

# Picking Friends Before Picking (Proxy) Fights: How Mutual Fund Voting Shapes Proxy Contests\*

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## Abstract

This paper studies mutual fund voting in proxy contests using a comprehensive sample of voting records over the period 2008 – 2015, taking into account selective targeting by activists. We find that firm, fund, and event characteristics generate substantial heterogeneity among investors in their support for the dissident, including their reliance on proxy advisors. Notably, active funds are significantly more pro-dissident than passive funds, and we uncover evidence consistent with a large unobserved fund “inherent stance” that cannot be explained by observable fund or event characteristics. In particular, we document a positive correlation between the propensity for targeting by activists and pro-activist voting by mutual funds, both based on the observables and unobservables. This finding suggests that a relatively pro-activist shareholder base is a key factor driving activists’ selection of targets.

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# 1 Introduction

Over the past two decades, the frequency of proxy contests for board representation or control has increased markedly as shareholder activism has become both an established investment strategy and important form of corporate governance. Dissident shareholders often prevail in these contests, winning 53% of the 43 contests in 2009, and prevailing in 56% of the 32 events in 2015. Since dissident shareholders typically own only 5 – 10 percent of the outstanding target stock, a successful campaign requires their fellow shareholders’ support. The reluctance of retail investors to engage in voting matters implies that it is usually necessary that dissidents win the support of a majority of institutional shareholders. Hence, “picking friends,” that is, the selection of a target with a pro-activist shareholder base, is a crucial element in activists’ decision-making process prior to the decision whether to engage in a proxy contest. As stated by Damien Park, the co-chairman of the Conference Board’s Expert Committee on Shareholder Activism, “obtaining a clear understanding of how company shareholders will vote in a contested election is one of the most important components of any activist campaign.”

In this paper, we extend the literature that has analyzed institutional investor voting, mostly on uncontested management and shareholder proposals, by focusing on the voting behavior of mutual funds in a corporate governance event of the highest stakes – a proxy contest. In such a setting, voting decisions are arguably more informative as compared with events where investor votes are mostly precatory, as is the case for most uncontested proposals.<sup>1</sup> Further, we explicitly model the simultaneous system consisting of both activists’ target selection and mutual funds’ voting, which allows us to uncover the funds’ voting rules for all potential proxy contests based on the subset of voting records of ex-post materialized contests.

Analyzing hand-collected voting records conditional on the realization of proxy contests, we find that certain firm characteristics predict mutual funds’ support for dissidents. As expected, mutual funds’ support rates are higher when Tobin’s  $q$  is lower, consistent with the funds’ intention to reduce undervaluation by voting for the dissidents. Similarly, mutual funds are more likely to support a dissident when the target firm experiences poor recent stock price or accounting performance. When the leading proxy advisory firms, Institutional Shareholder Services (“ISS”) and Glass, Lewis & Co. (“Glass Lewis”), issue a “For” recommendation for a dissident, mutual funds’ support rate is significantly higher than when either of the advisory firms supports the management. This evidence is consistent with Alexander, Chen, Seppi, and Spatt (2010), who find that ISS’s certification is associated with more successful proxy fights by dissidents. We further identify large differences in fund families’ tendency to follow advisory firms’ recommendations. The families that are most responsive to proxy advisors

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<sup>1</sup> The mandatory disclosure of mutual fund proxy voting records adopted in April 2003 and the availability of Institutional Shareholder Services’s Voting Analytics, a database including company voting results and institutional voting records, have led to a significant growth in the literature analyzing the voting behavior of institutional investors. Papers studying management and/or shareholder proposals in uncontested meetings include Cai, Garner, and Walkling (2009), Choi, Fisch, and Kahan (2013), Cuñat, Gine, and Guadalupe (2012), Dimmock, Gerken, Ivkovic, and Weisbener (2016), Duan and Jiao (2016), Matvos and Ostrovsky (2010), Iliev and Lowry (2015), Morgan, Poulsen, Wolf, and Yang (2011), Malenko and Shen (2016), He, Huang, and Zhao (2017), and Kedia, Starks, and Wang (2017). The following studies examine the incentives affecting mutual fund voting under various circumstances: Ashraf, Jayaraman, and Ryan (2012), Butler and Gurun (2012), Cvijanovic, Dasgupta, and Zachariadis (2016), Davis and Kim (2007), Matvos and Ostrovsky (2008), Harford, Jenter, and Li (2011), and Bodnaruk and Rossi (2016). The standard voting data provided by Voting Analytics covers only votes cast by the top mutual fund families in non-contested meetings for Russell 3000 firms.

are mainly smaller fund families that lack resources to conduct independent proxy research. We also find that mutual funds are more likely to vote for hedge fund activists rather than other types of dissidents, consistent with the notion that investors believe that hedge funds are an effective force of governance (Brav, Jiang, Partnoy, and Thomas (2008)). Dissidents that were more successful in the past also have a higher support rate. Mutual funds, however, do not support a dissident’s slate of directors when the dissident has been a “frequent” activist targeting many companies in the past, but tend to support those activists whose targeting signals a high commitment in the past (i.e., seeking board representation). In other words, institutional investors favor focused and determined activists and are not necessarily impressed by an activist’s length of track record. Additionally, dissidents enjoy more support with a high announcement return, a proxy for the market’s expectation of activists’ success in achieving their goals.

We find that mutual funds differ systematically in their support for dissidents based on fund characteristics. One salient pattern is that passively-managed funds are significantly less likely than active funds to vote for dissidents (the difference of 11.5 percentage points is significant at the 1% level). The gap between active and passive votes has been persistent across years, and is larger for small capitalization stocks. To the best of our knowledge, this is the first study reporting direct evidence that passive funds are more “friendly” towards management than active funds. This is also confirmed by our family-level study, which shows that the most pro-dissident fund families typically have a low fraction of passive funds, while the least pro-dissident groups tend to have a disproportionately high number of passive funds. One potential reason is that unlike actively-managed funds, passive funds – index and exchange-traded funds – are not rewarded by “beating the index.” Instead, they are usually rewarded by low expense ratios and small tracking errors (Elton, Gruber, and Busse (2004); Choi, Laibson, and Madrian (2010), Lund (2018)).

We further explore whether mutual fund voting is motivated by a portfolio effect rather than just the valuation of the company under consideration. Such an effect would be similar to voting considerations under cross-holdings in M&As (Matvos and Ostrovsky (2008); Harford, Jenter, and Li (2011)). We find that a fund is significantly more likely to support a dissident when the abnormal returns of same-industry firms in the fund’s portfolio are higher. This is consistent with the idea that mutual funds make voting decisions based on the overall performance of their portfolios. We also find that funds earning a positive basis-adjusted return (return net of cost of investment) on the target stock are 3.2 percentage points less likely to support the dissident than a fund earning a negative return. This suggests that “unhappy” shareholders, who have lost capital investing in the stock, tend to favor the changes proposed by the dissident.

Our main set of analyses are based on an integrated approach to voting in proxy contests. Since significant support from stockholders is needed for success in a proxy fight, a rational dissident must select firms that have a sympathetic shareholder base and attempt to gain their support. As a result, while a study of voting decisions conditional on voted proxy contests is informative, it does not fully reveal the underlying mutual funds’ “voting rules” due to the selection process. We therefore build a parsimonious system of equations to model the joint contest-voting dynamics. The system comprises two equations. The first, a “targeting equation,” is set at the firm-year level, and represents a firm’s vulnerability to being targeted by dissidents for a proxy contest in a given year. A proxy contest takes place when the vulnerability exceeds a threshold. The second, a “voting equation,” is set at the fund-firm-year level, giving

the unconditional voting rule employed by mutual funds whether or not the proxy contest actually takes place. Both equations feature the same firm-year observed characteristics although in the targeting equation, fund characteristics are value-weighted at the firm-year level to reflect the aggregate shareholder base characteristics in a given firm-year. This feature is crucial. It not only differentiates our setting from the standard probit models with selection, but also allows us to achieve identification since the different levels of aggregation at the targeting and voting stages yield a break from the near-perfect collinearity even when the same underlying economic factors affect both targeting and voting decisions.

Using a full-information maximum likelihood estimation method, we find that the estimated coefficient of correlation between the residual propensity of targeting by an activist and the residual propensity to support the activist by investors is positive, 0.15, and statistically significant at the 5% level. This evidence is consistent with the notion that activists tend to target firms with unobservable characteristics that predict strong shareholder support, beyond the predictive power of observable characteristics.

We then proceed to construct two proxies, based on the voting outcomes that took place prior to each contest, to capture investors' "inherent" pro-activist stance. The first measure is the residual from regressing funds' fixed effects estimated from the voting equation on time-varying fund characteristics. To construct the second proxy, we first create pair-wise fund ranks based on the funds' support for dissidents, and then extract the part that is uncorrelated with fund characteristics. We then examine how the general stance of the shareholder base at each potential target affects the activists' selection of these target firms. After controlling for firm characteristics, both proxies for general investor stance strongly predict activist targeting, capturing 25% to 48% of the unconditional probability of targeting.

Finally, we propose two measures of a mutual fund's degree of "persuadability," that are designed to capture mutual fund shareholders' willingness to learn and be persuaded by a dissident. The first measure is based on the idea that leading proxy advisory firms, notably ISS and Glass Lewis, have considerable influence on the voting behavior of their institutional investor clients. We proxy for the tendency of a company's institutional shareholder base to be swayed by the proxy advisors' recommendations. The second measure is based on the idea that a fund that is willing to carefully assess the merit of each case is likely to have high variation in the votes cast over time and we therefore proxy for the fund's "persuadability" using the variation in the votes it has cast in the past prior to the proxy contest. For both measures we find that activists are more likely to target companies whose shareholder base can be reasoned with and thus potentially persuaded to vote for the dissident.

The remainder of the paper is organized as follows. Section 2 describes the institutional background and Section 3 provides a data and sample overview. Section 4 shows descriptive statistics on fund voting decisions. Section 5 lays out the model for activists' targeting leading to a proxy contest and mutual fund voting. We examine the role of proxies for "investor stance" and "persuadability" in Section 6. Finally, we present our conclusions in Section 7.

## 2 Institutional Background

Our study encompasses all contested events that require direct shareholder voting over the period between 2008 and 2015, including contested director elections and written consent

solicitations to replace directors. In contested events, at least one shareholder takes a different position from that endorsed by the company’s current board and management. For example, if a shareholder decides to nominate a slate of “dissident” directors in addition to the candidates supported by the incumbent board’s nominating committee, a contested election will take place for all or part of the board of directors.

The proxy fight between DuPont, an iconic American company, and Trian Partners, a leading activist investor, best exemplifies the underlying institutional framework, as well as the intricacies of our data collection process.

## 2.1 Trian Partners’ Intervention at DuPont

Activist investor Trian Partners first engaged with the management of E. I. du Pont de Nemours and Company (“DuPont”) in mid 2013. The exchange between the parties extended over a two-year period, centering on change to the firm’s conglomerate structure, reduction of excess corporate costs, modification of capital allocation plans, and change to corporate governance. By early 2015, the parties were unable to settle on appropriate board membership for the activist that would avert a proxy fight, and therefore proceeded to solicit votes for a proxy contest which took place on May 13, 2015 at DuPont’s annual shareholder meeting. At the time, Trian Partners owned 2.7% of DuPont shares, and DuPont insiders owned 0.3%. DuPont shareholders faced the choice to either support Trian Partners by electing its founding partner, Nelson Peltz, and three other dissident nominees, or support the incumbent management team led by CEO Ellen Kullman by re-electing all sitting directors. Both sides launched aggressive public campaigns trying to win over the last institutional investors who were expected to be the pivotal voters in a seemingly close contest.<sup>2</sup>

The high-profile proxy battle resulted in a loss to Trian Partners. DuPont won with 53.5% of the votes, rejecting all of Trian’s candidates and re-electing all incumbent directors. DuPont claimed victory but subsequently implemented a few cost cutting measures as well as asset spin-offs that were in line with the activist’s goals. Relevant to this study is the way different asset managers voted their shares. Table 1 provides the actual votes cast by mutual funds affiliated with the top 10 fund families. Several distinct patterns emerge.

[Insert Table 1 here.]

First, DuPont’s top mutual fund shareholders are the “typical” names of institutional investors with significant ownership in other S&P 500 index member companies. The top five mutual fund families, BlackRock, American Funds (Capital Group), Vanguard, State Street, and Fidelity, collectively owned 25.4%. Indeed, had one of the three passive institutions that voted against Trian Partner changed its support that would have sufficed for Nelson Peltz to win a board sit.<sup>3</sup> Second, votes in favor of the dissident from within the same fund family are

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<sup>2</sup> According to a USA Today article, DuPont spent \$15 million on the proxy contest, while Trian Partners spent \$8 million (see, “DuPont spent \$15M to keep activist investor off board,” by Jeff Mordock, May 19, 2015).

<sup>3</sup> See “Peltz One Big Shareholder Vote Away From DuPont Board Seat, Tally Shows,” *The Wall Street Journal*, by David Benoit and Jacob Bunge, May 19, 2015. In the final vote count, according to DuPont’s June 9, 2015 8-K/A filing, DuPont’s board nominee, Lois D. Juliber, won the fewest votes, at 53.5% of the voted shares while Nelson Peltz won 45.8% of shares voted. A difference of about 54 million shares.

clustered at the two extremes, either 0% or 100%. However, we do observe some remaining disagreement, allowing for within-family analysis in some of our later analysis.

Third, and most important, is the near dichotomous stance between passively- and actively-managed funds. All top fund families that are primarily in passive management, notably, BlackRock, Vanguard, and State Street, voted in favor of the management. In contrast, almost all actively managed fund complexes, with the exception of Franklin Resources, voted for the activist. This difference is consistent with the evidence reported later in the paper that passive funds' average vote for dissidents has been consistently lower than that of active funds in each of the eight years in our sample, from 2008 to 2015.

## 3 Data and Sample Overview

### 3.1 Data Sources

#### 3.1.1 Contested Shareholder Interventions

The sample of contested interventions spans fiscal years 2008 through 2015. Both management and the dissident shareholder are required to file with the SEC a form DEFC 14A, the “definitive contested proxy statement,” in order to allow shareholders to vote on their respective ballots. We manually download all DEFC 14A filings from EDGAR for the period July/01/2008 through June/30/2015. This step results in 326 unique proxy contests, in which both the management and the dissident proposed competing slates of director nominees. We trace back the dissident’s date of announcement, which is usually launched by the filing of a form PREC 14A, the “preliminary contested proxy statement,” although some of these events are initiated by a schedule 13D filing or a press release. We then search for subsequent proxy filings and 8K/10Q filings to determine whether the shareholder meeting actually took place or not. If a shareholder meeting did indeed take place we record the firm name, its CIK and CUSIP numbers, the dissident’s name, and the meeting date. The sample includes 232 unique contested meetings.

Next, we read through the DEFC 14A filings associated with each meeting, and extract the following information from both the board’s and shareholder dissident’s proxy cards: the proposal number, the sponsor (management or shareholder), and the text of the proposal. The management’s proxy card lists director candidates nominated by the management, while the dissident’s proxy card contains director nominees sponsored by the dissident. Each proxy card also includes other management- or shareholder-sponsored proposals, if any.

Finally, since some contested meetings take place even though neither party has filed a DEFC 14A (only a PREC 14A, or a 13D filing), we supplement the above hand-collected data with a comprehensive review of proxy contests included in SharkRepellent, a data provider that specializes in corporate governance. This step yields 40 additional contested voting events, which brings the total to 272 events that reached a meeting. We are able to obtain voting records from at least one mutual fund for 215 of these contests. The rest are typically over-the-counter stocks or small capitalization firms that mutual funds do not hold. We then use the firm’s CIK number to merge the sample with CRSP and Compustat databases, resulting in 188 contested meetings for which we have information from these databases.

### 3.1.2 Settled and Withdrawn Proxy Contests

The procedure described in subsection 3.1.1 yields 94 proxy contests in which a DEFC 14A filing was submitted but the contest was either settled (75 events) or withdrawn (19 events). Contested campaigns are often settled or withdrawn after the dissident has filed a PREC 14A, a schedule 13D or a press release and before a DEFC 14A is filed. We therefore manually search for such cases in SharkRepellent and compile a list of 138 settled contests and 39 withdrawn events. This brings the total number of settled events to 213 and withdrawn events to 58 over the period July/01/2008 through June/30/2015. Matching these events to CRSP and Compustat results in a final sample of 194 settled and 43 withdrawn events.<sup>4</sup>

### 3.1.3 Mutual Fund Voting Records

U.S. mutual fund companies are required to publicly disclose their proxy voting records for all portfolio holdings via N-PX filings on the EDGAR website. For each portfolio security held by a fund family it is required to disclose the company name, ticker, CUSIP, fund name, meeting date, meeting type (annual or special), proposal number, proposal text, sponsor (management or shareholder), management’s recommendation, and the vote cast for each proposal. Unfortunately, standard databases, such as ISS’s Voting Analytics, do not systematically contain voting records for proxy contests due to a lack of standardized format in such reporting. Instead, ISS collects voting records mostly for non-contested meetings for Russell 3000 firms held by top mutual fund families.<sup>5</sup> Hence, we gather the voting records for these contested events for each fiscal year from 2008 through 2015 (from July 1st of the previous year to June 30th).

Each fund family tends to use a unique style to structure the information provided in its N-PX filings, and, at times, different funds within the same family use uniquely formatted proxy voting records, complicating the gathering of the voting data.<sup>6</sup> The heterogeneity in reporting style can be seen in Appendix A1 in which we include a sample of original voting records by two Vanguard funds and two Northern Lights funds relating to DuPont’s proxy contest described earlier in section 2.1. Vanguard funds all file uniformly, while each Northern Lights fund adopts a different format than the other funds. For example, Northern Lights’s Covered Bridge Fund did not include the dissident proxy card that they did not use while Northern Lights’s Persimmon Long/Short Fund included both the management and dissident cards. We develop multiple computer scripts to download all N-PX records by the top 100 mutual fund families from EDGAR between July 1, 2007 and June 30, 2015. Then, we organize the data using the following information: family name, fund name, company name, CUSIP, meeting date, meeting type (annual or special), proposal number, proposal text, sponsor (management or shareholder), management’s recommendation, and vote cast for each proposal. Since our N-PX data includes voting records for all firms held by funds in the top 100 fund families, we extract the voting records for the 188 proxy contests using the associated target company names/CUSIPs and

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<sup>4</sup> Bebchuk, Brav, Jiang, and Keusch (2017) analyze the drivers, nature, and consequences of settlement agreements.

<sup>5</sup> According to ISS, between fiscal years 2004 and 2006, ISS collected voting records by the top 100 families. From 2007 onward, ISS has collected routine voting records by the top 300 families.

<sup>6</sup> For example, some families upload htm filings, other families use the txt format, and some families embed txt documents in htm templates. A number of other families have switched from txt format to htm over our sample period.

meeting dates. According to the CRSP Mutual Fund database, as of December 2016, the top 100 families account for 85.2% of assets under management by all mutual funds.

We manually search for voting records of the remaining (smaller) fund families. Given that the number of funds per family is low we first download all of their N-PX filings for fiscal years 2008-2015 and then, for each fiscal year, search for filings that include the 188 target names/CUSIPs. This significantly reduces the number of N-PX filings that need to be checked. Finally, we manually collect voting records by these funds on the contested events. Combining the data sets collected in these two steps, we obtain 5,313 unique funds (27,289 meeting-fund pairs or observations), and 615 unique fund families.

