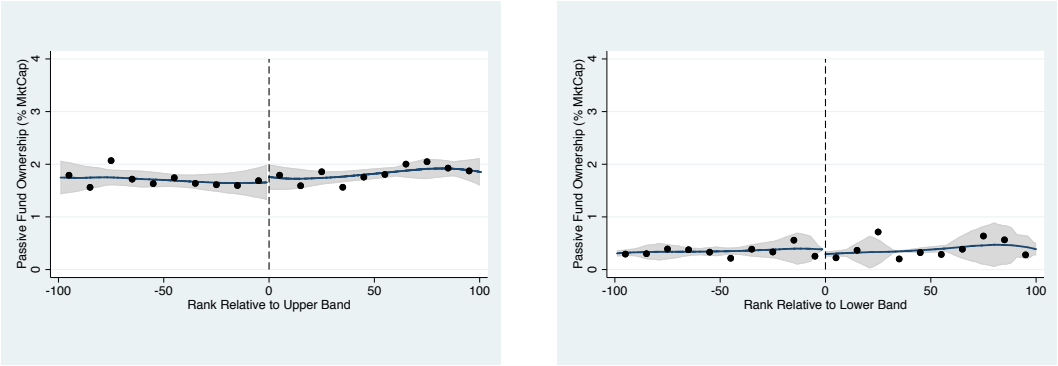
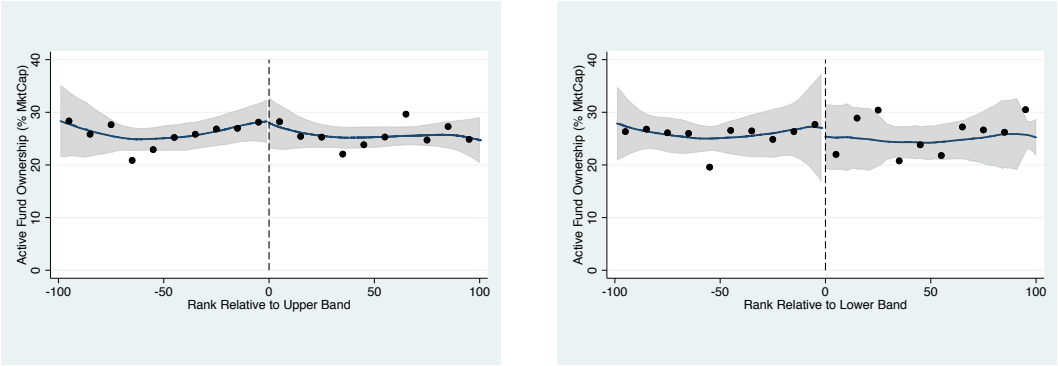


Figure 5. Index Switching and Index Fund Ownership

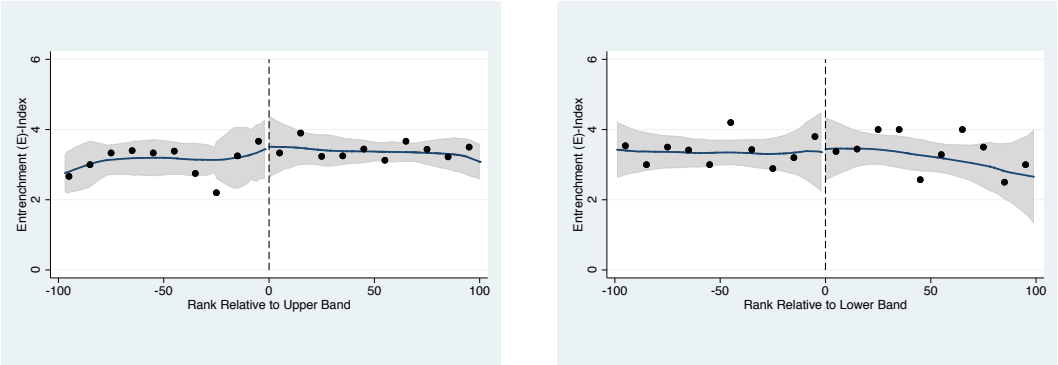
The figure plots the evolution of index fund ownership in event time relative to index assignment. On the left hand side is average passive fund ownership, in event time, for stocks near the lower band that were in the Russell 1000 pre-treatment. On the right hand side is average passive fund ownership, in event time, for stocks near the upper band that were in the Russell 2000 pre-treatment. The bars represent 95% confidence intervals.



