

# Standing on the shoulders of giants: The effect of passive investors on activism\*

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## Abstract

We analyze whether the growing importance of passive investors has influenced the campaigns, tactics, and successes of activists. We find activists are more likely to pursue changes to corporate control or influence when a larger share of the target company's stock is held by passively managed mutual funds. Furthermore, higher passive ownership is associated with increased use of proxy fights and a higher likelihood the activist obtains board representation or the sale of the targeted company. Our findings suggest that the large ownership stakes of passive institutional investors mitigate free-rider problems and ultimately increase the likelihood of success by activists.

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## 1. Introduction

The willingness of investors to engage in activism has grown rapidly in recent years. Hundreds of activist campaigns are launched annually, and as noted by *The Economist*, the current “scale of their insurrection in America is unprecedented.”<sup>1</sup> Evidence also suggests the goals of activists have become more ambitious, and their success rate has improved. For example, activists increasingly wage proxy fights to obtain board representation, and more than 70% of these campaigns were successful in 2014.<sup>2</sup>

At the same time, stock ownership by passive institutional investors has grown rapidly. Passively managed mutual funds, which seek to deliver the returns of a market index (e.g., S&P 500) or particular investment style (e.g., large-cap value), have quadrupled their ownership share of the U.S. stock market over the last 15 years and now account for more than a third of all mutual fund assets. The institutions that offer these funds, like Vanguard and Blackrock, are now often the largest shareholders of U.S. companies, resulting in a significant increase in ownership concentration for many firms. In this paper, we examine whether these two concurrent trends are related. In particular, we analyze whether the increasingly large and concentrated ownership stakes of passive institutional investors influence the types of campaigns undertaken by activists, the tactics they employ, and their eventual outcomes.

One possibility is that the increased presence of passive institutions facilitates activism. Activist investors face a classic free-rider problem (Grossman and Hart, 1980) when considering intervention in a firm – the activist bears all costs associated with intervention, yet the benefits accrue across all shareholders. The large and concentrated ownership stakes of passive institutions might help overcome this problem by facilitating activist investors’ ability to rally support for their demands (Brav et al., 2008; Bradley et al., 2010) and by decreasing the coordination costs of activism (e.g., during the proxy solicitation process). The inability of passive institutions to sell poorly performing stocks in their

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<sup>1</sup> See “Capitalism’s unlikely heroes: why activist investors are good for the public company,” *The Economist*, February 7, 2015. *The Wall Street Journal* also notes that activists have “cemented their position as a force in U.S. markets and boardrooms; see “Activists are on a roll, with more to come,” *The Wall Street Journal*, January 1, 2015.

<sup>2</sup> For example, in an article titled, “Activist Investors Ramp Up, and Boardroom Rifts Ensur,” *The Wall Street Journal* reports that the number of companies targeted by an activist seeking board representation has more than doubled in the last five years. And in a separate article, “CEOs Test: Contending With Activist Investors,” *The Wall Street Journal* reports that activists seeking a board seat obtained at least a partial victory in 72% of such campaigns in 2014, up from a success rate of 57% in 2008.

portfolios (due to their mandate to closely track underlying indexes) might also make them more willing and influential partners in an activist campaign than other shareholders, and their support may lend credibility to campaigns and ultimately increase the chance of a successful outcome.<sup>3</sup>

However, it is also possible that the growing clout of passive institutions might hamper activism. If passive investors “take little interest in how firms are run... [and] dislike becoming deeply involved in management” (*The Economist*, 2015), their increasing market share could make it more difficult for activists to rally support for their demands. Some activists also argue that passive institutions have a conflict of interest. In particular, a fear of losing the business of corporate pension plans, one of the largest investors in index funds, may deter such institutions from supporting activists.<sup>4</sup> Finally, as long-term investors, passive institutions might not always share the same goals as activists. For example, both Blackrock and State Street, two of the largest institutions offering index funds, have expressed their unwillingness to support activist demands they see as short-sighted, including demands for increased debt and payouts.<sup>5</sup>

Identifying the impact of passive investors on activists’ choices and success rates poses an empirical challenge. The primary concern is that of omitted variables—because passive institutional portfolios are related to the composition of the indexes they track, passive ownership of a stock might be correlated with factors that directly affect activists’ tactics and success rates. For example, poor past performance might cause both a stock’s removal from a popular index, thus reducing passive ownership, and also increase the likelihood of activism. Thus, naïve correlations between passive institutional ownership and activism outcomes might not reflect a causal relation.

To overcome this challenge, we exploit variation in stock ownership by passive mutual funds that occurs around the cutoff point used to construct two widely-used market benchmarks, the Russell 1000 and Russell 2000 indexes. The Russell 1000 comprises the largest 1,000 U.S. stocks, in terms of market

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<sup>3</sup> For example, the activist hedge fund ValueAct was successful in obtaining a seat on Microsoft’s board with less than 1% of stock because Microsoft recognized that other large institutional investors backed the fund’s demand. See “New alliances in the battle for corporate control,” *The New York Times*, March 18, 2014.

<sup>4</sup> For example, see hedge fund manager William A. Ackman’s annual letter to the investors of Pershing Square Capital Management in December 2015, and see “Index Funds Are Great for Investors, Risky for Corporate Governance,” *The Wall Street Journal*, June 22, 2017.

<sup>5</sup> See “Blackrock’s Larry Fink: Typical Activists Are Too Short-Term,” *The Wall Street Journal*, January 16, 2014, and “Protecting the Interests of Long-Term Shareholders in Activist Engagements,” Harvard Law School Forum on Corporate Governance and Financial Regulation, October 17, 2016.

capitalization, and the Russell 2000 comprises the next largest 2,000 stocks. As shown in Appel, Gormley, and Keim (2016) (hereafter AGK) among others, benchmarking by passive funds leads to a sharp difference in ownership by passive investors for stocks at the top of the Russell 2000 relative to stocks at the bottom of the Russell 1000 even though they are otherwise similar in terms of their overall market capitalization. During our sample period from 2008 to 2014, ownership by passively managed mutual funds and ETFs is about 40% higher, on average, for stocks at the top of the Russell 2000 index relative to those at the bottom of the Russell 1000 index. There is *not*, however, a corresponding difference in ownership around the Russell 1000/2000 cutoff by actively managed mutual funds.

Exploiting this variation in passive ownership around the Russell 1000/2000 cutoff in an instrumental variable (IV) estimation, we assess the effect of passive funds on the activism of other investors. Specifically, we follow the approach of AGK and instrument for ownership by passive funds with an indicator for assignment to the Russell 2000 in a given year. However, because our sample of activism events runs through 2014, we augment the specification of AGK to account for an important change in how Russell constructed the two indexes after 2006. Specifically, beginning in 2007, Russell implemented a “banding” policy in which stocks within a certain range of the cutoff would not switch indexes unless the change in their relative size ranking was sufficiently large. Our IV estimation relies on the assumption that, after conditioning on stocks’ market capitalization and this banding policy, inclusion in the Russell 2000 index does not directly affect our outcomes of interest except through its impact on passive ownership. This assumption seems reasonable in our setting in that it is unclear why index inclusion would be directly related to activism outcomes after restricting the sample to stocks near the Russell 1000/2000 cutoff and after controlling for the factors that determines index inclusion.

Using our IV approach, we find that passive mutual funds have a significant impact on the nature of activism. While the percent of a firm’s stock held by passive mutual funds is not associated with the overall likelihood of being targeted by an activist from 2008–2014, we show that, conditional on being targeted by an activist, the percent of stock held by passive investors is significantly related to the goals of activist campaigns. Combined, these findings suggest that determinants of being targeted by an activist

differ from the determinants of the strategic choices of activists once a target is identified. Specifically, among firms targeted by an activist, a one standard deviation increase in passive ownership, which is approximately 3.6 percentage points relative to an average of 9.4 percent for our sample of activist events, is associated with about a 30-36 percentage point increase in the proportion of campaigns seeking board representation, and a similar magnitude decrease in other types of campaigns, including those limited to shareholder proposals and exempt solicitations. The increase in campaigns seeking board representation is economically large, corresponding to a doubling in its overall frequency, and suggests activists set relatively more ambitious goals when more of a company's stock is held by passive investors.

We also find that greater passive ownership is associated with the increased use of confrontational tactics by activists. While board representation can be gained through both friendly and confrontational approaches (Brav et al., 2008; Fos, 2015), we document a shift in the likelihood of activists employing hostile tactics in attempts to gain board seats when passive ownership is higher. Specifically, among firms targeted by an activist, a one standard deviation increase in passive ownership is associated with over a 150 percent increase in the likelihood of activists launching a proxy fight against incumbent directors. Furthermore, we find an increase in the total number of board seats sought when passive ownership is higher; a one standard deviation increase in passive ownership is associated with one additional board seat being sought by the activist, relative to an average of 0.76 seats sought.

Combined, our results suggest that the presence of passive institutions alter the strategic choices of activists and increase their willingness to engage in costlier forms of activism. Specifically, the costs associated with seeking board representation and initiating a proxy fight (e.g., hiring lawyers, bankers, etc.) can amount to millions of dollars (Gantchev, 2013), while pushing for a shareholder proposal or exempt solicitation is "easier, less costly and demand a lower level of commitment from dissidents" (Wilcox, 2005). Consistent with this shift towards more costly forms of activism, we also find that activists are more likely to seek reimbursement from the company for their campaign when passive ownership is higher. The increased willingness to undertake such campaigns could reflect lower expected costs of such campaigns (e.g., lower coordination costs) and/or higher expected benefits (e.g., increased likelihood of winning) when

a larger proportion of a firm's equity is held by passive investors.

Higher passive ownership also impacts activists' success rates. Activists are more successful in obtaining outcomes related to corporate governance or control, which are topics that receive considerable attention in the proxy voting guidelines of passive institutions (see AGK). When passive ownership is higher, we document a sizeable increase in the likelihood of a proxy settlement with management, which often results in the activist obtaining board representation. Specifically, a one standard deviation increase in passive ownership is associated with a 16-20 percentage point increase in the likelihood of a proxy fight settlement. This effect is sizable; on average, only 7 percent of campaigns end with such settlements. We also find a positive association between passive ownership and the likelihood of success for campaigns pertaining to corporate control, including the removal of takeover defenses and the sale of the firm to the activist or a third party. In contrast, we do not find evidence of effects related to policies passive investors sometimes associate with shorter-term goals, such as increased payouts and changes to the capital structure.

Consistent with a positive effect on activists' ability to improve performance, higher passive ownership is also associated with a positive market response at the time of activists' engagement. A one standard deviation increase in passive ownership is associated with about a 50 percent average increase in abnormal stock return at the time of intervention announcement. We find less conclusive evidence of an impact on long-term accounting performance (e.g., ROA), perhaps reflecting a selection bias related to our finding of more takeovers of target firms with higher passive ownership.

Our findings are not driven by a change in the type of firms targeted by activists, another potential mechanism through which passive ownership might affect activism outcomes, and are robust to various specification choices. Specifically, passive ownership is not associated with firm characteristics that have been identified in prior research to be related to the likelihood of being targeted by an activist. The findings are also robust to varying the functional form we use to control for firms' end-of-May market cap, to modifying how we measure passive stock ownership, and to adding various controls, including the liquidity of a firm's stock and whether the firm recently switched indexes. Our findings are also not sensitive to excluding activists that file a 13D with no stated intent or to only using end-of-May market cap rankings to

select our sample of stocks each year. In addition, we find no effect of passive ownership in placebo tests at other, non-Russell 1000/2000 market cap thresholds, providing additional evidence that our findings are not driven by specification error. Finally, we find similar results during our sample period when we use the alternative activism data of Brav, Jiang, Partnoy, and Thomas (2008) and Brav, Jiang, and Kim (2010), which was recently extended through 2014. We find no evidence, however, of a relation between passive ownership and activism in the earlier years covered by this alternative database, which is consistent with anecdotal evidence of a recent shift in activists' tactics and of passive investors' openness to activism.<sup>6</sup>

Overall, this paper contributes to the literature that studies the causes and effects of investor activism. A fundamental question in this literature is whether activists improve the long-term performance of firms, or if they are myopic in the sense of pushing for changes that boost short-term profits at the expense of long-term value. Previous papers document that governance deficiencies and disagreements over strategy are important triggers for shareholder activism (McCahery, Sautner, and Starks, 2014) and that activists tend to target smaller firms with higher operating performance and lower payouts and that their activities are associated with positive abnormal returns and changes to firm performance that are consistent with activists creating shareholder value.<sup>7</sup> Activists have also been found to affect a wide range of other outcomes including innovation (Brav, Jiang, Ma, and Tian, 2014), corporate culture (Popadak, 2013), director labor markets (Fos and Tsoutsoura, 2014), labor productivity (Brav, Jiang, and Kim, 2015), mergers (Boyson, Gantchev, and Shivdasani, 2015), resistance by managers (Boyson and Pichler, 2016), and measures of adverse selection (Collin-Dufresne and Fos, 2015). While the effects of activism have been widely studied, relatively little is understood about how such investors choose their tactics and what factors contribute to their success. We contribute to this literature by showing that firms' ownership structures have a significant impact on the tactics employed by activists and ultimately the outcome of these campaigns.

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<sup>6</sup> In private conversations with the authors, some large passive institutions maintain that their view towards activism has not changed over the last 10 years, but rather that activists have evolved to be more civil and better focused on issues of concern to long-term shareholders. This shift in tactics might also have increased the openness of some institutions to activists' demands. For example, Dimensional Fund Advisers "rarely engaged with activists before 2007 but formed a corporate governance group that year and started meeting with activist investors a few years ago." See "Activist investors find allies in mutual, pension funds," Reuters (April 9, 2013).

<sup>7</sup> See, for example, Brav et al., 2008; Clifford, 2008; Becht et al., 2009; Brav, Jiang, and Kim, 2009; Greenwood and Schor, 2009; Klein and Zur, 2009; Bebchuk, Brav, and Jiang, 2015. For comprehensive reviews of this literature see Gillan and Starks, 2007; Brav, Jiang, and Kim, 2010; Denes, Karpoff, and McWilliams, 2015.

Our findings are also related to the recent strand of literature that explores coordinated actions by “wolf packs” consisting of multiple activists (e.g., Brav, Dasgupta, and Mathews, 2015; Coffee and Palia, 2015; Dimson, Karakas, and Li, 2015). Our findings contribute to this nascent literature by showing that activists’ strategic choices may also be influenced by potential alliances with large passive institutional block holders, which represent an increasingly large component of US stock ownership.

Finally, we contribute to the growing literature on the effects of passive institutional investors. For example, AGK find that passive investors are able to use their significant voting power in an earlier sample period, 1998-2006, to exert influence over firms’ governance choices (e.g., more independent directors, fewer takeover defenses, and more equal voting rights) and ultimately long-term performance. Schmidt and Fahlenbrach (2016) argue, however, that passive investors are less effective at engaging in more costly forms of monitoring, such as determining the quality of an independent director or the value of a proposed merger, and because of this, their increased presence might weaken governance and reduce shareholder value in some circumstances. In contrast to this earlier work, this paper offers novel evidence that an increased presence of passive investors also affects the choices of activists, an entirely separate class of institutional investors that are widely thought to play an important role in governance, particularly in more costly forms of engagement, like a proxy fight or takeover. Thus, our evidence indicates that, while not engaging in traditional forms of activism themselves or potentially being less effective at high-cost monitoring activities, passive investors have a meaningful impact on the activism of other investors that specialize in such costly forms of engagement, providing another distinct mechanism by which the recent growth of passive investors may be affecting the monitoring of managers.

## **2. Sample, data sources, and descriptive statistics**

### *2.1. Mutual fund holdings and Russell 1000/2000 index membership*

We use the S12 mutual fund holdings data compiled by Thomson Reuters and available from Wharton Research Data Services (WRDS) to compute mutual fund holdings in a stock as a percent of its market capitalization. Since May 2004, all (open-end) mutual funds and exchange-traded funds (ETFs) holding stocks traded on U.S. exchanges are required to report those holdings every quarter to the SEC



using Forms N-CSR and N-Q.<sup>8</sup> Reported securities include all NYSE, Amex, Nasdaq, Toronto, and Montreal common stocks. We calculate the total market cap of each stock using the CRSP monthly file as the sum of shares outstanding multiplied by price for each class of common stock associated with a firm.

To classify a mutual fund as either passively or actively managed, we use the method of AGK, which flags a fund as passively managed if its fund name includes a string that identifies it as an index fund or if the CRSP Mutual Fund Database classifies the fund as an index fund. We classify all other mutual funds that can be matched to the CRSP mutual fund data as actively managed, and funds that cannot be matched are left unclassified. To generate variables for mutual fund ownership disaggregated into these three categories, we compute the percentage of each stock's market capitalization that is owned by passive, active, and unclassified mutual funds at the end of each quarter. Our calculation confirms the rise of passive ownership over the last 15 years; this is seen in Fig. 1, which shows that the percent of equity mutual fund assets that are passively managed and the percent of total market capitalization that is held by passively managed funds have tripled and quadrupled, respectively, from 1998 to 2014.

Our subsequent analysis is restricted to the sample of stocks in the Russell 1000 and 2000 indexes beginning with the 2007 reconstitution. We start the sample in 2007 to correspond with Russell's "banding" policy (see next section for further details) and the availability of our main activism outcomes; findings for the pre-banding period using an alternative activism dataset are reported in Section 5.2. Russell Investments provides index constituents as well as its proprietary measure for the float-adjusted market capitalization, which is used to determine the rank (i.e., portfolio weight) of each security within an index.

## *2.2. Activism data*

We obtain data on corporate activist campaigns from SharkWatch (FactSet), which offers a comprehensive database of activism events. The source of the information in SharkWatch includes company/activist filings and press releases, news/trade publications, and company websites.

We classify activist campaigns into four mutually exclusive categories based on their primary goal:

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<sup>8</sup> Hereafter, we collectively refer to the open-end and exchange-traded funds in our sample as mutual funds. Closed-end funds, which are typically actively managed, are not in our sample.

(1) campaigns seeking board representation; (2) campaigns seeking to maximize shareholder value by advocating for specific policy changes; (3) all other campaign goals; and (4) 13D filings with no explicit activist intent. Campaigns seeking board representation capture cases where the activist attempts to replace either a subset of directors or to take control of the board. Campaigns seeking change in corporate policies include those where the activist does not seek board representation but does push for changes thought to improve shareholder value, including increased payouts, changes in the company's capital structure, or the sale of the company. Finally, "other goals" include less costly campaigns where the activist only seeks an exempt solicitation, which involve activists communicating with other shareholders but not soliciting proxies, or more modest goals like the adoption of a shareholder proposal.

SharkWatch also includes 13D filings with no stated activist goals from 50 well-known activists (known as the SharkWatch50). A schedule 13D filing is required under Section 12 of the Securities Exchange Act when a shareholder's beneficial ownership exceeds 5% and that shareholder plans to engage in activism. The purpose of the transaction (e.g., board representation) must also be provided in Item 4 of the 13D filing. Some institutions, however, will file a 13D but not declare specific intent to engage in activism. This is likely done to leave open the option of becoming more active in the future, and we classify these campaigns as "13D only." As discussed in Section 5, however, our main findings are robust to excluding activist campaigns associated with 13D filings with no stated goals.

We also use SharkWatch for data on tactics used by activists and the eventual outcome of each campaign. Specifically, we construct indicator variables for the most common tactics employed by activists, including proxy fights, the drafting of shareholder proposals, or initiating a lawsuit. Finally, we construct indicators for the most common outcomes of an activist campaign: whether the activist campaign results in a proxy settlement; increased dividends/payouts; governance reform (not including activist representation on the board); or acquisition of the firm by either a third party or the activist.