### 3.1.4 Institutional Holdings

We obtain mutual fund quarterly holdings from the Thomson Reuters S12 Mutual Funds database. The sample includes all SEC-registered mutual funds for the period January 1994 through December 2015. The holdings are adjusted for stock splits. Similar to Frazzini (2006), we drop observations when the number of shares held by a fund exceeds the number of outstanding shares at quarter end. For all the stock-fund-year pairs, we download the CUSIP, the number of shares, and a unique fund ID assigned by Thomson Reuters. The holdings data are then merged with CRSP to obtain the firms' stock price.

Next, for each fund identified in the mutual fund voting database (see Section 3.1.3), we first download all of their tickers from the EDGAR N-PX forms and use these tickers to merge with mutual funds in the CRSP Mutual Fund database. We utilize the MFLINKS tables on the Wharton Research Data Services ("WRDS") to match the CRSP funds to the Thomson Reuters S12 data.<sup>7</sup> This step yields 14,209 observations. Finally, we manually search all the unmatched voting fund names in Thomson Reuters S12 and obtain 1,964 additional matched observations.

We also retrieve information on a firm's other institutional owners from Thomson Reuters 13F database. The SEC requires all institutions with at least \$100 million in total holdings to file Schedule 13Fs within 45 calendar days of quarter-end with ownership information on 13(f) securities. All holdings of an issuer of more than 10,000 shares or of a value of \$200,000 or more must be reported. We retrieve the stock name, CUSIP, and two measures of ownership. The first, the number of sole voting shares held, and the second, all shares held by the institution.

## 3.2 Event, Fund, and Firm Level Variables

### 3.2.1 Event Characteristics

The variables described in this section are meant to capture event-related specific attributes. Consider first voting recommendations from the leading proxy advisory firm, ISS, which has been shown to impact up to 30% of shareholder votes (e.g., Cai, Garner, and Walking (2009), Malenko and Shen (2016)). Recommendations from Glass Lewis, ISS's main competitor, have also become influential (Li (2016)). *ISS for dissident*, is a dummy variable equal to 1 if ISS recommends that investors use the dissident's proxy card, and "Do Not Vote" on the

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<sup>7</sup> We thank Yuehua Tang for suggesting the use of mutual fund tickers for matching N-PX funds to funds in CRSP and Thomson Reuters S12.

management’s proxy card. That is, vote “For” the dissident. We set this dummy to 0 when the recommendation is to vote “Against” the dissident. To locate ISS’s voting recommendations, we check all company and dissident proxy filings between the DEFC 14A date and meeting date, and record the final recommendation disclosed by either party. For the events missing ISS recommendations, we search for this information within ISS’s Voting Analytics database. For the remaining events we perform a comprehensive news search in Factiva and SharkRepellent to obtain the recommendation. These steps yield 83 “For” recommendations and 76 “Against” recommendations by ISS.

Similarly, *Glass Lewis for dissident*, is an indicator equal to 1 if Glass Lewis recommends for the dissident slate, and 0 when the recommendation is to vote for the management. Following a similar data collection procedure, we obtain 34 “For” recommendations and 102 “Against” recommendations by Glass Lewis. Since at least one party is incentivized to publicize the proxy advisors’ stance that is in its favor we believe that these steps reveal the full extent of ISS and Glass Lewis recommendations.

Next, *Hedge fund dissident* is a dummy variable equal to 1 if the dissident is a hedge fund and 0 otherwise. We proxy for a dissident’s experience with the variable *# past events by dissident*. If the dissident is a hedge fund we count the activist’s past interventions using a comprehensive database of hedge fund activist events launched by the hedge funds beginning in 1994 or the earliest year available, scaled by the number of years since 1994 or the earliest year when campaigns are launched.<sup>8</sup> To proxy for the activist’s past success we form the variable *# past wins by dissident* by counting the number of past activism events since 1994 or the earliest year available in which the activist has achieved its stated goals or partially so, scaled by the number of years. *Past hostility* counts the number of past hostile activism events launched by the activist since 1994 or the earliest year available scaled by the number of years. A campaign is deemed as hostile if the activist threatens to launch a proxy contest, initiates an actual proxy contest, a lawsuit, a takeover bid, or sends a public letter that involves hostile intention/language, such as ousting the management.

We attempt to proxy for the activist’s preferred mode of engagement with the target based on past engagements. In particular, the variable *Past campaign intensity* is a weighted average of three modes of engagement: passive communication, submission of shareholder proposals, and a more confrontational actions, including the threat of a proxy contest, initiation of an actual proxy contest, a lawsuit, and a takeover bid. We assign increasing weights to each of these tactics as follows:

$$Past\ campaign\ intensity = \frac{(\# Communication) \times 1 + (\# Proposal) \times 2 + (\# Confront) \times 3}{\# of\ Years}$$

where *# Communication* is the number of events in which the activist sought to communicate with the board/management. *# Proposal* is the number of events in which the dissident submitted shareholder proposals but without further disapproval. *# Confront* is the number of

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<sup>8</sup> The dataset covers activism events in the U.S. over the period 1994-2014 and is an extension of the sample used in Brav, Jiang, Partnoy, and Thomas (2008), and Brav, Jiang, and Kim (2015) and is based upon the same sample selection criteria. These events are identified mainly through Schedule 13D filings to the U.S. Securities and Exchange Commission (SEC), which are mandatory filings for any shareholder who owns 5% or more of any class of a company’s shares and intends to influence corporate control. The data also includes activism events at mid- to large-cap companies in which a Schedule 13D was not filed.

confrontational events in which the activist threatened to sue or launch a proxy contest, initiated a proxy contest, a lawsuit, a takeover bid or asked for board representation. *# of Years* is the number of years since 1994 or the earliest year when the campaign was launched. Finally, in forming the proxies described in this section, we use SharkRepellent to obtain the necessary information if the dissident shareholder is not a hedge fund.

### 3.2.2 Fund Characteristics

The next set of variables are meant to capture fund-level heterogeneity. *Passive fund* is a dummy variable equal to 1 if the fund name indicates that it is passive.<sup>9</sup> The variable *% disagreement within family last year* provides the percent of proxy contests in the previous year in which at least one fund voted in a different direction than other funds within the same fund family. The variable *Support rate for dissidents past year* provides the percent of proxy contests in which the fund supported the dissidents in the year preceding the contest. *Fund total assets* (in billions of dollars) is the sum of each portfolio’s total dollar value at the quarter end prior to the contested meeting, as recorded in the Thomson Reuters S12 database. *Investment in stock as % of fund total assets* is a fund’s dollar ownership of the target stock as a percentage of a fund’s total assets at the quarter end prior to the proxy contest. *Investment as % of firm equity* is a fund’s share in the target stock as a percentage of the target’s outstanding shares, measured at the quarter end prior to the contested meeting.

### 3.2.3 Fund-Event Characteristics

We form variables defined at the fund-event level to capture this additional heterogeneity. *Announcement return* is the cumulative abnormal return between -10 days and +10 days around the announcement of the proxy contest. *Sub-port activism CAR [-10,+10]* is the cumulative abnormal return around the announcement of activism measured for the mutual fund’s sub-portfolio containing all firms in the same industry as the target firm. Firms in the same SIC 4 industry are included if the portfolio has at least three such firms. If the portfolio has fewer than three SIC 4 firms, we then include firms in the same SIC 3 industry. We proceed to SIC 2 industry firms until the portfolio contains at least three firms. *Positive basis-adjusted return* is an indicator equal to 1 if the percentage deviation of the current stock price from the aggregate cost basis is positive, and 0 otherwise. In the percentage deviation formula,  $(Price - Reference\ price)/Price$ , *Price* is the stock price at the end of month prior to the meeting date, and *Reference Price* is the aggregate cost basis, which is the weighted cost of acquiring the stock prior to the meeting date. At any date  $t$ , the reference price equals

$$Reference\ Price_t = \lambda^{-1} \sum_{n=0}^t Shares_{t,t-n} Price_{t-n},$$

in which  $Shares_{t,t-n}$  is the number of shares acquired at date  $t - n$  that are still held by the institution at date  $t$ ,  $\lambda$  is a normalizing constant such that  $\lambda = \sum_{n=0}^t Shares_{t,t-n}$  (See Frazzini

<sup>9</sup> We search for names including the following indexation-related strings such as Index, Idx, Indx, INDEX, Ind\_ (where \_ indicates a space), and ETF, as well as names of common indices such as Russell and S&P, or if the fund is categorized as an index/ETF in the CRSP Mutual Fund database.

(2006)). The series of shares acquired and stock prices go back to January 1994 ( $n = 0$ ). The results below are not sensitive to changes in the beginning month. Dropping missing values from our match with the Thomson Reuters S12 Mutual Fund Ownership database we have 2,140 unique funds (184 proxy contests) that have some information to compute *Positive basis-adjusted return*. Finally,  *Holding horizon* is the number of consecutive quarters in which a mutual fund holds the target stock, as reflected in the Thomson Reuters S12 database.

### 3.2.4 Firm Characteristics

We include several firm characteristics in our analyses below. Market capitalization,  $MV$ , is measured in billions of dollars; Book-to-market,  $B/M$ , is the ratio of book value of equity and market value of equity; *Tobin's q*, is the sum of book value of debt and market value of equity, scaled by book assets; Return-on-assets,  $ROA$ , is earnings before interest, tax, depreciation and amortization, or EBITDA, scaled by book assets; Debt-to-capital, *Leverage*, is the ratio of debt to the sum of debt and equity, all in book values; *Prior-year stock return* is the buy-and-hold return during the 12 months prior to the contested meeting; *Dividend yield*, is common and preferred dividends divided by the market value of common stock plus book value of preferred; and *Institutional ownership*, is the fraction of shares held by institutional investors at the quarter end before the meeting, as reported by the Thomson Reuters Ownership Database. All of the variables above, except *Prior-year stock return*, and *Institutional ownership*, are measured at the fiscal year end before the contested meeting.

We also measure industry concentration by the Herfindahl index of sales ( $HHI$ ). We further consider a common ownership concentration measure, the Modified Herfindahl-Hirschman Index Delta,  $MHHID$ , or the adjustment of industry concentration for common ownership, constructed following O'Brien and Salop (2000), and Azar, Schmalz, and Tecu (2017). Assuming that a SIC 4 industry has  $N$  firms and  $M$  institution owners,  $MHHID$  is defined as

$$MHHID = \sum_{j=1}^N \sum_{k \neq j}^N s_j s_k \frac{\sum_i^M \gamma_{ij} \beta_{ik}}{\sum_i^M \gamma_{ij} \beta_{ij}}$$

where  $\gamma_{ij}$  is the percentage of sole voting shares (sole control shares) of firm  $j$  held by institution  $i$  as reported in the Thomson Reuters 13F database, while  $\beta_{ij}$  is the percentage of all shares (voting and non-voting) of firm  $j$  held by institution  $i$  as reported in the 13F data.  $s_j$  is firm  $j$ 's market share, based on Compustat sales.

Finally, the Modified Herfindahl-Hirschman Index (MHHI), which measures total market concentration (O'Brien and Salop (2000)), is the sum of the Herfindahl index and the Modified Herfindahl-Hirschman Index Delta. To facilitate interpretation, market shares are not scaled. Thus, both HHI and MHHID have a scale of 1/10,000 to 1.

## 3.3 Sample Overview

### 3.3.1 Proxy Contests

Table 2 provides descriptive statistics on the sample of proxy contests for the period 2008-2015. Panel A provides the frequency of proxy contests that resulted in either a vote, were

settled, or withdrawn for which data from Compustat and stock price from CRSP are available. The number of proxy contests was at a high of 84 in 2008, but then dropped by nearly a half by 2010 and has since remained at an average of 44 events per year through 2015. About 44% of all proxy contests in our sample resulted in a vote, while 46% were settled prior to the shareholder meeting. The remaining 10% were withdrawn by the dissident. Panel B provides the number of proxy contests for each of the Fama-French 12 industry classifications. The Finance industry includes the largest number of proxy contest with 98 events, comprising 23.1% of the sample. However, considering that nearly 41% of all Compustat firms are in the Finance industry (measured by firm-year frequency), Finance targets are still under-represented in our sample (the *t*-statistic for the difference in industry representation is significant at the 1% level). Finance is followed by Business Equipment, representing 17.2% of our proxy contests sample (compared to 11.0% of the Compustat universe; the difference is significant at the 1% level), the industry classification, Other, including construction, transportation and hospitality with 15.3% of the sample (compared to 14.6% of the Compustat universe; the difference is insignificant), and health care with 12.2% of the sample (compared to 8.4% of the Compustat universe; the difference is significant at the 5% level).

[Insert Table 2 here.]

Panel C provides information on the entity launching the proxy contest. Hedge funds account for the largest number of contested meetings (315), accounting for 74.1% of all events. These proxy contests are initiated by 146 unique hedge funds, indicating the presence of some repeat players. Next, individual investors launch 73 contests or 17.2% of all meetings, and companies initiate 28 events.

### 3.3.2 Characteristics of Contested Events That Reach a Vote

Table 3, Panel A reports event-specific characteristics for the sample of events that reached the voting stage. As shown in column (1), ISS supports the dissident slate 52% of the time (when a recommendation is issued), while Glass Lewis only supports the dissident 24% of the time. Nearly 70% of the time the dissident is a hedge fund. Dissidents launched 2.2 proxy contests, on average, per year and won 0.7 of past engagements, where success includes the achievement of at least one of the stated goals. In addition, the average dissident has launched 0.7 “hostile” activism events per year, with the campaign intensity, our measure for the past mode of engagement, of approximately 3.5.

[Insert Table 3 here.]

Panel B provides additional fund characteristics. Passively managed funds comprise 38.6% of all the event-fund observations, while they comprise just 15.9% of all the unique funds. For an average fund family, 5.5% of proxy contests see at least one fund vote in a different direction than other funds within the same family. This is consistent with the voting pattern found for fund families during uncontested shareholder meetings (Iliev and Lowry (2015)). At the fund level, past support rate for the dissidents is about 34.8% on average, with a median of 33.3%. The average fund has a portfolio value of \$4.3 billion, with a median of \$0.4 billion. The average

fund invests 0.5% of its assets in the target stock, which amounts to 0.2% of the outstanding stock.

Summary statistics for the funds' holding horizon, sub-portfolio  $CAR[-10, +10]$ , and positive basis-adjusted return are presented in Panel C. The average mutual fund holds the target for 7.5 quarters, with a median of 5.0 quarters. Same-industry firms in the fund's portfolio experience a positive abnormal return of 3.0% on average, while the median abnormal return is about 1.7%. This is consistent with Gantchev, Gredil, and Jotikasthira (2016), who find a positive spillover effect of hedge fund activism. On average, 79% of funds experience a positive percentage deviation of the current stock price from the average cost basis.

Panel D, columns (1)-(3) provide the average, median, and standard deviation for selected attributes for the target companies in the year prior to the contested meeting. Columns (4)-(7) provide a comparison of the characteristics of the target companies with those of a set of matched control firms. In columns (4)-(5), matched firms for each target are assigned from the same year and same industry (4-digit SIC). For each target firm, we first take the average of all the matched observations to make a balanced panel. We then compare the difference between the treatment and control groups. In columns (6)-(7), we match each event firm to a control firm from the same year and the same industry (2-digit SIC) with the closest propensity score, where the propensity score is estimated using all firm characteristics.

In the average and median industry (at the 4-digit SIC industry level), the incremental common ownership concentration, MHHID, is around 0.2, consistent with Anton, Ederer, Gine, and Schmalz (2016). The average and median for total market concentration (MHHI, or the sum of HHI and MHHID) is close to 0.5. For these measures there is little difference between target firms and the Compustat-matched control group.

Target firms are significantly smaller than Compustat-matched companies (at the 5% level), with an average (median) market value of \$1.8 (\$0.3) billion. This is consistent with the fact that it is less expensive to launch proxy contests at small firms. However, dissidents tend to launch proxy contests at firms with more institutional owners, whose votes are crucial for the dissidents to win the looming proxy battle. Target shares are also more liquid, although the difference is not statistically significant at the 10% level. Targets in proxy contests have a low Tobin's  $q$  and poor share price performance, implying that one major goal of proxy contests is to reduce undervaluation of the target firm (Fos (2017)). Firms going through proxy contests also have a lower dividend yield (insignificant at the 10% level), suggesting that one common goal for dissidents is to seek higher payouts. Relative to their matched peers, targets have a marginally higher ROA (but not significant). Last, as shown in columns (6)-(7) of Panel D, differences in all company characteristics between target firms and the propensity score matched sample are not significant at the 10% level. This is expected as the one-to-one matching is performed on these metrics.

Panel E provides information on the cumulative distribution of ownership by mutual funds in target firms, non-target firms, and the propensity score matched firms. For each firm, we count the smallest number of largest mutual funds that are needed to reach a percentile threshold. The average (median) number of these large fund investors that collectively own 5% at the target firm is 4.4 (2). It is nearly a half of the number for the non-targets at this threshold, consistent with the idea that dissidents select target firms in which it is easier to communicate with a smaller investor base. The number of funds increases steadily and by the 25% threshold of ownership there is no difference across the three groups of firms. The average

(median) number of fund investors at this ownership level at the target firms is 65.3 (24).

## 4 Descriptive Statistics of Fund Voting Decisions

### 4.1 Mutual Fund Voting Sorted by Event and Fund Characteristics

In this subsection, we report descriptive statistics on mutual fund support for dissidents, sorting by event and fund characteristics. The information is provided in Panels A-C of Table 3. Columns (4)-(6) give the support rate for the dissident’s slate at a low and high level for each characteristic, as well as the differences. For *ISS for dissident*, *Glass Lewis for dissident*, *Hedge fund dissident*, and *Passive fund*, a low level takes the value of 0, while a high level has a value of 1. For all other variables, the cutoff is the median value of a characteristic.

At the event level, when ISS issues a “For” recommendation for a dissident, mutual funds’ support rate is 57.5%, compared with a support rate of 17.8% when ISS releases an “Against” recommendation. The difference in the support rate is almost 40 percentage points, and is statistically significant at the 1% level. This order of magnitude for ISS’s potential influence is consistent with prior research on the conformity of institutional votes to ISS recommendation. Similarly, a change in the recommendation by Glass Lewis is associated with a 22 percentage points difference in fund votes.

When the dissident is a hedge fund, mutual funds support its slate 42.1% of the time, compared with a support rate of 25.3% otherwise. Mutual funds also favor dissidents that are more successful as measured by the number of past wins. However, mutual funds do not tend to support dissident nominees if the dissident has a track record of hostile campaigns, as proxied by the number of past events or past hostility. This is consistent with anecdotal evidence that institutional investors traditionally have favored “friendly” dissidents. For example, Philip Larrieu, an investment officer at the California State Teachers Retirement System (“CalSTRS”), commented in 2013 that “there are some [activists] that are very aggressive and people don’t like them because they are so aggressive” (Toonkel and Kim (2013)). Finally, when the dissident announcement return is high, mutual funds tend to support the dissident, consistent with the idea that the market believes that the dissident is more likely to succeed in achieving its goals. All of the differences above are significant at the 1% or 5% level, except for past campaign intensity which is insignificant at the 10% level.

