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 regression discontinuity design, 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, index investing, monitoring, passive investing, voting, exit

JEL Classification Numbers: G12, G14

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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? On one hand, principal-agent theories argue that investors with large positions have stronger incentives to monitor (e.g., Berle and Means (1932), Jensen and Meckling (1976), Admati, Pfleiderer, and Zechner (1994), Maug (1998)). On the other hand, the economics of index investing suggests that index funds might have weak incentives to monitor since they have many firms in their portfolio and limited resources due to their fee structure (Bebchuk, Cohen, and Hirst (2017)).[1]

Surprisingly, 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.[2] Yet, it remains unclear how these effects occur. By contrast, Schmidt and Fahlenbrach (2017) find that index fund ownership leads to worse mergers and acquisitions and negative announcement returns following the appointment of directors, suggesting that index fund ownership leads to worse corporate governance. We contribute to the debate by examining the two main governance mechanisms predicted by theory: voice and exit.[3] In other words, rather than looking at various outcomes of corporate governance, we take a step back and

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

[2] Boone and White (2015), Appel, Gormley, and Keim (2016), Crane, Michenaud, and Weston (2016), Azar et al. (2018).

[3] In theory fund managers can affect corporate governance through two main channels: (i) voting their shares (the voice mechanism) or (ii) selling their shares (the exit mechanism). See Hirschman (1970); Shleifer and Vishny (1986); Maug (1998); Admati and Pfleiderer (2009); Bebchuk et al. (2017); Edmans (2009). Other methods such as activist investing or corporate engagement (i.e. meeting with a firm's managers) implicitly rely on the threat of voting or exit.

directly examine the monitoring behavior of index funds.

Conceptually, index funds might have stronger incentives to monitor their portfolio firms and express their dissent to firm management through voice, since the need to reduce tracking error make it more costly to use exit as a governance mechanism. On the other hand, given their low-cost structure, index funds have limited *pro-rata* resources to invest in monitoring. Moreover, indexing creates a *free-rider* problem since improvements to corporate governance are shared with all the funds that follow the same index, but the costs are borne only by the the index fund that exercises active monitoring Bebchuk et al. (2017). We find that index funds are significantly more likely to vote with firm management. And while index funds do exit their positions (voluntarily exiting 14% of their portfolio stocks each year on average), they do not use exit in conjunction with voice. 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), we find that passive investors are passive monitors.[4]

To cleanly compare fund monitoring behavior we develop a new regression discontinuity design that allows us to address potential biases arising from reverse causality, omitted variables, and selection. 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 period. 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

[4]A priori it may be unclear if voting with management should be considered "passive". However, from a principal-agent perspective, this behavior transfers power from investors (the principals) to the firm's managers (the agents). Thus, we label this behavior passive from a governance perspective.

reconstitutions (see Wei and Young (2017) for a discussion).[5] Third, our sample period means that our results can be viewed as out-of-sample relative to previous studies. Finally, we also note that we are the first to examine the relation between exogenous shocks to fund ownership and fund voting using a database of all corporate votes.

We first examine voting behavior. Using a sample of all mutual fund votes on all agenda items at shareholder meetings of U.S. firms between 2004 and 2017, we find that index fund managers are more likely to cede authority to firm management. On consensus votes (when proxy advisors and management agree), passive and active fund managers vote identically and almost always in the consensus direction. However, on contentious votes (when proxy advisors and management disagree), index funds vote with management 53% of the time compared to 47% for active funds.[6]

Next, we examine fund exit. In theory, funds can sell their shares if they disagree with the strategy of a firm. Unconditionally, index funds are 13 percentage points less likely to exit a position than active funds. Moreover, when we condition on a voting outcome that went against the fund's wishes (in other words, the fund voted in one direction, but the majority of investors voted in the other direction), we find that index funds do not "vote with their feet." Active funds are significantly more likely to exit the position following a lost vote; Index funds are not. That is, the outcome of "voice" drives exit decisions for active funds *only*.[7]

The main difficulty in interpreting these broad comparisons is that fund holdings are endogenous. First, firm characteristics such as size and liquidity jointly affect ownership

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

[6]Consistent with these findings, in the prospectus for Vanguard Index Funds dated April 25, 2018 Vanguard states, "We will give substantial weight to the recommendations of the company's board, absent guidelines or other specific facts that would support a vote against management."

[7]The model in Edmans et al. (2018) suggests that voting and exit must be examined together, because shareholders may substitute between mechanisms.

and governance. Second, different firm policies attract different types of investors.[8] 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 voting and exit might reflect differences between firms and not funds.

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 broke the yearly discontinuity in index membership around the rank-1000 index threshold.[9] We proceed from the insight that banding replaced the yearly discontinuity in index *membership* with two yearly discontinuities in index *switching*.

We use the yearly discontinuities from 2007 to 2015 to construct two sets of yearly cohorts. We show that our stacked-cohort design does not suffer from sample selection, which is a potential concern in studies of the pre-2007 regime (see Wei and Young (2017)). When a stock switches into the Russell 2000, index fund ownership increases by 1.28% of market capitalization on average; when a stock switches out of the Russell 2000, index fund ownership falls by 1.21% of market capitalization. In both cases an opposite change in ownership by active funds accompanies the change in index fund ownership.

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

[9]We discuss the Russell Index construction procedure in detail in Section III. We use the term "banding" because as of 2007 Russell added an upper and lower band around the index threshold and stocks that are within the band do not switch indices.

We then estimate a two stage model. In the first stage, we use the Russell index reconstitutions to generate exogenous variation in the probability that a given fund holds a given sample stock. In the second stage, we use a Heckman (1979) correction to adjust for sample selection bias. We do not find evidence of significant selection bias in voting behavior. That is, index funds and active funds' voting behavior is not strongly correlated with which firms they choose to hold. Consistent with the data in the cross-section, on contentious votes we find that index funds are 9.5 percentage points more likely to vote with management than active funds.