### *2.3. Sample and descriptive statistics*

For our main analysis, we restrict the sample to activist events occurring among the bottom 500 stocks of the Russell 1000 and the top 500 stocks of the Russell 2000 index, as determined using the end-

of-June Russell-assigned weights for stocks within each index. There are 466 such events for 310 unique firms, and for the firms targeted by multiple activist campaigns, 67 are in the same calendar year. We describe our sampling choice and the inherent tradeoffs we face in Section 3.

Table 1 reports summary statistics for our main sample. Total mutual fund ownership for the stocks in our sample, is 35.6%. The largest component of mutual fund ownership is active investors (22.7%), followed by passive (9.4%), and unclassified investors (3.5%). About 28% of all activist campaigns seek board representation as their primary goal, while seeking to maximize value by enacting policy changes represents 20% of campaigns. The remaining half of the campaigns are either classified as an “other campaign type” by SharkWatch (38%) or are campaigns where the investor initiates a 13D filing indicating an intent to engage in activism but does not state a goal or subsequently engage management (14%). Despite their high-profile nature, only about 19% of campaigns employ a proxy fight as one of their tactics. About 7% of campaigns (or about 36% of proxy fights) end in a proxy settlement, and activists only win proxy fights in 3.2% of campaigns (and 18% of proxy fights) during our sample.

### **3. Empirical framework**

Identifying the impact of passive investors on the types of campaigns undertaken by activists, the tactics they employ, and their eventual outcomes poses an empirical challenge. Cross-sectional correlations between passive ownership and activism outcomes might not reflect a causal relation because ownership by passive investors could be correlated with factors—such as firms’ stock liquidity or operating performance—that directly affect activism. Failure to control for such factors could introduce an omitted variable bias that confounds inferences. To overcome this challenge and to determine the importance of passive investors, we use stocks’ assignment to the top of the Russell 2000 index as an exogenous shock to passive mutual fund ownership. We now describe our identification strategy.

#### *3.1. Russell index construction and passive institutional investors*

Passive funds attempt to match the performance of a market index by holding a basket of representative securities in the particular market index in proportion to their weights in the index. The most visible types of passive funds are index funds, which hold nearly all stocks in the market index.

Two market indexes widely used as benchmarks are the Russell 1000 and Russell 2000. During our sample period, the Russell 1000 comprises 1,000 U.S. stocks that mostly reflect the largest 1,000 companies in terms of market capitalization, while the Russell 2000 comprises the next largest 2,000 stocks that are not included in the Russell 1000. To account for changes in stocks' ranking by market cap, the Russell indexes are reconstituted each year at the end of June using a combination of three factors—a stock's market capitalization as of the last trading day in May of that year, the stock's index assignment in the previous reconstitution year, and whether the stock's market cap falls within a certain range of the cutoff between 1,000<sup>th</sup> and 1,001<sup>st</sup> largest stock market caps. Specifically, a stock with an end-of-May market cap below (above) the market cap of the 1,000<sup>th</sup> (1,001<sup>st</sup>) largest market cap will be included in the Russell 2000 (Russell 1000) index *unless* that stock was included in the Russell 1000 (Russell 2000) last year *and* its market cap is not below (above) the market cap of the 1000<sup>th</sup> (1001<sup>st</sup>) largest market cap by more than 2.5% of the cumulative market cap of the Russell 3000E Index, which comprises the 4,000 largest stocks. This policy, which Russell refers to as “banding,” was implemented in 2007 to minimize the number of stocks that switch indexes each year. Prior to 2007, the Russell 1000 simply included the 1,000 largest stocks at the end of the last trading day in May, while the Russell 2000 included the next 2,000 largest stocks.

After index assignments are determined, each stock's weight in the index is then calculated using its end-of-June float-adjusted market cap. Unlike the market cap used to determine index membership, the float adjusted market cap only includes the value of shares that are available to the public. Shares held by another company or individual that exceed 10% of shares outstanding, by another member of a Russell index, by an employee stock ownership plan (ESOP), by a government, and those that are not listed on an exchange are not included when calculating a firm's float-adjusted market cap.

Because the Russell indexes are value-weighted, index assignment has a significant effect on index weights and the extent of a stock's ownership by passive investors. The 950<sup>th</sup> largest stock at the end of May is more likely to be included in the Russell 1000 and given a very small weight in the index, while the 1,050<sup>th</sup> largest stock is more likely to be included in the Russell 2000 and given a much larger weight. For example, during our sample period, the average weight of the bottom 250 stocks in the Russell 1000 was

0.014%, while the average weight of the top 250 stocks in the Russell 2000 was an order of magnitude larger at 0.145%. The difference in weights persists over a wide range around the cutoff, as described and observed in Fig. 2. Because passive fund holdings mimic the weights in the underlying index to minimize tracking error, these differences in weights around the 1000/2000 cutoff have a significant impact on the extent of a stock's ownership by passive investors. For each dollar invested in a passive fund benchmarked to an index, a larger proportion is invested in stocks at the top of the index than in stocks at the bottom.

The importance of index assignment for ownership by passive mutual funds is illustrated in Fig. 3, in which we rank stocks using their end-of-May CRSP market capitalization and plot the average share of firms in the Russell 2000 and average end-of-September ownership by passively managed funds. The sample in this figure contains the top 500 stocks of the Russell 2000 and bottom 500 stocks of the Russell 1000 for each year between 2007 and 2013, as determined using the end-of-June Russell-assigned weights within each index. By construction, the top panel of Fig. 3 shows a smooth relation between size and ranking, but as shown in the middle panel, the largest stocks are in the Russell 1000; the smallest stocks are in the Russell 2000. In the intermediate range around the cutoff, there is a positive correlation between a stock's probability of membership in the Russell 2000 and its ranking, reflecting Russell's banding policy which limits membership changes. The bottom panel of Fig. 3 demonstrates that the ownership of passive funds across rankings closely tracks the share of stocks assigned to the Russell 2000 with passive ownership being about 40% higher for stocks in the Russell 2000.

The magnitude of the observed difference in passive ownership corresponds to the magnitude one would predict using estimates of the amount of passive assets tracking each of the two indexes. For example, Chang, Hong, and Liskovich (2015) estimates that \$56.8 billion in assets were passively tracking the Russell 2000 in 2010, which accounts for about 4.93% of the index's total market cap of \$1,115 billion, while there was \$137.1 billion of assets passively tracking the Russell 1000, accounting for just 1.17% of the index's total market cap of \$11,740 billion. Based on these estimates, assignment to the Russell 2000 rather than to the Russell 1000 in that year would increase a stock's passive institutional ownership by 3.76 percentage points, which is similar to the 3.4 percentage point increase we detect in 2010 using our measure

of passive ownership. In practice, the realized differences in passive ownership we detect will be slightly smaller around the cutoff than predicted by this simple back-of-the-envelope calculation because passive investments by some institutions, like pension funds, are not reported in the S12 mutual fund database.

The importance of index assignment for passive ownership is further highlighted by examining the total ownership stake of the largest passive institutions during our sample period—Vanguard, State Street, DFA, and BGI/Blackrock (the owners of iShares during our sample). For this, we use the Thomson Reuters Institutional Holdings (13F) Database, which reports the total holdings, both passive and active, of each institution. On average, the ownership stake of each of these four institutions is 30% higher for the 500 firms at the top of the Russell 2000 relative to the bottom 500 firms of the Russell 1000, while the likelihood of each institution owning more than 5% of a firm’s shares is 60% higher and the likelihood of each institution being a top five shareholder is 17% higher.

We find no evidence that index assignment is related to an increase in ownership by actively managed funds and unclassified funds. We formally test and demonstrate this in Section 3.3.

### *3.2. Identification strategy and empirical specification*

Following AGK, we use an instrumental variable estimation strategy that relies on a stock’s Russell index assignment as a source of exogenous variation in passive ownership. Because index assignment is determined by an arbitrary rule surrounding the market capitalization of the 1,000<sup>th</sup> largest firm and firms’ past index assignments, the higher passive ownership among stocks at the top of the Russell 2000 relative to stocks at the bottom of the Russell 1000 is plausibly exogenous after conditioning on the three factors that determine a firm’s index assignment—market capitalization, past index assignment, and whether the firm’s market capitalization falls within a certain range of the 1,000<sup>th</sup> largest firm. Therefore, we use inclusion in the Russell 2000 as an instrument for ownership by passive funds in an estimation that controls for all factors that determine stocks’ index assignments, including end-of-May market capitalization.

Unlike AGK, however, our sample period occurs after Russell’s switch to using additional thresholds and past index assignments to determine a stock’s yearly index assignment. We therefore

augment their IV specification to include three additional controls for each firm  $i$  and reconstitution year  $t$  (i.e., from end-of-June year  $t$  to end-of-June year  $t+1$ ): (1) an indicator for having an end-of-May market capitalization that ensures firm  $i$  will be “banded” by Russell and not switch indexes in reconstitution year  $t$  because the distance between its market cap and the Russell 1000/2000 cutoff is less than 2.5% of the Russell 3000E Index cumulative market cap,  $band_{it}$ , (2) an indicator for being in the Russell 2000 last reconstitution year  $t-1$ ,  $R2000_{it-1}$ , and (3) the interaction of these two indicators. These three additional controls capture the additional criteria used by Russell beginning in 2007 when determining each firm’s index assignment at the annual end-of-June reconstitution for year  $t$ .<sup>9</sup>

Specifically, we estimate the following activism event-level regression:

$$Y_{eit+1} = \alpha + \beta Passive\%_{it} + \sum_{n=1}^N \theta_n \left( Ln(Mktcap_{it}) \right)^n + \gamma Ln(Float_{it}) + \mu_1 band_{it} + \mu_2 R2000_{it-1} + \mu_3 (band_{it} \times R2000_{it-1}) + \delta_t + \varepsilon_{eit} \quad (1)$$

where  $Y_{eit+1}$  is the outcome of interest for activism event  $e$  targeting firm  $i$  in year  $t+1$ ;  $Passive\%_{it}$  is the percent of a firm’s shares held by passively managed mutual funds at the end of the end of September in year  $t$  (i.e., in the first quarter after reconstitution in year  $t$ );  $Mktcap_{it}$  is the end-of-May CRSP market capitalization of stock  $i$  in year  $t$ ;  $Float_{it}$  is the float-adjusted market capitalization calculated by Russell when setting the portfolio weights during the end-of-June reconstitution. To account for the possibility that  $Passive\%$  might be correlated with the error term,  $\varepsilon_{eit}$ , because of omitted variable issues discussed above, we instrument  $Passive\%$  using  $R2000_{it}$ , which is an indicator equal to one if stock  $i$  is part of the Russell 2000 index in reconstitution year  $t$ . We control for float-adjusted market capitalization because Russell uses it to compute portfolio weights and could be related to a firm’s stock liquidity, which might affect activism, and we include year fixed effects,  $\delta_t$ , to ensure that our estimates are identified using within-year variation. Finally, we cluster the standard errors,  $\varepsilon_{eit}$ , at the firm level and scale  $Passive\%_{it}$  by its sample standard

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<sup>9</sup> These additional controls are necessary to account for how banding affects the configuration of firms around the cutoff between the Russell 1000 and 2000 indexes. In the post-banding period, stocks with better past stock returns will tend to remain in the Russell 2000 while stocks with worse past stock returns will tend to be kept in the Russell 1000. The importance of including these additional controls in the post-banding period tradeoffs is discussed in Appel, Gormley, and Keim (2015), which can be found at <http://ssrn.com/abstract=2641548>.

deviation so that the point estimate of  $\beta$  reflects the change in  $Y_{eit+1}$  for a one standard deviation increase in  $Passive\%_{it}$ . Our subsequent standard errors are very similar if we instead cluster at the activist level.

Our IV estimation relies on the assumption that, after conditioning on the criteria used to determine a stock's index assignment, inclusion in the Russell 2000 index is associated with an increase in  $Passive\%$  (relevance condition) but does not directly affect our outcomes of interest except through its impact on ownership by passive investors (exclusion restriction). We verify the relevance condition below in our first stage estimations, and the exclusion restriction seems reasonable in that it is unclear why index inclusion would be directly related to our outcomes of interest after robustly controlling for the factors that determine index inclusion, including a firm's end-of-May market capitalization. To bolster our assumption regarding the exclusion restriction, we show in later tests that our instrument is also not related to other factors that might plausibly affect activism outcomes, including analyst coverage, ownership by actively managed mutual funds, and targeted firm's ex ante financial characteristics and performance.

The use of  $R2000_{it}$  as an instrument allows us to isolate an exogenous source of variation in passive ownership. While non-index funds that passively seek to deliver the performance of a benchmark portfolio have discretion over which stocks within the benchmark to hold, the instrumental variable never uses such endogenous variation in passive ownership; the IV estimation *only* uses variation in ownership that is driven by a stock's index assignment and the reshuffling of holdings by passively managed mutual funds seeking to minimize their tracking error. We do not use the actual portfolio weight or ranks of stocks as our instrument because this would introduce a potentially serious endogeneity concern.<sup>10</sup>

Our instrumental variable strategy differs from that used by Schmidt and Fahlenbrach (2016), who use the endogenous switches from one index to the other as instruments for passive ownership. Making use of such switches is not possible in our setting since it would require firms to be targeted by an activist both before and after switching indexes. The comparison of switchers versus non-switchers can also be

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<sup>10</sup> See Appel, Gormley, and Keim (2015, 2016) for more details. Chang, Hong, and Liskovich (2015) and Mullins (2014) also discuss this issue of why the actual weights or rankings should not be used as instruments or as part of a regression discontinuity estimation in the Russell 1000/2000 setting.



problematic since stocks switching indexes likely differ from stocks that remain in the same index.<sup>11</sup>

Our identification strategy instead relies on variation in passive ownership by comparing stocks at the bottom of the Russell 1000 against stocks at the top of the Russell 2000, and because stocks in the two indexes will differ in their average market capitalization, it will be important to show that our findings are not sensitive to how we control for market capitalization. To control for firms' market capitalization, we restrict our sample to activism events that occur for the 500 stocks at the bottom of the Russell 1000 and top 500 stocks of the Russell 2000, and we include a robust set of controls for firms' log market capitalization,  $\ln(Mktcap)$ , as measured using CRSP data, by varying the polynomial order  $N$  we use to control for end-of-May market capitalization. In subsequent tests, we confirm that our main findings are unchanged when using wider bandwidths and qualitatively similar when using smaller bandwidths.

### 3.3. First stage estimation

In this section, we report estimates of our first-stage regression of passive mutual fund holdings on membership in the Russell 2000 index plus additional controls. Specifically, we estimate

$$\begin{aligned}
 Passive\%_{it} = & \eta + \lambda R2000_{it} + \sum_{n=1}^N \chi_n \left( \ln(Mktcap_{it}) \right)^n + \sigma \ln(Float_{it}) \\
 & + \phi_1 band_{it} + \phi_2 R2000_{it-1} + \phi_3 (band_{it} \times R2000_{it-1}) + \delta_t + u_{eit}
 \end{aligned} \tag{2}$$

where  $R2000_{it}$  is a dummy variable equal to one if stock  $i$  is in the Russell 2000 for reconstitution year  $t$ , and the other variables are as defined for equation (1). In our initial tests, we also analyze other outcome measures, including the percentage of shares outstanding owned by all mutual funds; the percentage of shares outstanding owned by actively managed funds; and the percentage of shares outstanding owned by unclassified mutual funds. The model is estimated using all activism events from 2008 through 2014 that targeted firms within a bandwidth of 500 stocks around the Russell 1000/2000 threshold and includes a second-order polynomial for  $\ln(Mktcap)$ .

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<sup>11</sup> The tradeoffs of the different methodologies used in this identification setting are discussed in Appel, Gormley, and Keim (2015), which can be found at <http://ssrn.com/abstract=2641548>. Other recent papers use the Russell 1000/2000 cutoff as a source of variation in institutional investors' portfolio weights (Fich, Harford, and Tran, 2015) and total institutional ownership, as measured in the 13F filings, (e.g., see Bird and Karolyi, 2016; Boone and White, 2014; Crane, Michenaud, and Weston, 2016; Mullins, 2014, among others). AGK and Schmidt and Fahlenbrach (2016) show that the observed increase in institutional ownership is driven by passive institutional investors, thus allowing one to use index assignment as an instrument for passive ownership.

The results, reported in Table 2, confirm that a targeted firm's passive ownership structure is related to index assignment. In order for the point estimates in Table 2 to align with the observed differences in ownership shown in Fig. 3, we do not scale the ownership variables by their sample standard deviations in these initial estimates. The first column shows that aggregate mutual fund ownership is 6.3 percentage points higher for activist targets that are at the top of the Russell 2000, but the estimate is not statistically significant. Breaking mutual fund ownership into its different investment styles, however, we see that index assignment is associated with the composition of a target's ownership. The level of passive ownership for targeted firms that are included in the Russell 2000 is about 4.3 percentage points greater than the level of passive ownership observed for targeted firms that are in the Russell 1000. The estimated coefficient is significant at the 1% level (column 2). There is no evidence that index assignment is related to ownership of either actively managed mutual funds (column 3) or unclassified funds (column 4).

In Table 3 we report estimates of the first-stage regression we use for the remainder of the paper in which we scale *Passive%* by its sample standard deviation to better quantify the economic magnitude of the observed difference in ownership. We show that the estimated relation is robust to using higher- and lower-order polynomials to control for market cap, and find higher passive ownership at the top of the Russell 2000 relative to the bottom of the Russell 1000 of about 1.1-1.2 standard deviations (Table 3, columns 1–3). In all cases, the increase is statistically significant at the 1% level.<sup>12</sup>

#### **4. How passive investors affect activism by other investors**

##### *4.1 Likelihood of activism*

We first examine whether passive ownership affects the likelihood of a firm being targeted by an activist. Theoretically, even if the presence of passive investors facilitates activism by lowering its cost or by increasing the expected payoff of intervention, the effect of passive ownership on the frequency of activism is ambiguous. By facilitating activism, the presence of passive investors might increase its frequency. On the other hand, if managers internalize this possibility and act to preempt activist campaigns

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<sup>12</sup> Because our IV model is just-identified, the IV estimation is median-unbiased and weak instruments are unlikely to be a concern in our setting, especially given the strong first stage estimates (Angrist and Pischke, 2009). Additionally, the Kleibergen-Paap F stat on the excluded instrument exceeds 10, providing further confidence that a weak instrument is unlikely to be a concern (Stock, Wright, and Yogo, 2002; Angrist and Pischke, 2009).

(e.g., through a reform of governance practices) because such campaigns are personally costly for the manager (Fos and Tsoutsoura, 2014), the presence of passive investors might lower the frequency of activism. We might also observe a decline in the likelihood of activism if passive investors take the initiative themselves (e.g., voting for more independent directors) to improve firm-level governance and performance for some firms (as found in AGK) thus (at least partially) negating the need for activism by others.

Using our IV estimation, we find that the estimated effect of passive ownership on the likelihood of activism is statistically indistinguishable from zero. The findings are reported in Table 4, where the dependent variable is an indicator for activism constructed using the SharkWatch database and the sample consists of all observations in the 500 bandwidth around the Russell 1000/2000 cutoff during our sample period. The estimates in Table 4 differ slightly from those found in AGK who document a similarly small, but statistically significant, negative association between passive ownership and the likelihood of activism during the earlier 1998-2006 period. They attribute the negative association to passive investors reducing the need for activism. While negligible, the attenuation of the 1998-2006 negative association in the 2008-2014 period could be consistent with anecdotal evidence that passive investors have grown more willing to support activist campaigns in recent years as part of their broader agenda to improve corporate governance. The lack of a statistically significant effect during the later sample period does not depend on how we measure the occurrence of an activism event; omitting “13D only” activism events does not qualitatively change the findings, nor does using activism events, as defined by Brav et al. (2008, 2010).