We next examine how fund-level characteristics are associated mutual funds’ support for dissidents. As shown in Table 3, Panel B, passively-managed funds are significantly less likely than active funds to support a dissident, and the difference of 8.8 percentage points is significant at the 1% level. Furthermore, in Figure 1, Panel A, we plot passive and active managed mutual funds’ support rate for dissidents in proxy contests over fiscal years 2008 - 2015.<sup>10</sup> It is evident that active funds are consistently more likely to support dissidents, with the difference being the largest in 2010. In Figure 1, Panel B, we further compare passive and active funds’ support for dissidents sorted by market capitalization of the firm targeted by the dissident. Passive funds’ support for dissidents in small cap target firms is similar to that in large caps. While active funds’ support for dissidents is higher than that of passive funds in both size sorts, we observe much higher support in small caps targets, 51% of the time, compared with a support

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<sup>10</sup>We first average across funds in a given event before averaging across all the events in that year.

rate of 38% in large cap targets.

[Insert Figure 1 here.]

Not surprisingly, a fund’s past support rate for dissidents strongly predicts its support for dissident nominees in the current proxy contest. The difference is significant at the 1% level. We also find that when a fund invests a higher proportion of its assets in a target stock, it tends to support management more often. Significant holders of a stock typically interact with management more often, and might not want to annoy management by voting against them so they could lose continued access to management (Iliev and Lowry (2015) find a similar result for uncontested meetings when ISS recommends against the management). However, we do not find any economic or statistical relationship between votes for dissidents and percent disagreement in family past year, fund total assets, or investment as percentage of firm equity.

Finally, in Panel C, we examine whether key fund-event characteristics are related to funds’ support for dissidents. Positive basis-adjusted return is negatively correlated with the support rate (the difference is significant at the 10% level), suggesting that “unhappy” shareholders, who have had bad investment returns, are more likely to support changes proposed by dissidents. On the other hand, sub-portfolio CAR is positively related to mutual funds’ votes for the dissident, indicating that funds make voting decisions based on the overall performance of their portfolios (the difference is significant at the 10% level). Holding horizon, however, is not related to funds’ support rate both economically or statistically.

## 4.2 Voting by Mutual Fund Families in Proxy Contests

A central goal of this study is to highlight the role of different mutual fund investors in proxy contests, which is one of the most important forms of corporate governance. Table 4, Panel A provides the voting behavior by the top ten institutions by assets under management (“AUM”). As column (1) shows, BlackRock, Vanguard, and State Street are the three largest institutions, who collectively managed \$11.7 trillion of assets as of December 2016.<sup>11</sup> Vanguard participated in 85% of the proxy contests between 2008 and 2015, followed by BlackRock and State Street. The smallest institution among the top 10 asset managers is Wellington, and it participated in over 100 proxy contests.

[Insert Table 4 here.]

Interestingly, among the top ten institutions, the number of passive funds within the family is correlated both with their participation in a proxy contest and with their support for management. The majority of Vanguard, State Street and BlackRock funds are either index or ETF funds, and they are more likely to participate in a contest and vote for management (the support rate for dissidents ranges from 16.8% by Vanguard to 34.8% by BlackRock). Goldman Sachs funds and American Funds are, however, almost all actively managed. Their rate of participation is much lower and when they do vote they often support the dissident (their support rates are 62.5% and 39.5%, respectively).

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<sup>11</sup>Information on the institutions’ AUMs are manually collected from N-CSR (certified annual shareholder report of registered management investment companies), 10-K, and 10-Q filings, as well as fund company websites.

In Panel B, we report on the voting behavior of the most and least pro-dissident fund families among the top 100 frequent voters, who participated in at least 32 proxy contests during our sample period. Mutual of America, a small fund family with AUM of only \$15.7 billion, is the top supporter of dissidents with a support rate of 68%. Mutual of America is followed by Gabelli, Goldman Sachs, SA Funds, and Janus, also with high support rates for dissidents. On the other hand, Rydex Investments is the least pro-dissident family, supporting dissidents in only 2.6% of the time. California Investment Trust, a small fund family managing \$1.1 billion of assets, supports dissidents in 3.1% of the time. The rest of the top five families with the lowest support for dissidents provide support at rates ranging between 15% and 20%.

Consistent with the pattern in Panel A, the most pro-dissident families generally have few passively managed funds, with an average percent of passive funds at 9.0%. However, the least pro-dissident families typically have a high ratio of passive funds, with an average of 81%.

### 4.3 Proxy Advisory Firms and Mutual Fund Voting

As shown in Cai, Garner, and Walkling (2009), Alexander, Chen, Seppi, and Spatt (2010), and Malenko and Shen (2016), voting recommendations from leading proxy advisory firms, such as ISS and Glass Lewis, can sway potentially up to 30% of all shareholder votes in director elections. In this subsection, we examine how proxy advisors influence votes cast by individual mutual funds in proxy contests. To our knowledge, this is the first study that examines this question.

To examine the association between pro-dissident recommendations from ISS and Glass Lewis and mutual fund voting, we regress the fraction of shares that each family voted for dissidents on a measure meant to capture the proxy advisors' recommendations. *Proxy advisors' recommendation* is set equal to *ISS for dissident* or *Glass Lewis for dissident*, if only one of the two advisory firms issues a recommendation. It equals  $[(\text{ISS supporting the dissident}) + (\text{Glass Lewis supporting the dissident})]/2$ , if both issue a recommendation. If neither issues a recommendation for an event, the event is dropped.

Table 5, Panel A, provides the identity of funds with the most extreme regression coefficients, namely, the funds that are the most and least responsive to proxy-advisor recommendations among the top 100 frequent institutional voters. First American is the most pro-advisor fund family, followed by Bridgeway, Janus, Old Westbury and AARP Funds. All of these families have an estimated coefficient that is between 0.86 and 0.97. This implies that if the proxy advisors' recommendation switches from 0 ("Against" the dissident) to 1 ("For" the dissident), these fund families' support rates for dissidents increase by 86 to 97 percentage points. On the other hand, Gabelli funds and Rydex Investments are the least responsive to proxy-advisor recommendations, as their regression coefficients are actually slightly negative.

Interestingly, the top five funds that are most responsive to proxy-advisor firms manage mainly active funds. These are smaller families (their average AUM is \$56.7 billion as of 2016) who lack sufficient resources to conduct a rigorous proxy research, and are more likely to rely on recommendations from ISS and/or Glass Lewis. However, no clear pattern exists for the families that are the least responsive to proxy-advisor recommendations. Gabelli and Royce essentially manage no passive funds, while the vast majority of funds managed by Summit Mutual, Metlife, and Rydex Investments are mostly passive. Gabelli may be an exception as it is often times an activist fund itself, and tends not to outsource corporate governance decisions

to proxy advisory firms.

Finally, in Panel B, we report votes for dissidents by funds that are either the most or least responsive to proxy-advisor recommendations. As expected, on average, the most responsive families support dissidents more often than the least responsive funds. This is likely due to the fact that leading proxy advisors, especially ISS, often take a pro-dissident stance in making their voting recommendations.

#### 4.4 Determinants of Mutual Funds' Support for Dissidents

We use a probit model to study how firm, dissident, fund, and fund-event characteristics predict mutual funds' support for dissidents in proxy contests. The dependent variable, *Mutual fund supports dissident*, equals to 1 if a mutual fund votes for the dissident's director slate, and 0 otherwise. The results for the full sample are given in Panel A of Table 6, providing the coefficients and their associated marginal probabilities representing the marginal effect of each regressor on the likelihood of mutual funds' support for dissidents.

[Insert Table 6 here.]

As shown in columns (1)-(3), mutual funds are more likely to support the dissident when Tobin's  $q$  is lower, implying that funds' attempt to reduce the undervaluation of the target firm by voting for the dissidents. A one-standard-deviation increase in  $q$  is associated with a decrease of 3.6% in the marginal probability. Relative to the unconditional probability of voting for dissidents of 39.9%, the incremental probability is economically significant. Similarly, these funds tend to vote for dissidents when target firms experience poor accounting and share price performance. These three estimates are statistically significant at the 1% level. The common ownership concentration, MHHID, and the product market concentration, HHI, do not seem to predict funds' support for dissidents. This suggests that at least in proxy contests there is little evidence to support the idea that mutual funds voting is influenced by the degree of competition associated with common ownership. Other firm attributes, leverage, dividend yield or institutional ownership, are not correlated with funds' decision to support dissidents.

Mutual funds are 11.9 percentage points more likely to vote for hedge fund dissidents than other types of dissidents, all else being equal. This is consistent with the notion that mutual funds believe that hedge fund activism is an effective form of governance (Brav, Jiang, Partnoy, and Thomas (2008), Gillan and Starks (2007)). However, mutual funds do not support dissident nominees when the dissident has a long track record of activist campaigns, as proxied by the number of past proxy contests; but are more supportive when the activists tend to have high-stake engagements in the past, as measured by campaign intensity. Lastly, mutual funds are more likely to vote for dissidents when the activist announcement return is high, which proxies for the market's expectation for activist's success. All of the coefficient estimates are significant at the 1% level. These estimates are also consistent with the univariate results reported in Table 3, Panel A.

In addition to the firm and dissident attributes, we further control for fund and fund-event characteristics in the probit analysis. As reported in columns (4)-(6), there is little change in the coefficients on the firm and dissident characteristics. However, passively-managed funds are substantially less likely than active funds to support dissidents, and the difference of 12.5

percentage points is significant at the 1% level. To the best of our knowledge, this is the first paper reporting direct evidence that passive funds are more “friendly” to management than active funds. One potential reason is that unlike active funds, passively-managed funds – index funds and exchange-traded funds – are not rewarded by “beating the index;” rather, they are usually rewarded by their low expense ratios and small tracking errors (Elton, Gruber, and Busse (2004), Choi, Laibson, and Madrian (2010)). Mutual funds are significantly more likely to support the dissident when abnormal returns of same-industry firms in the fund’s portfolio are higher, indicating that funds make voting decisions based on the overall performance of their portfolios. The point estimate is significant at the 1% level. Last, a fund earning a positive basis-adjusted return on the target stock is 3.9 percentage points less likely to vote for the dissident than a fund earning a negative return (significant at the 5% level). This suggests that “unhappy” investors, who have lost money in the investment, are more likely to favor changes proposed by the dissident.

In Panel B, we report results for passively- and actively-managed funds, respectively. Compared with the full-sample results shown in Panel A, passive funds are more likely to support dissidents in larger targets with a higher leverage ratios. More importantly, the amount of funds’ investment in the target firm negatively predicts support for the dissident. A one-standard-deviation increase in *Investment as % of firm equity* is associated with a 9.9 percentage-point decrease in support for the dissident. The coefficient estimate is significant at the 5% level. Relative to the unconditional probability for dissidents of 32.6%, this incremental probability is economically significant. This indicates that passive funds with significant investment in target firms, often belonging to large families that also manage the targets’ retirement assets, are less likely to challenge the management due to potential conflicts of interest as documented in Davis and Kim (2007) and Cvijanovic, Dasgupta, and Zachariadis (2016). Results for the active-fund sample yields qualitatively similar results as those in Panel A.

Panel C provides results for the top five fund families – BlackRock, Vanguard, State Street, Fidelity, and BNY Mellon – and the remaining sample of non-top five families, respectively. In contrast to the full-sample result, whether the dissident is a hedge fund is only weakly positively associated with support from the top families. This suggests that these large families have more resources for in-depth proxy voting research, and simply being a hedge fund does not sway their votes. Past disagreement in voting within family significantly predicts votes for the dissident; a one-standard-deviation increase in this variable is associated with an increase of 7.5 percentage points in the marginal probability. Individual portfolio managers have more freedom to support the dissident when they disagree more often with each other. Similar to that for passive funds, the amount of top-family funds’ investment in the target firm negatively predicts support for the dissident. On the other hand, a longer holding horizon positively predicts support for the dissident, potentially due to a stronger belief by these top families for a change at the firm. Results for the funds in non-top five families yield qualitatively similar results as those in Panel A.

In Panel D, we use a linear probability model to control for event fixed effects. The event fixed effects control for any missing firm or dissident attributes that are not included in the probit analysis. Columns (1) and (2) show results by controlling only for fund characteristics. Passive funds are 3.9 percentage points less likely to support the dissident. The estimate is significant at the 1% level. Given that the unconditional support rate of dissidents is 40.1%, this represents an decrease in approval of 9.7%. We find no evidence that the other fund

characteristics predict mutual fund voting in proxy contests. Columns (3) and (4) present results where we further control for fund-event attributes. A longer holding horizon has little effect on support for the dissident. Consistent with the probit results shown in Panel A, mutual funds are more likely to support the dissident when abnormal returns of same-industry firms in the fund’s portfolio are higher, or when they earn a negative basis-adjusted return on the target stock (both of the estimates are significant at the 5% levels).

## 5 An Integrated Analysis of Proxy Contests and Voting

### 5.1 Empirical Specification

In equilibrium, investors’ voting decisions in proxy contests and dissidents’ target selection are jointly determined. Since the support of a significant shareholder base defines success in proxy contests, rational activists must pick battles in companies with a sympathetic shareholder base and try to win over their support. Gauging shareholder support is particularly necessary given that dissidents and insiders tend to hold quite comparable stakes,<sup>12</sup> and hence the support of disinterested shareholders is crucial for the success of a campaign. The selection of targets by dissident shareholders implies that an analysis of shareholder voting behavior conditional on the materialization of proxy contests, while informative, may not reveal the underlying “voting rules” by institutional investors due to the selection process.

In this section we present a parsimonious model to capture the joint contest-voting dynamics. Let  $i, j, t$  be indices for firm, investor, and year, respectively. The basic model is set-up is as follows:

$$Contest_{i,t}^* = W_{i,t}\beta + \bar{Z}_{i,j,t}^{[i,t]}\delta + u_{i,t}; \quad Contest_{i,t} = (Contest_{i,t}^* > 0); \quad (1a)$$

$$Vote_{i,j,t}^* = X_{i,t}\gamma + Z_{i,j,t}\lambda + \varepsilon_{i,j,t}; \quad Vote_{i,j,t} = (Vote_{i,j,t}^* > 0); \quad (1b)$$

$$Vote_{i,j,t} \text{ is observed iff } Contest_{i,t} = 1. \quad (1c)$$

Equation (1a) models the vulnerability of a given firm in a given year to targeting by activists resulting in a proxy contest. The vulnerability,  $Contest_{i,t}^*$ , is related to observed characteristics,  $W_{i,t}$ , additional firm-year level attributes denoted,  $\bar{Z}_{i,j,t}^{[i,t]}$ , explained in further detail below, and a residual  $u_{i,t}$ . A proxy contest will materialize, i.e.,  $Contest_{i,t} = 1$ , when the vulnerability exceeds a threshold, which is normalized to zero.<sup>13</sup>  $W_{i,t}$  includes all observable variables that are deemed to potentially affect the propensity to target, including firm characteristics and performance as well as the aggregate profiles of the shareholders in the firm at the time.

Equation (1b) gives the unconditional voting model employed by institutional investor  $j$  if firm  $i$  is under a threat of a proxy-contest in year  $t$ , whether or not the proxy contest actually takes place. Both firm-year variables,  $X_{i,t}$ , and investor-level variables  $Z_{i,j,t}$  determine the

<sup>12</sup>Fos and Jiang (2016) report that in proxy contests, the average ownership by the incumbents and dissidents are 10.9% and 9.6%, respectively.

<sup>13</sup>In this draft we consider only proxy contests that persist to the voting stage. In the next draft we plan to analyze the full set of announced proxy contests, including those that last to the voting stage, and those that result in a settlement between both parties or are withdrawn by the activist. In the current analysis, firms that experience an announced but withdrawn/settled contest are excluded from the control sample.

voting outcome. The vector of variables  $Z_{i,j,t} = \{Z_j^{[1]}, Z_{j,t}^{[2]}, Z_{i,j,t}^{[3]}\}$ , includes time-invariant fund specific variables,  $Z_j^{[1]}$ , such as whether the fund is passively managed, time-variant fund specific variables,  $Z_{j,t}^{[2]}$ , such as fund size; and fund-event level variables,  $Z_{i,j,t}^{[3]}$ , such as basis-adjusted returns. Random noise as well as unobserved independent variables are grouped into  $\varepsilon_{i,j,t}$ , the residual. Finally, the voting outcome is  $Vote_{i,j,t} = 1$ , where fund  $j$  votes in favor of the dissident in the proxy contest in firm-year  $(i, t)$  if the fund's pro-dissident propensity,  $Vote_{i,j,t}^*$ , exceeds a threshold which we normalize to zero. Importantly, the voting outcome is only observed when there is an actual contest, that is, when  $Contest_{i,t} = 1$ .

The model has a close-form solution with the assumption that the residuals are binormally distributed. It is closest to the model developed in Van de Ven and Van Pragg (1981) in which one probit model becomes observable depending on a second probit model. It can also be viewed as a special case of Heckman (1979) who models a system of two processes, one on participation, and the other on the outcome conditional on participation.

Our setting, however, differs from the standard probit models with selection in that the two processes in Equation (1) are observed at different levels of aggregation. How an individual investor casts its vote in a contest is potentially affected by circumstances at the firm-investor-year level (i.e.,  $(i, j, t)$ ), while dissidents' targeting decision are based on factors at the firm-year level (i.e.,  $(i, t)$ ), including investor-level information aggregated to the event. When aggregating the investor-level information we apply a value-weighted scheme in which the weights,  $w_{i,j,t}$ , are proportional to investor  $j$ 's voting rights (equivalently, ownership stakes in most cases), in firm  $i$  in year  $t$ . That is, for any variable  $Z_{i,j,t}$ , its firm-year-level aggregation is:

$$\bar{Z}_{i,j,t}^{[i,t]} = \frac{1}{n_{i,t}} \sum_{j=1}^{n_{i,t}} w_{i,j,t} Z_{i,j,t}, \quad (2)$$

where  $n_{i,t}$  is the number of investors who would be voting if a contest, indexed by  $(i, t)$ , was to take place. Since  $\bar{Z}_{i,j,t}^{[i,t]}$  is observable to the activist, we include it in Equation (1a). The residual  $\varepsilon_{i,j,t}$  can similarly also be aggregated to  $\bar{\varepsilon}_{i,j,t}^{[i,t]}$ .

Because the proxy voting takes place after targeting, with an average (median) time lag of 189 (128) days, the information that investors have at the voting stage is broader than the information that dissidents had when selecting the target. We therefore assume that  $W_{i,t} \subset X_{i,t}$ . The incremental variables in  $X_{i,t}$  mostly capture information revealed since the announcement of a proxy contest, including the announcement return and the track record of the dissident. This setup does not rule out that dissidents condition on private information, which is not observed to the econometrician, when selecting targets and this information is subsumed in the residual,  $u_{i,t}$ .

The system in Equation (1) is simultaneous because  $Corr(u_{i,t}, \varepsilon_{i,j,t})$  is potentially nonzero. Moreover, the economics of proxy fights allows us to hypothesize that the correlation is likely to be positive. Note that the residual  $\varepsilon_{i,j,t}$  captures, in addition to a random noise, unobserved elements that convince investors to support the activist. If, in a firm-year  $(i, t)$ , investors are generally more pro-dissident (i.e., a high  $\bar{\varepsilon}_{i,j,t}^{[i,t]}$ ), then this specific firm should be a more desirable target for a proxy contest, all else equal.