(a) Pretreatment ownership by index funds



(b) Pretreatment ownership by active funds



(c) Pretreatment governance (E-Index)

Figure 6. Balance Tests: Pretreatment Regression Discontinuity

The figure presents regression discontinuity plots of (a) ownership by index funds, (b) ownership by active funds, and (c) the Entrenchment Index (E-Index) of Bebchuk Cohen and Ferrell across the upper (left side) and lower (right side) bands as of the last pretreatment year for firms in the Russell switching cohorts. Local polynomial regression lines are in blue. 99% confidence intervals are in grey.

Table I
Summary Statistics of Fund Voting

The table summarizes the ISS voting data and presents comparisons of fund voting between active and passive investment funds. The table shows the fraction of each type of fund that voted Yes, No, Abstain or that failed to vote ("did not vote", DNV) on each agenda item across all shareholder meetings of U.S. firms recorded by ISS from 2003-2017. N is the number of individual fund-vote observations.

Management	ISS	Index funds				Active Funds				Difference	
Recommend	Recommend	Yes	No	Abstain	DNV	Yes	No	Abstain	DNV	PctYes	N
All		91.3%	4.8%	3.6%	0.3%	90.4%	5.8%	3.3%	0.4%	0.9%	22,393,982
Consensus											
Yes	Yes	96.8%	1.6%	1.5%	0.1%	97.1%	1.4%	1.3%	0.3%	-0.3%	19,875,577
No	No	4.5%	80.3%	12.3%	2.8%	5.3%	81.8%	11.2%	1.6%	-0.8%	344,402
Contentious											
Yes	No	51.6%	19.8%	26.7%	1.9%	44.6%	23.6%	29.5%	2.3%	7.0%	1,451,657
No	Yes	43.2%	50.1%	6.6%	0.1%	48.1%	45.3%	6.4%	0.3%	-4.9%	722,346

Table II
Summary Statistics

The table presents summary statistics for key variables for our Russell cohort sample. The sample consists of 4,392 firm-years from 2004 to 2017. Sample firms are selected on lagged index membership and proximity to the upper and lower Russell bands each year. Each firm is then followed for three years pre- and post-cohort assignment.

Variable	**Mean**	**Std. Dev.**	**p10**	**Median**	**p90**	**Observations**
Market Cap ($M)	2,378	1,431	1,025	2,064	4,058	4,392
$PassiveOwn^{R2000}$	1.00%	1.06%	0.00%	0.77%	2.46%	4,392
$PassiveOwn^{R1000}$	0.10%	0.13%	0.00%	0.00%	0.30%	4,392
$ActiveOwn$	23.33%	12.90%	4.24%	24.26%	39.30%	4,392
$TotalFundOwn$	24.44%	13.19%	4.93%	25.47%	40.77%	4,392
E-Index (/ 6)	3.2	1.2	2	3	5	2,036

Table III
Index Switching and Fund Ownership

The table presents estimates of the effects of Russell index switches on investment fund ownership expressed as a percentage (1=1%) of stocks' market capitalization. The sample consists of stocks that were "potential switchers" within a +/- 100-rank window of the yearly Russell upper and lower bands from 2007 to 2015, three years before and after index assignment for each firm in each cohort. Robust standard errors clustered by firm and year are shown below the estimates in parentheses. *, **, *** indicates statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1) $PassiveOwn_{jt}^{R2000}$	(2) $PassiveOwn_{jt}^{R1000}$	(3) $PassiveOwn_{jt}^{S\&P500}$	(4) $ActiveOwn_{jt}$	(5) $TotalFundOwn_{jt}$
$R1000 \rightarrow R2000_{jt} \times$	1.54***	-0.20***	-0.04	-2.41**	-1.10
$PostAssignment_t$	(0.13)	(0.02)	(0.03)	(1.02)	(1.07)
$R2000 \rightarrow R1000_{jt} \times$	-1.46***	0.20***	0.03***	1.76**	0.54
$PostAssignment_t$	(0.08)	(0.01)	(0.01)	(0.69)	(0.71)
Observations	4,392	4,392	4,392	4,392	4,392
Adjusted R^2	0.453	0.478	0.281	0.617	0.612
Window	100	100	100	100	100
Years	2004-2017	2004-2017	2004-2017	2004-2017	2004-2017
Cohorts	2007-2015	2007-2015	2007-2015	2007-2015	2007-2015
Year FE	Yes	Yes	Yes	Yes	Yes
Stock x Cohort FE	Yes	Yes	Yes	Yes	Yes