#### *4.2 Composition of activist campaigns*

We now turn attention to whether passive ownership affects the types of campaigns initiated by activists. The presence of passive investors might affect the composition of activist campaigns, even absent a change in the frequency, if the factors that affect an activist’s decision to initiate a campaign differ from the factors that guide their strategic choices once a target is identified. In particular, activists might primarily rely on past underperformance and a significant scope for future value improvements when choosing targets but then subsequently tailor the nature of their campaigns depending on the firm’s ownership structure and the types of investors the activist needs to persuade. For example, if passive investors are more receptive

to governance- or board-related issues or if their presence lowers the coordination costs of tactics associated with seeking board representation, then activists might be more likely to seek board seats as part of their strategy to influence the target firm's policy choices when passive ownership is higher. And, if passive investors tend to view policy changes, like increased dividends or debt, as either short-sighted or beyond their scope of expertise, then activists might be less likely to make such policy changes the only goal of their campaign when passive ownership is higher. To analyze this possible shift in the composition of campaigns, we now (and for the remainder of the paper) restrict the sample to those firms in the 500 bandwidth that experience an activist event as defined by SharkWatch from 2008 through 2014.<sup>13</sup>

Table 5 reports the effects of passive ownership on each of the four groups of activist campaigns described in section 2.3 and summarized in Table 1. We find that higher passive ownership leads to an increase in campaigns seeking board representation. Specifically, among firms targeted by an activist during our sample period, a one standard deviation increase in passive ownership is associated with a 30 percentage point increase in the likelihood of seeking board representation ( $p$ -value  $< 0.05$ , Table 5, column 1). The increase is sizable given that about 27.9% of campaigns seek board representation in our sample. The increase is robust to including higher-order polynomial controls for firm's end-of-May market cap; we observe a similar increase when including a second- or third-order polynomial control for market cap ( $p$ -values  $< 0.05$ , Table 5, columns 2–3).

Given the lack of a relation between the overall likelihood of activism and passive ownership reported in Table 4, the increased frequency of board-related campaigns must be offset by a drop in the frequency of other types of campaigns. In Columns 4–6 of Table 5, we report results for these other types of campaigns; for brevity, we only report estimates that include a second-order polynomial control for market cap. The increased likelihood of campaigns seeking board representation appears to largely come at the expense of campaigns classified as “other”. Specifically, a one standard deviation increase in passive ownership is associated with a 28.8 percentage point ( $p$ -value  $< 0.10$ ) drop in “other” campaigns, which is

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<sup>13</sup> Limiting our sample to firms targeted by activists does not introduce any selection biases since, as shown in Table 4, index assignment is not associated with the likelihood of being targeted.

similar in magnitude to the observed increase in frequency of board-related campaigns. We also find a negative point estimate for the likelihood of a campaign seeking policy changes (column 4), but the estimate is not statistically significant. The association between passive ownership and the likelihood of a “13D only” filing is positive, but economically small and not statistically significant (column 6).

Overall, the results indicate that passive ownership leads to a meaningful shift in the types of campaigns pursued by activists. Specifically, higher passive ownership is associated with activists being more inclined to initiate campaigns seeking to alter the balance of corporate control away from incumbent directors. While activists are not necessarily seeking full control of the board in such campaigns, an attempt to get “a chair at the metaphorical table where corporate strategy is set” (Kahan and Rock, 2007) represents an ambitious intervention on the part of the activist that holds the potential to affect firms along virtually any dimension. The increase in campaigns seeking board representation appears to be offset by a decrease in campaigns seeking incremental changes to firm policies through the use of shareholder non-binding resolutions, exempt solicitations, and other means.

#### *4.3 Likelihood of proxy fights and of obtaining board representation*

Why is passive ownership associated with activist investors pursuing board representation? One possible explanation, as discussed above, is that passive investors tend to focus on governance- and board-related issues. Knowing this, activists might tailor their campaigns to attract the support of the large passive institutions. Another, but not mutually exclusive, possibility is that the presence of passive investors might lower the cost of a common tactic used by activists to win board seats: proxy fights. Passive investors’ concentrated ownership stakes might facilitate proxy battles by activists by reducing their coordination costs and ultimately increasing the chances of a favorable outcome. We analyze this possibility by examining whether passive investors influence the likelihood of activists engaging in a proxy fight with management and whether activists are more likely to obtain a successful outcome.

Proxy fights differ from many other activist tactics due to their considerable cost. These costs can be both direct (e.g., proxy solicitation services, legal fees, etc.) and indirect (e.g., effort) in nature. For example, one obviously important aspect of a proxy fight is convincing other shareholders to vote for the

dissident directors. However, communication with other shareholders is complicated by the fact that many hold shares in “street name” and cannot easily be identified. Thus, activists must hire proxy solicitation services. The costs associated with this are often considerable. For example, one study estimates the proxy solicitor fees alone cost activists \$150,000 on average when the activist issues a preliminary or definitive proxy statement (Activist Insights, 2014). Furthermore, activists often meet with other shareholders to convince them to vote for the dissident slate; Bebchuk (2007) notes that Red Zone LLC spent \$950,000 for travel alone in its proxy fight against Six Flags. Overall, Gantchev (2013) estimates the total average cost of a campaign ending in a proxy fight to be over \$10 million.

Other types of activism, like supporting a particular shareholder proposal or seeking an exempt solicitation, are usually less costly. For example, the primary direct cost for exempt solicitations is to “EDGARize” (i.e., format in accordance with SEC guidelines) the filing, which costs about \$100.<sup>14</sup> An exempt solicitation features the dissident communicating, sometimes via letter, with no more than ten other shareholders about an upcoming director election, so indirect costs are likely minimal as well. Similarly, there is no cost to submit shareholder proposals for inclusion on a company’s proxy statement provided that certain ownership and procedural requirements are satisfied (Briggs, 2007).

Consistent with the idea that passive investors lower the costs and increase the expected benefits of launching a proxy fight, we find that higher passive ownership is associated with an increase in campaigns involving a proxy fight. These results are reported in Table 6. Specifically, among firms targeted by an activist, a one standard deviation increase in passive ownership is associated with approximately a 30 percentage point increase in the likelihood of a proxy fight, and the point estimates are statistically significant at the 5% level (columns 1–3). Relative to the average likelihood of a proxy fight, 18.9 percent, this corresponds to a sizable increase. Activists also appear to be more ambitious in the number of board seats they seek when passive ownership is higher. A one standard deviation increase in passive ownership is associated with about one additional seat being sought (columns 4–6;  $p$ -values < 0.05), relative to a sample average of 0.76 seats sought.

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<sup>14</sup> See “Use of Exempt Solicitations Up Dramatically in 2012: Chesapeake (CHK) Latest Example” available at <http://www.corpgov.net/2012/05/use-of-exempt-solicitations-up-dramatically-in-2012-chesapeake-chk-latest-example/>

We next analyze the impact of passive ownership on proxy fight outcomes. There are four outcomes of proxy fights in our sample: settlement, withdrawal, vote in favor of management, and vote in favor of the activist. Settlements, which are generally a positive outcome for the activist, are typically associated with some board representation for the activist and occur when managers view an activist's campaign as credible (Bebchuk, Brav, Jiang, and Keusch, 2017). Withdrawals, on the other hand, occur when an activist anticipates defeat and withdraws their proxy fight. In our sample, approximately 36.5% of proxy fights end in a settlement and 28.6% end with a withdrawal by the activist. Of the remaining 34.9% of proxy fights in our sample that reach a shareholder vote, roughly half of the votes are won by management. We analyze the effect of passive ownership on the likelihood of each of these outcomes in Table 7.

We find that passive ownership is associated with an increase in activists obtaining concessions and board representation via settlements, and no evidence that these additional campaigns are less likely to succeed. A one standard deviation increase in passive ownership is associated with approximately a 16–20 percentage point increase in the likelihood that an activist campaign results in a proxy settlement, and the estimates are statistically significant at the 5% level (Table 7, columns 1–3). These findings suggest that the ex-ante probability that an activist will win a proxy fight is higher when backed by passive investors. We find no evidence that passive ownership is associated with differences in the probability that an activist anticipates defeat and withdraws their proxy fight (column 4) or in the rates at which activists or managers win proxy fights that go to a shareholder vote (columns 5 and 6).

Combined, the increase in campaigns with proxy fights and favorable outcomes for activists are consistent with the presence of passive investors lowering activists' cost of initiating a proxy fight and increasing the expected benefits of launching a proxy battle.

#### *4.4 Activists' likelihood of success in obtaining non-board objectives*

In this section, we test whether passive ownership is associated with activists' likelihood of success in dimensions besides proxy fights and board representation. To do this, we create indicator variables to flag campaigns where the activist was successful in obtaining specific policy outcomes related to corporate

control and governance (e.g., acquisitions and takeover defenses) and corporate policies (e.g., increased payouts, capital structure changes, and spinoffs). For brevity, we continue to restrict our analysis to estimations that include a second-order polynomial control for  $Ln(\text{market cap})$ .

Our results, reported in Table 8, indicate that passive investors have a significant effect on the likelihood of activists achieving outcomes related to changes in corporate control. For example, passive ownership is associated with an increased likelihood that activists successfully push for an acquisition of the target. Among firms targeted by activists, a one standard deviation increase in passive ownership is associated with an 11 percentage point increase in the likelihood the activist successfully seeks and obtains an acquisition by a third party (column 1) and a 6 percentage point increase in the likelihood the activist seeks and acquires the target firm itself (column 2). Both estimates are statistically significant at the 10% level and consistent with passive investors being inclined to support acquisitions where shareholders are being offered a premium. Given the potentially large value implications of these outcomes, increased activist success might also be the result of an increased threat of a proxy fight should the activist face resistance from managers. Greater passive ownership, however, is also associated with a decline in the likelihood an activist is able to successfully block a merger or agitate for a higher price in a proposed merger (column 3). One potential explanation for this latter finding is that passive investors often hold significant ownership stakes in both the acquirer and the target, thus mitigating their incentive to support a higher price, irrespective of whether such a price increase might be beneficial to the target or other involved parties.

We also find suggestive evidence that greater passive ownership is associated with increased success by activists in removing takeover defenses. Reform of governance practices, including the removal of takeover defenses, is a common goal of activists. We find that a one standard deviation increase in passive ownership is associated with a 6 percentage point increase in the likelihood of the firm removing a takeover defense (Table 8, column 4), though the estimate is not statistically significant at conventional levels ( $p\text{-value} = 0.101$ ). This finding is consistent with recent evidence that passive investors tend to oppose takeover defenses (Appel, Gormley, and Keim, 2016).

An increased presence of passive investors, however, does not appear to have an effect on activists'



ability to instigate changes to corporate policies unrelated to governance or corporate control. Specifically, we find less evidence that passive ownership is related to success in obtaining an increase in payouts (Table 8, column 5), changing the capital structure (column 6), or facilitating a spinoff (column 7), three common goals of activist campaigns. While it might be the case that managers and boards are inclined to make such changes if refusal to do so could result in a proxy fight, it may also be the case that a proxy fight in response to refusal is viewed as a non-credible threat. This would be the case, for instance, if the proportional increase in value resulting from a change in firm policies does not outweigh the costs of a proxy fight for the activist. The non-findings are also consistent with passive investors being less inclined to support such changes because they view them as either better left to the discretion of managers and boards (Appel, Gormley, and Keim, 2016) or short-sighted (as argued recently by Larry Fink, CEO of Blackrock).

#### *4.5 Activists' likelihood of using other, non-proxy fight tactics*

In practice, activists can employ a combination of tactics besides nominating a slate of directors and initiating a proxy fight. The most common alternative tactic is to write a letter to the board and other shareholders. Other tactics can include initiating a lawsuit, obtaining a vote on a precatory shareholder proposal, pushing for a vote on a binding proposal, and seeking reimbursement for expenses occurred.

Passive ownership has less effect on these other tactics pursued by activists. These findings are reported in Table 9. While passive ownership is positively associated with an increase in the likelihood an activist initiates a lawsuit, which is generally considered a more hostile tactic, the point estimate is not statistically significant at conventional levels (Table 9, column 1). We do find that passive ownership is associated with fewer letters to shareholders ( $p < 0.10$ ) but little evidence of a change in the likelihood of precatory shareholder proposals, both of which are relatively lower-cost tactics (columns 2–3). We also find little association between passive ownership and activists pushing a binding proposal (column 4).

Passive ownership, however, is associated with an increase in activists seeking reimbursement from the firm. Such requests are often made in expensive proxy fights, and consistent with the earlier observed increase in proxy fights, we find that a one standard deviation increase in passive ownership is associated with a 18.8 percentage point increase in the likelihood the activist seeks reimbursement. The magnitude of

this increase in reimbursement requests is sizable given that only 9.9 percent of campaigns in our sample make such requests. This finding provides additional evidence that activists undertake more expensive campaigns in the presence of higher passive ownership.

#### *4.6 Market perceptions of an activist campaign and its impact on long-term performance*

Finally, we analyze the impact of passive ownership on the market's response to the announcement of an activist's campaign, and the impact of that campaign on a target's long-term accounting performance. Researchers have documented a positive average market response to activist campaigns (e.g., see Brav, Jiang, and Kim 2015 for a summary), which reflect both investors' perceptions regarding the value-impact of the activist's proposed changes and the perceived likelihood the activist will succeed in obtaining those changes. If passive ownership increases either the likelihood of an activist succeeding, as suggested above, or an activist's ability to seek more value-enhancing changes in a targeted firm, we might expect to find a larger positive market response when passive ownership is higher. And to the extent the changes sought by activists improve targeted firms' long-term accounting performance (e.g., see Brav, Jiang, Partnoy, and Thomas, 2008; Bebchuk, Brav, and Jiang, 2015), we might also expect to find that greater passive ownership leads to a larger positive impact on long-term performance.

We report results related to these conjectures in Table 10. We find that higher passive ownership is associated with a larger positive market response at the time of an activist's engagement. To measure market response, we compute cumulative abnormal returns (CARs) using the 4-factor Fama and French model in a 20-day window around the public announcement of an activist campaign and use this as the outcome variable in our instrumental variable estimation. We choose a [-10, 10] window as Brav, Jian, and Kim (2015a) shows that a most of the price response from activist events occurs in this window. The average market response in our sample is 4.5% (standard deviation=16.8%), which is similar to the average market response found in other papers (see Brav, Jian, and Kim, 2015a). As shown in columns 1 to 3 of Table 10, a one standard deviation increase in passive ownership is associated with about an 11-12 percentage point increase in the average CAR at time of announcement. While economically large, the increase is consistent with the higher abnormal returns associated with hostile campaigns and campaigns

involving the target's sale, both of which occur more often when passive ownership is higher; Brav, et al (2008) document that abnormal returns are, on average, 3.76 and 8.54 percentage points higher for campaigns associated with hostile tactics and the attempted sale of the target, respectively. The findings, however, are not as robust as others documented above. The estimated coefficients are statistically significant at the 10% level in only one of the three specifications (e.g., the  $p$ -values in columns 1 and 2 are 0.121 and 0.102, respectively); we find similarly positive point estimates using a longer post-event window (e.g., [-20, 20]), but those estimates are not statistically significant.

## **5. Discussion of possible mechanisms**

While our empirical setting provides exogenous variation in the concentration of passive holdings, thus allowing us to identify the effect of passive ownership on activism outcomes, it does not provide exogenous variation in the potential mechanisms by which passive ownership might influence activists. For example, does passive ownership matter because it increases ownership concentration, which in turn, lowers coordination costs? Or, does passive ownership matter because of something particular to passive investors, including their long-term investment strategy and focus on governance and control issues?

### *5.1 Shared desire for improved governance*

Our evidence suggests that passive investors matter because of their long-term investment strategies and focus on governance issues. If the effect of passive ownership were working solely through an increase in ownership concentration and reduced coordination costs, we would expect to find increased successes for activists in multiple dimensions, including their efforts to increase payouts and adjust capital structures. Instead, we only find that increased activists' successes in areas that passive investors view as beneficial for their long-term interests; in particular, effective boards, good governance, and a strong market for corporate control. And activist campaigns associated with greater passive ownership are more focused on board quality and representation and, thus, more aligned with passive investors' proxy voting guidelines. As noted in a recent survey of long-term investors by the corporate governance firm Morrow Sodali, poor governance practices are the biggest reason for long-term investors' support of activist proposals.

Anecdotal evidence suggests the influence of passive investors on activist outcomes is tacit, rather than through the creation of formal alliances. According to the chief legal officer of a hedge fund involved in multiple activist campaigns, the fund begins talking with other shareholders when initial private conversations with the targeted company fail to yield results and the fund decides to go public with its campaign. When speaking to other owners, the fund typically first reaches out to the proxy-voting department of the largest institutional shareholders in an attempt to educate them about its views. A hoped-for outcome of such communications is that some of these institutions will be persuaded by the activists' arguments and signal their likely support in a proxy fight or privately communicate their support to the targeted firm's management and directors, as occurred in ValueAct's campaign against Microsoft in 2012-13.<sup>15</sup> The head of the governance division of a large passive institution confirms that such conversations occur and that the governance committee is the first point of contact for an activist; and also confirms that the institution might then privately communicate its views to managers, and that these communications can influence managers to reach a settlement with the activists.<sup>16</sup> Martin Lipton, a lawyer who has represented companies facing activists, tells a similar story. As he notes, traditional institutional investors do not actively join activist campaigns, but when supportive, they do let the lead activist know that "it can count on their support in a proxy fight".<sup>17</sup>

## *5.2 Characteristics of Target Firms, Activist Ownership Stake*

Another mechanism by which greater passive ownership might affect activism outcomes is by influencing the financial characteristics and average profitability of firms targeted by activists or the size of the ownership stakes taken by activists when engaging. For example, the documented positive association between passive ownership and proxy fights could reflect greater willingness by activists, when

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<sup>15</sup> See "Activists investors' secret ally: Big mutual funds," *The Wall Street Journal*, Aug. 9, 2015.

<sup>16</sup> One such example of a passive investor potentially influencing management to settle occurred in Third Point's campaign against Sotheby's in 2014, which is included in our sample. Court documents revealed that Sotheby's was preparing for a tough vote after Blackrock, a major shareholder in Sotheby's, communicated to Sotheby's top management that Third Point would win, and the day before the shareholder vote, Sotheby's reached a settlement agreement with Third Point, appointing three new directors and removing a poison pill. See "Sotheby's gives hedge fund activist Dan Loeb board seats, avoiding shutdown," [www.ardaily.com](http://www.ardaily.com), May 6, 2014.

<sup>17</sup> See Lipton, Martin, "Dealing with Activist Hedge Funds and Other Activist Investors," Harvard Law School Forum on Corporate Governance and Financial Regulation, January 26, 2017.

aligned with passive institutions, to target less profitable firms with intransigent managers and boards. The presence of passive investors might also influence the size of the ownership stake taken by activists which, in turn, could affect their subsequent strategic choices. For example, activists might take smaller positions in the targeted firm if they can expect the support of large passive institutions. Alternatively, activists might take larger positions if this expected support increases the likelihood of success for their campaign.

We find no evidence, however, that the amount of passive mutual fund ownership is associated with either characteristics of targeted firms or the ownership stakes taken by activists. In particular, passive ownership does not have a statistically significant association with target firms' cash holdings, dividend yield, leverage ratio, level of capital expenditures or R&D expenses, return on assets, Tobin's Q, or stock return in the year prior to being targeted. And the size of the activists' ownership stakes (as measured by percent holdings) is also unrelated to passive ownership.