The goal of our estimation is to uncover the determinants of investors' support for dissi-

dents, using only data from materialized proxy contests. Relative to this setup, the reduced-form estimation reported in Table 6, which is based on observed voting records is potentially biased due to the sample selection, that is, activists' selection of targets based on potential shareholder support. Suppose, for example, that excessive managerial compensation,  $Comp_{i,t}$ , is positively related to the merit of the activist agenda. Then, unconditionally, (that is, if every firm-year had a contested vote for board members),  $\partial Vote_{i,j,t}^*/\partial Comp_{i,t} > 0$ . When a proxy contest does take place, it is either because the target company, other things being equal, has a high value of  $Comp_{i,t}$  or the company is a desirable target for other reasons despite having a low value of  $Comp_{i,t}$ . When these possibilities are pooled together,  $\partial Vote_{i,j,t}/\partial Comp_{i,t} > 0$  is no longer necessarily an expected relation among observed voting records. This economic setting is analogous to the one in the classic labor economics model in which the relation between earnings and education is moderated in the observed sample of people who choose to participate in the labor market. As the level of education increases (which is positively correlated with the propensity of participation based on observables), participation by people with (unobserved) lower innate ability also increases.

## 5.2 Joint Estimation of Targeting and Voting Decisions

Let  $\Phi(x)$  and  $\Phi_2(x_1, x_2, \rho)$  be the cumulative probability functions of univariate and bivariate normal distributions, respectively. Let,

$$\begin{aligned} L_0 &= \Phi\left(-W_{i,t}\beta - \bar{Z}_{i,j,t}^{[i,t]}\delta\right) = 1 - \Phi\left(W_{i,t}\beta + \bar{Z}_{i,j,t}^{[i,t]}\delta\right); \\ L_{11} &= \Phi_2\left(W_{i,t}\beta + \bar{Z}_{i,j,t}^{[i,t]}\delta, X_{i,t}\gamma + Z_{i,j,t}\lambda, \rho\right); \\ L_{10} &= \Phi\left(W_{i,t}\beta + \bar{Z}_{i,j,t}^{[i,t]}\delta\right) - \Phi_2\left(X_{i,t}\beta + \bar{Z}_{i,j,t}^{[i,t]}\delta, X_{i,t}\gamma + Z_{i,j,t}\lambda, \rho\right). \end{aligned}$$

Based on Equation (1), there are three types of observations in the sample with the following probabilities:

Outcome	Likelihood	Unit of observation	Number of observations
$Contest_{i,t} = 0$	$L_0$	$(i, t)$	$n_o$
$Contest_{i,t} = 1; Vote_{i,j,t} = 0$	$L_{10}$	$(i, j, t)$	$n_{10}$
$Contest_{i,t} = 1; Vote_{i,j,t} = 1$	$L_{11}$	$(i, j, t)$	$n_{11}$

Accordingly, the full-information maximum likelihood ("FIML") is:

$$\begin{aligned} \ln L &= \frac{1}{n_o} \sum_{\{i,t\} \in (Contest_{i,t}=0)} \ln L_0 + \frac{1}{n_{11}} \sum_{\{i,j,t\} \in (Contest_{i,t}=1) \cap (Vote_{i,j,t}=1)} \ln L_{11} \\ &+ \frac{1}{n_{10}} \sum_{\{i,j,t\} \in (Contest_{i,t}=1) \cap (Vote_{i,j,t}=0)} \ln L_{10}. \end{aligned} \quad (3)$$

In addition to the estimation of the model's coefficients, the maximum likelihood also yields the estimated correlation of the residuals across the two equations,  $\hat{\rho}$ .

We consider an additional specification as a sensitivity check to estimating (3). The maximum likelihood can also be implemented in a two-step procedure that is analogous to the

Heckman (1979) two-step methodology. In the first step, we estimate the proxy contest equation at the  $(i, t)$  level:

$$\begin{aligned} Contest_{i,t}^* &= W_{i,t}\beta + \bar{Z}_{i,j,t}^{[i,t]}\delta + u_{i,t}; \\ Contest_{i,t} &= (Contest_{i,t}^* > 0). \end{aligned} \tag{4}$$

We then derive the inverse mills ratio,  $InvMill_{i,t}$ :

$$InvMill_{i,t} = \frac{\phi\left(\frac{-W_{i,t}\beta - \bar{Z}_{i,j,t}^{[i,t]}\delta}{\sigma_u}\right)}{1 - \Phi\left(\frac{-W_{i,t}\beta - \bar{Z}_{i,j,t}^{[i,t]}\delta}{\sigma_u}\right)} = \frac{\phi\left(\frac{W_{i,t}\beta + \bar{Z}_{i,j,t}^{[i,t]}\delta}{\sigma_u}\right)}{\Phi\left(\frac{W_{i,t}\beta + \bar{Z}_{i,j,t}^{[i,t]}\delta}{\sigma_u}\right)},$$

which is then merged into observations at the  $(i, j, t)$  level. Finally, we run the second-stage linear probability regression at the  $(i, j, t)$  level:

$$Vote_{i,j,t} = X_{i,t}\gamma + Z_{i,j,t}\lambda + \mu InvMill_{i,t} + \varepsilon_{i,j,t}. \tag{5}$$

Structurally,  $\mu$  is equal to  $\rho\sigma_\varepsilon$ , and hence is expected to be positive.

It is important to clarify how and why the system is identified. Normally, we would rely on an exogenous shock in the selection process, or on variables that affect selection but have no direct impact on the voting outcome. It is challenging, however, to argue that a dissident initiates a proxy contest with no consideration for the expected shareholder support, and it is unlikely that any factor that significantly affects the motive for targeting should have no bearing on voting as both decisions are driven by the same merits of the case. In the absence of exogenous shocks to proxy contests, two forces help with our identification by avoiding a perfect collinearity across the two equations. The first is the non-linearity in the system of (3) such that perfect collinearity does not result even in the absence of an exclusion restriction. That is, even if every variable that predicts a proxy contest also appears in the investor voting equation, the system can still be estimated because the auxiliary regressor included in (5),  $InvMill_{i,t} = \phi\left(\frac{W_{i,t}\beta + \bar{Z}_{i,j,t}^{[i,t]}\delta}{\sigma_u}\right) / \Phi\left(\frac{W_{i,t}\beta + \bar{Z}_{i,j,t}^{[i,t]}\delta}{\sigma_u}\right)$ , is not a linear function of  $W_{i,t}$  and  $\bar{Z}_{i,j,t}^{[i,t]}$ . This source of identification is purely statistical because it would disappear if we were working on a linear model instead. The source of identification from non-linearity can be captured by the imperfect correlation between  $InvMill_{i,t}$  and  $W_{i,t}\hat{\beta} + \bar{Z}_{i,j,t}^{[i,t]}\hat{\delta}$ , which is  $-0.87$  in our sample.

Second, we exploit the different levels of decision-making in the initiation of a proxy contest by the dissident and the proxy voting by the fund investors. This source of identification comes from economic decision making: While investors' voting decisions are driven by their individual circumstances, for example, whether they are passive managers or their specific holding horizon, only information aggregated at the potential event (or firm-year) level matters for the dissidents. For example, the presence of passive investors among the shareholder base, or the average investor horizon. This leads to a break from the near-perfect collinearity between the same variables measured at the firm-year level ( $\bar{Z}_{i,j,t}^{[i,t]}$ ) and at the firm-year-investor level ( $Z_{i,j,t}$ ). For example, one variable in  $Z_{i,j,t}$  is whether an investor is a passive manager, denoted by  $Passive_{i,j,t}$ , a dummy variable that strongly predicts the voting outcome. The correlation between  $Passive_{i,j,t}$  and  $\overline{Passive}_{i,j,t}^{[i,t]}$ , the percentage of shares held by passive managers at the

firm-year level, is as low at 0.07 in our sample. Indeed, when we form an “index function” of the covariates, the R-squared of  $Z_{i,j,t}\hat{\lambda}$  on  $\bar{Z}_{i,j,t}^{[i,t]}$  which captures the collinearity between the set of covariates measured at different levels of aggregation (its squared root would be the correlation of the two index functions), is 0.046, which is much smaller than the perfect  $R$ -squared = 1.<sup>14,15</sup>

### 5.3 Investor Voting Behavior Incorporating Contest Target Selection

The results of estimating the FIML system (3) and the two-step approach ((4) and (5)) are reported in Table 7. First and foremost, the estimated coefficient of correlation of the residuals,  $\hat{\rho}$ , at 0.15, is statistically significant at the 5% level; and so is the coefficient on the inverse mills ratio, 0.08, in the two-step estimation. This confirms the hypothesis that activists are more likely to target firms with unobservables that predict stronger shareholder support, beyond the predictive ability of an econometrician who relies solely on observable information.

[Insert Table 7 here.]

The statistical relation is also consistent with anecdotal evidence that activists routinely analyze the voting records of shareholders to gauge the extent to which they are receptive to an activist campaign, and they frequently assess the attitude of key shareholders prior to launching a campaign, or even prior to making an investment in a company.<sup>16</sup> A company may have all the attributes an activist finds attractive from a value perspective, but if the shareholder base appears difficult to persuade, an activist will be less likely to intervene. Because the current SEC rules do not prevent activists and institutional investor from privately communicating before the intervention becomes public, activists can often form a forecast of shareholder support that is more accurate than a statistical model based on public information.

Comparing the results in columns (1) and (2) of Panel A with those in Table 6, Panel A, we observe some differences. For example, the coefficient on *Prior-year stock return*, which was insignificant in Table 6, is now inversely related to the propensity to support the dissident. *Dividend yield*, which was insignificant in the reduced form estimation is now positively related to funds’ support for the dissident. On the other hand, as columns (4) and (5) show, potential

<sup>14</sup>An alternative approach to assess how the additional variation in  $Z_{i,j,t}$  relative to  $\bar{Z}_{i,j,t}^{[i,t]}$  leads to reduction in multicollinearity in the second stage voting regression is provided in Appendix A2. We successively replace each of the six  $Z$  covariates with their respective  $\bar{Z}$  and report variance inflation factors for all the covariates in the second stage voting regression. The first row in the table, with 0 in column (1), indicates that none of the  $Z$  covariates were replaced with their respective  $\bar{Z}$ . In this case, the additional fund-level variation has the largest impact in mitigating multicollinearity, resulting in low variance inflation factors. The second row in the table, denoted by 1 in column (1), means that *Passive fund* was replaced with its event-level average and this leads to higher multicollinearity and higher variance inflation factors. It is evident that the introduction of the fund-level disaggregation affects the magnitude of the standard errors of the estimates associated with the  $Z$  covariates rather than the variables in  $X$  since the latter are only identified using across-event variation in voting.

<sup>15</sup>It is worth noting that our model allows the activists to adopt general and multiple aggregation functions  $f^{[i,t]}(Z_{i,j,t})$ , other than the value-weighted average, to assess the situation at the event level, where  $f^{[i,t]}(Z_{i,j,t})$  can be the average characteristics of the top ten shareholders, or the dispersion of shareholder characteristics in a potential target. It remains true that any  $f^{[i,t]}(Z_{i,j,t})$  is going to be imperfectly correlated with any linear function of  $Z_{i,j,t}$  because  $Z_{i,j,t}$  contains variation in investor voting stance within the same event which cannot be explained by any variable (or any functions of variables) measured at the event (firm-year level).

<sup>16</sup>See “Dealing with Activist Hedge Funds and Other Activist Investors,” a report by Wachtell, Lipton, Rosen, & Katz, January 2017: <http://www.wlrk.com/webdocs/wlrknew/WLRKMemos/WLRK/WLRK.25490.17.pdf>.

targets for proxy contests tend to have low market valuation (low Tobin’s  $q$ ) which dissidents often use to criticize the incumbent management. This is consistent with Fos (2017), who find that almost 40% of dissidents in proxy contests state that the main reason for the campaign is to reduce undervaluation. Potential targets are also large firms with a high institutional shareholder base, including public and private pensions and hedge funds, in addition to mutual funds, whose support the dissidents need to secure a victory at the contested meeting.

More importantly, dissidents are significantly less likely to target a firm that is held by many passive funds, suggesting that these sophisticated investors understand that passive funds are reluctant to support their agenda. Because dissidents can potentially gain more votes when the average mutual fund holding the firm is larger or its investment in the stock is more significant, these are regarded as positive signals. The overall pattern shown in Panel B is largely consistent with that in Panel A.

## 6 Modeling “Investor Stance” and “Persuadability”

The evidence presented in Section 5 is consistent with the idea that an investor’s expected level of support for an activist, conditional on firm and event characteristics that are observable to the econometrician, is a significant element of activists’ decision in selecting targets. By definition, such investor stance cannot be explained by observable characteristics, but is an attribute that both the company and the activist can gauge in forming their strategies. In this section we first propose two proxies that are meant to capture investors’ pro-activist “inherent stance” based on the voting outcomes that took place prior to each contest. We then introduce two additional measures that are meant to proxy for the extent to which investors have exhibited the willingness to learn and be persuaded and are thus more likely to shift their support towards the dissident. We then examine how the general stance of the shareholder base and degree of persuadability at each potential target affects the activists’ selection of these target firms.<sup>17</sup>

### 6.1 Modelling Investor Pro-Activist Stance

#### 6.1.1 A Fund Fixed Effect-Based Measure

We reported earlier in Table 6, Panel D, a model for investor voting behavior with event fixed effects. This model filters out the endogeneity due to selective targeting by the activists but also leaves the effects of most of the variables of interest (at the event or firm level) unidentified. However, the residuals from this specification provide information about the heterogeneity in funds’ attitude toward activism that is not captured by their observable characteristics.

Consider the following linear probability model:

$$Vote_{i,j,t} = Z_{i,j,t}\lambda + Yr_t\eta + \alpha_{i,t} + \Phi_j + \varepsilon_{i,j,t}, \quad (6)$$

<sup>17</sup>In contemporaneous work, Kedia, Starks, and Wang (2017) propose three proxies for what they term “activism-friendly” institutions and ask how the presence of such institutions affects the likelihood of hedge fund activism and its ex-post success. They find that higher ownership of friendly institutions results in a higher likelihood of targeting by dissidents and is also positively correlated with both short- and long-term stock returns at the target firms, including improved operating performance.

where time-varying fund and fund-event variables as well as the yearly dummy variables are included. Moreover,  $\alpha_{i,t}$  is the event fixed effect, and  $\Phi_j$ , a fund fixed effect, capturing a fund’s inherent pro-activist stance.  $E[\alpha_{i,t}] = E[\Phi_j] = 0$ , but fixed effects are usually correlated with the covariates. Conditional on a contest, a fund that votes in favor of the activist should be considered more pro-activist than a fund that votes in favor of the management in the same event. We estimate equation (6) using a dual fixed effect model. From the estimation we recover  $\hat{\Phi}_j$ .<sup>18</sup>

We construct estimates of  $\hat{\Phi}_{j,t}$  annually for all funds, using rolling time windows from the beginning of the sample up to the previous year,  $t - 1$ , to ensure that it is based on information available (and observable to the activists) at the time of targeting. For this reason, we do not construct the measure for the first year of our sample period. In order to construct a stance measure that is net of the variation due to fund characteristics, we use the residual,  $\tilde{\Phi}_{j,t}$ , from the following cross-sectional regression for each fixed-effect stance estimate:

$$\hat{\Phi}_j = \pi_0 + \pi_1 \text{Fund Size}_j + \pi_2 \text{Fund Family Size}_j + \pi_3 \text{Passive}_j + \tilde{\Phi}_j. \quad (7)$$

Covariates in (7) that vary over the estimation period are averaged.

To the activists, the relevant investor stance is an aggregation of investor stance at a potential target. Aggregation can potentially take many different functional forms. We consider the following two metrics that are simple and intuitive but our analysis is not restricted by the particular functional form with which we aggregate investor stance:

$$\text{Average of all investors:} \quad \bar{\Phi}_{i,t} = \frac{1}{n_{i,t}} \sum_{j=1}^{n_{i,t}} w_{i,j,t} \tilde{\Phi}_{j,t}, \quad (8)$$

$$\text{Average of the top investors:} \quad \bar{\Phi}_{i,t} = \frac{1}{n_{i,t}^{20\%}} \sum_{j=1}^{n_{i,t}^{20\%}} w_{i,j,t} \tilde{\Phi}_{j,t}. \quad (9)$$

The first measure averages over all investors in a given company using value weights while the second measure averages over the smallest number of the largest investors who collectively own at least 20% of the target  $i$  in time  $t$ , denoted  $n_{i,t}^{20\%}$ . Among all contests, the average (median) number of in-sample investors is 125(82) and the average (median) for the top investors that collectively own 20%, as shown in Table 3, panel E, is 37 (14). Investor concentration flattens out considerably after the 20% mark due to skewness in investors’ stake size. Hence, 20% is a reasonable threshold characterizing activists’ targeted effort in winning the support of major shareholders. The average of these measures is close to zero by construction.

Table 8, Panel A, provides results from estimating the activist targeting equation with the additional regressor *Pro-Activist Stance*, constructed following (8) and (9). The sample for this regression consists of firm-year level observations for all non-targets and all materialized contests, but excludes announced contests that result in settlement or withdrawal (which will be analyzed separately). We find that the pro-activist stance of a company’s shareholder base,

<sup>18</sup>Generally, estimated fixed effects are often time inconsistent due to the relatively small sample size within a typical fixed effect group and the large number of fixed effect groups relative to the sample size. This concern is mitigated due to the fact that the event fixed effects are based on quite large groups. The average number of observations for an event is 125.

based on historical information and known at the time of engagement, is a significant (at the 1% level) predictor for whether the company becomes a target, conditional on all firm characteristics and other observable investor characteristics aggregated at the firm-year level. For a two-standard-deviation increase around the mean of all (top) investor pro-activist stance, the probability increases by 48 (58) basis points for the firm to become a target, other things equal. Such a magnitude represents about 40 – 48 percent of the unconditional probability of targeting. Interestingly, the inclusion of *Pro-Activist Stance* leads to the loss of significance for both  $q$  and a fund’s holding horizon, while firm leverage and dividend yield are now both significant in predicting targeting.

[Insert Table 8 here.]

It is important to note that although event fixed effects filter out the endogeneity in activists’ selection of a target firm, the measures as constructed in (8) and (9) are potentially affected by a different source of endogeneity, namely, the non-random matching between investors and companies. If all funds participate in all proxy contests, or if investors’ participation in proxy voting is unrelated to their attitude toward activism, then  $\bar{\Phi}_{i,t}$  is an unbiased measure for investor stance. In other words, the following identifying assumption is sufficient for these measures to be unbiased:

**Identifying assumption 1.** For a given fund, the average pro-activist stance of all its peers, averaged over all events that this fund participates in, is equal to the investor population average (which is normalized to zero).

It is, however, plausible that a pro-activist investor may invest in companies with like-minded fellow shareholders. As a result,  $\bar{\Phi}_{i,t}$  may underestimate the pro-activist stance of companies with a “diligent” shareholder base because all investors involved in the same events are benchmarked to the average stance of their peers. This is analogous to the case in which a class fixed-effect-adjusted grade point average (“GPA”) of an excellent student underestimates the student’s academic performance because strong students tend to take more challenging courses with stronger peers. For this reason, we now explore in section 6.1.2 an alternative measure that addresses this specific issue.