Table IV
Balance Tests: Comparison of Pretreatment Means

The table presents comparisons of pretreatment means between switchers (firms that switched indexes) versus stayers (firms in the same cohort and near the same band that did not switch indexes). Panel A compares measures of fund ownership. Panel B compares the Entrenchment (E)-Index of Bebchuk Cohen Ferrell and its subcomponents. Robust standard errors clustered by firm are shown below the estimates in parentheses. *, **, *** indicates statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Fund Ownership

	(1) $PassiveOwn^{R2000}$	(2) $PassiveOwn^{R1000}$	(3) $PassiveOwn^{S\&P500}$	(4) $ActiveOwn$	(5) $TotalFundOwn$
$R1000 \to R2000_{jt}$	-0.02	0.01	-0.05	-1.93	-2.00
	(0.08)	(0.02)	(0.05)	(3.76)	(3.79)
$R2000 \to R1000_{jt}$	-0.06	0.01	-0.00	0.91	0.85
	(0.12)	(0.01)	(0.01)	(2.12)	(2.18)
Observations	732	732	732	732	732
Adjusted R^2	0.711	0.829	0.072	0.056	0.066
Window	100	100	100	100	100
Cohort	2007-2015	2007-2015	2007-2015	2007-2015	2007-2015
Control Fn Degree	2	2	2	2	
Cohort × Band FE	Yes	Yes	Yes	Yes	Yes

Panel B: Firm Governance

	(1) E-Index	(2) S/H Chg Bylaws	(3) Supmaj. BusComb	(4) Supmaj. Charter	(5) Poison Pill	(6) Conf. Vote	(7) Cumul. Vote
$R1000 \to R2000_{jt}$	0.34	0.05	0.04	0.14	-0.01	0.15	0.02
	(0.35)	(0.07)	(0.14)	(0.15)	(0.11)	(0.11)	(0.11)
$R2000 \to R1000_{jt}$	-0.29	-0.07	0.02	-0.18	0.15	-0.02	-0.07
	(0.38)	(0.10)	(0.14)	(0.17)	(0.14)	(0.08)	(0.13)
Observations	365	365	365	365	365	365	365
Adjusted R^2	-0.002	-0.022	0.011	-0.028	0.016	0.016	-0.033
Window	100	100	100	100	100	100	100
Cohort	2007-2015	2007-2015	2007-2015	2007-2015	2007-2015	2007-2015	2007-2015
Control Fn Degree	2	2	2	2	2	2	2
Cohort × Band FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table V
Fund Voting

The table presents comparisons of fund voting, on contentious items, between index funds versus active funds. Columns 1-2 show estimates for all firms in the sample. Columns 3-6 show estimates for firms that were potential switchers near the yearly Russell bands from 2007-2015. *ExpenseRatio* is the fund's total expense ratio in that year expressed in percentage points (so 25 basis points = 0.25). The sample consists of votes on only contentious items i.e. items on which ISS and firm management were opposed. Robust standard errors clustered by fund are in parentheses. *, **, *** indicates statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1) $VotedWithMgmt$	(2) $VotedWithMgmt$	(3) $VotedWithMgmt$	(4) $VotedWithMgmt$	(5) $VotedWithMgmt$	(6) $VotedWithMgmt$
$IndexFund_i$	0.089***	0.089***	0.118***	0.119***	0.101**	0.108**
	(0.024)	(0.025)	(0.029)	(0.029)	(0.043)	(0.042)
$InverseMillsRatio_{ijt}$					-0.032	-0.022
					(0.085)	(0.082)
$ExpenseRatio_{it}\times$		-0.249***		-0.202**		-0.202**
$IndexFund_i$		(0.070)		(0.084)		(0.084)
$ExpenseRatio_{it}\times$		0.006		0.050		0.050
$ActiveFund_i$		(0.043)		(0.058)		(0.058)
Model	OLS	OLS	OLS	OLS	Heckman	Heckman
Sample Firms	All	All	Russell	Russell	Russell	Russell
Observations	1,874,877	1,811,000	135,126	130,175	135,126	130,175
Adjusted R^2	0.064	0.073	0.075	0.082	0.075	0.082
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Table VI
Fund Voting – Split on Item Type