### *5.3 Exclusion restriction and other possible mechanisms*

An underlying assumption of our identification strategy is that Russell index inclusion affects activism outcomes only through its impact on the extent of a stock held by passive investors. If index inclusion, however, is also related to the extent of ownership by actively-managed funds benchmarked to the index or the extent of analyst coverage, then these could be alternative explanations for our findings if either analyst coverage or the extent of ownership by actively managed funds affect activists' choices.

However, as shown earlier in Table 2, our main first stage estimation yields no evidence that Russell index assignment is associated with the ownership levels of either actively-managed or unclassified funds. Moreover, this finding is robust to varying the polynomial order of controls for *Mktcap* (see Appendix Table 2). The point estimates for both active ownership and unclassified ownership are economically small and not statistically significant in any of the specifications. Overall, these first stage estimates confirm that index assignment is related only to passive ownership.

Our findings also do not appear to be driven by a relation between Russell index assignment and analyst coverage, which could represent another possible violation of our underlying exclusion restriction. We find no evidence that being assigned to the Russell 2000 is associated with a different level of analyst

coverage after conditioning on index determinants. These results are reported in Appendix Table 3.

## 6. Robustness checks

### 6.1. Robustness to alternative sampling choices, controls, and placebo tests

In our main analysis, we select the sample to be the 500 stocks with the smallest portfolio weights in the Russell 1000 and the 500 stocks with the largest portfolio weights in the Russell 2000. Our findings, however, are not sensitive to this choice. This is shown in Appendix Fig. 1, in which we plot the point estimates and 95<sup>th</sup> percentile confidence intervals when varying the bandwidth between 250 and 750 firms and using a second-order polynomial control for  $\text{Ln}(Mktcap)$ ; estimates are reported for the specifications of Tables 3–8. The estimates are relatively similar across the entire range of bandwidths.

Our findings are also not sensitive to instead using end-of-May market caps to determine the sample of stocks each year. In particular, we can rank stocks based on their end-of-May market cap, calculated with data from CRSP, and select the sample for each year using firms ranked 500<sup>th</sup> through 1,500<sup>th</sup> in that year. An advantage of this latter approach is that it eliminates the risk that Russell’s float-adjusted reweighting of stocks within an index affects our findings. A disadvantage of this approach, however, is that we are no longer necessarily comparing the very bottom firms of the Russell 1000 against the very top firms of the Russell 2000, which is where we would expect to find the biggest difference in passive ownership (and hence, outcomes) to occur. This sampling choice, however, has little impact on our IV estimates. While the first stage estimates are expectedly smaller in magnitude and noisier when we use end-of-May market caps to rank stocks and select our sample each year (coefficient = 0.83,  $t$ -stat = 2.75), the IV estimations are largely unchanged (see Appendix Table 4).

Our findings are also largely unaffected if we add controls to account for a stock’s liquidity. If an increase in passive ownership improves a stock’s liquidity, then this could be an additional mechanism by which passive ownership affects activism outcomes. However, including controls for both Amihud’s measure of illiquidity and bid-ask spread has little impact on our findings (see Appendix Table 5). Our findings are also robust to instead controlling for the ratio of float-adjusted market capitalization to total market capitalization rather than controlling for  $\text{Ln}(Float)$  as in our main analysis. These results suggest

that a difference or change in liquidity is unlikely to be the key mechanism by which higher passive ownership affects the strategic choices of activists and the outcomes of their campaigns.

Our findings are also robust to including controls for whether a company's stock switched indexes. If index switchers differ in other dimensions and represent a disproportionate share of either index, this could affect our earlier estimates. However, all of the findings are robust to the inclusion of controls for whether a firm's stock moved from the Russell 1000 to the Russell 2000 that year, and vice versa.

Our findings are also robust to how we define an activist campaign. Excluding activist campaigns where we only observe the filing of a 13D, but no subsequent information on the tactics employed or changes sought by the activist, which occurs in 67 of our 466 activist campaigns, does not affect our findings. This is shown in Appendix Table 6. Our findings are also robust to combining activist campaigns that occur within the same year. In our main analysis, we treat each activist event reported in SharkWatch as a separate campaign. However, collapsing multiple activist events that occur in the same year into one combined campaign does not qualitatively affect our findings.

Clustering our standard errors at the activist level, rather than at the campaign level, does not qualitatively affect our findings. This is shown in Appendix Table 7, where we repeat our main findings

Finally, in further support that our findings are not driven by specification error, we do not find an association between passive ownership and our outcomes of interest in placebo IV or reduced-form tests that use alternative thresholds. For example, if we restrict the sample to the top 500 firms of the Russell 2000, and replace our *R2000* indicator with an indicator for the bottom 250 firms of this subsample, as measured using end-of-May market capitalization, our IV estimation does not detect an effect of passive ownership on any of our outcomes. Likewise, we do not find an effect of passive ownership in a similar placebo test that uses the bottom 500 firms of the Russell 1000.

## *6.2. Robustness to alternative activism data*

Another commonly used dataset in the activism literature is that of Brav, Jiang, Partnoy, and Thomas (2008) and Brav, Jiang, and Kim (2010). We use SharkWatch as our primary data source because

it is not limited to hedge fund activists. This can be seen in Appendix Table 8 which lists the activists in each of the two datasets with at least two campaigns; while both datasets cover hedge fund activists (e.g., Icahn Associates Corp., JANA Partners, Starboard), SharkWatch covers additional campaigns, including those initiated by pension funds (e.g., CalPERS, NYC Retirement Systems), individuals (e.g., Karl W. Miller), and non-profit organizations (e.g., As You Sow). Moreover, additional campaigns found in SharkWatch represent activist campaigns that do not include a 13D filing. Such filings are only required when an activist owns more than five percent of a company's equity. While Brav, et al. also make efforts to collect information on campaigns without a 13D filing, their data only include 13 such campaigns during our sample period, whereas 185 of the 466 SharkWatch campaigns in our sample lack a 13D filing. For example, Sharkwatch covers 7 campaigns initiated by Elliott Management Co., while the Brav, et al. data covers only 5 Elliott campaigns. Overall, compared to the 466 campaigns in our sample, there are only 164 hedge fund campaigns available during the same period in the extended data of Brav, et al.<sup>18</sup>

Our main findings, however, are robust to using activism events defined by Brav et al. (2008, 2010). To illustrate this, we analyze outcomes from this database that are similar to our main results: *board representation* is an indicator for if the activist seeks a board seat without a proxy contest; *proxy fight* is an indicator for the activist attempting to replace the board through a proxy fight; *win/settlement* is an indicator for the activist either winning a proxy fight or achieving a settlement with management; *governance objective* is an indicator for if the activist seeks governance changes, including the removal of takeover defenses, CEO/chairman replacement, board independence, etc.; and *takeover* is an indicator for a takeover bid. Panel A of Table 11 reports the effects of passive mutual fund ownership on these outcomes between 2008 and 2014. Consistent with the results in Tables 5-7, we find that passive ownership is associated with an increased likelihood of activists seeking board representation both through non-hostile tactics and hostile tactics (i.e., proxy fights), and an increase in the willingness of managers to settle with activists. We also find that passive ownership is associated with an increase in the likelihood of activists seeking governance

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<sup>18</sup> In some cases, however, the Brav, et al. data source includes campaigns that are not found in SharkWatch. These campaigns, however, are often those where the activist filed a 13D with no stated goal and took no subsequent actions. SharkWatch only includes such campaigns from 50 well-known activists (known as the SharkWatch50).



reform which mirrors the removal of takeover defenses in Table 8.

There is somewhat of a discrepancy, however, for takeovers. Using the SharkWatch data, we find higher passive ownership is associated with an increase in acquisitions by either the activist or a third party (Table 8), but there is no relation between passive ownership and takeover bids using the data from Brav et al. (2008, 2010). This discrepancy seems to originate from a difference in how the takeover indicator is defined in the two datasets; Brav et al. measures whether a takeover bid was attempted (Table 10, Column 5), while SharkWatch measures whether a takeover bid was successfully completed (Table 8, Column 1). If we rerun our earlier analysis using takeover outcomes as defined in SharkWatch but restrict our sample to the hedge fund activism events identified in Brav et al., our findings with respect to takeovers are qualitatively similar to those using the full sample. Our other findings from Tables 5-9 are also robust to restricting our SharkWatch data to the hedge fund activist events found in the Brav et al.

Unlike the SharkWatch data, which begins coverage in 2006, the data from Brav et al. (2008, 2010), also allows us analyze the importance of passive ownership for activism in earlier years. Panel B of Table 10 reports the effect of passive ownership on the same outcomes for the 1999-2007. We begin this analysis in 1999 since 1998 is the first year in which Russell's float-adjusted market cap is available, and because this sample predates the use of banding by Russell, we exclude the additional banding controls. In contrast to the later time period, we do not find an effect of passive mutual fund ownership on any of the outcomes. The lack of an effect in earlier years is consistent with anecdotal evidence suggesting that activists have recently begun changing their campaign tactics and more clearly aligning their goals with shareholder interests in response to their repeated interactions with the passive institutions that increasingly hold the largest positions in many public firms. According to private conversations with some of these large passive institutions, this recent evolution by activists has increased their receptiveness to activist campaigns.

### *6.3. Robustness to alternative definitions of passive ownership*

For our analysis above, we measure the ownership stake of passive investors using the Thomson Reuters S12 mutual fund data. An advantage of using the S12 data is that it allows for a precise measure of passive ownership. A disadvantage, however, is that the S12 mutual fund data doesn't include the holdings

of passive institutional investors like banks, insurance companies, and pension funds, some of which might also adopt passive investment strategies. To analyze whether our use of mutual fund holdings affects our findings, we rerun our analysis using a broader (but noisier) measure of passive ownership, as constructed from the 13F forms reported by institutions.

Any financial institution exercising discretionary management of investment portfolios over \$100 million in qualified securities is required to report its aggregate holdings quarterly to the SEC using Form 13F. The Thomson Reuters Institutional Holdings (13F) Database captures a larger share of institutional ownership than the S12 data – 13F institutional holdings account for about 65% of market capitalization compared to the 26.5% of market capitalization for the S12 mutual fund holdings. Using the 13F data, we classify institutions using Bushee’s (2001) classification. In particular, we classify “quasi-index” institutions as passive and “transient,” “dedicated,” and “unclassified” institutions as active.

Using the broader measure of passive ownership based on the 13F filings has no effect on our findings. Using the alternative measure of passive ownership, we repeat our first stage and IV estimations, and these are reported in Appendix Tables 9 and 10. Consistent with the first-stage estimates in Table 3, our first-stage estimates using the 13F data are significant only for the “quasi-index” passive investors (Appendix Table 9, Column 1), and there is no association between index assignment and more actively managed institutional holdings (Columns 2-4).<sup>19</sup> But as expected, the increase in passive ownership when using the 13f data is smaller in magnitude (0.9 standard deviations versus the 1.21 standard deviations in Table 3, Column 2) and less precisely estimated since “quasi-indexers” also includes the non-passive holdings of each institution. Despite this limitation, our IV estimates when using “quasi-index” remain qualitatively similar to those reported earlier in Tables 5-9 (see Appendix Table 10).

## **7. Conclusion**

Recent years have seen a dramatic rise in the amount, the aggressiveness, and the success rate of

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<sup>19</sup> The higher “quasi-index” ownership, but no significant relation for other institutional holdings, implies that the higher passive institutional ownership for stocks in the Russell 2000 corresponds with a lower ownership by shareholders not covered in the institutional level holdings data (e.g., retail investors).

activist investing. This increased activism has coincided with the growing influence of passive institutional investors; as of December 2014 passively managed mutual funds account for more than a third of all mutual fund assets. In this paper, we ask whether the growing importance of passive institutional investors has influenced the strategic choices of activists and their success rates.

Our findings suggest that the growth of passive investors facilitates activism by lowering the costs associated with certain activism tactics and by increasing the activists' likelihood of success. Over the 2008-2014 period we find that higher passive ownership is associated with greater success by activists in obtaining board representation, removing takeover defenses, and facilitating the sale of a targeted company. We find no evidence, however, that passive ownership is related to activist efforts to affect policies, such as changes to payout policy or capital structure, which some passive institutions associate with shorter-term goals that do not necessarily improve long-term value. We also show that the likelihood of activists initiating a proxy fight is significantly higher when passive ownership of the stock is higher. Because proxy fights are generally seen as a more expensive form of activism, our findings suggest an increased willingness by activists to pursue more expensive tactics when passive ownership is higher. We find no evidence, however, that higher passive ownership increases the likelihood of an activist campaign or a shift in the type of firms targeted by activists, suggesting these are not the primary mechanism by which passive ownership affects activists' strategic choices.

Given the myriad of agency conflicts that might exist between managers and shareholders, such as a manager's inclination to empire build, to enjoy the quiet life, or to play it safe (e.g., Jensen, 1986; Bertrand and Mullainathan, 2003; Gormley and Matsa, 2016), it is crucial to understand how the shifting nature of U.S. stock ownership affects the ability of shareholders to discipline managers. While some worry that the growth of passive investors weakens firm-level governance, our findings provide evidence to the contrary. Specifically, passive investors have been shown to be strong supporters of good governance practices that are consistent with long-term firm value (Appel, Gormley and Keim, 2016), and we provide evidence here that passive institutional ownership also bolsters the efforts of activists that seek similar goals.

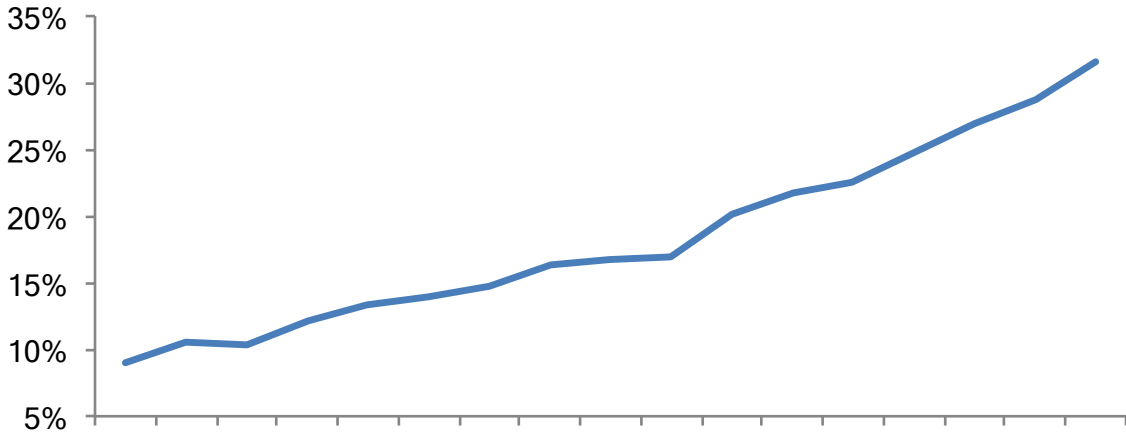
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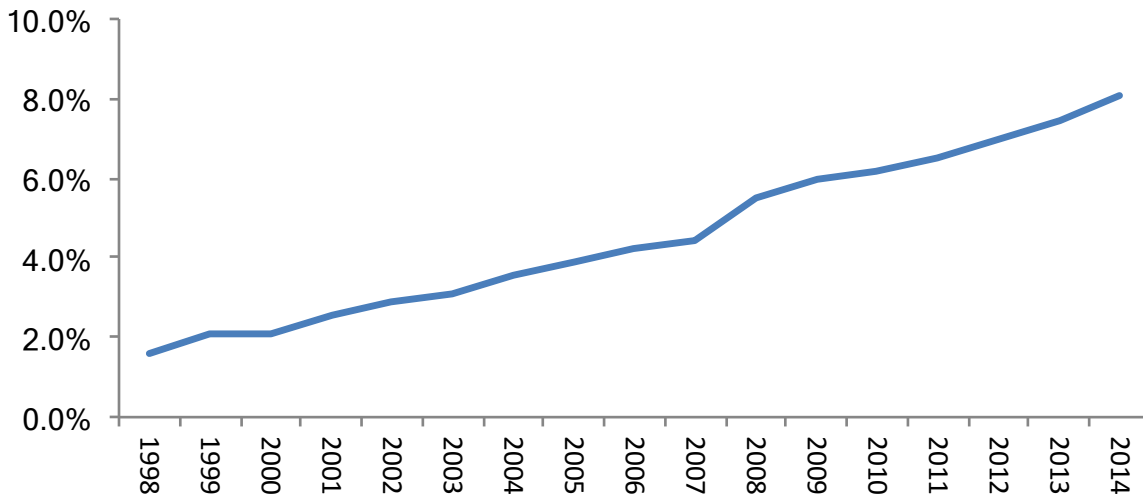
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**% of equity mutual fund assets that are passively managed**

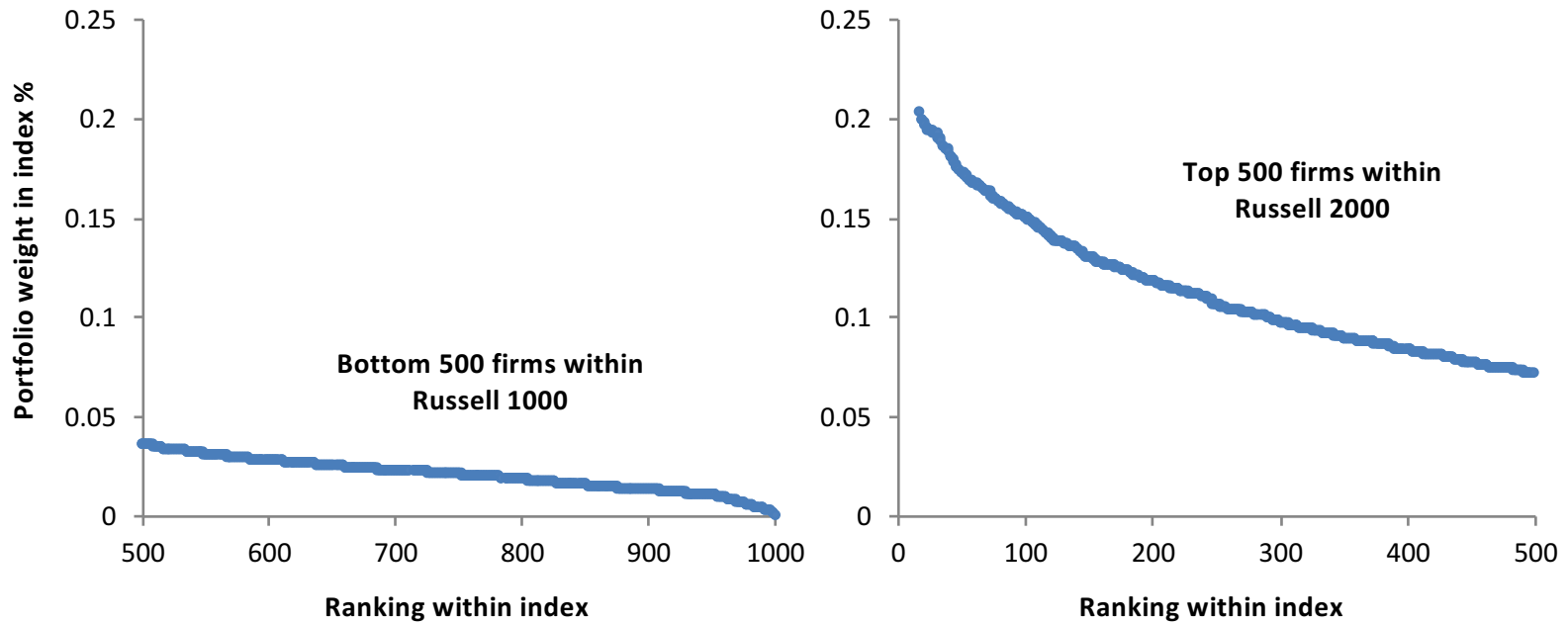


**% of total market cap held by passively managed funds**



**Figure 1**  
**Growth of passive investors, 1998-2014**

This figure plots the estimated percent of all U.S. equity mutual fund assets under management between 1998 and 2014 that are held in passively managed funds and the estimated percent of total U.S. market capitalization held by passively managed mutual funds. We construct the figure by matching the S12 mutual fund holdings data compiled in the Thomson Reuters Mutual Fund Holdings Database to market caps reported in CRSP and fund names in the CRSP mutual fund data. We use a name-parsing procedure along with the index fund identifier from the CRSP mutual fund file to classify mutual funds as passively managed. Our procedure is described in the text. Holdings and market cap are calculated each year at the end of the third quarter.