### 6.1.2 Pairwise Rank Measure

In this section we propose an alternative proxy for  $\Phi_j$  that does not require Identifying Assumption 1. This measure ranks funds only based on their “common support,” that is, the common events that any pair of mutual funds participated in. The methodology, developed in operations research (Marden (1995) and Jamieson and Nowak (2011)), ranks a collection of objects based on pairwise comparisons, that is, by the ranking of two objects at a time. The goal is to form a ranking over a set of  $n$  mutual funds in our sample,  $\Theta = (\theta_1, \theta_2, \dots, \theta_n)$  with a mapping  $\sigma : \{1, 2, \dots, n\} \rightarrow \{1, 2, \dots, n\}$  that prescribes an order

$$\sigma(\Theta) : \theta_{\sigma(1)} \prec \theta_{\sigma(2)} \prec \dots \prec \theta_{\sigma(n)}$$

where  $\theta_j \prec \theta_k$  means that fund  $j$  precedes fund  $k$  in the ranking, or that the former is more pro-activist than the latter. A full sorting, with ties allowed, can be obtained using pairwise comparisons.

In our setting we make a further requirement that the ranking of funds  $j$  and  $k$  is based on all  $n_{j,k}$  contest events in which both funds  $j$  and  $k$  voted on. We rank

$$\begin{aligned} \theta_j < \theta_k, & \quad \text{if } \sum_{(i,t)=1}^{n_{j,k}} \text{Vote}_{i,j,t} > \sum_{(i,t)=1}^{n_{j,k}} \text{Vote}_{i,k,t}, \\ \theta_k < \theta_j, & \quad \text{if } \sum_{(i,t)=1}^{n_{j,k}} \text{Vote}_{i,j,t} < \sum_{(i,t)=1}^{n_{j,k}} \text{Vote}_{i,k,t}, \\ \theta_j \sim \theta_k, & \quad \text{if } \sum_{(i,t)=1}^{n_{j,k}} \text{Vote}_{i,j,t} = \sum_{(i,t)=1}^{n_{j,k}} \text{Vote}_{i,k,t}. \end{aligned}$$

In other words, any pair of funds are ranked based on their votes in the *common* contests.

If the voting mechanism is modeled as in (1a), that is, the propensity to vote for the dissident is an additive function of event characteristics, investor inherent stance, and a random noise, then a more pro-activist investor is, in expectation, more likely to vote for the activist than a less pro-activist investor in a given event.<sup>19</sup> Under this set-up, a pairwise comparison is not distorted by potentially endogenous matching between funds and events. All pairwise comparisons ( $C_n^2 = n!/2$ ) contribute to the full ranking. Following our earlier example concerning student grading, this is equivalent to comparing any pair of two students based on the common courses they took, and then ranking all students based on the pairwise ranking.

Next, let  $R_{j,t} \in \{1, 2, \dots, n_t\}$  be the resulting ranking of fund  $j$  among all  $n_t$  funds based on all historical information up to year  $t - 1$ . As in Section 6.1.1, we do not construct the measure for the first year of our sample period. Moreover, to ensure that the rank measure is uncorrelated with fund characteristics we use the residual from the following regression similar to (7):

$$R_j = \pi_0 + \pi_1 \text{Fund Size}_j + \pi_2 \text{Fund Family Size}_j + \pi_3 \text{Passive}_j + \tilde{R}_j \quad (10)$$

To facilitate the interpretation we normalize  $R_j$  and  $\tilde{R}_j$  to be a uniformly distributed variable bounded between 0 and 1, conforming to the scale of a rank variable. Finally, we construct the following two metrics for each firm-year analogous to (8) and (9):

$$\text{Average of all investors:} \quad \bar{R}_{i,t} = \frac{1}{n_{i,t}} \sum_{j=1}^{n_{i,t}} w_{i,j,t} \tilde{R}_j, \quad (11)$$

$$\text{Average of the top investors:} \quad \bar{R}_{i,t} = \frac{1}{n_{i,t}^{20\%}} \sum_{j=1}^{n_{i,t}^{20\%}} w_{i,j,t} \tilde{R}_j. \quad (12)$$

Both measures are bounded between 0 and 1, and the average is close to 0.5.

The proxy  $R_j$  is not affected by activists' endogenous targeting at the firm-year level. As with the measure based on fund fixed effects, it only uses within-event fund voting information so

<sup>19</sup>The fact that investors might have a different interpretation of the event characteristics (e.g., the attribution of a firm's poor performance) does not affect the consistency of this measure since the variation in a fund's interpretation should not lead to a directional bias. If an investor evaluates events in a way that is systematically optimistic or pessimistic towards the management, then such a tendency will be captured by the inherent stance.

that any unobserved heterogeneity at the firm-year level is differenced out. More importantly, it does not require Identifying Assumption 1 since it is based on the “common support” of events a pair of funds voted on, and hence it is not affected by the selection bias due to different funds matching with different companies. This measure, however, requires its own identifying assumption, specified below:

**Identifying Assumption 2:** The ranking of funds’ pro-activist stance is transitive; that is, if  $\theta_j \prec \theta_k$  and  $\theta_k \prec \theta_l$  based on respective pairwise comparisons, then in expectation, fund  $j$  is more pro-activist than fund  $l$ .

This assumption is intuitive but its actual validity is an empirical question. In the rank data  $R_j$  we have constructed, we find that cases showing a contradiction constitute fewer than 0.3% of all possible permutations for which we have direct comparison data. Hence, the assumption is reasonable both theoretically and empirically.

Table 8 Panel B reports estimates from the proxy contest targeting equation with the *Pro-Activist Stance* measure based on pair-wise ranking added as an additional covariate. We report results separately for the measure computed using the information on all mutual fund investors and top investors holding 20% of firms’ outstanding shares. Both measures are significant (at the 1% level) predictors of targeting: for a two-standard deviation increase around the mean in *Pro-Activist Stance*, the probability of targeting increase by about 30 basis points by either of the two measures, other things equal. This covariate represents 25% of the unconditional probability of targeting.

## 6.2 Modelling Investor “Persuadability”

Conditional on the occurrence of a proxy fight, both the incumbent management and the dissident shareholder ought to expect that their probability of winning is not significantly below 0.5. If this was not the case, management would choose to settle or the dissident shareholder would withdraw (Bebchuk, Brav, Jiang, and Keusch (2017)). If activists anticipate a narrow margin in ex post materialized contests then it is plausible that they would choose to target companies with shareholders who can be reasoned with and persuaded to vote for dissidents upon the provision of information and analysis supporting the dissidents’ agenda. In this section we propose two measures of fund “persuadability,” that are designed to capture mutual fund shareholders’ willingness to learn and be persuaded.

### 6.2.1 Reliance on Proxy Advisors

The literature has shown that leading proxy advisory firms, notably ISS and Glass-Lewis, exert considerable influence on the voting behavior of their institutional investor clients. Previous work by Ertimur, Ferri, and Oesch (2013) and Malenko and Shen (2016) shows that ISS sways up to 30% of the votes in routine proxy votes, mostly in uncontested situations, using data from Voting Analytics. To gauge the potential influence of advisors in proxy contests, in unreported analysis we conduct a diagnostic test by adding proxy advisors’ recommendation as an additional regressor to the specification in Table 6, and find that the marginal probability for this regressor is 36.0% ( $t$ -statistic = 10.6). Hence, the magnitude of the correlation between proxy advisors’ recommendation and voting outcome is comparable to findings for uncontested situations.

We have presented earlier in Section 4.3 evidence that there is a large heterogeneity in funds’ reliance on proxy advisors’ opinion as manifested in the loading,  $\beta_j$ , of fund voting on proxy advisors’ recommendations (see Table 5). Following the same procedure we estimate the loading  $\beta_j$  for each fund in a time-adapted way, and then obtain  $\tilde{\beta}_j$  as the residual from a regression of  $\beta_j$  on the most salient fund characteristics analogous to (10). Perhaps counter to common perception, we find that passive funds have *Proxy Advisor Beta* values that are, on average, 0.12 lower than active funds (significant at the 5% level). That is, passive funds are less likely to follow ISS, possibly due to the fact that most passive funds belong to large mutual fund complexes (such as BlackRock) which are able to devote resources to in-house research when casting their votes. Next, we aggregate the proxy advisor beta measures both at the firm-year level for all shareholders and for the largest shareholders holding up a 20% stake in the target firm, analogous to (8) and (9).

A priori, it is not clear whether activists prefer an institutional shareholder base that is more likely to be swayed by proxy advisors. On the one hand, independently minded investors might pay more heed to the debate between management and the dissident in order to assess their merits. On the other hand, dissidents can concentrate their effort to persuade on one or two institutions, namely, the leading proxy advisors, if most of the shareholders follow their recommendations.

Results shown in Panel A of Table 9 indicates that the second effect tends to dominate. Firms whose shareholder base is more likely to respond positively to proxy advisors’ recommendations are more likely to be targeted by activists: A one-standard-deviation increase in the weighted *Proxy Advisor Beta* of all shareholders (top 20% shareholders) is associated with an increase of 27 (13) basis points increase the probability of targeting, the effect is significant at the 1% (5%) level.

[Insert Table 9 here]

### 6.2.2 Within Fund Variation in Voting

Given that materialized contests represent near-pivotal situations, a fund that is not beholden to a specific narrative, be it that of management or the dissident, and is willing to carefully assess the merit of each case is likely to have high variation in the votes cast over time. Following this idea, we construct a within fund variation measure, denoted  $\sigma_j$ , which is the standard deviation of a fund’s voting outcome in past years. As in Section 6.2.1, we then form the residual measure,  $\tilde{\sigma}_j$ , and its aggregation at the firm-year level,  $\bar{\sigma}_{i,t}$ . Panel B of Table 9 reports the regression results for proxy contest targeting with the two measures above included as additional covariates.

Consistent with the idea presented above, we find that activists are more likely to target companies whose shareholders are more “persuadable.” For a one-standard-deviation increase on the weighted *Within fund voting variation* for all (top 20% investors), the probability of targeting increases by 18 (12) basis points, or 15% (10%) of the unconditional probability, with the effect being significant at the 5% (10%) level.

## 7 Conclusion

Using a comprehensive sample of proxy contests and mutual fund voting records from 2008 and 2015 we study what determines mutual funds' voting patterns in contested meetings and how investors' voting and dissidents' targeting decisions are jointly determined in equilibrium. Certain firm level variables, such as Tobin's  $q$ , or stock price performance, negatively predict funds' support for a dissident. We find that proxy advisory firms' endorsement is an important predictor for votes in favor of a dissident. More importantly, there is substantial variation in mutual funds voting. Passively-managed funds are less likely to vote for a dissident, while higher abnormal returns of same-industry firms in funds' portfolios or lower basis-adjusted returns predict more support. Our selection model reveals a positive correlation between the propensity for targeting by dissidents and that of pro-dissident voting by investors, both based on the observables and unobservables. This finding suggests that a relatively pro-activist shareholder base is an important criterion for activists in picking their proxy contest targets.

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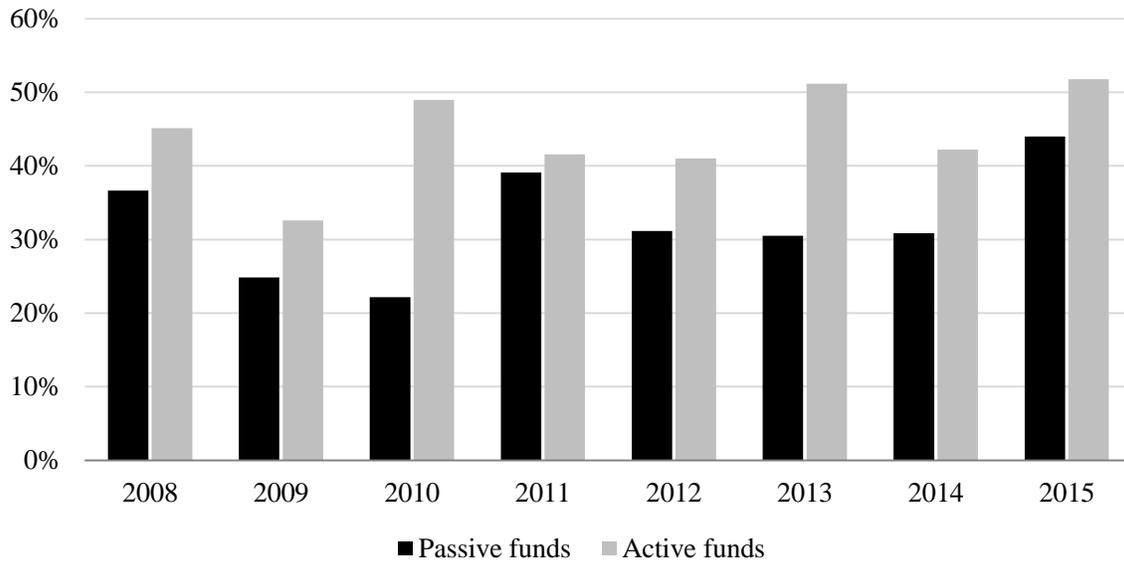
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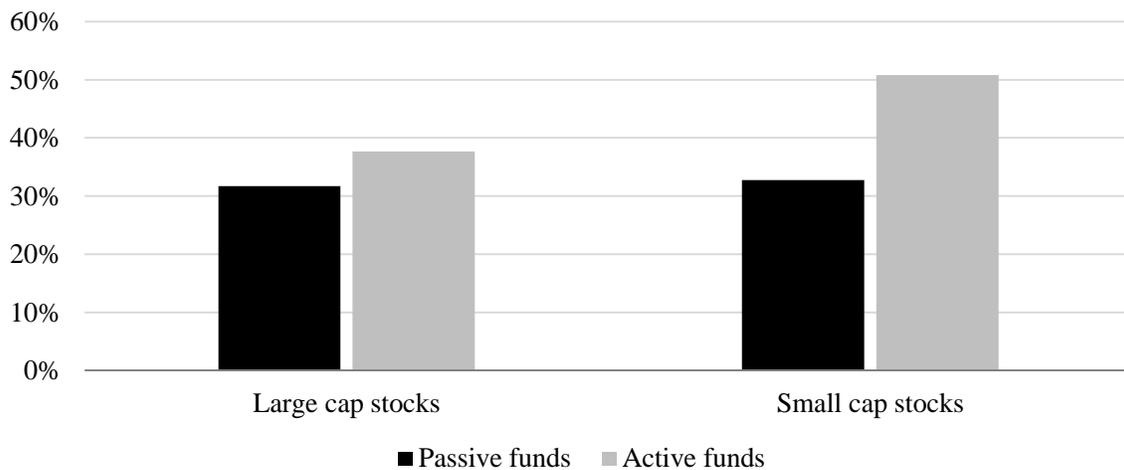
### Figure 1: Mutual Funds' Support for Dissidents in Proxy Contests

This figure shows support rates by passive and active mutual funds for dissidents in proxy contests over the period between fiscal years 2008 and 2015. In Panel A, we report how support for dissidents varies over time separately for passive and active funds. We first average the vote across funds in a given event before averaging across all events in a year. The dark bars plot the average vote for dissidents by passive funds per year. The grey bars plot the corresponding average vote in favor of dissidents by active funds. In Panel B we report how support for dissidents by passive and active funds varies by firm size. We first average across funds in a given event before averaging across all events in our sample. Large (small) cap stocks are those that are larger (smaller) than the median target firm in our sample.

#### Panel A: Yearly support for dissidents by passive and active funds



#### Panel B: Mutual funds' support for dissidents in large and small cap stocks



**Table 1: Top Ten Fund Family Votes in DuPont’s Proxy Contest with Triam Partners**

This table reports information on ownership and voting by DuPont’s top ten mutual fund families at the quarter end immediately prior to DuPont’s proxy contest that took place on May 13, 2015. Fund family holdings are from the Thomson Reuters 13F database and Edgar 13F filings. Fund voting records are from N-PX filings on Edgar. For each fund, we use a computer script to download the fund name, as well as each portfolio firm’s name, CUSIP, meeting date, meeting type, proposal number, proposal text, sponsor, management recommendation, and vote cast. We then extract its votes cast for the dissident slate at DuPont’s meeting. Column (1) provides the number of funds within a family that hold DuPont stock, and column (2) reports the number and percent of passively managed funds that hold the stock. Columns (3) provides each family’s aggregate ownership as a percentage of outstanding stock. Column (4) provides the fraction of funds that voted for the dissident slate.

Fund family name	No. of funds holding DuPont at quarter end before meeting	No. (%) of passive funds	% of outstanding stock	% of funds voting “For” dissident slate
	(1)	(2)	(3)	(4)
BlackRock	47	39 (83%)	6.30%	2.1%
American Funds (Capital Group)	11	0 (0%)	6.12%	90.9%
Vanguard Group	27	19 (70%)	5.76%	0%
State Street	17	17 (100%)	4.60%	0%
Fidelity Investments	37	0 (0%)	2.66%	97.3%
Top 5 families	139	75 (54%)	25.44%	--
T. Rowe Price Group	26	0 (0%)	1.95%	76.9%
Franklin Resources	6	0 (0%)	1.75%	16.7%
Northern Trust Investments	9	7 (78%)	1.42%	100%
Janus Capital Group	6	0 (0%)	1.20%	100%
Delaware Investments	11	0 (0%)	0.87%	100%
Top 10 families	197	82 (42%)	32.63%	--

**Table 2: Proxy Contests by Year, Industry, and Dissident Type (2008 – 2015)**

This table provides descriptive statistics on proxy contests by year in Panel A, by industry in Panel B, and by dissident type in Panel C. We identify proxy contests through contested proxy statements (PREC14A and DEFC14A), 13D filings, as well as SharkRepellent, a data provider that specializes in corporate governance. These events are then matched to the Compustat and CRSP databases. Panel A reports the annual number of proxy contests that were either voted, settled, or withdrawn. In Panel B, columns (1) and (2), provide the number and proportion of contested events within each Fama-French 12 industry classification, the proportion of Compustat firm-year pairs within the same Fama-French 12 industries is given in column (3), and column (4) provides the *t*-statistic for the difference between columns (2) and (3). In Panel C, columns (1) and (2) provide the number and proportion of proxy contests by dissident type, and the number and proportion of unique investors by dissident type are shown in columns (3) and (4).