Next, we examine funds' exit decisions. We find that index funds are 13 percentage points less likely than active funds to exit a position. We find strong evidence that the selection bias in fund exit is upward: Active funds prefer to hold relatively liquid stocks, which they are more prone to exit relative to index funds. We also 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 (Admati and Pfleiderer (2009); Edmans et al. (2018)). Conversely, while we find evidence that index funds regularly exit stocks in their benchmark index, we document that they do not use exit to monitor or to express their dissatisfaction with management: Index funds do not exit a position after losing a vote.

Our analyses provide strong evidence that index funds are passive monitors. Relative to active funds, they are more likely to vote with management, and they are less likely to exit either on average or after they lose a vote. Finally, we investigate whether this passive monitoring behavior 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.

To the best of our knowledge, while prior work has examined voting and exit of institutional investors (see Gillan and Starks (2007) for a review), only four existing studies examine the voting behavior of index funds in any context. Iliev and Lowry (2014) study how active fund voting varies with fund characteristics. Appel et al. (2016) and Crane et al. (2016) study the relationship between index fund ownership and management proposal support. Finally, in an important contemporaneous working paper, Brav, Jiang, and Li (2018) examine how proxy contests are impacted by firm, fund, and event characteristics. They find that active funds are more likely to vote against management in proxy contests. In a sense, Brav et al. (2018) take an in-depth look at proxy vote contests, while we take a comprehensive look across all monitoring behavior.[10] We complement and extend their findings by showing that index funds are more likely to cede power to firm managers *in general*, not just in proxy contests. Most importantly, our results provide novel evidence that index funds are passive users of both voice and exit.

Our paper contributes to the literature in several ways. First, our study provides empirical evidence to studies that argue that index funds are weaker monitors than active funds (Admati and Pfleiderer (2009); Bebchuk et al. (2017); Edmans (2009)). We examine the two main governance mechanisms predicted by theory: voting and exit. Relative to active funds, we find that index funds are significantly more likely to vote with a firm's managers on contentious votes. Moreover, we find that index funds do not exit a position after they

[10]Proxy contests are an important and visible subset of agenda items, but are also relatively rare. Over their eight year sample period Brav et al. (2018) examine 425 proxy contests in total. By contrast we examine the universe of all agenda items at almost all U.S. public corporations (more than 300,000 items over 14 years), which include proxy contests, director elections, governance, disclosure, compensation, mergers and acquisitions, and corporate social responsibility.

lose a corporate vote. Second, we develop a new Russell methodology which allows us to present the first causal evidence on the impact of passive investing using post-2006 data. Third, our paper adds to the broad literature examining the impact of institutional investors on corporate behavior.[11] While a number of papers have shown that corporate outcomes appear to be affected by index fund ownership,[12] it is 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 (relatively) 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.

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.[13] To measure fund

[11] See Edmans (2014) for a recent review of this literature.

[12] Boone and White (2015), Appel et al. (2016), Crane et al. (2016), Azar et al. (2018).

[13] We do not impose filters on this data, because our identification strategy requires all firms that were in the Russell 1000 or Russell 2000 in cohort year t and year $t-1$.

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.[14] 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 database with the Thomson Reuters S12 database. We find that both databases omit significant holdings of certain mutual funds in certain years, but the omissions are largely orthogonal across the two databases.[15] In unreported analyses, we find that all our results are consistent with those reported in the paper when we use only S12 or only CRSP holdings data.

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 of the votes are largely procedural, such as renewing the board of directors each year, or voting to adjourn the meeting.

[14] 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 impacted 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.

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

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. Thus, on consensus votes, index funds and active funds vote identically.

On contentious items the results are very different. For items which management approves but ISS opposes, index funds vote Yes 51.6% of the time compared to 44.6% for active funds. Similarly, for items which management opposes but ISS approves, index funds vote Yes 43.2% of the time compared to 48.1% for active funds. Thus, in both cases index funds are more likely to side with management. Interestingly, index funds are also *less* likely than active funds to abstain on contentious items: For items approved by management but opposed by ISS, index funds abstain 26.7% of the time compared to 29.5% for active funds. Maug and Rydqvist (2001) notes that if voting is costless, then nobody should ever abstain or fail to vote. Hence, the significant number of abstentions in our analysis implies that voting is costly. As some firms require a majority of votes cast Yes to approve a measure, abstentions can have the same effect as voting against a proposal. Thus, finding that active funds are more likely than index funds to abstain on contentious items again suggests that index funds are more likely to side with management. 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 the first descriptive evidence that index funds are passive monitors in that they are less likely than active funds to contradict firm's managers. Indeed, index funds are more likely to cede authority to firm management across a variety of circumstances. 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., Admati and Pfleiderer (2009); Edmans et al. (2018)). Accordingly, we next examine funds' exit behavior. Using the CRSP 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.

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 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.

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* – if a fund chooses not to hold a firm then we do not observe how the fund would have voted. To address endogeneity and selection bias, 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. 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.

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 3000. Stocks within the bands do not switch indexes. That is, if a stock that ranks above the 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 ranked 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 A plots index assignments for 2006, the last year before banding. The solid vertical line denotes the main index threshold, between the stocks ranked 1000 and 1001 according to their May market capitalization.[16] In 2006 we see that there was a sharp discontinuity in index assignment at the threshold, which lends itself to a single regression discontinuity design (RDD).