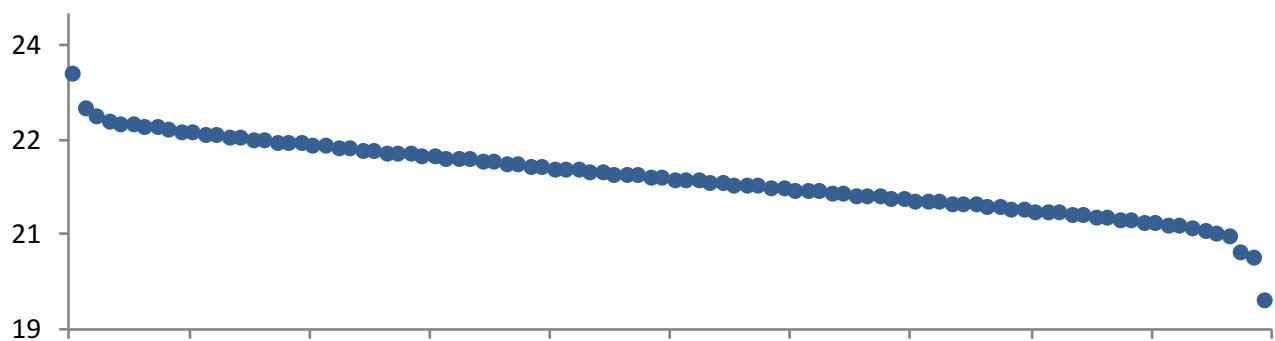
**Figure 2**

**Portfolio weights in the Russell 1000 and 2000 indices by within-index ranking for the year 2013**

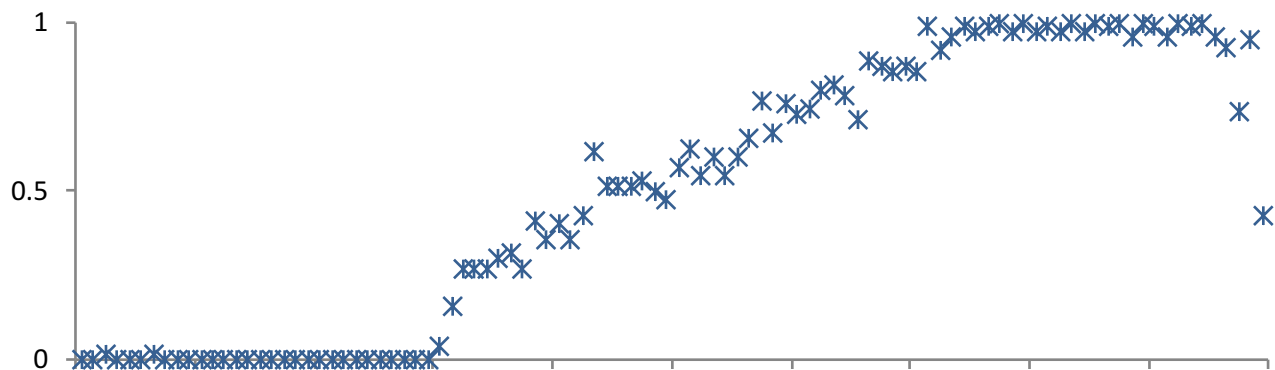
This figure plots the portfolio weights of the bottom 500 firms in the Russell 1000 index and the top 500 firms in the Russell 2000 index for the end-of-June 2013. Observations are ordered by their within-index ranking such that rankings of 1 and 1,000 represent the firms with the largest and 1,000th largest portfolio weight in the index, respectively. The portfolio weights are given as a percent.



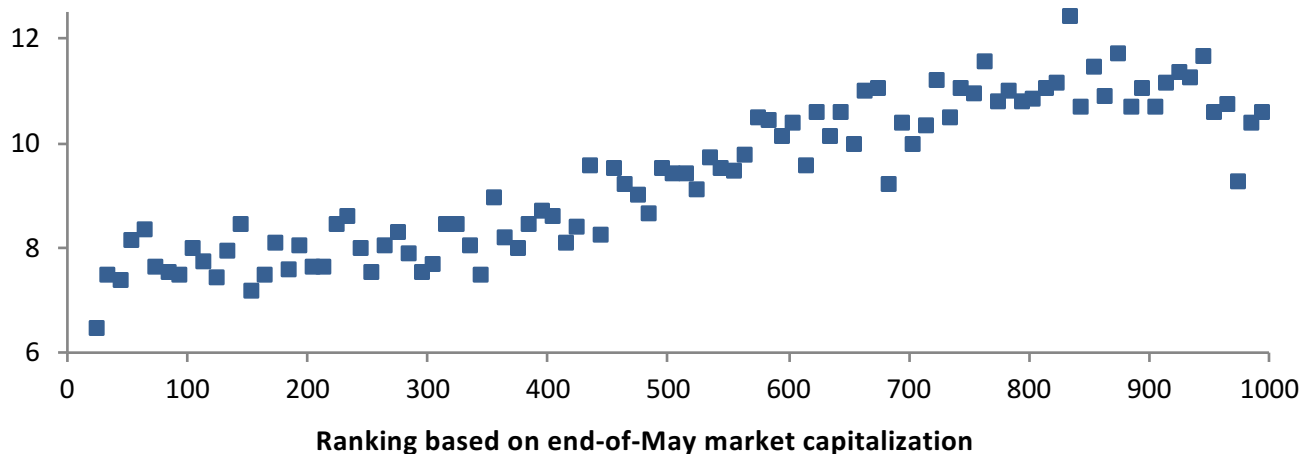
### Ln(Market capitalization)



### Fraction in Russell 2000



### Passive ownership %



**Figure 3**

### Market capitalization, index assignment, and passive ownership by market capitalization rankings for the bottom 500 firms of Russell 1000 and top 500 firms of Russell 2000

This figure plots the average end-of-May Ln(market capitalization), fraction of firm-year observations in the Russell 2000, and passive mutual fund ownership (%) by ranking, where ranking is determined using end-of-May market capitalization, as reported in CRSP. The sample includes the bottom 500 firms of the Russell 1000 and the top 500 firms of the Russell 2000, as determined using end-of-June Russell-assigned portfolio weights for each index. Mutual fund ownership is calculated as of September each year, and all averages are calculated using bins of 10 firms and data from 2007-2013. For the ownership panel, we scale the vertical axis to report two standard deviations on each side of the sample mean.

**Table 1**  
**Summary statistics**

This table reports summary statistics of our key variables for our main sample: activism events that occur for firms in the 500 bandwidth around the cutoff between the Russell 1000 and 2000 indexes from 2008–2014. Definitions for all variables are provided in Appendix Table 1. We delete observations where mutual fund ownership is missing.

|   | Obs. | Mean | Median | SD   |
|---|------|------|--------|------|
| <u>Ownership structure</u>              |      |      |        |      |
| <i>Total mutual fund ownership %</i>    | 466  | 35.6 | 35.6   | 10.8 |
| <i>Passive ownership %</i>              | 466  | 9.4  | 9.1    | 3.6  |
| <i>Active ownership %</i>               | 466  | 22.7 | 21.8   | 9.7  |
| <i>Unclassified ownership %</i>         | 466  | 3.5  | 2.8    | 2.3  |
| <u>Campaign classifications</u>         |      |      |        |      |
| <i>Seek board representation</i>        | 466  | 0.28 | 0.00   | 0.45 |
| <i>Maximize value via policy change</i> | 466  | 0.20 | 0.00   | 0.40 |
| <i>Other</i>                            | 466  | 0.38 | 0.00   | 0.49 |
| <i>13D filing only</i>                  | 466  | 0.14 | 0.00   | 0.35 |
| <u>Proxy fight outcomes</u>             |      |      |        |      |
| <i>Proxy fight</i>                      | 466  | 0.19 | 0.00   | 0.39 |
| <i>Seats sought</i>                     | 466  | 0.76 | 0.00   | 1.85 |
| <i>Proxy fight - settlement</i>         | 466  | 0.07 | 0.00   | 0.25 |
| <i>Proxy fight - activist wins</i>      | 466  | 0.03 | 0.00   | 0.18 |
| <i>Proxy fight - firm wins</i>          | 466  | 0.03 | 0.00   | 0.18 |
| <i>Proxy fight - withdrawn</i>          | 466  | 0.05 | 0.00   | 0.23 |
| <u>Other outcomes</u>                   |      |      |        |      |
| <i>Acquisition [by third party]</i>     | 466  | 0.02 | 0.00   | 0.15 |
| <i>Acquisition [by activist]</i>        | 466  | 0.02 | 0.00   | 0.13 |
| <i>Merger blocked</i>                   | 466  | 0.04 | 0.00   | 0.19 |
| <i>Removed takeover defense</i>         | 466  | 0.04 | 0.00   | 0.19 |
| <i>Increased payouts</i>                | 466  | 0.04 | 0.00   | 0.20 |
| <i>Capital structure change</i>         | 466  | 0.01 | 0.00   | 0.10 |
| <i>Spinoff</i>                          | 466  | 0.04 | 0.00   | 0.19 |
| <i>CAR(-10,10)</i>                      | 410  | 0.05 | 0.03   | 0.17 |

**Table 2****Impact of index assignment on mutual fund ownership**

This table reports estimates of a regression of mutual fund holdings on an indicator for membership in the Russell 2000 index plus additional controls. Specifically, we estimate

$$Ownership\%_{it} = \eta + \lambda R2000_{it} + \sum_{n=1}^N \chi_n (Ln(Mktcap_{it}))^n + X_{it} + banding-controls_{it} + \delta_t + u_{eit}$$

where  $R2000_{it}$  is a dummy variable equal to 1 if stock  $i$  is in the Russell 2000 Index at end of June in year  $t$ ,  $Mktcap_{it}$  is the CRSP market value of equity of stock  $i$  measured at May 31 in year  $t$ ,  $N$  is the polynomial order we use to control for  $Ln(Mktcap_{it})$ , and  $\delta_t$  are year fixed effects. The estimation includes an additional control for the natural log of the float-adjusted market value of equity on June 30 in year  $t$ ,  $Ln(Float_{it})$ . The estimate also includes additional banding controls: an indicator for having an end-of-May market capitalization sufficiently close to the cutoff such that the firm will not switch indexes,  $band_{it}$ , an indicator for being in the Russell 2000 last year,  $R2000_{it-1}$ , and the interaction of these two indicators.  $Ownership\%_{it}$  measures mutual fund ownership (in percent) for stock  $i$  at the end of September in year  $t$ . In this table we use four different definitions for  $Ownership\%$  for stock  $i$ : (1) the percentage of shares outstanding owned by all mutual funds (from S12 filings); (2) the percentage of shares outstanding owned by passive funds; (3) the percentage of shares outstanding owned by active mutual funds; and (4) the percentage of shares outstanding owned by unclassified mutual funds. The mutual fund classifications are defined in the text. The sample consists of all activism events that target the top 500 firms in the Russell 2000 index and bottom 500 firms of the Russell 1000 index (i.e., bandwidth = 500) over the 2008-2014 period for which we obtain holdings data from Thomson Reuters Mutual Fund Holdings Database and which we match with data from the monthly CRSP file. The model is estimated using a polynomial order control for  $Ln(Mktcap)$  of  $N = 2$ . Standard errors,  $u$ , are clustered at the firm level and reported in parentheses. \*\*\* indicates significance at the 1% level.

| <i>Dependent variable =</i> | Percent of firm's common shares held by: |                     |                  |                    |
|-----------------------------|--|---------------------|------------------|--------------------|
|                             | All mutual funds                         | Passive funds       | Active funds     | Unclassified funds |
|                             | (1)                                      | (2)                 | (3)              | (4)                |
| <i>R2000</i>                | 6.371<br>(4.047)                         | 4.332***<br>(1.109) | 1.851<br>(3.779) | 0.188<br>(0.790)   |
| Polynomial order, $N$       | 2  | 2                   | 2                | 2                  |
| Banding controls            | yes                                      | yes                 | yes              | yes                |
| Float control               | yes                                      | yes                 | yes              | yes                |
| Year fixed effects          | yes                                      | yes                 | yes              | yes                |
| Observations                | 466                                      | 466                 | 466              | 466                |
| <i>R</i> -squared           | 0.214                                    | 0.447               | 0.138            | 0.125              |

**Table 3****First stage estimation for ownership by passively managed funds**

This table reports estimates of our first-stage regression of passive ownership onto an indicator for membership in the Russell 2000 index plus additional controls. Specifically, we estimate

$$Passive\%_{it} = \eta + \lambda R2000_{it} + \sum_{n=1}^N \chi_n (Ln(Mktcap_{it}))^n + X_{it} + banding-controls_{it} + \delta_t + u_{eit}$$

where  $R2000_{it}$  is a dummy variable equal to 1 if stock  $i$  is in the Russell 2000 Index at end of June in year  $t$ ,  $Mktcap_{it}$  is the CRSP market value of equity of stock  $i$  measured at May 31 in year  $t$ ,  $N$  is the polynomial order we use to control for  $Ln(Mktcap_{it})$ , and  $\delta_t$  are year fixed effects. The estimation includes an additional control for the natural log of the float-adjusted market value of equity on June 30 in year  $t$ ,  $Ln(Float_{it})$ . The estimate also includes additional banding controls: an indicator for having an end-of-May market capitalization sufficiently close to the cutoff such that the firm will not switch indexes,  $band_{it}$ , an indicator for being in the Russell 2000 last year,  $R2000_{it-1}$ , and the interaction of these two indicators.  $Passive\%_{it}$  is the percentage of shares outstanding owned by passively managed mutual funds, as defined in the text, for stock  $i$  at the end of September in year  $t$  scaled by its sample standard deviation. The sample consists of all activism events that target the top 500 firms in the Russell 2000 index and bottom 500 firms of the Russell 1000 index (i.e., bandwidth = 500) over the 2008-2014 period for which we obtain holdings data from Thomson Reuters Mutual Fund Holdings Database and which we match with data from the monthly CRSP file. The model is estimated using a polynomial order controls for  $Ln(Mktcap)$  of  $N = 1, 2$ , and 3. Standard errors,  $u$ , are clustered at the firm level and reported in parentheses. \*\*\* indicates significance at the 1% level.

| <i>Dependent variable =</i> | Passive % scaled by its sample standard deviation |                     |                     |
|-----------------------------|---|---------------------|---------------------|
|                             | (1)   | (2)                 | (3)                 |
| <i>R2000</i>                | 1.103***<br>(0.302)                               | 1.205***<br>(0.308) | 1.216***<br>(0.316) |
| Polynomial order, $N$       | 1   | 2                   | 3                   |
| Banding controls            | yes   | yes                 | yes                 |
| Float control               | yes   | yes                 | yes                 |
| Year fixed effects          | yes   | yes                 | yes                 |
| Observations                | 466   | 466                 | 466                 |
| <i>R</i> -squared           | 0.445   | 0.447               | 0.447               |

**Table 4****Ownership by passive investors and the likelihood of a campaign**

This table reports estimates of our instrumental variable estimation used to identify the effect of institutional ownership by passive investors on the likelihood of an activism event. Specifically, we estimate

$$Y_{eit+1} = \alpha + \beta \text{Passive}\%_{it} + \sum_{n=1}^N \theta_n (\text{Ln}(\text{Mktcap}))^n + X_{it} + \text{banding-controls}_{it} + \delta_t + \varepsilon_{eit}$$

where  $Y_{eit+1}$  is an indicator for the likelihood of an activism event targeting firm  $i$  in year  $t+1$ ,  $\text{Passive}\%_{it}$  is the percentage of shares outstanding owned by passively managed mutual funds (as defined in the text) for stock  $i$  at the end of September in year  $t$  scaled by its sample standard deviation,  $\text{Mktcap}_{it}$  is the CRSP market value of equity of stock  $i$  measured at May 31 in year  $t$ , and  $\delta_t$  are year fixed effects. The estimation includes an additional control for the natural log of the float-adjusted market value of equity on June 30 in year  $t$ ,  $\text{Ln}(\text{Float}_{it})$ . The estimate also includes additional banding controls: an indicator for having an end-of-May market capitalization sufficiently close to the cutoff such that the firm will not switch indexes,  $\text{band}_{it}$ , an indicator for being in the Russell 2000 last year,  $R2000_{it-1}$ , and the interaction of these two indicators. We instrument  $\text{Passive}\%$  in the above estimation using  $R2000_{it}$ , an indicator equal to one if firm  $i$  is part of the Russell 2000 index in year  $t$ . The sample consists of the top 500 firms of the Russell 2000 index and bottom 500 firms of the Russell 1000 over the 2008–2014 period for which we obtain holdings data from Thomson Reuters Mutual Fund Holdings Database and which we match with data from the monthly CRSP file. The model is estimated using polynomial order controls  $N = 1, 2, \text{ and } 3$  for  $\text{Ln}(\text{Mktcap})$ . Standard errors,  $\varepsilon$ , are clustered at the firm level and reported in parentheses.

| <i>Dependent variable</i> = | Indicator for an activism campaign |                   |                   |
|-----------------------------|------------------------------------|-------------------|-------------------|
|                             | (1)                                | (2)               | (3)               |
| <i>Passive %</i>            | -0.007<br>(0.029)                  | -0.015<br>(0.029) | -0.022<br>(0.039) |
| Polynomial order, $N$       | 1                                  | 2                 | 3                 |
| Banding controls            | yes                                | yes               | yes               |
| Float control               | yes                                | yes               | yes               |
| Year fixed effects          | yes                                | yes               | yes               |
| Observations                | 6,803                              | 6,803             | 6,803             |