The table presents comparisons of fund voting on contentious items between passive versus active funds, in the full sample of firms. Panel A splits contentious items into subcategories as defined in the text. Panel B splits contentious items into those proposed by shareholders and those proposed by firm management. The sample consists of votes on only contentious items i.e. items on which ISS and firm management were opposed. Robust standard errors clustered by fund are in parentheses. *, **, *** indicates statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Split on Item Types

	(1)	(2)	(3)	(4)
Item Type:	Board of Directors	Compensation	Disclosure	Entrenchment
	$VotedwithMgmt$	$VotedwithMgmt$	$VotedwithMgmt$	$VotedwithMgmt$
$IndexFund_i$	0.087***	0.081***	0.079***	0.091***
	(0.028)	(0.029)	(0.029)	(0.026)
Observations	974,222	38,050	93,295	67,704
Adjusted R^2	0.074	0.047	0.018	0.093
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

Panel B: Management versus Shareholder Proposals

	(1)	(2)	(3)	(4)	(5)	(6)
	——Shareholder Proposals——			——Management Proposals——		
	$VotedYes$	$VotedNo$	$Abstained$	$VotedYes$	$VotedNo$	$Abstained$
$IndexFund_i$	-0.071***	0.075***	-0.001	0.100***	-0.038***	-0.056***
	(0.023)	(0.021)	(0.008)	(0.030)	(0.012)	(0.018)
Observations	678,773	678,773	678,773	1,196,088	1,196,088	1,196,088
Adjusted R^2	0.087	0.065	0.061	0.066	0.228	0.212
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Table VII
Changes in the Supply of Agenda Items

The table presents comparisons of the number and type of agenda items at sample firms' annual shareholder meetings. $NumItems$ is the number of agenda items voted on in a given year. $NumShrProp$ and $NumMgmtProp$ is the number of items tabled by shareholders and management, respectively. $FracISSFor$ is the fraction of all agenda items that were approved by ISS. $FracISSMgmtFor$ is the fraction of all agenda items that were approved by both ISS and firm management. Robust standard errors clustered by fund are in parentheses. *, **, *** indicates statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1) $NumItems$	(2) $NumShrProp$	(3) $NumMgmtProp$	(4) $FracISSFor$	(5) $FracISSMgmtFor$
$R1000 \rightarrow R2000_{jt}$	1.01*	0.01	1.00*	-0.01	-0.01
	(0.49)	(0.07)	(0.47)	(0.02)	(0.02)
$R2000 \rightarrow R1000_{jt}$	0.66	0.00	0.66	-0.00	-0.00
	(0.47)	(0.03)	(0.47)	(0.01)	(0.01)
Observations	3,725	3,725	3,725	3,716	3,716
Adjusted R-squared	0.426	0.106	0.428	0.316	0.316
Firm FE	Yes	Yes	Yes	Yes	Yes
Band FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes

Table VIII
Fund Exit

The table presents comparisons of voluntary exit between index funds versus active funds. Columns 1-2 show estimates for all firms in the sample. Columns 3-6 show estimates for firms that were potential switchers near the yearly Russell bands from 2007-2015. Robust standard errors clustered by fund are in parentheses. *, **, *** indicates statistical significance at the 10%, 5%, and 1% levels respectively.