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, we see that there are two *new* discontinuities at the upper and lower bands (dashed vertical lines). These discontinuities correspond to whether 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). For example, consider a stock that was a member of the Russell 2000 as of May 2007 and was nearby the upper band when the indexes were reconstituted. This stock's new index assignment dependeds on whether it ranked just above the upper band, in which case it would switch into the Russell 1000, or just below the upper band, in which case it would stay in the Russell 2000. In sum, the stock's index assignment in June 2007 depends on four parameters:

1. The stock's overall ranking in the Russell 3000, which is sensitive to small fluctuations in the market capitalization of both the focal stock and all the neighboring stocks in

[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.

the ranking;

2. The market capitalization of the rank-1000 stock, which determines the index threshold;

3. The total market capitalization of the Russell 3000 as calculated by Russell, which determines the width of the bands (+/- 2.5%);

4. The cumulative market capitalization as calculated by Russell of all the stocks ranked above the focal stock, which determines where the stock sits relative to the bands.

All four parameters are difficult to predict *ex ante* – indeed, Russell does not make their unadjusted market capitalization numbers or rankings available *ex post*. Furthermore, 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.

We proceed from the insight that the banding regime replaced the discontinuity in index assignment with two separate discontinuities in index *switching*. 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 were 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 (besides the index assignment), 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 slices of mid-cap stocks whose market capitalization was 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 (1000) funds is 1.00% (0.10%) of market capitalization and the average ownership by active funds is 23.33% of market capitalization.

B. Effects of Index Switching on Fund Ownership

Next, we examine the 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 1.52% of market capitalization for stocks that switched into the Russell 2000 relative to nearby stocks that stayed in the Russell 1000. At the same time, we find that ownership falls by 1.43% of market capitalization for stocks that switched into the Russell 1000 relative to similar stocks that stayed in the Russell 2000. Note that these two coefficient estimates are strongly consistent with each other, even though they are estimated from two entirely *disjoint* sets of stocks: (i) potential switchers around the lower band and (ii) potential switchers around the upper band.

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 0.19% 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 S&P 500 index fund holdings are tiny, on the order of 0.04% 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 Russell 2000 funds (i.e., Column 1), which suggests that on average, active mutual funds sell to the index funds that enter a stock and buy from the index funds that exit. 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 are strikingly symmetric. They suggest that, first, switchers and stayers in both groups had parallel pre-treatment trends in index fund ownership, and second, switching into the Russell 2000 led to higher passive ownership and vice versa. 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 research design isolates exogenous variation in fund ownership such that our sample firms are similar *ex ante* around the upper and lower bands 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 switching (and index fund investment) and good governance. We thus check that treated and control firms on either side of the bands are indistinguishable *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. Similar to Table III, we measure Russell 2000 fund ownership (Column 1), Russell 1000 fund ownership (Column 2), S&P 500 fund ownership (Column 3), active fund ownership (Column 4) and total mutual fund ownership (Column 5). In each case, we measure the outcome variable for each firm in the last pre-treatment year. There is no significant difference between firms that ultimately switched compared to those that stayed, in any of the categories of fund ownership.

Similarly, Table IV Panel B we compare measures of firm governance in the last pre-treatment year. Specifically, we examine the entrenchment index of Bebchuk, Cohen, and Ferrell (2008) (*E-Index*) as well as its six individual components. Again, there is 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 (A) fund ownership or (B) firm governance between treated and control firms.

Complementary with the results in Table IV, Figure 6 presents formal regression discontinuity (RD) plots for fund ownership and firm governance, measured in the last pretreatment 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 have similar overall pretreatment levels of fund ownership and governance. Hence, we conclude that our treated and control firms around each band are well-balanced and comparable *ex ante*, and that our Russell research design isolates exogenous variation in fund holdings.

IV. Results

In this section, we examine the governance implications of index investing. 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 we estimate the difference in fund voting on contentious votes across the full universe of sample firms. The dependent variable *VotedWithMgmt* is an indicator equal to 1 if a fund voted in agreement with management on a given item and 0 if it voted with ISS.[17] Our main independent variable *IndexFund* is an indicator equal to 1 if a fund is an index fund and 0 if a 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.

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

Table V Column 1 says that compared to active funds, index funds are 9.5% more likely to side with management over ISS. This is a larger difference in fund voting than in the cross-section. The larger difference comes from adding firm fixed effects, which removes non-time-varying variation in voting outcomes between firms. Table V Column 2 adds as an explanatory variable the fund's yearly expense ratio. 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. Index funds with higher expense ratios are significantly less likely to side with management. The coefficient of -0.186 means that an index fund with an expense ratio 25 basis points higher is 4.7% less likely to side with management, about half of the difference between index and active funds. This observation is consistent with the predictions of Bebchuk et al. (2017), if index funds that follow a strategy with more monitoring incur more expenses. By contrast, active funds' voting varies less with the fund's expense ratio, suggesting that other considerations may be more important for their voting, their expenses, or both.

In Table V Columns 3-6, we compare voting between active and index funds on contentious votes for firms and years in the Russell cohort sample. Columns 3 and 4 repeat the baseline regressions of Columns 1 and 2; the results are very similar. Next, we present estimates of voting behavior that correct for potential *selection bias* in fund holdings (Heckman,

1979). We estimate the following equations:

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

$$\begin{aligned} Y_{ijt} = &\beta IndexFund_i + \alpha InverseMillsRatio_{ijt} \\ &+ \delta_1 R1000 \rightarrow R2000_j \times Post_t + \delta_2 R2000 \rightarrow R1000_j \times Post_t \\ &+ \lambda_j + \kappa_t + \epsilon_{ijt} \end{aligned} \tag{2}$$

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 variables are *VotedWithMgmt* and *Abstained*; *InverseMillsRatio* is the Heckman correction term from Equation (1). ϕ_j, λ_j denotes firm fixed effects, and χ_t, κ_t denotes year fixed effects.

The results for the first stage (Equation (1)) are reported in Appendix Table A1. 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 excluded terms, which generate the identifying variation in observed status (*Observed*), are the triple interaction terms for index switching at the firm level interacted with each fund's index- versus active-fund status. This term captures the variation in ownership by index versus active funds due to index switching, which we have argued is exogenous at the firm level. Consistent with the results in Table III, switching from the Russell 1000 to the 2000 means a higher likelihood of being held by an index fund and a lower likelihood of being held by an active fund, and vice versa.

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 were 12.1% more likely than active funds to side with management over ISS, and index funds with lower expense ratios were significantly more likely to side with management. The coefficient on the inverse Mills ratio is small and does not significantly change the other coefficients in Column 5 or 6, which suggests there is limited selection bias in funds' voting behavior. In other words, when funds are exogenously induced to hold a firm, they vote on that firm's agenda items in a similar fashion as firms that they choose to hold.

In summary, on contentious agenda items, index funds are less likely than active funds to abstain from voting and more likely to side with management. Moreover, index funds with lower expense ratios are more likely to side with management. These results are consistent with the prediction that index funds are passive monitors of the firms in their portfolios.

A.1. Types of Agenda Item

Next, we examine how index funds' voting differs within the set of contentious items. We first compare voting on contentious items in four distinct subcategories:

1. Board of Directors: Items whose description includes "director" or "board"
2. Compensation: Items whose description includes "
3. Disclosure: Items whose description includes "disclosure" or "reporting"
4. Entrenchment: Items whose description includes "staggered", "bylaw", "poison pill" or "parachute"

The item descriptions are entered by ISS, not the firms themselves, so misreporting is unlikely.

Table VI Panel A shows the results. Column 1 shows that index funds were 9.3% more likely to side with management on contentious items relating to the board of directors. A 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 results are similar for items related to compensation, disclosure and managerial entrenchment (columns 2-4). Thus, index funds consistently side with management across a wide variety of item types, suggesting that the rise of passive investing may have 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 were 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 were more likely to side with management over ISS holds true regardless of who proposed the item. On contentious shareholder proposals, index funds were 7.6% less likely to vote Yes while on contentious management proposals, index funds were 10.5% more likely to vote Yes. The results are not perfectly symmetric. On contentious management proposals, index funds were 5.9% less likely than active funds to vote No or abstain, while on contentious shareholder proposals, index funds were 7.8% more likely to vote No, but not more likely to abstain. The asymmetry might relate to the relationship aspect of fund voting: abstaining may represent a "soft no" which does not support, but does not explicitly contradict, an unpopular management proposal.

B. 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 VII 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, while 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, and *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. As in our prior analysis, we include firm and year fixed effects.

In Column 1 we find that across the full cross-section index funds are 12.8% less likely

to voluntarily exit a position relative to active funds. These findings are in line with the summary statistics in Section B. Hence, our analyses indicate that index funds may use the exit channel as a monitoring mechanism, but they exit significantly less than active funds.

To further investigate the use of the exit channel by index funds, in Column 2 we examine the fund's exit decision conditional on the outcome of a past vote. 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 1.5% more likely to exit that position the following year. On the other hand, an index fund that loses a vote is 0.3% *less* likely to exit and the latter coefficient is not statistically significant. These results 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.

We next examine fund exit behavior using our Russell research design, which allows us to address the *selection bias* concerns previously mentioned. Specifically, in Columns 3 and 4 we estimate the probability of exit within our Russell cohort sample, and in Columns 5 and 6 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 (23.7% compared to 14.9% 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). In light of the theoretical arguments and our empirical findings

we conclude that via the exit channel, index funds are passive monitors of the firms in their portfolios.

B.1. Voting and Exit as Strategic Substitutes

In Columns 2, 4 and 6 of Table VII 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.

Adjusting for both endogeneity and selection bias (Column 6), active funds are more likely to exit a position subsequent to a vote that went against their wishes. These results are consistent with strategic substitution between the voting and exit channels, which is significantly stronger for active funds. That is, after correcting for selection in holdings, we continue to observe a difference in exit behavior conditioning on previous voting outcomes. 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)).

C. Announcement Returns

A final concern for our results is that, although we find that index funds are more likely to vote in agreement with management and less likely to exit, it is possible that index funds intervene to improve firms' behavior through unobserved methods, such as corporate en-

gagement (i.e., meeting with a firm's managers). However, the effectiveness of such methods implicitly rely on the threat of voting or exit. Moreover, 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.

To examine these possibilities, we examine the stock market reaction on the days when agenda items are decided, conditional on how different funds vote. If index funds affect firm value positively by other means (e.g., engagement), or if the difference in voting is immaterial to firm outcomes, there should be no difference in average announcement returns between active and index funds.

In Table **??** we present results for the comparisons of announcement returns to the firm's stock on the day each item was 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 passed versus when it failed 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 passed versus when it failed to pass.

We see that on average, when an index fund voted for an item that passed the firm's stock fell by 7 basis points, while when an index fund voted in favor of an item that failed the firm's stock rose by 7 basis points (Column 1). By contrast, we find 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 sample of Russell cohort stocks. When an index fund supports an item, the average announcement return is -9 basis points if the item passes compared to +7 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. Again, there is no consistent difference in announcement returns conditional on how active funds voted.

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 passive investing for monitoring and corporate governance. A number of recent papers find evidence that passive index funds influence 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 two channels through which investors can influence corporate policy: voice and exit. To account for the possibilities of reverse causality, omitted variables, and selection bias we develop a new regression discontinuity design based on post-2006 Russell index reconstitutions, which enables us to examine index investing over the period in which it has become most prevalent.

In summary, our results document that index funds are more 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), Edmans et al. (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. Moreover, we find that index funds are less likely to exit their position in a firm, both unconditionally and after they lose a vote. 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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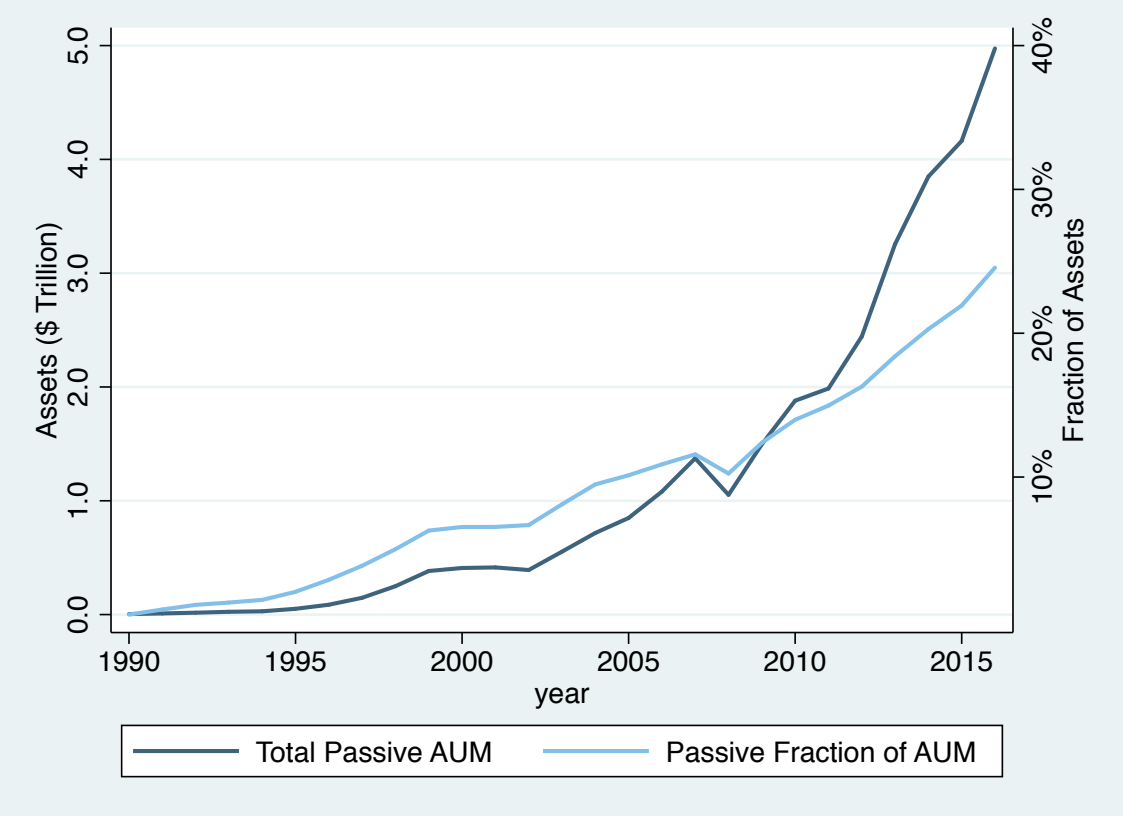
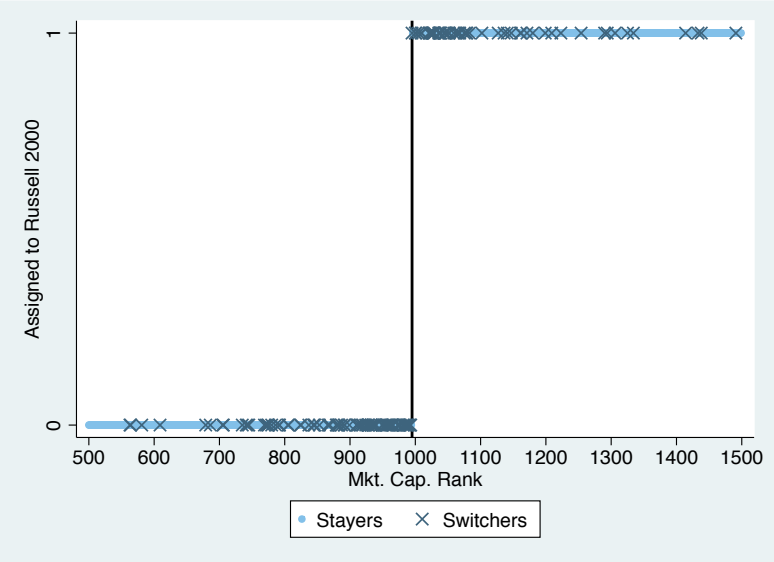
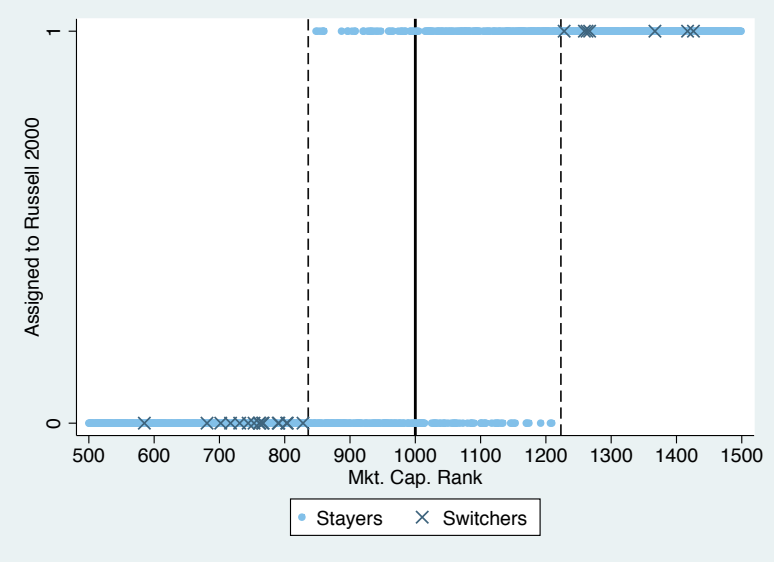


Figure 1. Yearly Passive Assets Under Management

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.