**Panel A: Proxy contests by fiscal year**

	Voted (1)	Settled (2)	Withdrawn (3)	All events (4)
2008	30	48	6	84
2009	40	31	7	78
2010	20	16	6	42
2011	18	16	5	39
2012	18	23	5	46
2013	16	22	4	42
2014	19	17	5	41
2015	27	21	5	53
Total	188	194	43	425

**Panel B: Proxy contests by Fama-French 12 industry classification**

	No. of events (1)	% in industry (2)	% among Compustat firms (3)	<i>t</i> -stat. of diff. columns (2) and (3) (4)
Consumer Non-Durables	15	3.53%	2.80%	0.81
Consumer Durables	7	1.65%	1.42%	0.37
Manufacturing	28	6.59%	5.25%	1.11
Energy	15	3.53%	5.14%	-1.79
Chemicals and Allied Products	9	2.12%	1.48%	0.91
Business Equipment	73	17.18%	11.00%	3.37
Telecommunications	11	2.59%	1.90%	0.89
Utilities	6	1.41%	2.51%	-1.92
Wholesale and Retail	46	10.82%	4.86%	3.95
Healthcare, Medical Equipment, and Drug	52	12.24%	8.36%	2.44
Finance	98	23.06%	40.72%	-8.62
Other	65	15.29%	14.57%	0.41
Total	425	100%	100%	

**Panel C: Proxy contests by type of dissident**

	No. of proxy contests	% of total	No. of unique dissidents	% of total
	(1)	(2)	(3)	(4)
Hedge fund	315	74.12%	146	61.09%
Individual investor	73	17.18%	59	24.69%
Public and private companies	28	6.59%	28	11.72%
Pension fund/plan	6	1.41%	3	1.26%
Bank and insurance firm	3	0.71%	3	1.26%
Total	425	100%	239	100%

### Table 3. Summary Statistics for the Sample of Contested Events that Reached a Vote

This table provides summary statistics for the subsample of contested events that reached a vote. Columns (1)-(3) in Panels A, B and C provide the average, median and standard deviation for variables related to event, fund, and fund-event characteristics in proxy contests. *ISS for dissident (Glass Lewis for dissident)* is an indicator equal to 1 if ISS (Glass Lewis) recommends for a dissident's slate, and 0 when the recommendation is to vote against the dissident. *Hedge fund dissident* is an indicator equal to 1 if the dissident is a hedge fund, and 0 otherwise. *# past events (wins) by dissident* equals the dissident's past interventions (successes) since 1994 or the earliest year available, scaled by the number of years. *Past campaign intensity* equals  $(\#Communication \times 1 + \#Proposal \times 2 + \#Confront \times 3) / \#$  of years, where *#Communication* is the number of events in which the dissident seeks to communicate with the board/management, *#Proposal* is the number of events in which the dissident submits shareholder proposals, and *#Confront* is the number of events in which the dissident threatens to sue or launch a proxy contest, initiates a proxy contest, a lawsuit, a takeover bid or wants board representation. *Past hostility* equals the number of events in which the dissident threatens or initiates a proxy contest, a lawsuit, a takeover bid, or sends a public letter with hostile intention/language, scaled by the number of years. *Announcement return* is the cumulative abnormal return ("CAR") between -10 days and +10 days around the announcement of a proxy contest. *Passive fund* is a dummy variable equal to 1 for a passively managed fund, and 0 otherwise. *% disagreement within family past year* provides the percent of proxy contests in the previous year in which at least one fund voted in a different direction than other funds within the same fund family. *Fund total assets*, *Investment as % of fund total assets*, and *Investment as % of firm equity* are measured at the quarter end before the contested meeting. *Holding horizon* is the number of quarters a fund holds the stock. *Sub-portfolio CAR [-10,+10]* is the CAR around the announcement of activism measured for the mutual fund's sub-portfolio containing all stocks in the same industry as the target firm. *Positive basis-adjusted return* is an indicator equal to 1 if the percentage deviation of the current stock price from the aggregate cost basis is positive, and 0 otherwise. Columns (4)-(6) in Panels A, B and C provide support rates for dissidents' slates at low level and high level for each of the characteristic variables. For *Hedge fund dissident*, *Passive fund*, and *Positive basis-adjusted return*, low level takes a value of 0, while high level has a value of 1. For all other variables, the cutoff is the median.

Panel D provides the average, median, and standard deviation for firm characteristics, the difference with same SIC 4 industry-year Compustat firms, and the difference with the propensity score matched firms by matching each event firm to a control firm from the same year and the same industry (2-digit SIC) with the closest propensity score, where the propensity score is estimated using all the covariates defined below. *MV* is market capitalization in billions of dollars. *B/M* is the market-to-book ratio defined as (book value of equity)/(market value of equity). *q* is defined as (book value of debt + market value of equity)/(book value of debt + book value of equity). *ROA* is return on assets, defined as EBITDA/assets. *Leverage* is defined as the ratio of debt to the sum of debt and equity, all in book values. *Prior-year stock return* is the buy-and-hold stock return during the 12 months prior to the contested meeting. *Dividend yield* equals (common dividend + preferred dividend)/(market value of common stock + book value of preferred). *Institutional ownership*, is the fraction of shares held by institutional investors, as reported by the Thomson Reuters Ownership Database. *HHI* is the Herfindahl-Hirschman index of sales. *MHHI* is the modified Herfindahl-Hirschman index or the adjustment of industry concentration for common. *MHHID*, or MHHI delta, is the difference between MHHI and HHI. All of the variables above, except *Prior-year stock return* and *Institutional ownership*, are measured at the fiscal year end before the contested meeting. Panel E provides information on the ownership profile for target firms, non-target firms, and the propensity-score matched firms, respectively. We report the smallest number of largest mutual funds that reach given ownership thresholds. \*, \*\* and \*\*\* indicate statistical significance at the 10%, 5% and 1% levels, respectively.

**Panel A: Event characteristics**

	Average	Median	Std. Dev.	Support for dissident slate		
	(1)	(2)	(3)	Low level	High level	<i>t</i> -stat. diff. columns (4) and (5)
				(4)	(5)	(6)
ISS for dissident	0.52	1	0.50	17.8%	57.5%	-69.03
Glass Lewis for dissident	0.24	0	0.43	36.8%	58.8%	-28.25
Hedge fund dissident	0.68	1.00	0.46	25.3%	42.1%	-27.97
# past events by dissident	2.16	1.00	3.19	37.4%	36.1%	2.29
Past campaign intensity	3.48	3.33	3.21	37.2%	36.4%	1.33
Past hostility	0.69	0.60	0.78	39.7%	33.9%	10.20
Announcement return	5.95%	3.76%	21.46%	37.5%	41.4%	-6.57

**Panel B: Fund characteristics**

	Average	Median	Std. Dev.	Support for dissident slate		
	(1)	(2)	(3)	Low level	High level	<i>t</i> -stat. diff. columns (4) and (5)
				(4)	(5)	(6)
Passive fund	38.6%	0	48.7%	40.0%	31.2%	15.04
% disagreement in family past year	5.51%	0	11.19%	36.3%	36.6%	-0.47
Support rate for dissidents past year	34.83%	33.33%	33.26%	31.1%	41.2%	-15.05
Fund total assets (\$ billion)	4.29	0.39	22.60	35.6%	35.8%	-0.29
Investment as % of fund total assets	0.51%	0.13%	2.15%	36.6%	34.8%	2.35
Investment as % of firm equity	0.20%	0.02%	0.73%	35.3%	36.1%	-1.11

**Panel C: Fund-event characteristics**

	Average	Median	Std. Dev.	Support for dissident slate		
	(1)	(2)	(3)	Low level	High level	<i>t</i> -stat. diff. columns (4) and (5)
				(4)	(5)	(6)
Holding horizon (quarter)	7.49	5.00	7.96	36.0%	35.4%	0.68
Sub-port CAR [-10, +10]	2.99%	1.72%	15.09%	36.6%	38.1%	-1.69
Positive basis-adjusted return	0.79	1	0.40	39.7%	35.9%	5.44

**Panel D: Firm characteristics**

	Summary statistics			Difference with same industry-year Compustat firms		Difference with PSM firms	
	Average	Median	Std. Dev.	Avg. Diff.	<i>t</i> -stat. of Diff.	Avg. Diff.	<i>t</i> -stat. of Diff.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
MV (\$ billion)	1.85	0.30	6.07	-1.72**	-2.50	-0.23	-0.30
B/M	0.82	0.71	0.68	0.04	0.49	0.06	0.50
<i>q</i>	1.45	1.18	0.81	-0.20**	-2.07	-0.15	-1.14
ROA	6.03%	7.85%	19.71%	0.55%	0.34	0.24%	0.15
Prior-year stock return	-4.63%	-0.58%	43.19%	-8.90%*	-1.69	-6.78%	-1.06
Leverage	0.23	0.16	0.24	-0.02	-1.06	0.02	0.83
Dividend yield	1.69%	0.47%	2.69%	-0.47%	-1.56	-0.08%	-0.19
Institutional ownership	0.51	0.57	0.32	0.08***	3.27	-0.05	-1.28
HHI	0.28	0.23	0.19	-0.013	-1.12	-0.009	-0.70
MHHI	0.49	0.46	0.18	-0.009	-0.56	-0.004	-0.39
MHHID	0.21	0.19	0.15	0.003	0.36	-0.006	-0.54

**Panel E: Distribution of mutual fund ownership**

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Ownership threshold	Smallest number of largest mutual funds that reach a percentile threshold:		
	Average (Median)		
	Target firms	Non-target firms	PSM firms
5%	4.4 (2)	9.2 (3)	4.8 (2)
10%	8.7 (4)	14.8 (5)	12.9 (6)
15%	17.1 (8)	23.7 (9)	22.3 (11)
20%	37.2 (14)	39.6 (15)	42.6 (19)
25%	65.3 (24)	62.2 (23)	66.3 (27)
30%	99.8 (38)	85.2 (33)	83.9 (38)

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**Table 4: Mutual Fund Voting in Proxy Contests**

This table provides information on proxy voting by selected subsamples of mutual fund families. Panel A reports proxy voting by the top ten mutual fund families by assets under management (“AUM”). To calculate *Support for dissident slate*, we first average support, which equals 1 if a fund supports the dissident slate, and 0 otherwise, across funds within a family for a given proxy contest. We then average across proxy contests for that family. Panel B provides evidence on proxy voting by the most and least pro-dissident fund families among frequent institutional voters. Frequent institutional voters are defined as those funds that voted in at least 32 proxy contests between 2008 and 2015 (the top 100 frequent institutional voters). AUM and percent of passive funds for Summit Mutual Funds, and California Investment Trust are calculated for 2009 and 2010, respectively. Voting records are downloaded from N-PX filings. AUM data are collected from N-CSR, 10-K, 10-Q filings, and fund company websites.

**Panel A: Top 10 mutual fund families’ voting behavior**

Fund family name	AUM as of 2016 (\$trillions)	No. of proxy contests voted	Support for dissident slate	% passive funds as of 2016
	(1)	(2)	(3)	(4)
BlackRock	5.4	147	34.8%	77.6%
Vanguard Group	3.8	160	16.8%	66.2%
State Street	2.5	113	22.6%	84.6%
Fidelity Investments	2.3	153	38.1%	18.2%
BNY Mellon	1.7	83	36.1%	42.9%
American Funds (Capital Group)	1.4	38	39.5%	0%
Goldman Sachs Asset Management	1.4	48	62.5%	5.3%
Deutsche Asset & Wealth Management	1.2	101	44.6%	29.4%
Northern Trust Investments	0.9	119	27.3%	38.5%
Wellington Management	0.9	107	29.9%	0%

**Panel B: Most and least pro-dissident fund families among frequent voters**

Fund family name	AUM as of 2016 or latest year available (\$billions)	No. of proxy contests voted	Support for dissident slate	% passive funds as of 2016 or latest year available
	(1)	(2)	(3)	(4)
<i>Most pro-dissident families</i>				
Mutual of America	15.7	37	67.6%	30.0%
Gabelli Asset Management	39.7	70	62.9%	0%
Goldman Sachs Asset Management	1,373.0	48	62.5%	5.3%
SA Funds	48.1	99	57.6%	0%
Janus Capital Group	194.5	32	54.2%	7.7%
<i>Least pro-dissident families</i>				
Metlife	529.7	68	19.2%	100%
Summit Mutual Funds	2.0	32	18.8%	71.4%
Vanguard Group	3800.0	160	16.8%	66.2%
California Investment Trust	1.1	32	3.1%	100%
Rydex Investments (Guggenheim)	150.8	101	2.6%	66.7%

**Table 5: Proxy Advisory Firms and Mutual Fund Voting**

This table provides information on the association between proxy advisory firms' recommendations and fund family voting decisions. Panel A reports proxy voting by families that are most and least receptive to proxy-advisor recommendations among frequent institutional voters. Frequent voters are defined as those who voted in at least 32 proxy contests between 2008 and 2015 (the top 100 frequent institutional voters). For each family we regress the fraction of shares voted for dissidents on proxy advisors' recommendation and gather the regression coefficient. *Proxy advisors' recommendation* equals ISS or Glass Lewis supporting for the dissident if only one of the two advisors issues a recommendation. It equals the average of the two dummy variables if both issue a recommendation. If neither issues a recommendation the event is dropped. AUM is reported as of 2016 in \$billions. The percentage of the fund family's passive funds is reported as of 2016 or latest year available. AUM and percent of passive funds for AARP Funds and Summit Mutual Funds are calculated for 2009 and 2010, respectively. Panel B provides summary statistics on votes for dissidents for the families that are the most and least receptive to proxy-advisor recommendations among frequent institutional voters. Voting records are from N-PX filings. AUM data are collected from N-CSR, 10-K, 10-Q filings, and fund websites. ISS and Glass Lewis recommendations are from company and dissident proxy filings, ISS Voting Analytics, Factiva, and SharkRepellent.

**Panel A: Most and least pro-proxy-advisor fund families among frequent voters**

Fund family name	AUM	No. of proxy contests voted	Regression coefficient	% passive funds
	(1)	(2)	(3)	(4)
<i>Families with highest coefficients</i>				
First American Funds	49.0	41	0.973	30.0%
Bridgeway Capital	7.7	58	0.918	0%
Janus Capital Group	194.5	32	0.899	7.7%
Old Westbury Funds	32.2	43	0.890	0%
AARP Funds	0.2	39	0.867	0%
<i>Families with lowest coefficients</i>				
Summit Mutual Funds	2.0	32	0.105	71.4%
Royce & Associates	17.6	50	0.102	0%
Metlife	529.7	68	0.060	100%
Rydex Investments (Guggenheim)	150.8	101	-0.024	66.7%
Gabelli Asset Management	39.7	70	-0.117	0%

**Panel B: Votes for dissidents by the most and least pro-proxy-advisor fund families**

Fund family name	Average	Std. Dev.	25 <sup>th</sup> perc.	50 <sup>th</sup> perc.	75 <sup>th</sup> perc.
	(1)	(2)	(3)	(4)	(5)
<i>Families with highest coefficients</i>					
First American Funds	36.1%	48.2%	0	0	100%
Bridgeway Capital	36.2%	48.5%	0	0	100%
Janus Capital Group	54.2%	48.5%	0	83.3%	100%
Old Westbury Funds	32.6%	47.4%	0	0	100%
AARP Funds	48.7%	50.6%	0	0	100%
<i>Families with lowest coefficients</i>					
Summit Mutual Funds	18.8%	39.7%	0	0	0
Royce & Associates	38.7%	48.7%	0	0	100%
Metlife	19.2%	33.7%	0	0	33.3%
Rydex Investments (Guggenheim)	2.6%	14.7%	0	0	0
Gabelli Asset Management	62.4%	48.5%	0	100%	100%

**Table 6. Determinants of Mutual Funds' Support for Dissidents**

In this table, we report how firm, dissident, fund, and fund-event characteristics predict mutual funds' support for dissidents in proxy contests. The dependent variable, *Mutual fund supports dissident*, equals 1 if a mutual fund votes for a dissident's director slate, and 0 otherwise. All independent variables are as defined in Table 3. Panel A reports results for the full sample. Panel B reports results for passively and actively managed funds, respectively. Panel C shows results for the Top 5 fund families – BlackRock, Vanguard, State Street, Fidelity, and BNY Mellon – and non-top 5 families, respectively. Panel D adopts a linear probability model with event fixed effects for the full sample. In each column we report probit coefficients, their heteroscedasticity-robust *t*-statistics, and when applicable, the marginal probability change induced by a one-unit change in the value of a specific covariate from its sample average. Standard errors are clustered at the fund family level. \*, \*\* and \*\*\* indicate statistical significance at the 10%, 5% and 1% levels, respectively.

**Panel A: Full sample**

	Dependent variable: Mutual fund supports dissident					
	Coefficient (1)	<i>t</i> -stat. (2)	Marg. Prob. (3)	Coefficient (4)	<i>t</i> -stat. (5)	Marg. Prob. (6)
Log (MV)	0.126***	7.74	4.8%	0.111***	6.87	4.2%
<i>q</i>	-0.114***	-5.62	-4.4%	-0.097***	-4.89	-3.7%
ROA	-0.728***	-4.63	-27.8%	-0.608***	-3.68	-23.3%
Prior-year stock return	-0.116	-1.26	-4.4%	-0.020	-0.21	-0.8%
Leverage	-0.398***	-3.66	-15.2%	-0.326***	-3.02	-12.5%
Dividend yield (%)	0.001	0.12	0.1%	0.005	0.49	0.2%
Institutional ownership	-0.186	-1.58	-7.1%	-0.162	-1.31	-6.2%
HHI	0.229	1.50	8.7%	0.211	1.38	8.1%
MHHID	0.170	0.90	6.5%	0.138	0.72	5.3%
Hedge fund dissident	0.320***	5.15	11.9%	0.367***	5.91	13.6%
# past events by dissident	-0.089***	-5.42	-3.4%	-0.096***	-6.23	-3.7%
Past campaign intensity	0.053***	2.71	2.0%	0.059***	3.04	2.3%
Announcement return	0.919***	6.59	35.1%	1.045***	7.23	40.0%
Passive fund				-0.331***	-3.94	-12.5%
% disagreement within family past year				0.098	0.31	3.7%
Log(fund total assets during fiscal year)				-0.011	-0.32	-0.4%
Investment as % of firm equity (%)				-0.033	-0.85	-1.2%
Holding horizon				0.001	0.02	0.1%
Sub-portfolio CAR [-10, +10]				0.054	0.40	2.1%
Positive basis-adjusted return				-0.102**	-2.00	-3.9%
Fiscal year dummy	Yes			Yes		
# targets	188			184		
Observations	23,444			14,434		
Pseudo R-squared	0.08			0.08		
% (Dep. Variable =1)	39.9%			40.1%		

**Panel B: Passively vs. actively managed funds**

	Dependent variable: Mutual fund supports dissident					
	Passively managed funds			Actively managed funds		
	Coefficient	<i>t</i> -stat.	Marg. Prob.	Coefficient	<i>t</i> -stat.	Marg. Prob.
	(1)	(2)	(3)	(4)	(5)	(6)
Log (MV)	0.164***	6.72	5.7%	0.077***	4.25	3.1%
<i>q</i>	-0.062***	-2.75	-2.2%	-0.121***	-4.13	-4.8%
ROA	-0.456**	-2.27	-15.9%	-0.725***	-3.68	-28.7%
Prior-year stock return	-0.029	-0.24	-1.0%	-0.003	-0.03	-0.1%
Leverage	-0.174	-1.15	-6.1%	-0.415***	-3.15	-16.4%
Dividend yield (%)	0.013	0.61	0.4%	0.002	0.20	0.1%
Institutional ownership	-0.236	-1.10	-8.2%	-0.049	-0.41	-1.9%
HHI	0.186	0.67	6.5%	0.296*	1.87	11.7%
MHHID	-0.016	-0.07	-0.5%	0.298	1.11	11.8%
Hedge fund dissident	0.439***	6.44	14.2%	0.327***	3.67	12.7%
# past events by dissident	-0.114***	-8.84	-4.0%	-0.088***	-3.94	-3.5%
Past campaign intensity	0.080***	3.09	2.8%	0.051*	1.94	2.0%
Announcement return	1.106***	5.99	38.5%	0.993***	5.02	39.3%
% disagreement within family past year	0.458	1.04	15.9%	-0.087	-0.31	-3.4%
Log(fund total assets during fiscal year)	0.001	0.01	0.1%	0.006	0.20	0.2%
Investment as % of firm equity (%)	-0.442**	-2.22	-15.4%	0.002	0.05	0.1%
Holding horizon	0.004	1.09	0.2%	-0.008	-1.63	-0.3%
Sub-portfolio CAR [-10, +10]	-0.139	-0.62	-4.8%	0.299*	1.73	11.8%
Positive basis-adjusted return	-0.073	-0.96	-2.6%	-0.131**	-1.97	-5.2%
Fiscal year dummy	Yes			Yes		
# targets	159			181		
Observations	6,004			8,430		
Pseudo R-squared	0.09			0.07		
% (Dep. Variable =1)	32.6%			45.4%		