	(1) $VoluntaryExit$	(2) $VoluntaryExit$	(3) $VoluntaryExit$	(4) $VoluntaryExit$	(5) $VoluntaryExit$	(6) $VoluntaryExit$
$IndexFund_i$	-0.156***	-0.124***	-0.163***	-0.122***	-0.253***	-0.188***
	(0.013)	(0.013)	(0.015)	(0.017)	(0.023)	(0.026)
$InverseMillsRatio_{ijt}$					-0.173***	-0.127***
					(0.039)	(0.042)
$ActiveFund_i \times LostVote_{ijt-1}$		0.014***		0.012*		0.012*
		(0.004)		(0.007)		(0.007)
$IndexFund_i \times LostVote_{ijt-1}$		-0.005		-0.007		-0.007
		(0.004)		(0.008)		(0.008)
Model	OLS	OLS	OLS	OLS	Heckman	Heckman
Sample Firms	All	All	Russell	Russell	Russell	Russell
Observations	4,130,308	1,560,208	457,409	200,489	457,409	200,489
Adjusted R^2	0.098	0.078	0.075	0.063	0.075	0.063
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Table IX
Blockholding Disclosures: Schedule 13D versus Schedule 13G

The table presents comparisons of fund families' blockholding disclosure filings. "Filed 13D" is an indicator variable for whether each filing was under the activist Schedule 13D as opposed to the passive Schedule 13G. $FracAUMPassive$ is the fraction of fund family j's assets under management (AUM) that was managed by index funds in year t. $logAUM$ is the logarithm of the fund family's total AUM. $numFilings$ is the number of blockholding disclosures the family filed in that year. Robust standard errors clustered by fund family are in parentheses. *, **, *** indicates statistical significance at the 10%, 5%, and 1% levels respectively.

	(1) Filed 13D	(2) Filed 13D	(3) Filed 13D
$FracAUMPassive_{jt}$	-1.14**	-1.06**	-1.17**
	(0.47)	(0.45)	(0.47)
$logAUM_{jt}$		-0.052	
		(0.042)	
$numFilings_{jt}$			0.000
			(0.000)
Model	Probit	Probit	Probit
Observations	922	921	922
Pseudo R^2	0.018	0.018	0.018

Table X
Fund Votes and Announcement Returns

The table presents comparisons of the daily stock return minus the market return on the day that the agenda item was decided, conditional on how the fund voted on the item $VotedYes_{ik}$, whether the item passed $ItemPassed_k$ and the fund's type (active or index fund). Robust standard errors clustered by item are in parentheses. *, **, *** indicates statistical significance at the 10%, 5%, and 1% levels respectively.

	(1) $DailyRtn_{ik}$	(2) $DailyRtn_{ik}$	(3) $DailyRtn_{ik}$
$VotedYes_{ik} \times IndexFund_i$	0.0006*	0.0014	0.0021
	(0.0003)	(0.0014)	(0.0014)
$VotedYes_{ik} \times IndexFund_i \times ItemPassed_k$	-0.0006*	-0.0017	-0.0017
	(0.0003)	(0.0014)	(0.0014)
$VotedYes_{ik} \times ActiveFund_i$	-0.0002	0.0004	-0.0005
	(0.0003)	(0.0013)	(0.0013)
$VotedYes_{ik} \times ActiveFund_i \times ItemPassed_k$	0.0000	-0.0008	-0.0007
	(0.0003)	(0.0014)	(0.0014)
$InverseMillsRatio_{ijt}$			0.0035***
			(0.0008)
Observations	22,727,613	2,596,144	2,596,144
Adjusted R^2	0.175	0.191	0.191
Main Effects	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes

VI. Appendix

A. Stock and Index Data

Russell index membership data come directly from Russell. Stock trading and firm accounting data are from CRSP and merged CRSP-Compustat. We use the most recent data for each firm from June 1 to the following May 31 of each year.

Data on funds comes from the CRSP Mutual Fund database.We classify funds as passive or active using their index fund flag in CRSP. Both mutual funds and ETFs are included in our sample.

Data on funds' holdings is based on the union of the Thomson Reuters S12 database and the CRSP Mutual Fund Holdings database. Our measures of fund holdings are defined below. All holdings measures are for each stock i as of December in year t, and are expressed as a percent of the stock's market capitalization.

$TotalFundOwn_{it}$: The fraction of stock i's market cap held by all mutual funds

$PassiveOwn_{it}^{R2000}$: The fraction of stock i's market cap held by index funds whose name contains "Russell" and "2000"

$PassiveOwn_{it}^{R1000}$: The fraction of stock i's market cap held by index funds whose name contains "Russell" and "1000"

$PassiveOwn_{it}^{S\&P500}$: The fraction of stock i's market cap held by index funds whose name contains "S&P" and "500" in their name

$ActiveOwn_{it}$: The fraction of stock i's market cap held by active mutual funds.