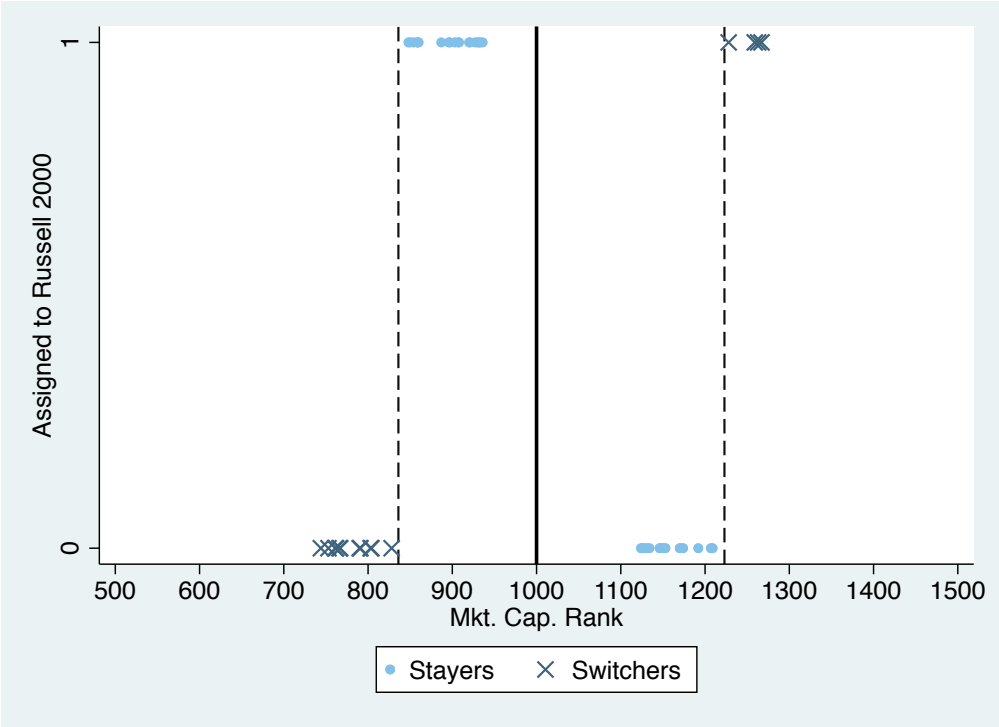


Figure 3. Sample Selection

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 were 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.

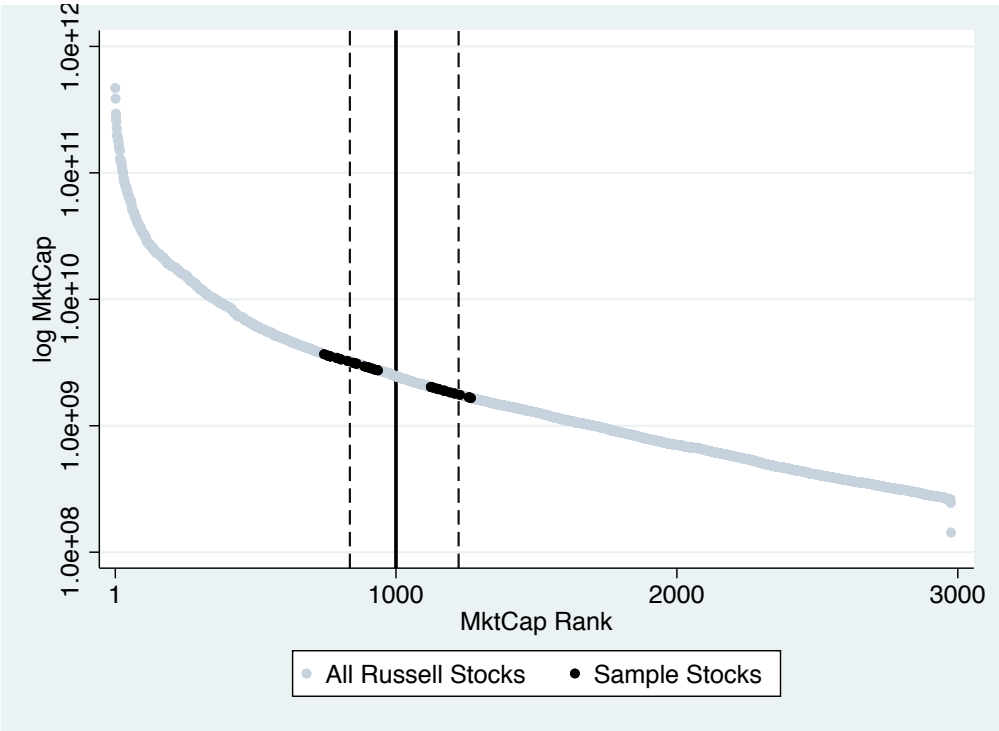


Figure 4. Sample Selection

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.

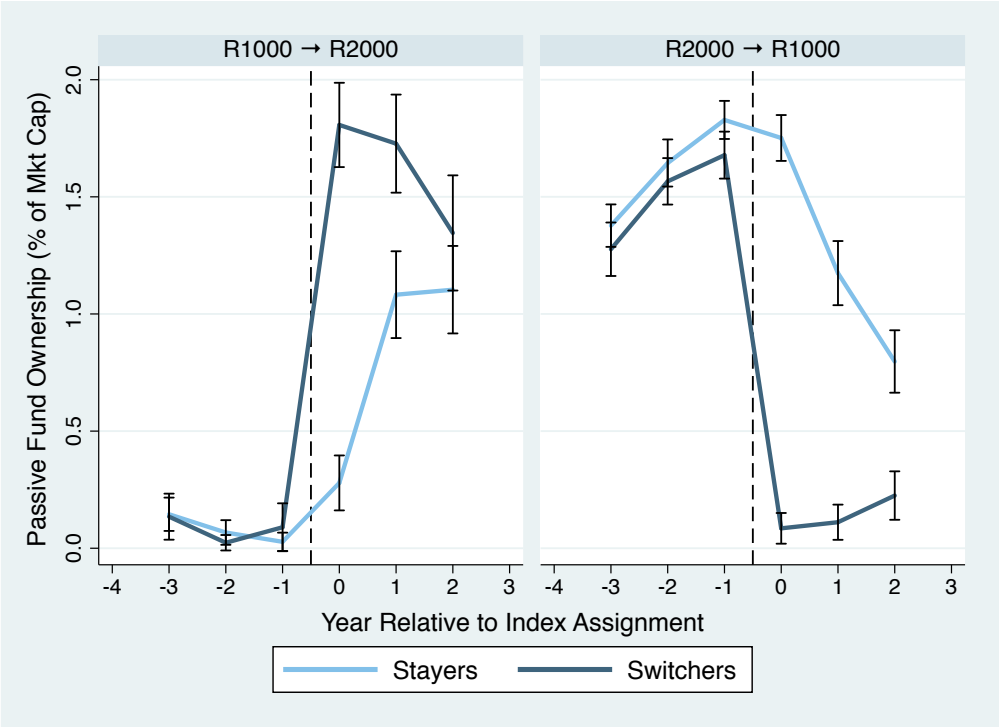
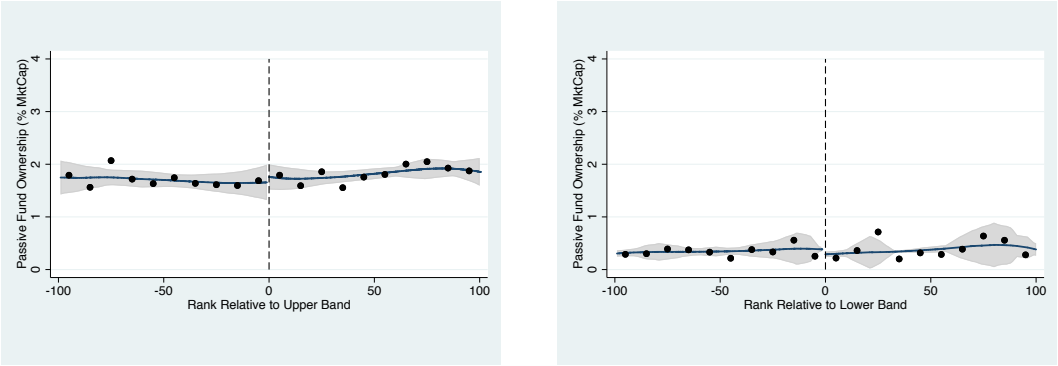
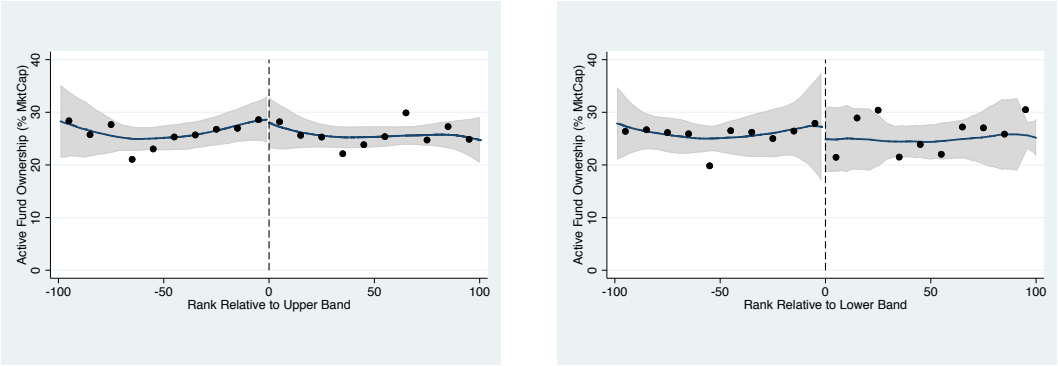


Figure 5. Index Switching and Index Fund Ownership

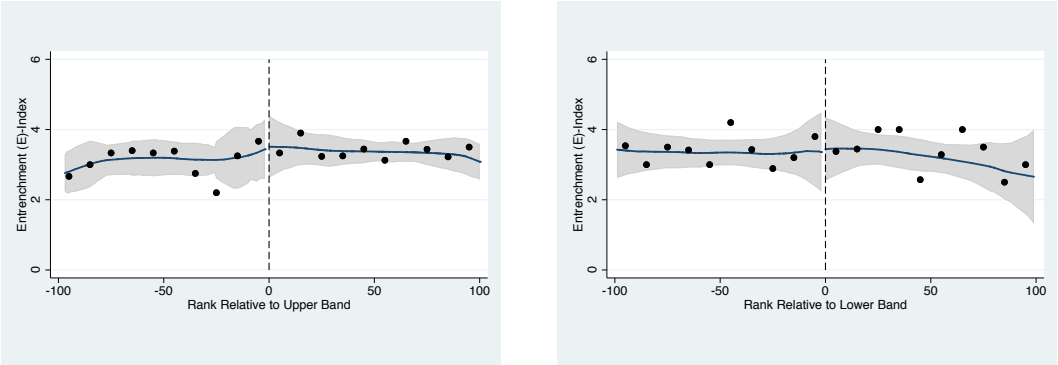
The figure plots the evolution of index fund ownership in event time relative to index assignment. On the left hand side is average passive fund ownership, in event time, for stocks near the lower band that were in the Russell 1000 pre-treatment. On the right hand side is average passive fund ownership, 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) $TotalFundOwn_{jt}$
$R1000 \rightarrow R2000_j \times$	1.52***	-0.20***	-0.04	-2.33**	-1.04
$PostAssignment_t$	(0.12)	(0.02)	(0.03)	(1.02)	(1.07)
$R2000 \rightarrow R1000_j \times$	-1.43***	0.19***	0.03***	1.58**	0.38
$PostAssignment_t$	(0.09)	(0.01)	(0.01)	(0.67)	(0.68)
Observations	4,392	4,392	4,392	4,392	4,392
Adjusted R^2	0.471	0.486	0.281	0.641	0.639
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. 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. 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) $TotalFundOwn$
$R1000 \rightarrow R2000_j$	-0.02	0.01	-0.06	-2.14	-2.21
	(0.08)	(0.02)	(0.05)	(3.76)	(3.79)
$R2000 \rightarrow R1000_j$	-0.06	0.01	-0.00	1.11	1.05
	(0.12)	(0.01)	(0.01)	(2.12)	(2.18)
Observations	732	732	732	732	732
Adjusted R^2	0.711	0.829	0.073	0.058	0.068
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
$R1000 \rightarrow R2000_j$	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)
$R2000 \rightarrow R1000_j$	-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. 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) $VotedWithMgmt$	(2) $VotedWithMgmt$	(3) $VotedWithMgmt$	(4) $VotedWithMgmt$	(5) $VotedWithMgmt$	(6) $VotedWithMgmt$
$IndexFund_i$	0.095***	0.095***	0.122***	0.126***	0.121***	0.126***
	(0.024)	(0.025)	(0.029)	(0.030)	(0.041)	(0.042)
$InverseMillsRatio_{ijt}$					-0.002	0.001
					(0.083)	(0.082)
$ExpenseRatio_{it}\times$		-0.186***		-0.141**		-0.141**
$IndexFund_i$		(0.053)		(0.061)		(0.061)
$ExpenseRatio_{it}\times$		-0.038		-0.023		-0.023
$ActiveFund_i$		(0.034)		(0.043)		(0.043)
Model	OLS	OLS	OLS	OLS	Heckman	Heckman
Sample	All	All	Russell	Russell	Russell	Russell
Observations	1,831,601	1,756,765	136,857	130,576	136,857	130,576
Adjusted R^2	0.064	0.073	0.073	0.079	0.073	0.079
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 between passive versus active funds in the full sample. Panel A splits the set of contentious items into subcategories as defined in the text. 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

Item Type:	(1) Board of Directors $VotedwithMgmt$	(2) Compensation $VotedwithMgmt$	(3) Disclosure $VotedwithMgmt$	(4) Entrenchment $VotedwithMgmt$
$IndexFund_i$	0.093***	0.132***	0.076***	0.094***
	(0.029)	(0.028)	(0.029)	(0.025)
Observations	961,983	228,170	88,132	64,283
Adjusted R^2	0.072	0.085	0.018	0.094
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——		
	$VotedYes$	$VotedNo$	$Abstained$	$VotedYes$	$VotedNo$	$Abstained$
$IndexFund_i$	-0.076***	0.078***	-0.001	0.105***	-0.040***	-0.059***
	(0.023)	(0.020)	(0.008)	(0.030)	(0.012)	(0.018)
Observations	641,852	641,852	641,852	1,189,730	1,189,730	1,189,730
Adjusted R-squared	0.087	0.071	0.064	0.066	0.234	0.212
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Table VII
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) $VoluntaryExit$
$IndexFund_i$	-0.128***	-0.120***	-0.149***	-0.111***	-0.237***	-0.177***
	(0.013)	(0.012)	(0.015)	(0.016)	(0.024)	(0.026)
$InverseMillsRatio_{ijt}$					-0.182***	-0.137***
					(0.042)	(0.044)
$ActiveFund_i \times LostVote_{ijt-1}$		0.015***		0.012*		0.012*
		(0.004)		(0.006)		(0.006)
$IndexFund_i \times LostVote_{ijt-1}$		-0.003		-0.003		-0.003
		(0.004)		(0.008)		(0.008)
Model	OLS	OLS	OLS	OLS	Heckman	Heckman
Sample	All	All	Russell	Russell	Russell	Russell
Observations	4,540,004	1,707,918	499,816	223,459	499,816	223,459
Adjusted R^2	0.105	0.083	0.073	0.060	0.073	0.060
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	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.

Investment fund ownership data comes from the CRSP Mutual Fund database. We compute the ownership of each sample stock by every fund in December of each year. We classify funds as passive or active using their index fund flag in CRSP. Both mutual funds and ETFs are included in our sample. 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)
$R2000 \rightarrow R1000_j \times$	0.081***
$PostAssignment_t$	(0.016)
$R1000 \rightarrow R2000_j \times$	-0.148***
$PostAssignment_t$	(0.020)
$R2000 \rightarrow R1000_j \times$	-0.028
$PostAssignment_t \times IndexFund_i$	(0.029)
$R1000 \rightarrow R2000_j \times$	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