**Table 5**

**Ownership by passive investors and type of activist campaign**

This table reports estimates of our instrumental variable estimation used to identify the effect of institutional ownership by passive investors on the type of activism campaign. Specifically, we estimate

$$Y_{eit+1} = \alpha + \beta Passive\%_{it} + \sum_{n=1}^N \theta_n (Ln(Mktcap))_i^n + X_{it} + banding-controls_{it} + \delta_t + \varepsilon_{eit}$$

where  $Y_{eit+1}$  is an indicator for the type of campaign for activism event  $e$  targeting firm  $i$  in year  $t+1$ ,  $Passive\%_{it}$  is the percentage of shares outstanding owned by passively managed mutual funds (as defined in the text) for stock  $i$  at the end of September in year  $t$  scaled by its sample standard deviation,  $Mktcap_{it}$  is the CRSP market value of equity of stock  $i$  measured at May 31 in year  $t$ , and  $\delta_t$  are year fixed effects. The estimation includes an additional control for the natural log of the float-adjusted market value of equity on June 30 in year  $t$ ,  $Ln(Float_{it})$ . The estimate also includes additional banding controls: an indicator for having an end-of-May market capitalization sufficiently close to the cutoff such that the firm will not switch indexes,  $band_{it}$ , an indicator for being in the Russell 2000 last year,  $R2000_{it-1}$ , and the interaction of these two indicators. The campaign types investigated in this table, from SharkWatch (Factset), are: an indicator for campaign that seeks board representation (columns 1-3), an indicator for campaigns that seek to maximize shareholder value by advocating for specific corporate policy changes (column 4), an indicator for all other campaign goals (column 5), and an indicator for the campaign only have a 13D filing with no stated intent (column 6). We instrument  $Passive\%$  in the above estimation using  $R2000_{it}$ , an indicator equal to one if firm  $i$  is part of the Russell 2000 index in year  $t$ . The sample consists of all activism events that target the top 500 firms in the Russell 2000 index and bottom 500 firms of the Russell 1000 index (i.e., bandwidth = 500) over the 2008-2014 period for which we can obtain holdings data from Thomson Reuters Mutual Fund Holdings Database and which we can match with data from the monthly CRSP file. Standard errors,  $\varepsilon$ , are clustered at the firm level and reported in parentheses. \*\* indicates significance at the 5% level.

| <i>Dependent variable</i> = | Seek board representation |                    |                    | Maximize value via policy change | Other              | 13D only         |
|-----------------------------|---------------------------|--------------------|--------------------|----------------------------------|--------------------|------------------|
|                             | (1)                       | (2)                | (3)                | (4)                              | (5)                | (6)              |
| <i>Passive %</i>            | 0.296**<br>(0.135)        | 0.355**<br>(0.140) | 0.359**<br>(0.140) | -0.084<br>(0.107)                | -0.288*<br>(0.169) | 0.017<br>(0.109) |
| Polynomial order, $N$       | 1                         | 2                  | 3                  | 2                                | 2                  | 2                |
| Banding controls            | yes                       | yes                | yes                | yes                              | yes                | yes              |
| Float control               | yes                       | yes                | yes                | yes                              | yes                | yes              |
| Year fixed effects          | yes                       | yes                | yes                | yes                              | yes                | yes              |
| Observations                | 466                       | 466                | 466                | 466                              | 466                | 466              |

**Table 6****Ownership by passive investors and proxy fight likelihood and board seats sought**

This table reports estimates of our instrumental variable estimation used to identify the effect of institutional ownership by passive investors on the likelihood of a proxy fight and the number of board seats sought by an activist. Specifically, we estimate

$$Y_{eit+1} = \alpha + \beta \text{Passive}\%_{it} + \sum_{n=1}^N \theta_n (\text{Ln}(\text{Mktcap}))^n + X_{it} + \text{banding-controls}_{it} + \delta_t + \varepsilon_{eit}$$

where  $Y_{eit+1}$  is the outcome of interest for activism event  $e$  targeting firm  $i$  in year  $t+1$ ,  $\text{Passive}\%_{it}$  is the percentage of shares outstanding owned by passively managed mutual funds (as defined in the text) for stock  $i$  at the end of September in year  $t$  scaled by its sample standard deviation,  $\text{Mktcap}_{it}$  is the CRSP market value of equity of stock  $i$  measured at May 31 in year  $t$ , and  $\delta_t$  are year fixed effects. The estimation includes an additional control for the natural log of the float-adjusted market value of equity on June 30 in year  $t$ ,  $\text{Ln}(\text{Float}_{it})$ . The estimate also includes additional banding controls: an indicator for having an end-of-May market capitalization sufficiently close to the cutoff such that the firm will not switch indexes,  $\text{band}_{it}$ , an indicator for being in the Russell 2000 last year,  $R2000_{it-1}$ , and the interaction of these two indicators. The campaign outcomes investigated in this table, from SharkWatch (Factset), are: an indicator for a proxy fight occurring (columns 1-3) and the number of board seats sought by the activist (columns 4-6). We instrument  $\text{Passive}\%$  in the above estimation using  $R2000_{it}$ , an indicator equal to one if firm  $i$  is part of the Russell 2000 index in year  $t$ . The sample consists of all activism events that target the top 500 firms in the Russell 2000 index and bottom 500 firms of the Russell 1000 index (i.e., bandwidth = 500) over the 2008-2014 period for which we can obtain holdings data from Thomson Reuters Mutual Fund Holdings Database and which we can match with data from the monthly CRSP file. Standard errors,  $\varepsilon$ , are clustered at the firm level and reported in parentheses. \*\* indicates significance at the 5% level.

| <i>Dependent variable</i> = | Proxy fight        |                     |                     | Number of seats sought |                    |                    |
|-----------------------------|--------------------|---------------------|---------------------|------------------------|--------------------|--------------------|
|                             | (1)                | (2)                 | (3)                 | (4)                    | (5)                | (6)                |
| <i>Passive %</i>            | 0.312**<br>(0.123) | 0.321***<br>(0.122) | 0.310***<br>(0.119) | 0.951**<br>(0.455)     | 0.941**<br>(0.445) | 0.945**<br>(0.444) |
| Polynomial order, $N$       | 1                  | 2                   | 3                   | 1                      | 2                  | 3                  |
| Banding controls            | yes                | yes                 | yes                 | yes                    | yes                | yes                |
| Float control               | yes                | yes                 | yes                 | yes                    | yes                | yes                |
| Year fixed effects          | yes                | yes                 | yes                 | yes                    | yes                | yes                |
| Observations                | 466                | 466                 | 466                 | 466                    | 466                | 466                |

**Table 7****Ownership by passive investors and proxy fight outcomes**

This table reports estimates of our instrumental variable estimation used to identify the effect of institutional ownership by passive investors on proxy fight outcomes. Specifically, we estimate

$$Y_{eit+1} = \alpha + \beta \text{Passive}\%_{it} + \sum_{n=1}^N \theta_n (\text{Ln}(\text{Mktcap}))^n + X_{it} + \text{banding-controls}_{it} + \delta_t + \varepsilon_{eit}$$

where  $Y_{eit+1}$  is an indicator for the proxy fight outcome for activism event  $e$  targeting firm  $i$  in year  $t+1$ ,  $\text{Passive}\%_{it}$  is the percentage of shares outstanding owned by passively managed mutual funds (as defined in the text) for stock  $i$  at the end of September in year  $t$  scaled by its sample standard deviation,  $\text{Mktcap}_{it}$  is the CRSP market value of equity of stock  $i$  measured at May 31 in year  $t$ , and  $\delta_t$  are year fixed effects. The estimation includes an additional control for the natural log of the float-adjusted market value of equity on June 30 in year  $t$ ,  $\text{Ln}(\text{Float}_{it})$ . The estimate also includes additional banding controls: an indicator for having an end-of-May market capitalization sufficiently close to the cutoff such that the firm will not switch indexes,  $\text{band}_{it}$ , an indicator for being in the Russell 2000 last year,  $R2000_{it-1}$ , and the interaction of these two indicators. The proxy fight outcomes investigated in this table, from SharkWatch (Factset), are: an indicator for a proxy settlement between the firm and the activist (columns 1-3), the activist winning the vote in a proxy fight (column 4), the firm winning the vote in a proxy fight (column 5), the activist withdrawing the proxy fight before a vote occurs (column 6). We instrument  $\text{Passive}\%$  in the above estimation using  $R2000_{it}$ , an indicator equal to one if firm  $i$  is part of the Russell 2000 index in year  $t$ . The sample consists of all activism events that target the top 500 firms in the Russell 2000 index and bottom 500 firms of the Russell 1000 index (i.e., bandwidth = 500) over the 2008-2014 period for which we can obtain holdings data from Thomson Reuters Mutual Fund Holdings Database and which we can match with data from the monthly CRSP file. Standard errors,  $\varepsilon$ , are clustered at the firm level and reported in parentheses. \*\* indicates significance at the 5% level.

| <i>Dependent variable</i> = | Proxy fight settlement |                    |                    | Activist         | Firm             | Withdrawn        |
|-----------------------------|------------------------|--------------------|--------------------|------------------|------------------|------------------|
|                             | (1)                    | (2)                | (3)                | wins             | wins             |                  |
|                             | (1)                    | (2)                | (3)                | (4)              | (5)              | (6)              |
| <i>Passive %</i>            | 0.164**<br>(0.083)     | 0.200**<br>(0.088) | 0.192**<br>(0.086) | 0.036<br>(0.047) | 0.044<br>(0.047) | 0.042<br>(0.047) |
| Polynomial order, $N$       | 1                      | 2                  | 3                  | 2                | 2                | 2                |
| Banding controls            | yes                    | yes                | yes                | yes              | yes              | yes              |
| Float control               | yes                    | yes                | yes                | yes              | yes              | yes              |
| Year fixed effects          | yes                    | yes                | yes                | yes              | yes              | yes              |
| Observations                | 466                    | 466                | 466                | 466              | 466              | 466              |



**Table 8****Ownership by passive investors and non-proxy fight activist outcomes**

This table reports estimates of our instrumental variable estimation used to identify the effect of institutional ownership by passive investors on non-proxy fight activist outcomes. Specifically, we estimate

$$Y_{eit+1} = \alpha + \beta \text{Passive}\%_{it} + \sum_{n=1}^N \theta_n \left( \text{Ln}(\text{Mktcap}) \right)^n + X_{it} + \text{banding-controls}_{it} + \delta_t + \varepsilon_{eit}$$

where  $Y_{eit+1}$  is an indicator for the outcome of activism event  $e$  targeting firm  $i$  in year  $t+1$ ,  $\text{Passive}\%_{it}$  is the percentage of shares outstanding owned by passively managed mutual funds (as defined in the text) for stock  $i$  at the end of September in year  $t$  scaled by its sample standard deviation,  $\text{Mktcap}_{it}$  is the CRSP market value of equity of stock  $i$  measured at May 31 in year  $t$ , and  $\delta_t$  are year fixed effects. The estimation includes an additional control for the natural log of the float-adjusted market value of equity on June 30 in year  $t$ ,  $\text{Ln}(\text{Float}_{it})$ . The estimate also includes additional banding controls: an indicator for having an end-of-May market capitalization sufficiently close to the cutoff such that the firm will not switch indexes,  $\text{band}_{it}$ , an indicator for being in the Russell 2000 last year,  $R2000_{it-1}$ , and the interaction of these two indicators. The campaign outcomes investigated in this table, from SharkWatch (Factset), are: an indicator for whether the firm is acquired by a third party (column 1), is acquired by the activist (column 2), has a merger blocked (column 3), removes a takeover defense (column 4), increases its payout policy (column 5), makes a change to its capital structure (column 6), or does a spinoff or divestiture (column 7). We instrument  $\text{Passive}\%$  in the above estimation using  $R2000_{it}$ , an indicator equal to one if firm  $i$  is part of the Russell 2000 index in year  $t$ . The sample consists of all activism events that target the top 500 firms in the Russell 2000 index and bottom 500 firms of the Russell 1000 index (i.e., bandwidth = 500) over the 2008-2014 period for which we can obtain holdings data from Thomson Reuters Mutual Fund Holdings Database and which we can match with data from the monthly CRSP file. Standard errors,  $\varepsilon$ , are clustered at the firm level and reported in parentheses. \* indicates significance at the 10% level.

| <i>Dep. variable =</i> | Corporate control and governance outcomes |                              |                    |                                | Other corporate policy outcomes |                                |                   |
|------------------------|---|------------------------------|--------------------|--------------------------------|---------------------------------|--------------------------------|-------------------|
|                        | Acquired<br>[by third<br>party]           | Acquired<br>[by<br>activist] | Merger<br>blocked  | Removed<br>takeover<br>defense | Increased<br>payouts            | Capital<br>structure<br>change | Spinoff           |
|                        | (1)                                       | (2)                          | (3)                | (4)                            | (5)                             | (6)                            | (7)               |
| <i>Passive %</i>       | 0.110*<br>(0.066)                         | 0.060*<br>(0.032)            | -0.174*<br>(0.094) | 0.058<br>(0.035)               | 0.051<br>(0.038)                | -0.022<br>(0.022)              | -0.026<br>(0.047) |
| Polynomial order, $N$  | 2   | 2                            | 2                  | 2                              | 2                               | 2                              | 2                 |
| Banding controls       | yes                                       | yes                          | yes                | yes                            | yes                             | yes                            | yes               |
| Float control          | yes                                       | yes                          | yes                | yes                            | yes                             | yes                            | yes               |
| Year fixed effects     | yes                                       | yes                          | yes                | yes                            | yes                             | yes                            | yes               |
| Observations           | 466                                       | 466                          | 466                | 466                            | 466                             | 466                            | 466               |

**Table 9**  
**Ownership by passive investors and other activist tactics**

This table reports estimates of our instrumental variable estimation used to identify the effect of institutional ownership by passive investors on the tactics of activism campaigns. Specifically, we estimate

$$Y_{eit+1} = \alpha + \beta \text{Passive}\%_{it} + \sum_{n=1}^N \theta_n \left( \text{Ln}(\text{Mktcap}) \right)^n + X_{it} + \text{banding-controls}_{it} + \delta_t + \varepsilon_{eit}$$

where  $Y_{eit+1}$  is an indicator for whether certain activism tactics were used in event  $e$  targeting firm  $i$  in year  $t+1$ ,  $\text{Passive}\%_{it}$  is the percentage of shares outstanding owned by passively managed mutual funds (as defined in the text) for stock  $i$  at the end of September in year  $t$  scaled by its sample standard deviation,  $\text{Mktcap}_{it}$  is the CRSP market value of equity of stock  $i$  measured at May 31 in year  $t$ , and  $\delta_t$  are year fixed effects. The estimation includes an additional control for the natural log of the float-adjusted market value of equity on June 30 in year  $t$ ,  $\text{Ln}(\text{Float}_{it})$ . The estimate also includes additional banding controls: an indicator for having an end-of-May market capitalization sufficiently close to the cutoff such that the firm will not switch indexes,  $\text{band}_{it}$ , an indicator for being in the Russell 2000 last year,  $R2000_{it-1}$ , and the interaction of these two indicators. The activism tactics investigated in this table, from SharkWatch (Factset), are: an indicator for initiating a lawsuit (column 1), writing a non-proxy letter to shareholders or the board (column 2), offering a precatory shareholder proposal (column 3), pushing for a vote on a binding proposal (column 4), or seeking reimbursement (column 5). We instrument  $\text{Passive}\%$  in the above estimation using  $R2000_{it}$ , an indicator equal to one if firm  $i$  is part of the Russell 2000 index in year  $t$ . The sample consists of all activism events that target the top 500 firms in the Russell 2000 index and bottom 500 firms of the Russell 1000 index (i.e., bandwidth = 500) over the 2008-2014 period for which we can obtain holdings data from Thomson Reuters Mutual Fund Holdings Database and which we can match with data from the monthly CRSP file. Standard errors,  $\varepsilon$ , are clustered at the firm level and reported in parentheses. \* indicates significance at the 10% level.

| <i>Dep. variable =</i> | <div style="display: flex; justify-content: space-around;"> <span>Letter to SH</span> <span>Precatory</span> <span>Binding</span> <span>Seek</span> </div> <div style="display: flex; justify-content: space-around;"> <span>(non-proxy)</span> <span>proposal</span> <span>proposal</span> <span>reimburse-</span> </div> <div style="display: flex; justify-content: space-around;"> <span>ment</span> </div> |                    |                   |                  |                    |
|------------------------|---|--------------------|-------------------|------------------|--------------------|
|                        | (1)   | (2)                | (3)               | (4)              | (5)                |
| <i>Passive %</i>       | 0.105<br>(0.070)  | -0.259*<br>(0.151) | -0.111<br>(0.113) | 0.038<br>(0.073) | 0.188**<br>(0.091) |
| Polynomial order, $N$  | 2   | 2                  | 2                 | 2                | 2                  |
| Banding controls       | yes   | yes                | yes               | yes              | yes                |
| Float control          | yes   | yes                | yes               | yes              | yes                |
| Year fixed effects     | yes   | yes                | yes               | yes              | yes                |
| Observations           | 466   | 466                | 466               | 466              | 466                |

**Table 10****Ownership by passive investors and abnormal returns**

This table reports estimates of our instrumental variable estimation used to identify the effect of institutional ownership by passive investors on the cumulative abnormal return around the announcement of an activist campaign. Specifically, we estimate

$$Y_{eit+1} = \alpha + \beta \text{Passive}\%_{it} + \sum_{n=1}^N \theta_n (\text{Ln}(\text{Mktcap}))^n + X_{it} + \text{banding-controls}_{it} + \delta_t + \varepsilon_{eit}$$

where  $Y_{eit+1}$  is the cumulative abnormal return (CAR) estimated using a 4-factor Fama and French model for the 20-day window around the announcement of an activism event targeting firm  $i$  in year  $t+1$ ,  $\text{Passive}\%_{it}$  is the percentage of shares outstanding owned by passively managed mutual funds (as defined in the text) for stock  $i$  at the end of September in year  $t$  scaled by its sample standard deviation,  $\text{Mktcap}_{it}$  is the CRSP market value of equity of stock  $i$  measured at May 31 in year  $t$ , and  $\delta_t$  are year fixed effects. The estimation includes an additional control for the natural log of the float-adjusted market value of equity on June 30 in year  $t$ ,  $\text{Ln}(\text{Float}_{it})$ . The estimate also includes additional banding controls: an indicator for having an end-of-May market capitalization sufficiently close to the cutoff such that the firm will not switch indexes,  $\text{band}_{it}$ , an indicator for being in the Russell 2000 last year,  $R2000_{it-1}$ , and the interaction of these two indicators. We instrument  $\text{Passive}\%$  in the above estimation using  $R2000_{it}$ , an indicator equal to one if firm  $i$  is part of the Russell 2000 index in year  $t$ . The sample consists of the top 500 firms of the Russell 2000 index and bottom 500 firms of the Russell 1000 over the 2008–2014 period for which we obtain holdings data from Thomson Reuters Mutual Fund Holdings Database and which we match with data from the monthly CRSP file. The model is estimated using polynomial order controls  $N = 1, 2, \text{ and } 3$  for  $\text{Ln}(\text{Mktcap})$ . Standard errors,  $\varepsilon$ , are clustered at the firm level and reported in parentheses.

| <i>Dependent variable =</i> | CAR(-10,10)      |                  |                   |
|-----------------------------|------------------|------------------|-------------------|
|                             | (1)              | (2)              | (3)               |
| <i>Passive %</i>            | 0.112<br>(0.072) | 0.115<br>(0.071) | 0.123*<br>(0.073) |
| Polynomial order, $N$       | 1                | 2                | 3                 |
| Banding controls            | yes              | yes              | yes               |
| Float control               | yes              | yes              | yes               |
| Year fixed effects          | yes              | yes              | yes               |
| Observations                | 410              | 410              | 410               |

**Table 11****Ownership by passive investors and other activist outcomes using Brav, et al data**

This table reports estimates of our instrumental variable estimation used to identify the effect of institutional ownership by passive investors on the tactics of activism campaigns using the extended data of Brav et al. (2008, 2010). Specifically, we estimate

$$Y_{eit+1} = \alpha + \beta \text{Passive}\%_{it} + \sum_{n=1}^N \theta_n \left( \text{Ln}(\text{Mktcap}) \right)^n + X_{it} + \text{banding-controls}_{it} + \delta_t + \varepsilon_{eit}$$

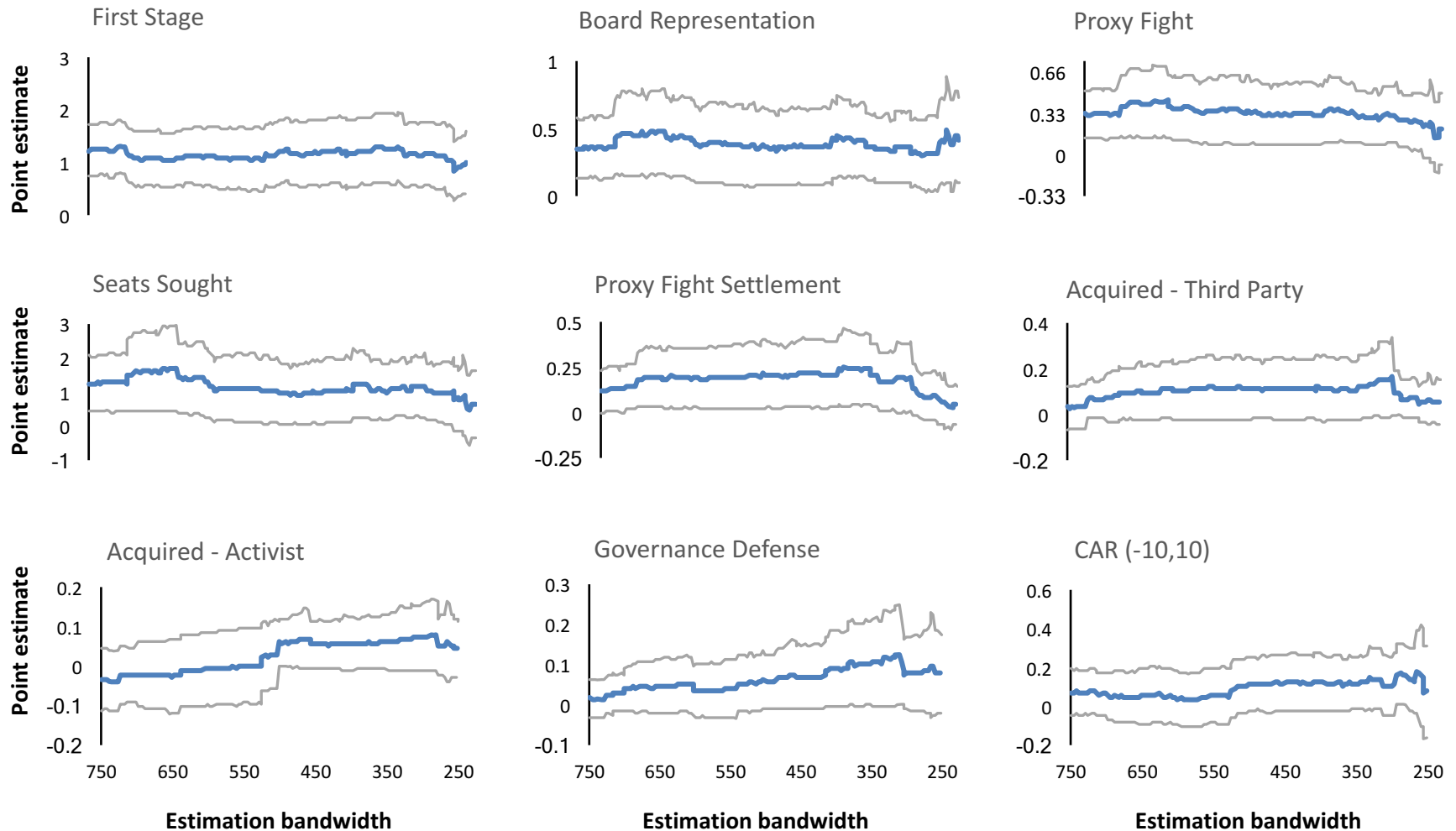
where  $Y_{eit+1}$  is an indicator for either a goal, tactic, or objective of activism event  $e$  targeting firm  $i$  in year  $t+1$ ,  $\text{Passive}\%_{it}$  is the percentage of shares outstanding owned by passively managed mutual funds (as defined in the text) for stock  $i$  at the end of September in year  $t$  scaled by its sample standard deviation,  $\text{Mktcap}_{it}$  is the CRSP market value of equity of stock  $i$  measured at May 31 in year  $t$ , and  $\delta_t$  are year fixed effects. The estimation includes an additional control for the natural log of the float-adjusted market value of equity on June 30 in year  $t$ ,  $\text{Ln}(\text{Float}_{it})$ . The estimate in Panel A also includes additional banding controls: an indicator for having an end-of-May market capitalization sufficiently close to the cutoff such that the firm will not switch indexes,  $\text{band}_{it}$ , an indicator for being in the Russell 2000 last year,  $R2000_{it-1}$ , and the interaction of these two indicators. The campaign outcomes investigated in this table, from Brav, et al (2008; 2010), are: an indicator for if the activist seeks a board seat without a proxy contest (column 1); an indicator for whether the activist initiates a proxy fight (column 2); an indicator for either the activist winning outright or management settling with the activist rather than accommodating, fighting, or ignoring (column 3); an indicator for if the activist targets takeover defenses, CEO/chairman replacement, board independence, etc. (column 4); and an indicator for a takeover bid (column 5). We instrument  $\text{Passive}\%$  in the above estimation using  $R2000_{it}$ , an indicator equal to one if firm  $i$  is part of the Russell 2000 index in year  $t$ . The sample in Panel A consists of all activism events that target the top 500 firms in the Russell 2000 index and bottom 500 firms of the Russell 1000 index (i.e., bandwidth = 500) over the 2008-2014 period for which we can obtain holdings data from Thomson Reuters Mutual Fund Holdings Database and which we can match with data from the monthly CRSP file, and the sample in Panel B consists of activism events that target the top 500 firms in the Russell index and bottom 500 firms of the Russell 1000 index over the 1999-2007 period. The model is estimated using second-order polynomial controls for  $\text{Ln}(\text{Mktcap})$ . Standard errors,  $\varepsilon$ , are clustered at the firm level and reported in parentheses. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% levels, respectively.

| <i>Dep. variable =</i>                     | Board              | Proxy             | Win or             | Governance        | Takeover          |
|--|--------------------|-------------------|--------------------|-------------------|-------------------|
|  | representation     |                   | settlement         | objective         | bid               |
|  | (1)                | (2)               | (3)                | (4)               | (5)               |
| <b>Panel A: Activism events, 2008-2014</b> |                    |                   |                    |                   |                   |
| <i>Passive %</i>                           | 0.387**<br>(0.153) | 0.226*<br>(0.132) | 0.456**<br>(0.182) | 0.303*<br>(0.168) | -0.171<br>(0.120) |
| Polynomial order, $N$                      | 2                  | 2                 | 2                  | 2                 | 2                 |
| Banding controls                           | yes                | yes               | yes                | yes               | yes               |
| Float control                              | yes                | yes               | yes                | yes               | yes               |
| Year fixed effects                         | yes                | yes               | yes                | yes               | yes               |
| Observations                               | 164                | 164               | 164                | 164               | 164               |

**Panel B: Activism events, 1999-2007**

|                            |                   |                  |                   |                  |                  |
|----------------------------|-------------------|------------------|-------------------|------------------|------------------|
| <i>Passive %</i>           | -0.072<br>(0.139) | 0.038<br>(0.117) | -0.243<br>(0.179) | 0.031<br>(0.160) | 0.045<br>(0.048) |
| Polynomial order, <i>N</i> | 2                 | 2                | 2                 | 2                | 2                |
| Banding controls           | yes               | yes              | yes               | yes              | yes              |
| Float control              | yes               | yes              | yes               | yes              | yes              |
| Year fixed effects         | yes               | yes              | yes               | yes              | yes              |
| Observations               | 225               | 225              | 225               | 225              | 225              |

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**Appendix Fig. 1.** First stage and IV point estimates in the 250 through 750 bandwidths around the Russell 1000/2000 threshold. This figure plots the point estimate and 95th percentile confidence intervals by estimation bandwidth choice for the outcomes reported in Tables 3–10. Variable definitions are given in Appendix Table 1, and the estimations and samples are the same as in Tables 3–10 except the estimation bandwidth is varied between 250 and 750 firms around the Russell 1000/2000 threshold. A second-order polynomial control for  $\ln(Mktcap)$  is included in all estimations.

**Appendix Table 1**  
**Variable definitions**

| Variable Name                      | Source               | Definition  |
|------------------------------------|----------------------|---|
| <i>R2000</i>                       | Russell Investments  | Indicator equal to 1 if firm is in the Russell 2000   |
| <i>Mutual fund ownership %</i>     | Thomson Reuters S12  | % of shares outstanding held by mutual funds in September of year <i>t</i>                      |
| <i>Passive %</i>                   | Thomson Reuters S12  | % of shares outstanding held in September of year <i>t</i> by passively managed funds           |
| <i>Active %</i>                    | Thomson Reuters S12  | % of shares outstanding held in September of year <i>t</i> by actively managed funds            |
| <i>Unclassified %</i>              | Thomson Reuters S12  | % of shares outstanding held in September of year <i>t</i> by unclassified funds                |
| <i>Seek board representation</i>   | SharkWatch (FactSet) | Indicator equal to 1 if campaign seeks board representation for activist                        |
| <i>Max. val. via policy change</i> | SharkWatch (FactSet) | Indicator equal to 1 if campaign specifically seeks to maximize firm value                      |
| <i>Other</i>                       | SharkWatch (FactSet) | Indicator equal to 1 if campaign does not seek board rep. or to maximize firm value             |
| <i>13D only</i>                    | SharkWatch (FactSet) | Indicator equal to 1 if campaign only consists of 13D filing with no stated goal                |
| <i>Proxy fight</i>                 | SharkWatch (FactSet) | Indicator equal to 1 if campaign includes a proxy fight   |
| <i>Number of seats sought</i>      | SharkWatch (FactSet) | Number of board seats sought by activist in campaign  |
| <i>Proxy fight - settlement</i>    | SharkWatch (FactSet) | Indicator equal to 1 if proxy fight is settled  |
| <i>Proxy fight - activist wins</i> | SharkWatch (FactSet) | Indicator equal to 1 if activist wins proxy fight   |
| <i>Proxy fight - firm wins</i>     | SharkWatch (FactSet) | Indicator equal to 1 if firm wins proxy fight   |
| <i>Proxy fight - withdrawn</i>     | SharkWatch (FactSet) | Indicator equal to 1 if activist withdraws from proxy fight before vote occurs                  |
| <i>Acquisition by other party</i>  | SharkWatch (FactSet) | Indicator equal to 1 if campaign successfully seeks and obtains an acquisition by a third party |
| <i>Acquisition by activist</i>     | SharkWatch (FactSet) | Indicator equal to 1 if campaign successfully seeks and obtains an acquisition by the activist  |
| <i>Merger blocked</i>              | SharkWatch (FactSet) | Indicator equal to 1 if campaign successfully blocks a merger or agitates for higher price      |
| <i>Removed takeover defense</i>    | SharkWatch (FactSet) | Indicator equal to 1 if campaign successfully seeks and obtains removal of takeover defenses    |
| <i>Increase payouts</i>            | SharkWatch (FactSet) | Indicator equal to 1 if campaign successfully seeks increased payouts to shareholders           |
| <i>Capital structure change</i>    | SharkWatch (FactSet) | Indicator equal to 1 if campaign successfully seeks a change in capital structure               |
| <i>Spinoff and/or divestiture</i>  | SharkWatch (FactSet) | Indicator equal to 1 if campaign successfully seeks a spinoff or divestiture                    |
| <i>Lawsuit</i>                     | SharkWatch (FactSet) | Indicator equal to 1 if campaign features a lawsuit   |
| <i>Precatory proposal</i>          | SharkWatch (FactSet) | Indicator equal to 1 if campaign features a non-binding proposal                                |
| <i>Binding proposal</i>            | SharkWatch (FactSet) | Indicator equal to 1 if campaign features a binding proposal                                    |

|                                  |                          |   |
|----------------------------------|--------------------------|---|
| <i>Letter (non-proxy)</i>        | SharkWatch (FactSet)     | Indicator equal to 1 if campaign issues a non-proxy fight letter to the board or shareholders |
| <i>Seek reimbursement</i>        | SharkWatch (FactSet)     | Indicator equal to 1 if campaign seeks reimbursement from firm                                |
| <i>Board representation</i>      | Brav et al. (2008, 2010) | Indicator equal to 1 if campaign seeks board representation without proxy contest             |
| <i>Proxy</i>                     | Brav et al. (2008, 2010) | Indicator equal to 1 if campaign involves proxy contest                                       |
| <i>Win or settlement outcome</i> | Brav et al. (2008, 2010) | Indicator equal to 1 if campaign outcome is either a success or settlement                    |
| <i>Governance objective</i>      | Brav et al. (2008, 2010) | Indicator equal to 1 if campaign has a governance obj. as defined by Brav et al (2008, 2010)  |
| <i>Takeover bid</i>              | Brav et al. (2008, 2010) | Indicator equal to 1 if campaign involves a takeover bid by the activist                      |
| <i>CAR(-10,10)</i>               | CRSP                     | 4-factor cumulative abnormal return in 20-day window around announcement of campaign          |

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## Appendix Table 2

### First stage estimation for ownership by actively managed and unclassified mutual funds

This table reports estimates of our first-stage regression of ownership by actively managed and unclassified mutual funds onto an indicator for membership in the Russell 2000 index plus additional controls over the 2008-2014 sample period. The specification is the same as in Table 3, except that the dependent variable in columns (1)-(3) is now  $Active\%_{it}$ , which is the percentage of shares outstanding owned by actively managed mutual funds for stock  $i$  at the end of September in year  $t$  scaled by its sample standard deviation, and the dependent variable in columns (4)-(6) is now  $Unclassified\%_{it}$ , which is the percentage of shares outstanding owned by unclassified mutual funds for stock  $i$  at the end of September in year  $t$  scaled by its sample standard deviation. Both  $Active\%$  and  $Unclassified\%$  are defined in the text. Standard errors are clustered at the firm level and reported in parentheses.

| <i>Dependent variable =</i> | Active % scaled by its<br>sample standard deviation |                  |                  | Unclassified % scaled by its<br>sample standard deviation |                  |                  |
|-----------------------------|---|------------------|------------------|---|------------------|------------------|
|                             | (1)   | (2)              | (3)              | (4)   | (5)              | (6)              |
| <i>R2000</i>                | -0.127<br>(0.377)                                   | 0.191<br>(0.390) | 0.206<br>(0.401) | 0.168<br>(0.294)  | 0.081<br>(0.340) | 0.191<br>(0.327) |
| Polynomial order, $N$       | 1   | 2                | 3                | 1   | 2                | 3                |
| Banding controls            | yes   | yes              | yes              | yes   | yes              | yes              |
| Float control               | yes   | yes              | yes              | yes   | yes              | yes              |
| Year fixed effects          | yes   | yes              | yes              | yes   | yes              | yes              |
| Observations                | 466   | 466              | 466              | 466   | 466              | 466              |
| R-squared                   | 0.113   | 0.138            | 0.138            | 0.123   | 0.125            | 0.131            |

### Appendix Table 3

#### Ownership by passive investors and analyst coverage

This table reports estimates of our instrumental variable estimation used to identify the effect of institutional ownership by passive investors on the number of analysts covering a stock. Specifically, we estimate

$$Y_{eit+1} = \alpha + \beta \text{Passive}\%_{it} + \sum_{n=1}^N \theta_n (\text{Ln}(\text{Mktcap}))^n + X_{it} + \text{banding-controls}_{it} + \delta_t + \varepsilon_{eit}$$

where  $Y_{eit+1}$  is the number of analysts covering firm  $i$  at the time an activism event targeting that firm in year  $t+1$ ,  $\text{Passive}\%_{it}$  is the percentage of shares outstanding owned by passively managed mutual funds (as defined in the text) for stock  $i$  at the end of September in year  $t$  scaled by its sample standard deviation,  $\text{Mktcap}_{it}$  is the CRSP market value of equity of stock  $i$  measured at May 31 in year  $t$ , and  $\delta_t$  are year fixed effects. The estimation includes an additional control for the natural log of the float-adjusted market value of equity on June 30 in year  $t$ ,  $\text{Ln}(\text{Float}_{it})$ . The estimate also includes additional banding controls: an indicator for having an end-of-May market capitalization sufficiently close to the cutoff such that the firm will not switch indexes,  $\text{band}_{it}$ , an indicator for being in the Russell 2000 last year,  $\text{R2000}_{it-1}$ , and the interaction of these two indicators. We instrument  $\text{Passive}\%$  in the above estimation using  $\text{R2000}_{it}$ , an indicator equal to one if firm  $i$  is part of the Russell 2000 index in year  $t$ . The sample consists of the top 500 firms of the Russell 2000 index and bottom 500 firms of the Russell 1000 over the 2008–2014 period for which we obtain holdings data from Thomson Reuters Mutual Fund Holdings Database and which we match with data from the monthly CRSP file. The model is estimated using polynomial order controls  $N = 1, 2$ , and  $3$  for  $\text{Ln}(\text{Mktcap})$ . Standard errors,  $\varepsilon$ , are clustered at the firm level and reported in parentheses.

| <i>Dependent variable</i> = | Number of analysts covering stock |                   |                   |
|-----------------------------|-----------------------------------|-------------------|-------------------|
|                             | (1)                               | (2)               | (3)               |
| <i>Passive %</i>            | -0.847<br>(1.983)                 | -1.202<br>(1.798) | -1.132<br>(1.830) |
| Polynomial order, $N$       | 1                                 | 2                 | 3                 |
| Banding controls            | yes                               | yes               | yes               |
| Float control               | yes                               | yes               | yes               |
| Year fixed effects          | yes                               | yes               | yes               |
| Observations                | 466                               | 466               | 466               |

### Appendix Table 4

#### Robustness of findings to selecting sample only using end-of-May market cap rankings

This table reports estimates of the second-stage regression of our instrumental variable estimation to identify the effect of institutional ownership by passive investors on our activism outcome variables when we select our sample using firms with an end-of-May market cap ranking between 500 and 1500. The estimation and outcomes are the same as in Tables 5-10. We instrument *Passive%* using  $R2000_{it}$ , an indicator equal to one if firm  $i$  is part of the Russell 2000 index in year  $t$ . The model is estimated using activism campaigns over the 2008-2014 period that target firms in the selected sample and includes a second-order polynomial control for  $\ln(Mktcap)$ . Standard errors,  $\varepsilon$ , are clustered at the firm level and reported in parentheses. \* and \*\* indicate significance at the 10% and 5% levels, respectively.

| <i>Dep. variable =</i> | Board related tactics and outcomes |                    |                   |                     | Other activism outcomes         |                              |                     |                                | Performance      |
|------------------------|------------------------------------|--------------------|-------------------|---------------------|---------------------------------|------------------------------|---------------------|--------------------------------|------------------|
|                        | Seek<br>board<br>rep.              | Proxy<br>fight     | Seats<br>sought   | Proxy<br>settlement | Acquired<br>[by third<br>party] | Acquired<br>[by<br>activist] | Merger<br>blocked   | Removed<br>takeover<br>defense | CAR<br>(-10,10)  |
|                        | (1)                                | (2)                | (3)               | (4)                 | (5)                             | (6)                          | (7)                 | (8)                            | (9)              |
| <i>Passive %</i>       | 0.371**<br>(0.185)                 | 0.290**<br>(0.145) | 1.016*<br>(0.544) | 0.191*<br>(0.105)   | 0.101<br>(0.070)                | 0.029<br>(0.048)             | -0.264**<br>(0.124) | 0.092<br>(0.060)               | 0.112<br>(0.091) |
| Polynomial order, $N$  | 2                                  | 2                  | 2                 | 2                   | 2                               | 2                            | 2                   | 2                              | 2                |
| Banding controls       | yes                                | yes                | yes               | yes                 | yes                             | yes                          | yes                 | yes                            | yes              |
| Float control          | yes                                | yes                | yes               | yes                 | yes                             | yes                          | yes                 | yes                            | yes              |
| Year fixed effects     | yes                                | yes                | yes               | yes                 | yes                             | yes                          | yes                 | yes                            | yes              |
| Observations           | 457                                | 457                | 457               | 457                 | 457                             | 457                          | 457                 | 457                            | 400              |

## Appendix Table 5

### Robustness of findings to controlling for liquidity

This table reports estimates of the second-stage regression of our instrumental variable estimation to identify the effect of institutional ownership by passive investors on our activism outcome variables when we add controls for liquidity. The estimation and outcomes are the same as in Tables 5-10, except we include two additional controls for liquidity, the Amihud measure of illiquidity and the bid-ask spread. We instrument *Passive%* using  $R2000_{it}$ , an indicator equal to one if firm  $i$  is part of the Russell 2000 index in year  $t$ . The model is estimated using activism campaigns that target firms in the selected sample over the 2008-2014 period and includes a second-order polynomial control for  $\ln(Mktcap)$ . Standard errors,  $\varepsilon$ , are clustered at the firm level and reported in parentheses. \* and \*\* indicate significance at the 10% and 5% levels, respectively.

| <i>Dep. variable =</i> | Board related tactics and outcomes |                    |                    |                     | Other activism outcomes         |                              |                     |                                | Performance      |
|------------------------|------------------------------------|--------------------|--------------------|---------------------|---------------------------------|------------------------------|---------------------|--------------------------------|------------------|
|                        | Seek<br>board<br>rep.              | Proxy<br>fight     | Seats<br>sought    | Proxy<br>settlement | Acquired<br>[by third<br>party] | Acquired<br>[by<br>activist] | Merger<br>blocked   | Removed<br>takeover<br>defense | CAR<br>(-10,10)  |
|                        | (1)                                | (2)                | (3)                | (4)                 | (5)                             | (6)                          | (7)                 | (8)                            | (9)              |
| <i>Passive %</i>       | 0.369**<br>(0.160)                 | 0.353**<br>(0.143) | 1.024**<br>(0.519) | 0.231**<br>(0.104)  | 0.128*<br>(0.078)               | 0.059*<br>(0.033)            | -0.152**<br>(0.070) | 0.046<br>(0.039)               | 0.125<br>(0.080) |
| Polynomial order, $N$  | 2                                  | 2                  | 2                  | 2                   | 2                               | 2                            | 2                   | 2                              | 2                |
| Banding controls       | yes                                | yes                | yes                | yes                 | yes                             | yes                          | yes                 | yes                            | yes              |
| Float control          | yes                                | yes                | yes                | yes                 | yes                             | yes                          | yes                 | yes                            | yes              |
| Year fixed effects     | yes                                | yes                | yes                | yes                 | yes                             | yes                          | yes                 | yes                            | yes              |
| Observations           | 466                                | 466                | 466                | 466                 | 466                             | 466                          | 466                 | 466                            | 410              |

## Appendix Table 6

### Robustness of findings to excluding activist campaigns that only include a 13D filing

This table reports estimates of the second-stage regression of our instrumental variable estimation to identify the effect of institutional ownership by passive investors on our activism outcome variables when we exclude activist campaigns that only include a 13D filing. The estimation and outcomes are the same as in Tables 5-10. We instrument *Passive%* using  $R2000_{it}$ , an indicator equal to one if firm  $i$  is part of the Russell 2000 index in year  $t$ . The model is estimated using activism campaigns that target firms in the selected sample over the 2008-2014, excluding those with only a 13D filing, and includes a second-order polynomial control for  $\ln(Mktcap)$ . Standard errors,  $\varepsilon$ , are clustered at the firm level and reported in parentheses. \* and \*\* indicate significance at the 10% and 5% levels, respectively.

| <i>Dep. variable =</i> | Board related tactics and outcomes |                    |                    |                     | Other activism outcomes         |                              |                     |                                | Performance      |
|------------------------|------------------------------------|--------------------|--------------------|---------------------|---------------------------------|------------------------------|---------------------|--------------------------------|------------------|
|                        | Seek<br>board<br>rep.              | Proxy<br>fight     | Seats<br>sought    | Proxy<br>settlement | Acquired<br>[by third<br>party] | Acquired<br>[by<br>activist] | Merger<br>blocked   | Removed<br>takeover<br>defense | CAR<br>(-10,10)  |
|                        | (1)                                | (2)                | (3)                | (4)                 | (5)                             | (6)                          | (7)                 | (8)                            | (9)              |
| <i>Passive %</i>       | 0.473**<br>(0.195)                 | 0.415**<br>(0.169) | 1.231**<br>(0.595) | 0.260**<br>(0.120)  | 0.139<br>(0.087)                | 0.075*<br>(0.043)            | -0.218**<br>(0.107) | 0.077<br>(0.050)               | 0.122<br>(0.088) |
| Polynomial order, $N$  | 2                                  | 2                  | 2                  | 2                   | 2                               | 2                            | 2                   | 2                              | 2                |
| Banding controls       | yes                                | yes                | yes                | yes                 | yes                             | yes                          | yes                 | yes                            | yes              |
| Float control          | yes                                | yes                | yes                | yes                 | yes                             | yes                          | yes                 | yes                            | yes              |
| Year fixed effects     | yes                                | yes                | yes                | yes                 | yes                             | yes                          | yes                 | yes                            | yes              |
| Observations           | 399                                | 399                | 399                | 399                 | 399                             | 399                          | 399                 | 399                            | 354              |

**Appendix Table 7**

**Robustness of findings to clustering standard errors at the activist level**

This table reports estimates of the second-stage regression of our instrumental variable estimation to identify the effect of institutional ownership by passive investors on our activism outcome variables when we instead cluster our standard errors at the activist level. The estimation and outcomes are otherwise the same as in Tables 5-10. We instrument *Passive%* using  $R2000_{it}$ , an indicator equal to one if firm *i* is part of the Russell 2000 index in year *t*. The model is estimated using activism campaigns over the 2008-2014 period that target firms in the selected sample and includes a second-order polynomial control for  $Ln(Mktcap)$ . Standard errors,  $\varepsilon$ , are clustered at the activist level and reported in parentheses. \* and \*\* indicate significance at the 10% and 5% levels, respectively.

| <i>Dep. variable =</i>     | Board related tactics and outcomes |                    |                   |                    | Other activism outcomes   |                        |                     |                          | Performance       |
|----------------------------|------------------------------------|--------------------|-------------------|--------------------|---------------------------|------------------------|---------------------|--------------------------|-------------------|
|                            | Seek board rep.                    | Proxy fight        | Seats sought      | Proxy settlement   | Acquired [by third party] | Acquired [by activist] | Merger blocked      | Removed takeover defense | CAR (-10,10)      |
|                            | (1)                                | (2)                | (3)               | (4)                | (5)                       | (6)                    | (7)                 | (8)                      | (9)               |
| <i>Passive %</i>           | 0.355**<br>(0.147)                 | 0.321**<br>(0.127) | 0.941*<br>(0.483) | 0.200**<br>(0.088) | 0.110<br>(0.069)          | 0.060*<br>(0.034)      | -0.174**<br>(0.072) | 0.057*<br>(0.033)        | 0.115*<br>(0.070) |
| Polynomial order, <i>N</i> | 2                                  | 2                  | 2                 | 2                  | 2                         | 2                      | 2                   | 2                        | 2                 |
| Banding controls           | yes                                | yes                | yes               | yes                | yes                       | yes                    | yes                 | yes                      | yes               |
| Float control              | yes                                | yes                | yes               | yes                | yes                       | yes                    | yes                 | yes                      | yes               |
| Year fixed effects         | yes                                | yes                | yes               | yes                | yes                       | yes                    | yes                 | yes                      | yes               |
| Observations               | 466                                | 466                | 466               | 466                | 466                       | 466                    | 466                 | 466                      | 410               |

## Appendix Table 8

### Activists and number of campaigns by data source

This table reports the activists and number of campaigns found in the two different activism databases, SharkWatch and Brav et al. (2008, 2010). For brevity, the list for each activism dataset is limited to activists with at least two campaigns in our main estimation sample. The sample consists of all activism events that target the top 500 firms in the Russell 2000 index and bottom 500 firms of the Russell 1000 index (i.e., bandwidth = 500) over the 2008-2014 period for which we can obtain holdings data from Thomson Reuters Mutual Fund Holdings Database and which we can match with data from the monthly CRSP file.

| SharkWatch  |    | Brav et al (2008, 2010)                        |    |
|---|----|--|----|
| GAMCO Asset Management, Inc.                      | 70 | GAMCO INVESTORS, INC. ET AL                    | 16 |
| CtW Investment Group                              | 18 | ICAHN CARL C                                   | 11 |
| Starboard Value LP                                | 17 | JANA PARTNERS LLC                              | 8  |
| Icahn Associates Corp.                            | 16 | RELATIONAL INVESTORS LLC                       | 8  |
| The California Public Employees Retirement System | 15 | Starboard Value LP                             | 7  |
| New York City Retirement Systems                  | 13 | VA PARTNERS I, LLC                             | 6  |
| ValueAct Capital Management LP                    | 12 | VA Partners I, LLC                             | 6  |
| JANA Partners LLC                                 | 8  | ELLIOTT ASSOCIATES, L.P.                       | 5  |
| Relational Investors, LLC                         | 8  | ATLANTIC INVESTMENT MANAGEMENT INC             | 5  |
| Clinton Group, Inc.                               | 8  | BLUE HARBOUR GROUP, LP                         | 4  |
| Elliott Management Corporation                    | 7  | Blue Harbour Group, L.P.                       | 4  |
| Calvert Investment Management, Inc.               | 5  | Corvex Management LP                           | 3  |
| Biglari Capital Corp.                             | 5  | MHR FUND MANAGEMENT LLC                        | 3  |
| Sandell Asset Management Corp.                    | 5  | SPO ADVISORY CORP                              | 3  |
| P. Schoenfeld Asset Management LP (New York)      | 4  | PAULSON & CO INC                               | 3  |
| Corvex Management LP                              | 4  | Mount Kellett Capital Management LP            | 3  |
| Shamrock Partners Activist Value Fund LLC         | 4  | HARBINGER CAPITAL PARTNERS MASTER FUND I, LTD. | 2  |
| Land & Buildings Investment Management LLC        | 4  | THIRD POINT LLC                                | 2  |
| Miller/Howard Investments, Inc.                   | 4  | Luxor Capital Group, LP                        | 2  |
| Engaged Capital LLC                               | 4  | INTEGRATED CORE STRATEGIES (US) LLC            | 2  |

|   |   |  |   |
|---|---|--|---|
| Praesidium Investment Management Co. LLC                        | 3 | BLUE HARBOUR GROUP, L.P.                 | 2 |
| MCM Management, LLC   | 3 | CLINTON GROUP INC                        | 2 |
| Blue Harbour Group LP   | 3 | FAIRHOLME CAPITAL MANAGEMENT LLC         | 2 |
| Sarissa Capital Management LP                                   | 3 | MMI INVESTMENTS, L.P.                    | 2 |
| Harbinger Capital Partners                                      | 3 | Engaged Capital LLC                      | 2 |
| International Brotherhood of Teamsters                          | 3 | PERSHING SQUARE CAPITAL MANAGEMENT, L.P. | 2 |
| Barington Companies Investors LLC                               | 3 | RAMIUS LLC                               | 2 |
| Seneca Capital Investments LP                                   | 3 | SHAMROCK ACTIVIST VALUE FUND L P         | 2 |
| As You Sow  | 3 | THIRD AVENUE MANAGEMENT LLC              | 2 |
| Pershing Square Capital Management LP                           | 3 | Blue Harbour Group, LP                   | 2 |
| Marcato Capital Management LLC                                  | 3 | BREEDEN CAPITAL MANAGEMENT LLC           | 2 |
| UNITE HERE  | 3 | MARCATO CAPITAL MANAGEMENT LP            | 2 |
| Cal. State Teachers Retirement System Relational Investors, LLC | 3 |  |   |
| Davis Selected Advisers LP                                      | 3 |  |   |
| TPG-Axon Management LP  | 2 |  |   |
| PepsiCo, Inc.   | 2 |  |   |
| Corvex Management LP Related Fund Management LLC                | 2 |  |   |
| Steel Partners, L.L.C.  | 2 |  |   |
| Breedden Capital Management LLC                                 | 2 |  |   |
| Third Point LLC   | 2 |  |   |
| Eminence Capital LLC  | 2 |  |   |
| Karl W. Miller  | 2 |  |   |
| Perry Corp. (New York)  | 2 |  |   |
| Charles Robert Palmer   | 2 |  |   |
| Southeastern Asset Management, Inc.                             | 2 |  |   |
| TRT Holdings, Inc.  | 2 |  |   |
| Prospect Capital Corporation                                    | 2 |  |   |
| MHR Fund Management LLC   | 2 |  |   |
| Atlantic Investment Management, Inc.                            | 2 |  |   |



|  |   |
|--|---|
| CR Intrinsic Investors LLC SAC Capital Advisors, LLC | 2 |
| Investment Partners Asset Management, Inc.           | 2 |
| Crescendo Advisors LLC                               | 2 |
| Carlson Capital LP                                   | 2 |
| Millennium Management LLC                            | 2 |
| MSMB Capital Management LLC                          | 2 |
| Luxor Capital Group LP                               | 2 |
| SAC Capital Advisors, LLC                            | 2 |
| Nierenberg Investment Management Company, Inc.       | 2 |
| Continental Grain Company                            | 2 |
| Fairholme Capital Management LLC                     | 2 |
| Green Century Capital Management, Inc.               | 2 |
| Neuberger Berman LLC                                 | 2 |
| Validus Holdings, Ltd.                               | 2 |
| Pentwater Capital Management LP                      | 2 |
| Orange Capital LLC                                   | 2 |

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## Appendix Table 9

### Impact of index assignment on types of 13F institutional ownership

This table reports estimates of a regression of institutional ownership as reported in 13F filings on an indicator for membership in the Russell 2000 index plus additional controls. Specifically, we estimate

$$Ownership\%_{it} = \eta + \lambda R2000_{it} + \sum_{n=1}^N \chi_n (Ln(Mktcap_{it}))^n + X_{it} + banding-controls_{it} + \delta_t + u_{eit}$$

where  $R2000_{it}$  is a dummy variable equal to 1 if stock  $i$  is in the Russell 2000 Index at end of June in year  $t$ ,  $Mktcap_{it}$  is the CRSP market value of equity of stock  $i$  measured at May 31 in year  $t$ ,  $N$  is the polynomial order we use to control for  $Ln(Mktcap_{it})$ , and  $\delta_t$  are year fixed effects. The estimation includes an additional control for the natural log of the float-adjusted market value of equity on June 30 in year  $t$ ,  $Ln(Float_{it})$ . The estimate also includes additional banding controls: an indicator for having an end-of-May market capitalization sufficiently close to the cutoff such that the firm will not switch indexes,  $band_{it}$ , an indicator for being in the Russell 2000 last year,  $R2000_{it-1}$ , and the interaction of these two indicators.  $Ownership\%_{it}$  measures institutional ownership (in percent) for stock  $i$  at the end of September in year  $t$ . In this table we use four different definitions for  $Ownership\%$  for stock  $i$ : (1) the percentage of shares outstanding owned by "quasi-indexer" institutions; (2) the percentage of shares outstanding owned by "transient" institutions; (3) the percentage of shares outstanding owned by "dedicated" institutions; and (4) the percentage of shares outstanding owned by "unclassified" institutions. The institution classifications are defined in Bushee (2001). The sample consists of all activism events that target the top 500 firms in the Russell 2000 index and bottom 500 firms of the Russell 1000 index (i.e., bandwidth = 500) over the 2008-2014 period for which we obtain holdings data from Thomson Reuters Mutual Fund Holdings Database and which we match with data from the monthly CRSP file. The model is estimated using a polynomial order control for  $Ln(Mktcap)$  of  $N = 2$ . Standard errors,  $u$ , are clustered at the firm level and reported in parentheses. \*\* indicates significance at the 5% level.

| <i>Dependent variable</i> = | Ownership % scaled by its sample standard deviation: |                   |                   |                     |
|-----------------------------|--|-------------------|-------------------|---------------------|
|                             | Quasi-indexers<br>(1)                                | Transient<br>(2)  | Dedicated<br>(3)  | Unclassified<br>(4) |
| <i>R2000</i>                | 0.903**<br>(0.355)                                   | -0.068<br>(0.403) | -0.347<br>(0.342) | -0.293<br>(0.310)   |
| Polynomial order, <i>N</i>  | 2  | 2                 | 2                 | 2                   |
| Banding controls            | yes  | yes               | yes               | yes                 |
| Float control               | yes  | yes               | yes               | yes                 |
| Year fixed effects          | yes  | yes               | yes               | yes                 |
| Observations                | 466  | 466               | 466               | 466                 |
| <i>R</i> -squared           | 0.22   | 0.19              | 0.05              | 0.20                |

## Appendix Table 10

### Robustness of findings to using 13F data and quasi-index ownership

This table reports estimates of the second-stage regression of our instrumental variable estimation to identify the effect of ownership by institutions classified as "quasi-indexers" by Bushee (2001) on our activism outcome variables. The estimation and outcomes are the same as in Tables 5-10. We instrument *Quasi-index%* using  $R2000_{it}$ , an indicator equal to one if firm  $i$  is part of the Russell 2000 index in year  $t$ . The model is estimated using activism campaigns that target firms in the selected sample over the 2008-2014 and includes a second-order polynomial control for  $\ln(Mktcap)$ . Standard errors,  $\varepsilon$ , are clustered at the firm level and reported in parentheses. \* indicates significance at the 10% level.

| <i>Dep. variable =</i> | Board related tactics and outcomes |                    |                   |                     | Other activism outcomes         |                              |                    |                                | Performance      |
|------------------------|------------------------------------|--------------------|-------------------|---------------------|---------------------------------|------------------------------|--------------------|--------------------------------|------------------|
|                        | Seek<br>board<br>rep.              | Proxy<br>fight     | Seats<br>sought   | Proxy<br>settlement | Acquired<br>[by third<br>party] | Acquired<br>[by<br>activist] | Merger<br>blocked  | Removed<br>takeover<br>defense | CAR<br>(-10,10)  |
|                        | (1)                                | (2)                | (3)               | (4)                 | (5)                             | (6)                          | (7)                | (8)                            | (9)              |
| <i>Passive %</i>       | 0.474*<br>(0.248)                  | 0.429**<br>(0.214) | 1.256*<br>(0.713) | 0.266*<br>(0.141)   | 0.146<br>(0.092)                | 0.080*<br>(0.045)            | -0.232*<br>(0.138) | 0.077<br>(0.053)               | 0.138<br>(0.094) |
| Polynomial order, $N$  | 2                                  | 2                  | 2                 | 2                   | 2                               | 2                            | 2                  | 2                              | 2                |
| Banding controls       | yes                                | yes                | yes               | yes                 | yes                             | yes                          | yes                | yes                            | yes              |
| Float control          | yes                                | yes                | yes               | yes                 | yes                             | yes                          | yes                | yes                            | yes              |
| Year fixed effects     | yes                                | yes                | yes               | yes                 | yes                             | yes                          | yes                | yes                            | yes              |
| Observations           | 466                                | 466                | 466               | 466                 | 466                             | 466                          | 466                | 466                            | 410              |