**Panel C: Top 5 fund families vs. non-top 5 families**

	Dependent variable: Mutual fund supports dissident					
	Top 5 families			Non-top 5 families		
	Coefficient	<i>t</i> -stat.	Marg. Prob.	Coefficient	<i>t</i> -stat.	Marg. Prob.
	(1)	(2)	(3)	(4)	(5)	(6)
Log (MV)	0.053**	1.96	1.6%	0.124***	7.94	4.8%
<i>q</i>	-0.125**	-2.51	-3.9%	-0.091***	-4.01	-3.5%
ROA	-0.045	-0.16	-1.4%	-0.767***	-4.39	-30.0%
Prior-year stock return	-0.010	-0.04	-0.3%	-0.002	-0.02	-0.1%
Leverage	-0.363**	-2.12	-11.2%	-0.333***	-2.62	-13.0%
Dividend yield (%)	-0.045	-1.03	-1.4%	0.012	1.34	0.5%
Institutional ownership	-0.004	-0.01	-0.1%	-0.147	-1.33	-5.7%
HHI	0.339	0.44	10.5%	0.218*	1.67	8.5%
MHHID	0.638	1.17	19.7%	0.020	0.11	0.8%
Hedge fund dissident	0.179*	1.72	5.3%	0.406***	6.25	15.4%
# past events by dissident	-0.136***	-3.67	-4.2%	-0.095***	-5.78	-3.7%
Past campaign intensity	0.059	0.97	1.8%	0.065***	3.45	2.5%
Announcement return	0.475	1.40	14.7%	1.153***	7.41	45.1%
Passive fund	-0.381***	-4.38	-12.4%	-0.187**	-2.26	-7.3%
% disagreement within family past year	2.759***	3.34	85.2%	-0.229	-0.91	-9.0%
Log(fund total assets during fiscal year)	-0.001	-0.01	-0.1%	0.039	1.37	1.5%
Investment as % of firm equity (%)	-0.119**	-2.22	-3.7%	-0.008	-0.27	-0.3%
Holding horizon	0.012***	4.16	0.4%	-0.004	-1.07	-0.2%
Sub-portfolio CAR [-10, +10]	-0.236	-0.50	-7.3%	0.151	1.00	5.9%
Positive basis-adjusted return	0.049	0.38	1.5%	-0.194***	-3.39	-7.7%
Fiscal year dummy	Yes			Yes		
# targets	161			182		
Observations	3,000			11,434		
Pseudo R-squared	0.14			0.08		
% (Dep. Variable =1)	27.8%			43.3%		

**Panel D: Linear probability model for the full sample**

Linear probability model	Dependent variable: Mutual fund supports dissident			
	Coefficient	<i>t</i> -stat.	Coefficient	<i>t</i> -stat.
	(1)	(2)	(3)	(4)
Passive fund	-0.103***	-3.91	-0.103***	-3.83
% disagreement within family past year	0.026	0.26	0.031	0.32
Log(fund total assets during fiscal year)	-0.009	-0.86	-0.009	-0.77
Investment as % of firm equity (%)	-0.004	-0.51	-0.007	-0.88
Holding horizon			-0.001	-0.61
Sub-portfolio CAR [-10, +10]			0.086**	2.21
Positive basis-adjusted return			-0.037**	-2.11
Event FEs	Yes		Yes	
# targets	184		184	
Observations	14,434		14,434	
Adj. R-squared	0.35		0.35	
% (Dep. Variable =1)	40.1%		40.1%	

**Table 7. Integrated Analysis of Proxy Contests and Voting**

In this table, we report results from estimating a system of equations for investor voting and dissident targeting. The dependent variable in the voting equation, *Mutual fund supports dissident*, equals 1 if a mutual fund votes for a dissident's director slate, and 0 otherwise. The dependent variable in the targeting equation, *Proxy contest*, equals 1 if a firm is targeted by a dissident, and 0 otherwise. All independent variables are as defined in Table 3. Panel A reports results from estimating a full-information maximum likelihood model, in which  $\rho$  is the coefficient of correlation between the residuals in the two equations. Panel B reports results from estimating a Heckman two-step model, in which  $\mu$  is the coefficient on the inverse Mills ratio. Standard errors are clustered at the fund family level. In each column we report probit coefficients, their heteroscedasticity-robust *t*-statistics, and when applicable, the marginal probability change induced by a one-unit change in the value of a specific covariate from its sample average. \*, \*\* and \*\*\* indicate statistical significance at the 10%, 5% and 1% levels, respectively.

**Panel A: Full-information maximum likelihood model**

	Voting equation: Mutual fund supports dissident			Targeting equation: Proxy contest	
	Coefficient	<i>t</i> -stat.	Marg. Prob.	Coefficient	<i>t</i> -stat.
	(1)	(2)	(3)	(4)	(5)
Log (MV)	0.135***	8.07	4.9%	0.234***	4.72
q	-0.086***	-4.07	-3.1%	-0.138***	-2.62
ROA	-0.661***	-3.96	-23.9%	0.228	0.46
Prior-year stock return	-0.173***	-2.95	-6.3%	-0.191	-1.05
Leverage	-0.180	-1.50	-6.5%	0.120	0.27
Dividend yield (%)	0.019**	2.00	0.7%	0.023	0.86
Institutional ownership	-0.096	-0.73	-3.5%	1.674***	4.90
HHI	0.064	0.52	2.3%	0.423	0.96
MHHID	-0.085	-0.41	-3.1%	0.679	1.35
Hedge fund dissident	0.353***	7.06	12.8%		
# past events by dissident	-0.095***	-6.92	-3.4%		
Past campaign intensity	0.060***	3.46	2.2%		
Announcement return	0.880***	5.58	31.7%		
Passive fund	-0.340***	-4.10	-12.3%		
% disagreement within family past year	0.184	0.59	6.6%		
Log(fund total assets during fiscal year)	-0.007	-0.20	-0.3%		
Investment as % of firm equity (%)	-0.033	-0.83	-1.2%		
Holding horizon	0.001	0.36	0.1%		
Sub-portfolio CAR [-10, +10]	0.084	0.61	3.0%		
Positive basis-adjusted return	-0.090*	-1.72	-3.2%		
Passive fund				-1.642***	-4.24
% disagreement within family past year				0.728	0.54
Log(fund total assets during fiscal year)				0.208***	7.60
Investment as % of firm equity (%)				0.236**	2.22
Holding horizon				0.045**	2.10
Positive basis-adjusted return				-0.374	-0.86
# targets	184				
Observations	36,218				
$\rho$	0.152	2.70			

**Panel B: Heckman two-step model**

	Voting equation:		Targeting equation:	
	Mutual fund supports dissident		Proxy contest	
	Coefficient	<i>t</i> -stat.	Coefficient	<i>t</i> -stat.
	(1)	(2)	(3)	(4)
Log (MV)	0.044***	7.08	0.050*	1.64
q	-0.036***	-5.91	-0.055*	-1.82
ROA	-0.238***	-3.73	-0.137	-0.63
Prior-year stock return	-0.027	-0.87	-0.093	-1.13
Leverage	-0.097**	-2.50	0.250	1.23
Dividend yield (%)	0.002	0.47	0.004	0.30
Institutional ownership	-0.035	-0.78	0.576***	3.58
HHI	0.077	1.46	0.011	0.06
MHHID	0.043	0.58	0.267	1.04
Hedge fund dissident	0.114***	5.53		
# past events by dissident	-0.031***	-6.12		
Past campaign intensity	0.021***	2.93		
Announcement return	0.279***	5.58		
Passive fund	-0.116***	-4.05		
% disagreement within family past year	0.037	0.33		
Log(fund total assets during fiscal year)	-0.004	-0.36		
Investment as % of firm equity (%)	-0.010	-1.06		
Holding horizon	0.001	0.18		
Sub-portfolio CAR [-10, +10]	0.012	0.24		
Positive basis-adjusted return	-0.035*	-1.85		
Passive fund			-0.746***	-3.28
% disagreement within family past year			-0.066	-0.07
Log(fund total assets during fiscal year)			0.084***	5.22
Investment as % of firm equity (%)			0.139***	2.89
Holding horizon			0.034**	2.41
Positive basis-adjusted return			-0.043	-0.15
Fiscal year dummy	Yes		Yes	
# targets	184		184	
Observations	14,434		19,309	
Adj. R-squared	0.10			
Pseudo R-squared			0.15	
$\mu$ (coefficient on <i>InvMill</i> )	0.084	4.21		

**Table 8. Mutual Fund Pro-Dissident Stance and Proxy Contests**

In this table, we report how proxies for mutual funds' pro-dissident stance affect the likelihood of proxy contests. The dependent variable, *Proxy contest*, equals 1 if a firm is targeted by a dissident, and 0 otherwise. All independent variables are as defined in Table 3. In Panel A, the Fixed-effect (FE) residual is the value-weighted residual from regressing fund fixed effects from the voting equation on fund characteristics (see equation (7) in the text). In Panel B, the Pairwise-rank residual is the value-weighted residual from regressing fund pairwise ranks based on voting behavior on fund characteristics (see equation (10) in the text). In both panels, columns (1)-(3) report results for all mutual funds, while columns (4)-(6) show results using the smallest number of the largest investors which collectively own at least 20% of a target firm. Standard errors are clustered at the firm level. In each column we report probit coefficients, their heteroscedasticity-robust *t*-statistics, and the marginal probability change induced by a one-unit change in the value of a specific covariate from its sample average. \*, \*\* and \*\*\* indicate statistical significance at the 10%, 5% and 1% levels, respectively.

**Panel A: Pro-dissident stance based on fund fixed effects**

Dependent variable: Proxy contest	All investors			Top investors holding 20% of firm		
	Coefficient	<i>t</i> -stat.	Marg. Prob.	Coefficient	<i>t</i> -stat.	Marg. Prob.
	(1)	(2)	(3)	(4)	(5)	(6)
Pro-dissident stance (FE residual)	0.578***	2.59	2.2%	0.628***	3.26	2.4%
Log (MV)	0.215***	3.89	0.3%	0.230***	4.26	0.3%
q	-0.063	-1.51	-0.1%	-0.070	-1.55	-0.1%
ROA	-0.236	-0.62	-0.3%	-0.320	-0.79	-0.5%
Prior-year stock return	-0.149	-1.25	-0.2%	-0.145	-1.13	-0.2%
Leverage	0.730*	1.67	1.1%	0.830*	1.91	1.2%
Dividend yield (%)	0.048**	2.20	0.1%	0.052**	2.35	0.1%
Institutional ownership	1.414***	4.04	2.0%	1.392***	3.91	2.0%
HHI	-0.140	-0.32	-0.2%	-0.136	-0.30	-0.2%
MHHID	-0.060	-0.12	-0.1%	-0.072	-0.14	-0.1%
Passive fund	-1.486***	-5.18	-2.1%	-1.541***	-5.34	-2.2%
% disagreement within family past year	1.657	1.44	2.4%	1.424	1.17	2.0%
Log(fund total assets during fiscal year)	0.222***	7.47	0.3%	0.228***	7.11	0.3%
Investment as % of firm equity (%)	0.254***	3.43	0.4%	0.249***	3.21	0.4%
Holding horizon	0.030	1.43	0.1%	0.033	1.57	0.1%
Positive basis-adjusted return	-0.564	-1.46	-0.8%	-0.450	-1.12	-0.6%
Fiscal year dummy	Yes			Yes		
Observations	16,254			15,158		
Pseudo R-squared	0.39			0.41		
% (Dep variable = 1)	1.2%			1.2%		

**Panel B: Pro-dissident stance based on pairwise ranks**

Dependent variable: Proxy contest	All investors			Top investors holding 20% of firm		
	Coefficient	<i>t</i> -stat.	Marg. Prob.	Coefficient	<i>t</i> -stat.	Marg. Prob.
	(1)	(2)	(3)	(4)	(5)	(6)
Pro-dissident stance (Pairwise-rank residual)	1.065***	3.37	1.4%	0.684***	2.68	0.9%
Log (MV)	0.229***	4.08	0.3%	0.242***	4.50	0.3%
q	-0.064	-1.53	-0.1%	-0.072	-1.59	-0.1%
ROA	-0.306	-0.81	-0.4%	-0.351	-0.86	-0.5%
Prior-year stock return	-0.153	-1.26	-0.2%	-0.143	-1.11	-0.2%
Leverage	0.741*	1.71	1.0%	0.822*	1.84	1.1%
Dividend yield (%)	0.046**	2.08	0.1%	0.050**	2.21	0.1%
Institutional ownership	1.367***	4.04	1.9%	1.356***	3.88	1.8%
HHI	-0.129	-0.30	-0.2%	-0.138	-0.31	-0.2%
MHHID	-0.030	-0.06	-0.1%	-0.083	-0.16	-0.1%
Passive fund	-1.233***	-3.89	-1.7%	-1.389***	-4.68	-1.8%
% disagreement within family past year	1.481	1.28	2.0%	1.325	1.09	1.7%
Log(fund total assets during fiscal year)	0.219***	7.39	0.3%	0.226***	7.07	0.3%
Investment as % of firm equity (%)	0.227***	3.01	0.3%	0.232***	3.00	0.3%
Holding horizon	0.033	1.59	0.1%	0.035*	1.71	0.1%
Positive basis-adjusted return	-0.548	-1.43	-0.7%	-0.447	-1.13	-0.6%
Fiscal year dummy	Yes			Yes		
Observations	16,254			15,158		
Pseudo R-squared	0.40			0.41		
% (Dep variable = 1)	1.2%			1.2%		

**Table 9. Mutual Fund Persuadability and Proxy Contests**

In this table, we report how proxies for mutual funds' persuadability affect the likelihood of proxy contests. The dependent variable, *Proxy contest*, equals 1 if a firm is targeted by a dissident, and 0 otherwise. All independent variables are as defined in Table 3. In Panel A, *Weighted residual of "Proxy Advisor Beta"* is the value-weighted residual from regressing fund-specific coefficients on proxy advisors' recommendations from the voting equation on fund characteristics. In Panel B, *Weighted residual of  $\bar{\sigma}_j$*  is the value-weighted residual from regressing the standard deviations of funds' past votes on fund characteristics. In both panels, columns (1)-(3) report results for all mutual funds, while columns (4)-(6) show results using the smallest number of the largest investors which collectively own at least 20% of a firm. Standard errors are clustered at the firm level. In each column we report probit coefficients, their heteroscedasticity-robust *t*-statistics, and the marginal probability change induced by a one-unit change in the value of a specific covariate from its sample average. \*, \*\* and \*\*\* indicate statistical significance at the 10%, 5% and 1% levels, respectively.

**Panel A: Persuadability derived from recommendations by proxy advisors**

Dependent variable: Proxy contest	All investors			Top investors holding 20% of firm		
	Coefficient	<i>t</i> -stat.	Marg. Prob.	Coefficient	<i>t</i> -stat.	Marg. Prob.
	(1)	(2)	(3)	(4)	(5)	(6)
Weighted residual of "PA beta"	0.628***	2.87	0.8%	0.344**	2.21	0.5%
Log (MV)	0.217***	4.04	0.3%	0.218***	3.97	0.3%
<i>q</i>	-0.062	-1.46	-0.1%	-0.068	-1.51	-0.1%
ROA	-0.268	-0.71	-0.4%	-0.297	-0.75	-0.4%
Prior-year stock return	-0.140	-1.15	-0.2%	-0.142	-1.10	-0.2%
Leverage	0.690	1.58	0.9%	0.825*	1.84	1.2%
Dividend yield	0.045**	2.11	0.1%	0.053**	2.36	0.1%
Institutional ownership	1.405***	3.97	1.9%	1.455***	3.98	2.1%
HHI	-0.138	-0.32	-0.2%	-0.110	-0.24	-0.2%
MHHID	-0.102	-0.20	-0.1%	-0.044	-0.08	-0.1%
Passive fund	-1.583***	-5.32	-2.1%	-1.631***	-5.32	-2.3%
% disagreement within family past year	1.986*	1.66	2.7%	1.653	1.28	2.4%
Log(fund total assets during fiscal year)	0.226***	7.30	0.3%	0.231***	7.11	0.3%
Investment as % of firm equity	0.346***	4.43	0.5%	0.305***	3.99	0.4%
Holding horizon	0.020	1.00	0.0%	0.029	1.41	0.0%
Positive basis-adjusted return	-0.492	-1.28	-0.7%	-0.478	-1.22	-0.7%
Fiscal year dummy	Yes			Yes		
Observations	16499			14913		
Pseudo R-squared	0.40			0.41		
% (Dep variable = 1)	1.2%			1.3%		

**Panel B: Persuadability derived from within fund variation in voting**

Dependent variable: Proxy contest						
	All investors			Top investors holding 20% of firm		
	Coefficient	<i>t</i> -stat.	Marg. Prob.	Coefficient	<i>t</i> -stat.	Marg. Prob.
	(1)	(2)	(3)	(4)	(5)	(6)
Weighted residual of $\bar{\sigma}_j$	1.284**	2.29	1.8%	0.738*	1.88	1.1%
Log (MV)	0.216***	3.88	0.3%	0.226***	4.10	0.3%
<i>q</i>	-0.063	-1.50	-0.1%	-0.068	-1.52	-0.1%
ROA	-0.267	-0.70	-0.4%	-0.313	-0.78	-0.5%
Prior-year stock return	-0.149	-1.24	-0.2%	-0.143	-1.10	-0.2%
Leverage	0.674	1.56	0.9%	0.800*	1.82	1.2%
Dividend yield	0.048**	2.17	0.1%	0.053**	2.34	0.1%
Institutional ownership	1.415***	4.06	2.0%	1.380***	3.93	2.0%
HHI	-0.111	-0.25	-0.2%	-0.134	-0.29	-0.2%
MHHID	-0.040	-0.08	-0.1%	-0.073	-0.14	-0.1%
Passive fund	-1.520***	-5.25	-2.1%	-1.635***	-5.36	-2.4%
% disagreement within family past year	1.364	1.13	1.9%	1.275	0.99	1.9%
Log(fund total assets during fiscal year)	0.223***	7.45	0.3%	0.229***	7.14	0.3%
Investment as % of firm equity	0.228***	3.28	0.3%	0.238***	3.08	0.4%
Holding horizon	0.031	1.51	0.0%	0.035*	1.66	0.1%
Positive basis-adjusted return	-0.447	-1.22	-0.6%	-0.433	-1.12	-0.6%
Fiscal year dummy	Yes			Yes		
Observations	16520			15021		
Pseudo R-squared	0.40			0.41		
% (Dep variable = 1)	1.2%			1.3%		

## Appendix A1. Sample Voting Records

This appendix provides samples from four N-PX files for funds submitting their voting records in the DuPont May/13/2015 proxy fight.

Sample N-PX #1: Voting by the *Vanguard Institutional Total Stock Market Index Fund* submitted in the annual report of proxy voting record by the Vanguard Institutional Index Funds. Available at: <https://www.sec.gov/Archives/edgar/data/862084/000093247115007129/institutionalindexfunds0870.htm>

**ISSUER:** E. I. du Pont de Nemours and Company  
**TICKER:** DD  
**MEETING DATE:** 5/13/2015

**CUSIP:** 263534109

PROPOSAL:	PROPOSED BY	VOTED?	VOTE CAST	FOR /AGAINST MGMT
PROPOSAL #1.1: ELECT DIRECTOR LAMBERTO ANDREOTTI	ISSUER	YES	FOR	FOR
PROPOSAL #1.2: ELECT DIRECTOR EDWARD D. BREEN	ISSUER	YES	FOR	FOR
PROPOSAL #1.3: ELECT DIRECTOR ROBERT A. BROWN	ISSUER	YES	FOR	FOR
PROPOSAL #1.4: ELECT DIRECTOR ALEXANDER M. CUTLER	ISSUER	YES	FOR	FOR
PROPOSAL #1.5: ELECT DIRECTOR ELEUTHERE I. DU PONT	ISSUER	YES	FOR	FOR
PROPOSAL #1.6: ELECT DIRECTOR JAMES L. GALLOGLY	ISSUER	YES	FOR	FOR
PROPOSAL #1.7: ELECT DIRECTOR MARILLYN A. HEWSON	ISSUER	YES	FOR	FOR
PROPOSAL #1.8: ELECT DIRECTOR LOIS D. JULIBER	ISSUER	YES	FOR	FOR
PROPOSAL #1.9: ELECT DIRECTOR ELLEN J. KULLMAN	ISSUER	YES	FOR	FOR
PROPOSAL #1.10: ELECT DIRECTOR ULF M. SCHNEIDER	ISSUER	YES	FOR	FOR
PROPOSAL #1.11: ELECT DIRECTOR LEE M. THOMAS	ISSUER	YES	FOR	FOR
PROPOSAL #1.12: ELECT DIRECTOR PATRICK J. WARD	ISSUER	YES	FOR	FOR
PROPOSAL #2: RATIFY AUDITORS	ISSUER	YES	FOR	FOR
PROPOSAL #3: ADVISORY VOTE TO RATIFY NAMED EXECUTIVE OFFICERS' COMPENSATION	ISSUER	YES	FOR	FOR
PROPOSAL #4: REPORT ON LOBBYING PAYMENTS AND POLICY	SHAREHOLDER	YES	AGAINST	FOR
PROPOSAL #5: REPORT ON HERBICIDE USE ON GMO CROPS	SHAREHOLDER	YES	AGAINST	FOR
PROPOSAL #6: ESTABLISH COMMITTEE ON PLANT CLOSURES	SHAREHOLDER	YES	AGAINST	FOR
PROPOSAL #7: REPEAL AMENDMENTS TO THE COMPANY'S BYLAWS ADOPTED WITHOUT STOCKHOLDER APPROVAL AFTER AUGUST 12, 2013	SHAREHOLDER	YES	AGAINST	FOR
PROPOSAL #1.1: ELECT DIRECTOR NELSON PELTZ	ISSUER	NO	N/A	N/A
PROPOSAL #1.2: ELECT DIRECTOR JOHN H. MYERS	ISSUER	NO	N/A	N/A
PROPOSAL #1.3: ELECT DIRECTOR ARTHUR B. WINKLEBLACK	ISSUER	NO	N/A	N/A
PROPOSAL #1.4: ELECT DIRECTOR ROBERT J. ZATTA	ISSUER	NO	N/A	N/A
PROPOSAL #1.5: MANAGEMENT NOMINEE – LAMBERTO ANDREOTTI	ISSUER	NO	N/A	N/A
PROPOSAL #1.6: MANAGEMENT NOMINEE - EDWARD D. BREEN	ISSUER	NO	N/A	N/A
PROPOSAL #1.7: MANAGEMENT NOMINEE - ELEUTHERE I. DU PONT	ISSUER	NO	N/A	N/A
PROPOSAL #1.8: MANAGEMENT NOMINEE - JAMES L. GALLOGLY	ISSUER	NO	N/A	N/A
PROPOSAL #1.9: MANAGEMENT NOMINEE - MARILLYN A. HEWSON	ISSUER	NO	N/A	N/A
PROPOSAL #1.10: MANAGEMENT NOMINEE - ELLEN J. KULLMAN	ISSUER	NO	N/A	N/A
PROPOSAL #1.11: MANAGEMENT NOMINEE - ULF M. SCHNEIDER	ISSUER	NO	N/A	N/A
PROPOSAL #1.12: MANAGEMENT NOMINEE - PATRICK J. WARD	ISSUER	NO	N/A	N/A
PROPOSAL #2: RATIFY AUDITORS	ISSUER	NO	N/A	N/A
PROPOSAL #3: ADVISORY VOTE TO RATIFY NAMED EXECUTIVE OFFICERS' COMPENSATION	ISSUER	NO	N/A	N/A
PROPOSAL #4: REPORT ON LOBBYING PAYMENTS AND POLICY	SHAREHOLDER	NO	N/A	N/A
PROPOSAL #5: REPORT ON HERBICIDE USE ON GMO CROPS	SHAREHOLDER	NO	N/A	N/A
PROPOSAL #6: ESTABLISH COMMITTEE ON PLANT CLOSURES	SHAREHOLDER	NO	N/A	N/A
PROPOSAL #7: REPEAL AMENDMENTS TO THE COMPANY'S BYLAWS ADOPTED WITHOUT STOCKHOLDER APPROVAL AFTER AUGUST 12, 2013	SHAREHOLDER	NO	N/A	N/A

Sample N-PX #2: Voting by the *Vanguard S&P 500 Growth Index Fund* submitted in the annual report of proxy voting record by the Vanguard Admiral Funds. Available at:  
<https://www.sec.gov/Archives/edgar/data/891190/000093247115006938/admiralfunds1841.htm>

**ISSUER:** E. I. du Pont de Nemours and Company  
**TICKER:** DD  
**MEETING DATE:** 5/13/2015

**CUSIP:** 263534109

<b>PROPOSAL:</b>	<b>PROPOSED BY</b>	<b>VOTED?</b>	<b>VOTE CAST</b>	<b>FOR /AGAINST MGMT</b>
PROPOSAL #1.1: ELECT DIRECTOR LAMBERTO ANDREOTTI	ISSUER	YES	FOR	FOR
PROPOSAL #1.2: ELECT DIRECTOR EDWARD D. BREEN	ISSUER	YES	FOR	FOR
PROPOSAL #1.3: ELECT DIRECTOR ROBERT A. BROWN	ISSUER	YES	FOR	FOR
PROPOSAL #1.4: ELECT DIRECTOR ALEXANDER M. CUTLER	ISSUER	YES	FOR	FOR
PROPOSAL #1.5: ELECT DIRECTOR ELEUTHERE I. DU PONT	ISSUER	YES	FOR	FOR
PROPOSAL #1.6: ELECT DIRECTOR JAMES L. GALLOGLY	ISSUER	YES	FOR	FOR
PROPOSAL #1.7: ELECT DIRECTOR MARILLYN A. HEWSON	ISSUER	YES	FOR	FOR
PROPOSAL #1.8: ELECT DIRECTOR LOIS D. JULIBER	ISSUER	YES	FOR	FOR
PROPOSAL #1.9: ELECT DIRECTOR ELLEN J. KULLMAN	ISSUER	YES	FOR	FOR
PROPOSAL #1.10: ELECT DIRECTOR ULF M. SCHNEIDER	ISSUER	YES	FOR	FOR
PROPOSAL #1.11: ELECT DIRECTOR LEE M. THOMAS	ISSUER	YES	FOR	FOR
PROPOSAL #1.12: ELECT DIRECTOR PATRICK J. WARD	ISSUER	YES	FOR	FOR
PROPOSAL #2: RATIFY AUDITORS	ISSUER	YES	FOR	FOR
PROPOSAL #3: ADVISORY VOTE TO RATIFY NAMED EXECUTIVE OFFICERS' COMPENSATION	ISSUER	YES	FOR	FOR
PROPOSAL #4: REPORT ON LOBBYING PAYMENTS AND POLICY	SHAREHOLDER	YES	AGAINST	FOR
PROPOSAL #5: REPORT ON HERBICIDE USE ON GMO CROPS	SHAREHOLDER	YES	AGAINST	FOR
PROPOSAL #6: ESTABLISH COMMITTEE ON PLANT CLOSURES	SHAREHOLDER	YES	AGAINST	FOR
PROPOSAL #7: REPEAL AMENDMENTS TO THE COMPANY'S BYLAWS ADOPTED WITHOUT STOCKHOLDER APPROVAL AFTER AUGUST 12, 2013	SHAREHOLDER	YES	AGAINST	FOR
PROPOSAL #1.1: ELECT DIRECTOR NELSON PELTZ	ISSUER	NO	N/A	N/A
PROPOSAL #1.2: ELECT DIRECTOR JOHN H. MYERS	ISSUER	NO	N/A	N/A
PROPOSAL #1.3: ELECT DIRECTOR ARTHUR B. WINKLEBLACK	ISSUER	NO	N/A	N/A
PROPOSAL #1.4: ELECT DIRECTOR ROBERT J. ZATTA	ISSUER	NO	N/A	N/A
PROPOSAL #1.5: MANAGEMENT NOMINEE – LAMBERTO ANDREOTTI	ISSUER	NO	N/A	N/A
PROPOSAL #1.6: MANAGEMENT NOMINEE - EDWARD D. BREEN	ISSUER	NO	N/A	N/A
PROPOSAL #1.7: MANAGEMENT NOMINEE - ELEUTHERE I. DU PONT	ISSUER	NO	N/A	N/A
PROPOSAL #1.8: MANAGEMENT NOMINEE - JAMES L. GALLOGLY	ISSUER	NO	N/A	N/A
PROPOSAL #1.9: MANAGEMENT NOMINEE - MARILLYN A. HEWSON	ISSUER	NO	N/A	N/A
PROPOSAL #1.10: MANAGEMENT NOMINEE - ELLEN J. KULLMAN	ISSUER	NO	N/A	N/A
PROPOSAL #1.11: MANAGEMENT NOMINEE - ULF M. SCHNEIDER	ISSUER	NO	N/A	N/A
PROPOSAL #1.12: MANAGEMENT NOMINEE - PATRICK J. WARD	ISSUER	NO	N/A	N/A
PROPOSAL #2: RATIFY AUDITORS	ISSUER	NO	N/A	N/A
PROPOSAL #3: ADVISORY VOTE TO RATIFY NAMED EXECUTIVE OFFICERS' COMPENSATION	ISSUER	NO	N/A	N/A
PROPOSAL #4: REPORT ON LOBBYING PAYMENTS AND POLICY	SHAREHOLDER	NO	N/A	N/A
PROPOSAL #5: REPORT ON HERBICIDE USE ON GMO CROPS	SHAREHOLDER	NO	N/A	N/A
PROPOSAL #6: ESTABLISH COMMITTEE ON PLANT CLOSURES	SHAREHOLDER	NO	N/A	N/A
PROPOSAL #7: REPEAL AMENDMENTS TO THE COMPANY'S BYLAWS ADOPTED WITHOUT STOCKHOLDER APPROVAL AFTER AUGUST 12, 2013	SHAREHOLDER	NO	N/A	N/A

Sample N-PX #3: Voting by *Northern Lights Fund Trust III - Persimmon Long/Short Fund* submitted in the annual report of proxy voting record by the Northern Lights Fund Trust III. Available at: <https://www.sec.gov/Archives/edgar/data/1537140/000158064215003790/nlftiinp1.htm>

**Registrant: NORTHERN LIGHTS FUND TRUST III - Persimmon Long/Short Fund**  
**Investment Company Act file number: 811-22655**  
**Reporting Period: July 1, 2014 through June 30, 2015**

Item 1, Exhibit 7

E. I. DU PONT DE NEMOURS AND COMPANY				
Security	263534109		Meeting Type	Contested-Annual
Ticker Symbol	DD		Meeting Date	13-May-2015
ISIN	US2635341090		Agenda	934154092 - Management
Record Date	17-Mar-2015		Holding Recon Date	17-Mar-2015
City / Country	/ United States		Vote Deadline Date	12-May-2015
SEDOL(s)			Quick Code	

Item	Proposal	Proposed by	Vote	For/Against Management
1.	DIRECTOR	Management		
	1 LAMBERTO ANDREOTTI			
	2 EDWARD D. BREEN			
	3 ROBERT A. BROWN			
	4 ALEXANDER M. CUTLER			
	5 ELEUTHERE I. DU PONT			
	6 JAMES L. GALLOGLY			
	7 MARILLYN A. HEWSON			
	8 LOIS D. JULIBER			
	9 ELLEN J. KULLMAN			
	10 ULF M. SCHNEIDER			
	11 LEE M. THOMAS			
	12 PATRICK J. WARD			
2.	ON RATIFICATION OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM	Management		
3.	TO APPROVE, BY ADVISORY VOTE, EXECUTIVE COMPENSATION	Management		
4.	ON LOBBYING	Shareholder		
5.	ON GROWER COMPLIANCE	Shareholder		
6.	ON PLANT CLOSURES	Shareholder		
7.	ON REPEALING CERTAIN AMENDMENTS TO THE BYLAWS ADOPTED BY THE BOARD WITHOUT STOCKHOLDER APPROVAL	Shareholder		

E. I. DU PONT DE NEMOURS AND COMPANY				
Security	263534109		Meeting Type	Contested-Annual
Ticker Symbol	DD		Meeting Date	13-May-2015
ISIN	US2635341090		Agenda	934155955 - Opposition
Record Date	17-Mar-2015		Holding Recon Date	17-Mar-2015
City / Country	/ United States		Vote Deadline Date	12-May-2015
SEDOL(s)			Quick Code	

Item	Proposal	Proposed by	Vote	For/Against Management
1	DIRECTOR	Management		
	1 NELSON PELTZ		For	For
	2 JOHN H. MYERS		Withheld	Against
	3 ARTHUR B. WINKLEBLACK		Withheld	Against
	4 ROBERT J. ZATTA		Withheld	Against
	5 MGT NOM: L. ANDREOTTI		For	For
	6 MGT NOM: E. D. BREEN		For	For
	7 MGT NOM: E. I. DU PONT		For	For
	8 MGT NOM: J. L. GALLOGLY		For	For
	9 MGT NOM: M. A. HEWSON		For	For
	10 MGT NOM: E. J. KULLMAN		For	For
	11 MGT NOM: U. M. SCHNEIDER		For	For
	12 MGT NOM: P. J. WARD		For	For
2	ON RATIFICATION OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM	Management	For	
3	TO APPROVE, BY ADVISORY VOTE, EXECUTIVE COMPENSATION	Management	For	
4	ON LOBBYING	Management	Against	
5	ON GROWER COMPLIANCE	Management	Against	
6	ON PLANT CLOSURE	Management	Against	
7	TO REPEAL EACH PROVISION OR AMENDMENT OF THE BYLAWS OF THE COMPANY ADOPTED BY THE BOARD OF DIRECTORS OF THE COMPANY (AND NOT BY THE COMPANY'S STOCKHOLDERS) SUBSEQUENT TO AUGUST 12, 2013 AND PRIOR TO THE APPROVAL OF THIS RESOLUTION.	Management	For	For

Sample N-PX #4: Voting by *Northern Lights Fund Trust III – The Covered Bridge Fund* submitted in the annual report of proxy voting record by the Northern Lights Fund Trust III. Available at: <https://www.sec.gov/Archives/edgar/data/1537140/000158064215003790/nlftiinp1.htm>

Registrant: <b>NORTHERN LIGHTS FUND TRUST III - The Covered Bridge Fund</b>									
Investment Company Act file number: 811-22655									
Reporting Period: July 1, 2014 through June 30, 2015									
<b>FORM N-PX - PROXY VOTING RECORD REQUIREMENTS</b>									
(a) Issuer's Name	(b) Exchange Ticker Symbol	(c) "CUSIP" #	(d) Shareholder Meeting Date	(e) Matter Identification	(f) Proposal Type	(g) Voted	(h) Vote Cast	(i) For/Against Management	Item 1, Exhibit 12
21	E. I. Dupont de Nemours & Co	DD	263534109	Annual; 5/13/2015	1 Election of Directors	Management	Y	FOR	FOR
				1.1 Lamberto Andreotti	Management	Y	FOR	FOR	
				1.2 Edward D. Breen	Management	Y	FOR	FOR	
				1.3 Robert A. Brown	Management	Y	FOR	FOR	
				1.4 Alexander M. Cutler	Management	Y	FOR	FOR	
				1.5 Eleuthere I. du Pont	Management	Y	FOR	FOR	
				1.6 James L. Gallogly	Management	Y	FOR	FOR	
				1.7 Marilyn A. Hewson	Management	Y	FOR	FOR	
				1.8 Lois D. Juliber	Management	Y	FOR	FOR	
				1.9 Ellen J. Kullman	Management	Y	FOR	FOR	
				1.10 Ulf M. Schneider	Management	Y	FOR	FOR	
				1.11 Lee M. Thomas	Management	Y	FOR	FOR	
				1.12 Patrick J. Ward	Management	Y	FOR	FOR	
				2 On ratification of independent registered public accounting firm	Management	Y	FOR	FOR	
				3 To approve, by advisory vote, executive compensation	Management	Y	FOR	FOR	
				4 On lobbying	Shareholder	Y	AGAINST	FOR	
				5 On grower compliance	Shareholder	Y	AGAINST	FOR	
				6 On plant closures	Shareholder	Y	AGAINST	FOR	
				7 On repealing certain amendments to the bylaws adopted by the board without stockholder approval	Shareholder	Y	AGAINST	FOR	

## Appendix A2. Analysis of Variance Inflation Factors in the Heckman Two-step Model

In this table, we report the average and median variance inflation factors (VIFs) for variables in  $X$  and  $Z$  when each  $Z$  covariate is replaced with its respective  $\bar{Z}$  sequentially. For example, 0 in column (1) indicates that no  $Z$  covariate is replaced with its respective  $\bar{Z}$ , while 2 in column (1) means that both Passive fund and Positive basis-adjusted return are replaced with their respective  $\bar{Z}$  variables.

	Covariates replaced with their respective $\bar{Z}$ (1)	VIFs for the variables in $X$		VIFs for the variables in $Z$	
		Average	Median	Average	Median
		(2)	(3)	(4)	(5)
All $Z_{ijt}$ included	0	2.07	1.94	1.16	1.15
Passive fund	1	2.14	2.06	1.29	1.13
Positive basis-adjusted return	2	2.19	2.07	1.64	1.13
% disagreement within family past year	3	2.25	2.08	1.89	1.45
Log(fund total assets during fiscal year)	4	2.64	2.73	5.26	2.45
Investment as % of firm equity	5	2.94	2.77	6.28	3.77
Holding horizon	6	4.23	2.97	16.54	4.69