B. Selection of the Yearly Cohorts

The following steps describe the selection of the June 2007 cohort:

1. Rank all qualifying U.S. common stocks by their unadjusted market capitalization as of the last business day in May 2007.

2. Select all stocks that i) ranked within +/-N ranks of the upper band and ii) were members of the Russell 2000 as of May 2007. This is the set of potential switchers near the upper band.

3. Select all stocks that i) ranked within +/-N ranks of the lower band, and ii) were members of the Russell 1000 as of May 2007. This is the set of potential switchers near the lower band.

4. For each selected stock, collect its information from CRSP-Compustat over the 3 years prior to index assignment (here, 2004-2006) and the 3 years post index assignment (here, 2007-2009). Add all collected firm-years to the sample.

Thus, our research design is a cohort design that compares outcomes Y for stock i in cohort c for three years pre-treatment versus three years post-treatment. The pre-vs-post periods are compared between:

1. Stocks near the upper band that switched out of the Russell 2000 versus those that stayed (coefficient β_1) .

2. Stocks near the lower band that switched *into* the Russell 2000 versus those that stayed (coefficient β_2).

Table A1
Observation Equation

The table presents the estimated observation equation (the Heckman first stage, equation (1) in the main text) that a given fund is observed holding a given firm. The sample for this estimate is the panel of all firm-years in the Russell sample, interacted with all mutual funds that held at least one firm in the sample. The dependent variable $Observed_{ijt}$ is a dummy that equals 1 if fund i held a position in firm j in year t. Robust standard errors clustered by fund are in parentheses. *, **, *** indicates statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1) $Observed_{ijt}$
$IndexFund_i$	0.564***
	(0.048)
$R2000 \rightarrow R1000_{jt} \times$	0.081***
$PostAssignment_t$	(0.016)
$R1000 \rightarrow R2000_{jt} \times$	-0.148***
$PostAssignment_t$	(0.020)
$R2000 \rightarrow R1000_{jt} \times$	-0.028
$PostAssignment_t \times IndexFund_i$	(0.029)
$R1000 \rightarrow R2000_{jt} \times$	0.087***
$PostAssignment_t \times IndexFund_i$	(0.021)
Model	Probit
Observations	12,643,785
Pseudo R^2	0.054
Firm FE	Yes
Year FE	Yes

Table A2
Results at the Fund-Family Level

The table presents comparisons of fund voting on contentious items between fund families. $FracAUMPassive_{it}$ is the fraction of fund i's family's total AUM that was passively managed in year t. Column 1 shows estimates for all firms in the sample. Columns 2 and 3 show estimates for firms that were potential switchers near the yearly Russell bands from 2007-2015. The sample consists of votes on only contentious items i.e. those on which ISS and firm management were opposed. Robust standard errors clustered by fund *family* are in parentheses. *, **, *** indicates statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)
	$VotedwithMgmt$	$VotedwithMgmt$	$VotedwithMgmt$
$FracAUMPassive_{it}$	0.308***	0.315***	0.374***
	(0.080)	(0.080)	(0.087)
$InverseMillsRatio_{ijt}$			0.129
			(0.138)
Model	OLS	OLS	Heckman
Sample Firms	All	Russell	Russell
Observations	1,787,833	128,996	128,996
Adjusted R^2	0.103	0.118	0.121
Firm FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes

Table A3
Abstentions

The table presents comparisons of fund abstention on contentious items between index funds versus active funds. Column 1 shows estimates for all firms in the sample. Columns 2 and 3 show estimates for firms that were potential switchers near the yearly Russell bands from 2007-2015. The sample consists of votes on only contentious items i.e. those on which ISS and firm management were opposed. Robust standard errors clustered by fund are in parentheses. *, **, *** indicates statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)
	Abstained	*Abstained*	*Abstained*
$IndexFund_i$	-0.037***	-0.048***	-0.123***
	(0.012)	(0.014)	(0.025)
$InverseMillsRatio_{ijt}$			-0.143***
			(0.052)
Model	OLS	OLS	Heckman
Sample Firms	All	Russell	Russell
Observations	1,874,877	135,126	135,126
Adjusted R^2	0.205	0.217	0.218
Firm FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes