Capital Gains Lock-In and Governance Choices*

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ABSTRACT

Differences in accrued gains and investors' tax-sensitivity induce variation in capital gains "lock-in" across mutual funds even for the *same* stock at the *same* time. Exploiting this variation, we show capital gains lock-in affects funds' governance decisions: higher gains in a stock decrease the likelihood a fund exits prior to contentious votes and increase the likelihood a fund votes against management. Consistent with tax motivation, these findings are concentrated among funds with tax-sensitive investors. Further, high *aggregate* capital gains across funds holding a stock predict a higher likelihood management loses a vote and a lower likelihood a contentious vote is proposed.

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Prior research shows that capital gains taxation affects mutual funds' trading decisions (Huddart and Narayanan (2002); Cici (2012); Sialm and Starks (2012)), documenting a "lock-in" effect: realized gains are costly for taxable investors because they trigger a tax liability and, to some extent, a mutual fund with a largely taxable clientele is locked into a position with an unrealized capital gain. Bergstresser and Poterba (2002) show that ignoring tax incentives is costly for fund managers because tax efficiency affects investment flows. Therefore, because of this lock-in effect, the cost of exiting a position will differ across mutual funds even for the *same* stock at any given time, depending on the tax status of the funds' investors and the size of the accrued gain (or loss) in that stock.

Capital gains lock-in may also affect mutual funds' governance activities. Prior studies suggest that, upon anticipating an imminent conflict with a company's management, a fund generally prefers to exit a position, rather than fight (i.e., directly oppose management).[1] Economic incentives for this preference are clear: voting against management may reduce both the likelihood the mutual fund will be included in corporate defined contribution plans (Davis and Kim (2007); Ashraf, Jayaraman, and Ryan (2012)) and access to information from management (Butler and Gurun (2012)).[2] Also, Roe (1990) argues that political and legal constraints encourage mutual funds to exit rather than directly oppose management.

A mutual fund faces a dilemma when considering how to vote on a contentious proposal (a proposal for which the fund believes that opposing management is likely value-enhancing for shareholders). The mutual fund must weigh the potential value created by opposing the firm's management against the potential costs outlined above. Another consideration, relevant for mutual funds with tax-sensitive investors and a capital gain on a stock, is that exiting a position, rather than "staying and fighting" the firm's management, would impose tax costs on the funds' investors. Thus, for a position with an unrealized capital gain, mutual funds with taxable clientele must trade off these countervailing forces.

In this paper, we study the relation between funds' willingness to oppose management on contentious proposals at shareholder meetings and capital gains lock-in. A mutual fund locked-in to a position for tax reasons may be more likely to oppose management because of the tax incentive

[1] For related studies conducted on a broader set of institutional investors see, for example, Parrino, Sias, and Starks (2003) and McCahery, Sautner, and Starks (2015).

[2] For example, a mutual fund company's statement to the SEC regarding vote disclosure rules states that ''… retaliation [from the firm] could be in the form of denial of access to company management in the course of our investment research on behalf of our shareholders.'' See http://www.sec.gov/rules/proposed/s73602/rmason1.txt.

to hold a position with an accrued gain even if the fund is not fully enamored with the firm's management. There are two related reasons for this. First, because exit from a holding with a gain is more costly for funds with tax-sensitive investors, the fund's investment horizon increases and the fund can benefit from the long-term value created by their voting. Second, funds that are not locked-in and that continue to hold the position are more likely aligned with management than funds holding the stock because exit would trigger a tax liability for investors. Thus, funds with larger accrued gains in a stock and with a tax-sensitive clientele may be more likely to oppose management on contentious votes because tax lock-in, rather than an affinity for management, causes them to continue holding the stock in the first place. For funds locked into a holding for tax reasons, a pragmatic alternative to sale is actively monitoring the firm while continuing to hold the stock. Indeed, Bhide (1993, p. 42) explicitly mentions that capital gains tax lock-in encourages active governance by reducing an investor's willingness to sell shares.

We test whether higher accrued gains, by making exit less attractive because of the tax consequences, increase the likelihood that a mutual fund will oppose management. Our empirical setup is well-suited for these tests. We first confirm, consistent with the studies referenced above, that there is indeed a negative relation between the probability of a fund selling a stock and the accrued capital gain[3] of the stock holding (and that this relation is stronger for funds with tax-sensitive investors). We then test how the accrued gain affects the decision regarding whether to oppose management, conditional on staying. For these tests, we focus on a subset of contentious votes, for which opposing management is potentially value-increasing. McCahery, Sautner, and Starks (2015) survey institutional investors, including mutual funds, and report that "most investors use proxy advisors and believe that their information improves their own voting decisions." Accordingly, and further supported by the findings of Alexander, Chen, Seppi, and Spatt (2010), in our main results we limit the sample to the votes for which Institutional Shareholder Services (ISS) recommends that voting against management is in the interests of shareholders. Throughout the paper, we refer to such proposals/votes as "contentious," with opposition to management potentially value-increasing for shareholders.[4] In robustness tests, we

[3] For expositional simplicity, we use the term "capital gains" to refer to the percent change in a stock holding's price since the time of purchase). Therefore, "capital gains" refer to both gains and losses in a stock position.

[4] Numerous prior studies use ISS recommendations as a proxy for value-increasing voting recommendations (Bethel and Gillian (2002); Morgan, Poulsen, and Wolf (2006); Cotter, Palmiter, and Thomas (2010); Morgan, Poulsen, Wolf, and Yang (2011)). Alexander, Chen, Seppi, and Spatt (2010) examine stock-price reactions to ISS announcements of voting recommendations that oppose management and show that ISS voting recommendations are generally value-enhancing, thus justifying this proxy.

show that our results also hold in the full sample of all votes (although, as expected, the results are weaker in magnitude because the sample of all votes includes many non-controversial proposals).

In our *Oppose Management* regressions, we obtain identification by including two sets of fixed effects: one set for each vote and one set for each mutual fund-quarter combination. First, for a given vote, the accrued capital gain since purchase varies across the different funds holding the company's stock, as does the tax status of those funds' investors. This variation allows us to include vote fixed effects in our specifications. These fixed effects eliminate many potential sources of confounding variation, such as the issue voted on, as well as the company's finances, governance, and past performance. For example, the past performance of the stock (over the past quarter, year, five years, etc.) could certainly affect whether a fund opposes management (i.e., opposition to management may be lower following good performance). Our vote fixed effects control for any relation between opposition to management on a particular vote and past stock returns over any horizon, because the stock return over a given past horizon is the same for all investors. We identify the effect of capital gains lock-in on governance by exploiting the differences across funds in their *accrued capital gain* in the same stock at a given time, as well as differences across funds in the tax status of their investors. For funds with taxable investors, it is this accrued capital gain that is relevant for tax-motivated decisions. This identification strategy is possible because capital gains tax lock-in varies across different funds *holding the same stock at the same point in time*, allowing us to eliminate the most obvious sources of omitted variables bias.

Second, for a fixed fund-quarter combination, the accrued capital gains vary across the different stocks held by the fund at that point in time. This variation allows us to include fund-quarter fixed effects in our specifications. These fixed effects eliminate many other potential sources of confounding variation, such as the fund's overall propensity to oppose management during that quarter, propensity to follow ISS recommendations, factors related to the fund's family, as well as the fund's flows and past performance. For example, the fund-quarter fixed effects effectively eliminate funds that always follow ISS recommendations or always follow management recommendations. Instead, we identify how accrued capital gains affect a fund's likelihood of opposing management on a contentious vote by exploiting the different accrued capital gains a given fund has in different stocks at the same point in time.

Although Iliev and Lowry (2015) argue that ISS recommendations are not always value-enhancing, at a minimum proposals for which ISS and management disagree are contentious, with support for management not clearly in shareholders' best interests.

The results show that mutual funds with higher accrued capital gains in a stock are more likely to oppose management.[5] For example, a one standard-deviation change in the accrued capital gain in a stock is associated with a 1.2 percentage-point increase in the likelihood a fund opposes management on a contentious vote (the sample average is 53%).[6] Our results further demonstrate that, consistent with a tax motivation, the relation between voting against management and accrued capital gains is much stronger for funds with a tax-sensitive clientele. A one standard-deviation increase in the accrued capital gains in a stock is associated with a 5.1 percentage-point increase in the likelihood a fund opposes management on a contentious vote if that fund has tax-sensitive clientele. In contrast, for mutual funds with a high proportion of tax-deferred retirement assets, there essentially is no relation between voting against management and accrued capital gains.

Also consistent with a tax motivation, we find that the relation between voting against management and accrued capital gains in a stock holding is stronger for funds that have a high level of gains elsewhere in their portfolio (as opposed to having losses, which could be used to offset taxes on realized capital gains). Again, this effect is only present for the mutual funds with a primarily tax-sensitive clientele. We also find that the effects are present for both long-term and short-term capital gains, with the magnitude of the effect greater for short-term capital gains (taxed at a higher rate). Further, funds from families with significant defined contribution (DC) plan business may be reluctant to oppose management even if the fund itself does not have much DC-plan business. Consistent with this hypothesis, we indeed find a stronger lock-in effect for funds from families with lower levels of DC-plan business.

As a robustness test to our mutual fund vote analyses, we use a multinomial logit framework to model the multiple choices available for mutual funds facing a contentious vote—to exit, support, or oppose—and find further evidence that tax-induced lock-in affects governance. The multinomial logit analysis confirms the logit model results. For mutual funds with a tax-sensitive clientele, a one standard-deviation increase in the accrued capital gain in the stock holding increases the probability of continuing to hold the stock and opposing management by 1.6 percentage points (6.2 percentage points for a fund with tax-sensitive clientele). At the same time, the probability of selling the stock falls by –1.1 percentage points (–2.8 percentage points for a fund with tax-sensitive clientele) and the probability of continuing to hold the stock and supporting

[5] Consistent with prior studies such as Del Guercio, Seery, and Woidtke (2008) and Fischer, Gramlich, Miller, and White (2009), we define opposing management as the fund either voting against, or withholding its vote from, management's recommendation.
[6] This and other marginal effects reported from logit models (and multinomial logit models) are evaluated at the sample mean.

management falls by –0.5 percentage points (–3.4 percentage points for a fund with tax-sensitive clientele). To put these effects in perspective, the unconditional probabilities of the three outcomes in the sample are: 6% probability of a complete stock sale before the vote, 50% probability of holding the stock and opposing management, and 44% probability of holding the stock and supporting management. Thus, in addition to its high statistical significance, the lock-in effect on mutual funds' governance choices is also economically substantive.

Upon establishing a "lock-in" effect on how individual mutual funds vote on contentious proposals, we test whether there are broader, tangible effects in terms of actual vote outcomes, the presence of a contentious proposal on the meeting agenda, the stock market reaction to contentious proposals, and fund flows. We find evidence that the governance lock-in effect has an economically substantive effect on all four outcomes. That is, the governance lock-in effect has tangible consequences for the firms held by mutual funds as well as for the funds themselves.

For example, when the aggregate accrued capital gains held by mutual funds are high (relative to the firm's total market value), management is significantly more likely to lose a contentious vote. This result holds after controlling for firm returns at various horizons, mutual fund characteristics such as their average holding period in the stock, and firm characteristics, including size, institutional ownership, and various entrenchment measures. In our sample, management loses about one-quarter of the contentious votes. A one standard-deviation increase in the fraction of a firm's ownership comprised of accrued gains held by mutual funds is associated with a 2.7 percentage-point increase in the likelihood management loses the vote (evaluated at the sample mean), and the effect is larger if the accrued gains are held by funds with largely taxable investors. We also find that the lock-in effect is associated with fewer contentious proposals occurring in the first place. In 39% of the shareholder meetings in our sample, the agenda includes a contentious vote (i.e., ISS and management offer different recommendations). These contentious votes are significantly less likely to occur if the aggregate accrued gains across all mutual funds holding the stock are larger (but only if those gains are held by mutual funds with a tax-sensitive clientele). Thus, capital gains lock-in affects not only individual mutual fund voting decisions, but also both *actual vote outcomes* and the *presence of contentious proposals on the meeting agenda*. The latter result is consistent with locked-in mutual funds helping to prevent agency issues at the firm from even arising.

Alexander, Chen, Seppi, and Spatt (2010) find positive abnormal returns during the week leading up to and including an ISS announcement recommending a vote against management. Their interpretation is that the stock market views ISS opposition to management in these cases as good news. If the market generally views these ISS recommendations as value-enhancing, the earlier results showing that management is more likely to lose when the aggregate accrued capital gains of mutual funds are high suggest that there should be a positive relation between stock returns and the aggregate accrued capital gains of mutual funds in the period around the ISS announcement opposing management. This is exactly what we find. For example, a one standard-deviation increase in the fraction of a firm's ownership comprised of accrued capital gains held by mutual funds is associated with a 0.33 percentage point higher stock return in the 15-trading-day "ISS announcement window" before the vote (0.75 percentage points higher for contentious proposals that result in *ex post* close votes), with the effect larger if the accrued gains are held by funds with tax sensitive investors.

We also find that opposition to management has a tangible effect for the funds themselves in terms of future fund flows. Controlling for the usual determinants of fund flows, we find a positive relation between future net fund flows and the proportion of contentious votes for which the fund opposed management over the past four quarters.

Our study is related to a voluminous literature that examines how liquidity affects the governance activities of blockholders, in that capital gains tax lock-in can loosely be viewed as a measure of illiquidity. As Kahn and Winton (1998), Levit (2012), and Fos and Kahn (2015) highlight, the relation between liquidity and governance by blockholders is complicated, with various theories predicting different relations between the two. For example, Coffee (1991), Bhide (1993), and Back, Li, and Ljungqvist (2015) argue that liquidity discourages blockholders from actively engaging in governance: when exit is easy, blockholders do not engage in information acquisition or costly governance activities. Kyle and Vila (1991), Faure-Grimaud and Gromb (2004), Edmans (2009), Edmans and Manso (2011), and Edmans (2014) instead argue that liquidity encourages blockholders to engage in governance, either because liquidity allows the investor to acquire a block or because liquidity allows the investor to profit from intervention. Edmans (2009) further argues that, conditional on already owning a block, liquidity improves governance because it increases the credibility of the threat of exit, which constrains management.

Theoretical models also make different predictions, depending on the nature of "voice." Papers such as Coffee (1991), Bhide (1993), and Kahn and Winton (1998) define voice as active intervention, such as takeovers, proxy fights, or voting. In these studies, liquidity and voice are substitutes, with greater liquidity reducing intervention. More recent papers, such as Levit (2012) and Dasgupta and Piacentino (2015), define voice as soft shareholder activism, which consists of private communication with management ("jawboning"). In these studies, liquidity and voice are complements, as the shareholder needs a credible threat of exit to convince management to follow the shareholder's privately communicated suggestions. In our paper, the measure of voice is based on voting, which is publicly observable. Thus, our empirical design fits most naturally with the theoretical papers that model voice and exit as substitutes.

In other empirical studies, Edmans, Fang, and Zur (2013) find that liquidity increases the likelihood of block formation, but, conditional on block formation, decreases the probability of "voice" (active intervention). Bharath, Jayaraman, and Nagar (2013) find that changes in a blockholder's cost of exit are negatively associated with company value, which they interpret as evidence that liquidity improves governance. Norli, Ostergaard, and Schindele (2015) show that, following poor performance, liquidity increases the likelihood of shareholder activism. In contrast, Roosenboom, Schlingemann, and Vasconcelos (2014) examine takeovers and conclude that liquidity reduces monitoring by institutional investors.

Although related to this literature, our study differs in several important ways. First, we consider a very different form of liquidity then the studies referenced above, which consider "traditional" measures of liquidity like bid-ask spreads or Amihud's (2002) measure. These commonly-used measures of liquidity vary across firms, but not across investors within a firm, raising concerns that omitted firm-specific factors could drive any relation between governance activities and liquidity, thus making identification based on simple cross-sectional comparisons difficult. Some studies instead focus on identification from time-series changes in liquidity that affect all firms or a particular group of firms at the same time (e.g., a financial crisis that reduces liquidity or decimalization that increases liquidity). That approach assumes that only liquidity changes and there are no other confounding changes that also affect governance. By using capital gains lock-in as a measure of illiquidity, rather than a measure identical for all investors in a company at a given time, our identification is obtained by liquidity that varies *across investors in a given stock at a given time*.

Second, because our empirical design focuses on how the accrued gains of stocks *already held by the mutual fund* influence governance decisions, we do not test the theories that focus on whether liquidity attracts investors to accumulate blocks of shares in the first place. For example, standard measures of liquidity represent a stock characteristic that can be measured *a priori* and, thus, funds can endogenously select the liquidity of their investment to enable the formation of a block or an ability to easily cash out from a successful intervention. Our measure of the liquidity of a fund's holding is exogenously given to the investor *ex post* (through a combination of the stock's return since purchase and the tax-sensitivity of the fund's investors). Because this capital gains lock-in-induced liquidity is not a characteristic identifiable *a priori*, it cannot be selected by the fund when considering whether to make its investment in a stock. Therefore, we test whether, conditional on the stock already being held, capital gains lock-in-induced illiquidity affects mutual funds' governance activities. In other words, building on the ideas of Coffee (1991) and Bhide (1993), we empirically test whether the ease of exit affects the governance activities of mutual funds. Our finding that, conditional on already owning the stock, capital gains lock-in-induced illiquidity leads mutual funds to provide governance is consistent with the Edmans, Fang, and Zur (2013) result that, conditional on an institution already being a blockholder, illiquidity increases the probability of active intervention.

Finally, the aforementioned literature is concerned with the governance activities of large, concentrated blockholders. In contrast, we consider mutual-fund holdings. As open-end mutual funds acquire an increasingly large fraction of total U.S. equity (open-end mutual funds surpassed direct holdings by individuals as the largest category of U.S. equity owners in 2004; French (2008, Table 1)), it is all the more important to understand mutual funds' decisions regarding whether to exit, stay and support, or stay and fight. Overall, mutual funds appear to be relatively activist shareholders; they are more likely to oppose management than other categories of stockholders are, and mutual fund voting is a key determinant of whether a resolution passes (Morgan, Poulsen, Wolf, and Yang (2011)). Thus, the shift in U.S. stock ownership toward the more prominent role of open-end mutual funds has important implications for corporate governance, and our paper contributes toward understanding the governance decisions made by this increasingly influential class of investors.

Indeed, our study contributes to a recent literature examining various motivations for mutual funds' voting decisions. Davis and Kim (2007), Matvos and Ostrovsky (2008), Ashraf,

Jayaraman, and Ryan (2012), Butler and Gurun (2012), and Cvijanović, Dasgupta, and Zachariadis (2015) show that various conflicts of interest affect funds' voting decisions, while Matvos and Ostrovsky (2010) consider peer effects in mutual fund voting. Morgan, Poulsen, Wolf, and Yang (2011) consider many fund-level characteristics that affect mutual funds' voting decisions, such as fund size, turnover ratios, and social responsibility objectives. In contrast, we focus on how capital gains lock-in affects mutual funds' voting decisions. As discussed above, many other factors influence how mutual funds vote. Our specification includes both vote-level and fund-level fixed effects, which subsume many of these other factors, and thus allow us to identify the effect of capital gains lock-in on governance.

Iliev and Lowry (2015) test how proxy advisory firms, such as ISS, affect mutual fund voting. They find that funds with lower costs and higher benefits of actively voting are less likely to always follow ISS recommendations (or always follow management's recommendations) and that such funds have better performance. Because their objective is to test whether funds blindly follow proxy advisors, they focus on why funds do not follow the recommendations of a proxy advisor and their sample includes essentially all votes at the shareholder meeting. In contrast, our objective is to test theories of how investors govern management; thus, we focus on why funds do not follow the recommendations of management. Consistent with numerous prior studies that use ISS recommendations as a proxy for value-increasing voting recommendations, for our main tests, we use a sample of contentious votes (those for which management and ISS recommendations differ) – votes for which it is *ex ante* reasonable to assume that opposition to management is potentially value-increasing. Our hypotheses are concerned with how capital gains lock-in affects fund behavior on contentious votes; we have no reason to expect accrued capital gains to have as strong of an effect on voting for routine or value-enhancing proposals in which management and ISS agree. Iliev and Lowry (2015) conduct their analyses primarily at the fund level. In contrast, our specifications include fund-quarter fixed effects that subsume such fund-level effects on voting. Thus, in our specifications, the effects on mutual fund voting are identified by differences within a fund (i.e., how differences in voting by a fund in a given quarter are related to differences in the accrued gains in different stock holdings of that fund), not by funds that always support management or always support ISS recommendations.

Our paper also documents a new avenue through which capital gains taxation influences the behavior of institutional investors. Huddart and Narayanan (2002), Cici (2012), Sialm and

Starks (2012), and Sialm and Zhang (2015) show that capital gains taxation affects mutual funds' trading decisions. We further find that capital gains lock-in increases the likelihood that a locked-in fund will oppose a firm's management during contentious votes. This is an important finding because taxable investors hold more than one-half of equity mutual fund assets (Sialm, Starks, and Zhang (2015)).

The remainder of the paper is organized as follows. Section 1 reviews the data and variables. Section 2 first confirms that, consistent with prior studies, there is a negative relation between mutual funds' sale decisions and accrued capital gains in the stock holding. In Section 3, we show how capital gains affect the joint voting/trading decision. After having established a "lock-in" effect on how individual funds vote on contentious proposals, in Section 4 we consider whether this effect has broader, tangible manifestations in terms of actual vote outcomes, the presence of a contentious proposal on the meeting agenda, stock market reactions to contentious proposals, and fund flows. Section 5 concludes.

1. Data and Summary Statistics

The data for this study come from multiple sources, including the CRSP Open-End Survival Bias Free Mutual Fund Database, Thompson-Reuters Mutual Fund Holdings Database, *Pensions & Investments'* Survey of Defined Contribution Plans, mutual funds' NSAR filings, CRSP Stock File, ISS Voting Analytics Database, and RiskMetrics Governance Database.

A. Data

A.1 Mutual Fund Data

Mutual fund data come from the CRSP Open-End Survival Bias Free Mutual Fund Database. We focus on actively-managed U.S. domestic equity mutual funds, and eliminate balanced, bond, international, money market, and sector funds. Moreover, we also remove funds that hold fewer than 10 stocks or have less than two million dollars in total net assets at the end of the previous quarter. These screening criteria correspond closely to those of Kacperczyk, Sialm, and Zheng (2008). Quarterly mutual-fund stock holdings come from the Thompson-Reuters Mutual Fund Holdings Database. We match the CRSP Mutual Fund data to the holdings data using the MFLINKS file. Further, for a subset of our analyses we use information on the tax status of the mutual funds' investors, obtained from *Pensions & Investments*' annual Survey of Defined

Contribution Plans. Each year, the trade publication *Pensions & Investments* asks mutual fund families to list the proportion of assets held by defined contribution pension plans for the family's 12 largest mutual funds.[7] We match the *Pensions & Investments* data, available for only a subset of our sample, with the CRSP Mutual Fund data using the funds' ticker symbols and names. In our sample, fund families that report to *Pensions & Investments* control 70% of the total value of equity funds in CRSP.[8] Finally, we collect mutual funds' actual fund flows from their NSAR filings with the SEC.

A.2 Stock Data

We obtain information on stock prices, trading volume, stock splits, market capitalization, and share type from the CRSP (monthly and daily) stock database. We match mutual fund holdings to the CRSP stock database by CUSIP.

A.3 Mutual Fund Voting Data

As of July 2003, the SEC requires all mutual funds to disclose their voting records by filing Form N-PX. Institutional Shareholder Services (ISS) compiles the information from these filings to create the ISS Voting Analytics database. Our dataset includes fund voting records from 2003 through the end of 2008. For each fund-stock combination, we have one observation per proposal (i.e., per fund-company-vote).[9] For each observation, we observe how the fund voted, the issue voted upon (e.g., director election, compensation proposal), management recommendation, ISS recommendation (disseminated a few weeks before the vote occurs), and the vote outcome. We hand-match the ISS Voting Analytics database to the CRSP Mutual Funds database, using fund and fund family names. The sample of funds included in Voting Analytics increases over the sample period; in the earlier years, Voting Analytics focused on the largest mutual fund families.

[7] Sialm and Starks (2012) and Sialm, Starks, and Zhang (2015) provide a detailed description of this dataset.
[8] Sialm and Starks (2012) report a similar figure of 74% for their sample.
[9] A fund cannot vote shares that are lent to short-sellers and not recalled before the record date of the vote. In our data, we drop observations in which a fund holds the stock at the end of the quarter before the vote, is not recorded voting or withholding its vote, but holds the stock at the end of the quarter (as these observations may reflect securities lending rather than actual sales). As a practical matter, we find that at most 0.2% of fund-vote combinations are missing due to securities lending (i.e., are dropped because of our sample restriction), suggesting this issue is very unlikely to affect our results. This apparently negligible securities lending by mutual funds during contentious votes is highly consistent with a pair of SEC No-Action Letters to State Street Bank & Trust Company in 1972 that established that funds have a fiduciary duty to recall shares prior to "material" votes. Additionally, Aggarwal, Saffi, and Sturgess (2015) find that institutional investors frequently recall loaned shares prior to a vote.

B. Select Variables

B.1 Capital Gains

To conduct this study, we impute the accrued capital gain embedded in each individual stock in each mutual fund's portfolio. Numerous prior papers impute stock-level capital gains using a variety of methods.[10] These methods vary across two dimensions: (1) imputed transaction price; (2) assumed sales rule.

We observe holdings at the end of each quarter and use that information to infer transactions during the quarter. Prior studies impute transaction prices in four different ways: beginning-of-quarter prices, end-of-quarter prices, daily average prices, and daily transaction-weighted prices. In this paper, we report results based on daily transaction-weighted prices, likely the most accurate estimate of actual transaction prices.

Funds may accumulate and divest positions over several quarters. Therefore, a fund may have multiple tranches of shares, each with a different cost basis. To impute the overall capital gain for a position, we assign partial sales to a specific tranche. Prior studies use four different rules to carry out this step: the share-weighted average price, last-in-first-out, first-in-first-out, and highest-in-first-out. In this paper, we report results based on the highest-in-first-out method because Dickson, Shoven, and Sialm (2000) show this is the most tax-efficient rule.[11]

For each stock *i* held by fund *f* at time *t*, we compute the value-weighted cost basis (*VWCB*) as:

$$VWCB_{f,i}^{t} = \frac{\sum_{n=0}^{t} S_{f,i}^{t,t-n} \cdot P_{i}^{t,t-n}}{\sum_{n=0}^{t} S_{f,i}^{t,t-n}}, \tag{1}$$

where $S_{f,i}^{t,t-n}$ is the number of shares of stock *i* purchased by fund *f* at date *t–n*, still held at time *t, and* $P_{i}^{t,t-n}$ is the imputed price paid for these shares.

The accrued capital gain for fund-stock combination *f*, *i* at time *t*, is:

$$CapitalGain_{f,i}^{t} = \frac{P_{i}^{t} - VWCB_{f,i}^{t}}{VWCB_{f,i}^{t}} \tag{2}$$

[10] See, for example, Huddart and Narayanan (2002), Frazzini (2006), Jin (2006), and Cici (2012).

[11] As a robustness check, we compute all 16 possible imputed capital gains variables from the intersection of the four transaction price rules and four sales rules. All 16 methods give similar results. Prior studies, including Jin (2006) and Cici (2012), also find that different methods give similar results.

B.2 Voting

As discussed in the introduction, we focus on votes that likely represent a meaningful conflict between management and shareholders. Numerous prior studies use ISS recommendations as a proxy for value-increasing voting recommendations (Bethel and Gillian (2002); Morgan, Poulsen, and Wolf (2006); Cotter, Palmiter, and Thomas (2010); Morgan, Poulsen, Wolf, and Yang (2011)). For example, typical ISS recommendations include voting to declassify the board, separate the positions of Chairman and CEO, provide for cumulative voting, and other recommendations generally viewed as reflecting good corporate governance (e.g., are included in the G-Index of Gompers, Ishii, and Metrick (2003)). Therefore, for our main analyses, we limit our sample to the votes for which ISS recommendation differs from management recommendation. This results in a final sample of 10,950 unique votes[12] over the period from 2003 to 2008. We note, however, that our results are robust to using the full sample of all votes (although, as expected, the results are weaker in magnitude because the full sample of votes includes many non-controversial proposals).

The main dependent variable in our analyses of mutual fund voting is an indicator variable *OpposeManagement*. It is set to one if the fund does not follow management's recommendation, either by voting against management or by withholding its vote, and is set to zero if the fund votes to support management. Specifically, *OpposeManagement* equals one when management recommends voting "For" ("Against"), yet the fund either votes against (for) the proposal or withholds its vote. Withholding a vote is an active decision, just like voting for or against a proposal, not a default category. This definition is very natural and is consistent with recent literature (e.g., Del Guercio, Seery, and Woidtke (2008); Fischer, Gramlich, Miller, and White (2009)). As discussed by Fischer, Gramlich, Miller, and White (2009, p. 175), "Withhold" and "Against" are often functionally equivalent because the vote passage often depends on the ratio of "For" votes to total votes (including withheld votes).[13]

[12] Of these votes, 68% are director elections, 13% are compensation proposals, 8% are non-director board issues (e.g., change the size of the board or eliminate cumulative voting), 7% are governance issues (e.g., amend the articles or bylaws of the company), and the remaining 4% represent other issues (e.g., social issues).

[13] Under the Investment Advisers Act (1940), advisers have a duty to monitor corporate events and to vote the proxies (i.e., for, against, or withhold). Consistent with this regulation, in our sample only 0.5% of funds do not vote and only 2.6% abstain.

C. Summary Statistics

Table 1 presents key summary statistics for the merged mutual fund holding – Voting Analytics dataset. We limit the data set to the fund-vote combinations for which ISS and management issue conflicting recommendations (these data form the basis for our regressions in Tables 2, 3, 4, and 5). Particularly relevant for our analyses of voting patterns is the indicator variable *OpposeManagement*. Its value is one for 0.53 (53%) of the fund-vote observations in our sample, implying that funds support management for 47% of the fund-vote observations.

Although our primary focus is on whether capital gains lock-in affects a given fund's vote at a shareholder meeting, in Section 4 we also consider whether the aggregate accrued gains of all mutual funds holding a given firm's stock predicts whether the management of that firm actually loses a contentious vote, and whether these aggregate accrued gains deter a contentious proposal from appearing on the meeting agenda in the first place. *ManagementLosesVote* is an indicator variable set to one if management loses a contentious vote, and set to zero if management wins (thus, this variable is measured at the vote-level). Management loses 24% of the contentious votes in our sample. *ContentiousVoteHeldAtMeeting* is an indicator variable set to one if there are any contentious proposals for a particular meeting and is set to zero otherwise (thus, this variable is measured at the firm-meeting level[14] and is constructed using data from the full Voting Analytics database). There is at least one contentious proposal at 39% of the meetings.

The table also displays summary statistics of the capital gains (and losses) since purchase for mutual funds' stock holdings. Our key independent variable is *CapitalGain*, defined as the percentage accrued capital gain or loss in natural units (e.g., 0.34 = 34% and –0.61 = –61%).[15] The average accrued capital gain of a mutual fund's stock holding is 0.34 (34%), with one-tenth of holdings having a capital gain of at least 1.09 (109%) and one-tenth having a capital gain of –0.17 (–17%) or worse. The standard deviation of *CapitalGain* is 0.68 (68%), the magnitude we will use often to assess the economic effect of accrued capital gains on voting outcomes. We also calculate the standard deviation of *CapitalGain* for each vote. If all mutual funds bought a stock at the same time, the within-vote standard deviation of *CapitalGain* would be zero because all mutual funds would have the same return since purchase. Rather, the average within company-vote standard

[14] Unless there is an unusual event for the firm, such as a potential merger, shareholder meetings occur once a year.

[15] Although our vote sample begins in 2003, we begin tracking capital gains for mutual funds in 1984, when the mutual fund-holding data begin, assuming that all positions in the fund's first filing were purchased in the prior quarter. We then carry these imputed capital gains forward to the beginning of our voting sample in 2003. In our sample, only 0.2% of the positions were purchased prior to 1984.

deviation in accrued capital gains is quite large, 0.49 (49%). Similarly, we calculate the standard deviation in *CapitalGain* for each fund-quarter combination. Once again, the average standard deviation in accrued capital gains across the stocks held in the portfolio of a given fund at a point in time is also large, 0.51 (51%). Thus, there is substantial variation in both the accrued capital gains across mutual funds for a given stock at a given time, as well as in the accrued capital gains across the stocks held by a given mutual fund at a given time, allowing us to employ specifications with both vote fixed effects and fund-quarter fixed effects.

In addition to exploiting variation in the mutual funds' accrued capital gains in a given stock, we also exploit variation across funds in the tax sensitivity of their investors. *% Defined Contribution Investors* is the percentage of the fund owned by defined-contribution retirement plans. For ease of interpretation, in some analyses we create an indicator variable, *HighDC*, indicating whether the proportion of fund assets held by retirement plans is above the median (27.1% of assets across all fund-quarter observations in our sample).

TABLE 1 ABOUT HERE

2. Capital Gains Lock-in and the Propensity to Oppose Management

In this section, we examine the relation between the mutual fund's voting decisions for a stock and the fund's accrued capital gains on that stockholding. We then present several robustness checks, including cross-sectional tests of the tax-induced lock-in effect on mutual fund governance choices, using an alternative sample of all votes, and an examination of strategic incentives of the fund towards a particular firm based on the holdings of its peers.

As mentioned in the introduction, Huddart and Narayanan (2002), Cici (2012), and Sialm and Starks (2012) all document a negative relation between the likelihood a mutual fund sells a stock and the accrued capital gains on that stock holding, which they attribute, at least in part, to tax motivations.[16] Because capital gains lock-in must affect the sale decision of mutual funds for lock-in to affect governance decisions, we first confirm this finding. In Appendix Table 1, we test

[16] In contrast to the studies referenced above, Frazzini (2006) finds that mutual fund managers seem to be subject to the disposition effect (a tendency to realize gains and hold on to losses). In particular, Frazzini finds that, over the period 1980-2002, the aggregate proportion of gains realized (PGR) by mutual funds exceeds the aggregate proportion of losses realized (PLR). However, using data similar to ours, Cici (2012) finds that, consistent with tax lock-in, PLR *exceeds* PGR for mutual funds over the period 1980-2009, as well as for each of the subperiods 1980-89, 1990-99, and 2000-09. While Frazzini uses a different methodology and a different sample than we do, in unreported results we replicate Cici's findings.

whether accrued capital gains and the tax status of a fund's clientele affect funds' sales-propensity by interacting *CapitalGain* (the accrued capital gain of a fund in a given stock holding) with an indicator variable for the presence of a high proportion of tax-deferred investment (*HighDC*). Because a fund's likelihood of selling a stock next quarter falls with how long the stock has already been held,[17] we follow Ivković, Poterba, and Weisbenner (2005) in using a Cox proportional hazards model. Appendix Table 1 shows a strong negative relation between the likelihood a fund sells a stock during the current quarter and the fund's accrued capital gain in that stock. Further, this negative relation is significantly weaker for funds whose clientele is less tax-sensitive, as captured by the coefficient on *HighDC*.

Having established that capital gains lock-in exists, we proceed to consider whether this lock-in affects mutual funds' voting decisions. Specifically, we consider whether a mutual fund is more likely to oppose management, given that the fund is already "stuck" holding the stock (not necessarily because of an affinity for management but, rather, for tax-related reasons) and will thus continue to hold the stock instead of exiting.

As previously discussed, voting against management may be costly to mutual funds (e.g., Davis and Kim (2007); Ashraf, Jayaraman, and Ryan (2012); Butler and Gurun (2012)). If a mutual fund disagrees with management, but does not want to directly oppose it, one solution the fund has at its disposal is to "vote with its feet" by selling the stock. The benefits of doing so, however, might be outweighed by the tax liability triggered by realizing an accrued capital gain; Bergstresser and Poterba (2002) highlight that realizing an accrued capital gain can be costly to the fund because such tax inefficiency reduces future investment flows from tax-savvy investors (not to mention the tax liability passed on to the current investors). Also, the cost-benefit tradeoff of opposing management should differ across funds (even among the funds with tax-sensitive clientele) depending on, for example, the importance of DC-plan business to the fund's family and whether the fund's competitors will also benefit from governance of a particular firm.

Thus, if a mutual fund is locked-in to a position with accrued capital gains for tax reasons (by virtue of having a tax-sensitive clientele), instead of exiting, the fund may choose a pragmatic alternative to sale – to continue holding the stock and to devote more resources to monitoring. For many votes, however, management recommendations are likely uncontroversial, providing fewer

[17] On average, 11% of stock positions are sold in any given quarter (without controlling for the length of the holding period up to that quarter). In untabulated results, we find that the unconditional probability of a mutual fund selling a stock during the next quarter is 19% if the stock has been held for only one quarter, but declines to 12% after six quarters, and to 8% after 12 quarters.

reasons to expect a strong relation between opposition to management and accrued capital gains in the full sample of all proposals (as compared to the subsample of contentious votes for which the ISS and management recommendations differ). Therefore, we use the subsample of contentious proposals for most of our analyses.

A. Voting Behavior of Mutual Funds and Relation with Accrued Gains in a Stock

We begin our analysis of the extent to which capital gains lock-in affects mutual funds' voting decisions by estimating models conditional on funds holding the stock at the time of the shareholder meeting – the decision for these funds at that time is whether to vote for or against management. This analysis provides straightforward and easy-to-interpret results. We expand upon these results in the next section by estimating multinomial logit models of a fund's three-way choice of selling a stock just before the shareholder meeting, continuing to hold the stock and supporting management, or continuing to hold the stock and opposing management.

We start by estimating a logit model that relates the indicator variable *OpposeManagement* (set to one if the mutual fund votes against the management recommendation or withholds its vote, and set to zero otherwise) with *Capital Gain* (the accrued capital gain or loss in the stock holding) in the following panel regression:

$$P(OpposeManagment_{f,i,v,t} = 1 | X_{f,i,v,t} = x) = F(\alpha + \beta \cdot CapitalGain_{f,i,t-1} + \delta_{i,v} + \theta_{f,t} + \sum_{q=1}^{20} (\gamma_q \cdot I_q) + \varepsilon_{i,f,v,t}) \quad (3)$$

where $\delta_{i,v}$ are vote fixed effects, $\theta_{f,t}$ are fund-quarter fixed effects, and I_q, $q = 1,...,20$ are indicator variables set to one if fund f has held stock i for q quarters, and to zero otherwise. We report z-scores based on standard errors clustered by fund-quarter. The vote effects remove all variation in the issue voted on and any company-level effects such as past stock performance, size, and governance. The fund-quarter fixed effects remove all variation at the fund-period level such as past fund returns, overall voting tendencies that quarter (such as always supporting or opposing management recommendations), or fund flows. Thus, identification comes from variation in accrued capital gains across different stocks held by the same fund in the same quarter, after conditioning out fund-level and vote-level differences. Finally, the length-of-holding indicator variables control for the possibility that a funds' propensity to oppose management changes with the length of the holding period for reasons unrelated to accrued capital gains.

To test whether the relation between voting patterns and capital gains differs across funds with clienteles of different levels of tax sensitivity, we also estimate a similar regression in which we interact *CapitalGain* with *HighDC* (an indicator variable set to one if the proportion of fund assets held by retirement plans is above the sample median and set to zero otherwise). Because $HighDC_{f,t}$ does not vary across fund *f*'s holdings in calendar quarter *t*, it is absorbed by the fund-quarter fixed effects, resulting in the following specification:

$$\begin{aligned} &P(OpposeManagment_{f,i,v,t} = 1 | X\_(f,i,v,t) = x) \\ &\quad = F(\alpha + \beta_1 \cdot CapitalGain_{f,i,t-1} + \beta_2 \\ &\quad \cdot \left(CapitalGain_{f,i,t-1} \times HighDC_{f,t}\right) + \delta_{i,v} + \theta_{f,t} + \sum_{q=1}^{20} \left(\gamma_q \cdot I_q\right) + \varepsilon_{i,f,v,t}) \end{aligned} \tag{4}$$

Column (1) of Table 2 presents the specification from Equation (3). Consistent with the prediction that funds locked-in to a stock holding because of capital gains taxes are more likely to oppose management, there is a positive relation between *OpposeManagement* and *CapitalGain* (the coefficient of 0.070 is significant at the 1% level).

As discussed earlier, prior research demonstrates that tax lock-in affects mutual funds' sales decisions; the holding period of a stock increases with its accrued gain (we confirm this in Appendix Table 1). In this section, we find that, conditional on holding the stock at the time of the vote, funds with larger accrued gains are also more likely to oppose management. This reflects a simple tradeoff. Opposing management may be costly for all funds for the reasons discussed earlier; however, funds with a longer expected holding period due to capital gains lock-in may receive more of the value created by opposing management, because Cuñat, Gine, and Guadalupe (2012) and Iliev and Lowry (2015) argue that the benefits of improved governance are only slowly incorporated into prices. Another explanation for this result is that capital gains lock-in may cause some funds to continue holding the stock even if they are not enamored with the management, making them more likely to oppose management on contentious proposals relative to funds not "forced" by taxes to hold the stock at the time of the vote.

The result in column (1) does not differentiate by the tax status of the funds' investors – the lock-in effect on governance should be weaker for funds with more assets held by tax-deferred retirement accounts. We use the *Pensions & Investments* data to identify more precisely why

accrued capital gains explain mutual funds' decisions to oppose management.[18] If this relation stems from tax motivations, the positive relation between opposing management and capital gains in the stock should be stronger (weaker) for funds with fewer (more) tax-deferred retirement assets under management. To test this hypothesis, column (2) presents the second specification (Equation (4)). Consistent with the tax lock-in hypothesis, the coefficient on *CapitalGain*, representing the relation between opposing management and accrued capital gains for funds with tax-sensitive investors, is substantially larger than it was in the first column (0.302, significant at the 1% level). Moreover, the coefficient on the interaction *CapitalGain* × *HighDC* is –0.440; it is negative, significant at the 1% level, and similar in magnitude to the coefficient on *CapitalGain*. Thus, the propensity to oppose management varies with the amount of accrued capital gains for funds with low levels of retirement account assets, but not for funds with high levels of retirement account assets.[19]

TABLE 2 ABOUT HERE

B. Robustness Tests

B.1 Interaction Effects

We next consider how various factors strengthen or weaken the lock-in effect on governance by interacting these factors with *CapitalGain* and *CapitalGain* × *HighDC*. Specifically, we examine the interaction effects of these two variables with the ability to offset capital gains with losses (measured by the fund's capital gains overhang), short versus long-term capital gains holding period in the stock (affecting the capital-gains tax rate), fund turnover, and fund family defined contribution business. For each of these interactions, we first lay out our prediction as to whether the variable should strengthen or weaken the tax-induced lock-in effect on governance and then describe our results.

Because funds can use realized capital losses to offset realized capital gains, the effect of tax lock-in should be weaker for funds with lower fund-level capital gains. *Low Overhang* is an

[18] The number of observations in column (2) is substantially smaller than in column (1) because *Pensions & Investments* data are only available for the 12 largest funds in each family. The sample from column (2) is fairly comprehensive, however, as it encompasses about 70% of total net assets under management from the sample in column (1).

[19] By definition, *HighDC* funds have both a higher fraction of tax-insensitive investment as well as more retirement-plan business. Therefore, the lack of a relation between *CapitalGain* and *OpposeManagement* for *HighDC* funds could simply reflect that these funds are less willing to vote against management. The key point of our identification strategy is that, while funds with a tax-sensitive clientele (i.e., *HighDC* = 0) may also care about alienating management by opposing them on a vote, they are more likely to do so if the stock holding has a gain than a loss because of the tax-induced lock-in effect.

indicator variable set to one for funds with a level of total accrued capital gains across all of their holdings below the median (at the sample median, accrued capital gains are 17% of a fund's total value), and set to zero otherwise. To test whether *Low Overhang* affects the relation between voting patterns and capital gains, we extend Equation (4) to include interactions of *Low Overhang* with *CapitalGain* and *CapitalGain* × *HighDC.* The direct effect of *Low Overhang* and interactions of *Low Overhang* × *HighDC* are absorbed by the fund-quarter fixed effects. Because a low fund-level of capital gains weakens the lock-in effect, there should be a negative coefficient on *CapitalGain* × *Low Overhang*. Moreover, *Low Overhang* should mitigate the lock-in effect more for funds with a tax-sensitive clientele (*HighDC* = 0) than for funds with a tax-insensitive clientele (*HighDC* = 1). Thus, we expect a positive coefficient on the triple interaction *CapitalGain* × *HighDC* × *Low Overhang*. This is precisely what we find in column (1) of Table 3. The positive effect of *CapitalGain* on *OpposeManagement* (the coefficient of 0.406 is significant at the 1% level) is offset for the funds with a low fund-level capital gains overhang (the coefficient on *CapitalGain* × *HighDC* is –0.526, significant at the 1% level). As predicted, there is a negative coefficient on *CapitalGain* × *Low Overhang* (–0.236, significant at the 1% level). Finally, the positive and significant coefficient of 0.272 on the triple interaction, *CapitalGain* × *HighDC* × *Low Overhang* shows that, for funds with a tax-insensitive clientele, the fund-level capital gains overhang does not influence the relation between *CapitalGain* and *OpposeManagement* because the tax sensitivity of these funds is already low.

Short-term capital gains are taxed at a higher rate than long-term gains, suggesting that our regression results should be stronger for short-term gains. Also, because most mutual fund holdings in our sample are long-term (68% of mutual fund holdings have been held at least 12 months), the *OpposeManagement* results may only apply to short-term capital gains and thus be more transitory in nature. *Short-Term* is an indicator variable set to one if the capital gains are short-term (less than one year), and set to zero otherwise. We again extend Equation (4); this time, we include interactions of *Short-Term.* Because a higher tax rate on capital gains creates a greater lock-in effect, there should be a positive coefficient on *CapitalGain* × *Short-Term*. Moreover, *Short-Term* should intensify the lock-in effect more for funds with a tax-sensitive clientele (*HighDC* = 0) than for funds with a tax-insensitive clientele (*HighDC* = 1). Thus, we expect a negative coefficient on the triple interaction *CapitalGain* × *HighDC* × *Short-Term*. In column (2) of Table 3, the coefficient associated with long-term gains (*CapitalGain*) is 0.390 (significant at

the 1% level), and the coefficient associated with the additional lock-in of the gain because of its short-term status (*CapitalGain* × *Short-Term*) is 0.775 (significant at the 1% level). As hypothesized above, a fund with a tax-insensitive clientele (reflected in the interactions with *HighDC*) mitigates both effects. Thus, as predicted, the lock-in effect on voting is stronger for short-term gains, but is present for both short-term and long-term holdings.[20]

Funds with high turnover are less likely to realize the (longer-term) benefits of any changes in governance because they generally have much shorter holding periods than funds with low turnover. *High Turnover* is an indicator variable set to one if the fund's turnover rate is above the median (the median turnover rate across all fund-quarters in our sample is 25% per quarter), and set to zero otherwise. Similarly to the *Low Overhang* variable, we hypothesize that the coefficient on the interaction *High Turnover* × *Capital Gain* should be negative and the coefficient on the triple interaction *CapitalGain* × *HighDC* × *High Turnover* should be positive. As predicted, in column (3) of Table 3 we find that tax-sensitive funds with low turnover have a greater lock-in effect. The triple interaction term is indeed positive, but lacks statistical significance.

Finally, even a fund that does not currently manage defined contribution assets may be reluctant to oppose management if it belongs to a family with a lot of defined contribution business because the family may be reluctant to jeopardize this business by voting against management. *High Family DC* is an indicator variable set to one if the fund's family has an above-median level of defined contribution business in terms of the percent of its total assets under management held by DC plans (across fund-quarter observations the sample median of family assets held by DC plans is 19%), and set to zero otherwise.[21] While there is a positive correlation between the fund itself having a lot of DC-plan business and its family having a lot of DC-plan business, the probability a *LowDC* fund has *High Family DC* is 36% in our sample (the probability a *HighDC* fund has *Low Family DC* is also 36%). In column (4) of Table 3, we find that funds that both have a low-level of DC-plan business themselves *and* also come from a family with a low level of DC-plan business have a sizeable lock-in effect (the coefficient on *CapitalGain* is 0.545; significant at the 1% level). However, this tax-induced lock-in effect is greatly diminished if the fund itself has

[20] In untabulated results, consistent with Sialm and Starks (2012), we also find that the lock-in effect in mutual fund sales is stronger for positions with holding periods shorter than 12 months. Moreover, we find that a lock-in effect is also present for long-term capital gains, with this effect stronger for funds with more tax-sensitive investors.

[21] The number of observations in this analysis, as well as in column (5) of Table 3, is lower than in the previous columns (83,396 versus 107,736). This decline is driven by the availability of fund family-level information regarding DC-plan investments, the covariate introduced in the last two columns of Table 3.

a lot of DC-plan business or the fund belongs to a family with a lot of DC-plan business—both the coefficients on *CapitalGain* × *HighDC* and *CapitalGain* × *High Family DC* are negative and highly significant. As predicted, the mitigating effect of belonging to a fund family with a high level of DC-plan business is smaller for *HighDC* funds than for *LowDC* funds (i.e., the triple interaction term on *CapitalGain* × *HighDC* × *High Family DC* is positive and significant).

In column (5), we include all four sets of interactions. A natural concern is that the various interaction terms may be highly correlated with each other, and thus each column really represents the same underlying effect. That most certainly is not the case. The base case fund-holding observation in column (5) is represented by a fund with a tax-sensitive clientele, with high fund overhang, long-term tax status holding, low-turnover fund, and from a family with low DC-plan business. As predicted, the lock-in effect is quite strong in this baseline case (coefficient of 0.716, significant at the 1% level). Particularly striking is that all of the interaction effects with *CapitalGain* and the triple interaction effects load in the expected direction and are statistically significant except the coefficient on *CapitalGain* × *Low Overhang* (–0.111, *z*-score of 1.40) and the coefficient on *CapitalGain* × *HighDC* × *Short-Term*, (–0.356, *z*-score of 1.60), which miss statistical significance at conventional levels but are of the predicted sign. Thus, the four factors we identified *a priori*, which should strengthen or weaken the tax-induced lock-in effect on governance, all do so in a way consistent with our predictions. Further, these interactions generally act independently of each other and, thus, represent separate effects.

TABLE 3 ABOUT HERE

Based on the results in Tables 2 and 3, Figure 1 illustrates economic magnitudes of the lock-in effects on funds' likelihood of opposing management. We calculate the marginal effect on the probability of opposing management associated with a one standard-deviation increase in *Capital Gains* (i.e., if the accrued capital gain of a fund holding increased by 0.68), evaluated at the sample mean. For perspective, across all the fund-holding observations in the sample, funds oppose management 53% of the time on contentious proposals. Figure 1 shows a progression of increasingly stronger effects of the accrued capital gain on the probability that the fund opposes the firm's management. For example, a one standard-deviation increase in the accrued capital gain in a stock is associated with a 1.2 percentage-point increase in the likelihood a fund opposes management on a contentious vote, which rises to 5.1 percentage points if that fund has a tax-

sensitive clientele, that is, the fund is a low DC fund (based on the coefficients from the first row of Table 2).[22] The marginal effect further increases to about 7 percentage points for both low DC funds with high overhang and low DC funds with low turnover, 9.2 percentage points for low DC funds with low DC fund family, and, finally, 12.1 percentage points for low DC funds with high overhang, low turnover, and a low DC fund family (based on the coefficients from the first row of Table 3). For this latter group, the lock-in effect on voting is quite large (given its characteristics that should increase the lock-in effect); however, it represents just under one-tenth of the sample of funds for which we have DC plan data.

FIGURE 1 ABOUT HERE

B.2 Sample of All Votes

The analyses in this section have focused on mutual fund voting decisions on proposals in which the recommendations of ISS and management differ. This was done to identify a set of proposals for which, *a priori*, opposing management may be value-increasing – or, at a minimum, to identify a set of contentious proposals in which support for management is not clearly in shareholders' best interests. Nonetheless, as a robustness test, we also estimate the *OpposeManagement* regression on the sample of all votes in the Voting Analytics dataset, regardless of whether the recommendations of ISS and management differ, leading to a substantially larger sample size of 716,343 observations. We conduct this analysis for two reasons. First, to ensure the results are generalizable for the overall sample. Second, because funds and ISS may occasionally disagree about the value-maximizing course of action[23] and, thus, funds may oppose management even for some proposals in which ISS supports management. In the latter proposals, we would also expect opposition to management to be positively associated with accrued capital gains in a stock holding, but with a smaller magnitude than is found in the sample of contentious votes (because the full sample contains many non-controversial votes).

[22] The change in the likelihood of opposing management, associated with a one standard-deviation change in accrued capital gains is calculated as:

$\sigma_{CG} \cdot Pr_{OpposeManagement} \cdot (1 - Pr_{OpposeManagement}) \cdot \beta_{OpposeManagement} = 0.68 \cdot 0.53 \cdot (1 - 0.53) \cdot 0.070 = 0.012$ (1.2%).

The change in the likelihood of opposing management associated with a one standard-deviation change in accrued capital gains is calculated (assuming the fund caters to a tax-sensitive clientele) as:

$\sigma_{CG} \cdot Pr_{OpposeManagement} \cdot (1 - Pr_{OpposeManagement}) \cdot \beta_{OpposeManagement} = 0.68 \cdot 0.53 \cdot (1 - 0.53) \cdot 0.302 = 0.051$ (5.1%).

[23] Iliev and Lowry (2015) note that some mutual funds place relatively little weight on ISS recommendations in their voting decisions. In our sample, the fund-quarter fixed effects will effectively control for funds that always vote with ISS.

This is exactly what we report in column (1) of Table 4. In this specification, which is analogous to column (2) of Table 2, the coefficient on *CapitalGain* is 0.066 (significant at the 1% level) and the coefficient on *CapitalGain* × *HighDC* is –0.151 (significant at the 1% level).[24] In the sample of votes on all proposals, funds oppose management on average 10% of the time (as opposed to 53% for contentious proposals). Evaluated at this sample mean, a one standard-deviation change in the accrued capital gain of a stock held by a fund with tax-sensitive clientele is associated with a 0.4 percentage point (0.68×0.10×0.90×0.066 = 0.004) increase in the likelihood a fund opposes management on a vote (compared to 5.1 percentage points for contentious votes). Thus, capital gains lock-in affects mutual funds' voting decisions in the full sample of all votes, but, as expected, the effect is considerably smaller than in the subsample of contentious votes.

B.3 Strategic Considerations of the Fund

Presumably, funds believe their opposition to management is value-enhancing (or else they would simply support management). That noted, the well-known relation between net fund flows and relative fund performance, documented among others by Sirri and Tufano (1998), suggests that mutual funds with a below-average portfolio weight in a company have less incentive to expend resources on activism than funds with above average portfolio weights do (e.g., see Kahan and Rock (2007)). In other words, a given fund has a stronger incentive to provide governance if the benefits of this governance accrue disproportionally to the fund itself and not to the fund's competitors. Funds generally either have zero ownership in a stock, or ownership greater than the unconditional average. Nonetheless, in our sample, 15% of fund-vote observations have portfolio weights smaller than the average portfolio weight in that same stock held by other funds in the same investment-style category,[25] a source of variation that enables us to test this hypothesis.

We create an indicator variable *MF weight below MF-Style weight* (set to one if the fund's portfolio weight in a stock is below the unconditional average across other funds of the same investment style at the time, and set to zero otherwise) and use it as an interaction term in our baseline two-way fixed effect logit model from Table 2. Specifically, in column (2) of Table 4 we

[24] In a logit model estimated using votes on all proposals that only includes *CapitalGain* with no interaction with *HighDC* (i.e., the analog of column (1) of Table 2), the coefficient on *CapitalGain* is 0.014, significant at the 1% level.
[25] Mutual funds are assigned to one of nine style-categories based on the rankings of the average market capitalization and average book-to-market ratio of their holdings.

extend Equation (4) to include interactions of *MF weight below MF-Style weight* with *CapitalGain* and *CapitalGain* × *HighDC.* This logit regression features coefficients of 0.349 on *CapitalGain* and –0.449 on *CapitalGain* × *HighDC* (the strong lock-in effects for funds with above-average portfolio weights in a stock), and, regarding the interaction terms, the coefficients are –0.207 on *CapitalGain* × *MF weight below MF-Style weight* and 0.221 on *CapitalGain* × *HighDC* × *MF weight below MF-Style weight*.[26]

These results confirm our conjecture: when the fund has a low allocation relative to its competitors, there is a substantially reduced relation between fund voting and capital gains overhang (i.e., the coefficient on *CapitalGain* × *MF weight below MF-Style weight* is significantly negative). However, because the lock-in effect on governance should be driven by funds with tax-sensitive investors (*HighDC* = 0) more than by funds with tax-insensitive investors (*HighDC* = 1), the mitigation of that tax-effect should also be stronger (i.e., more negative) for funds with tax-sensitive investors. Therefore, we predict and, indeed, find a positive coefficient on the triple interaction *CapitalGain* × *HighDC* × *MF weight below MF-Style weight*. Thus, funds' opposition to management on contentious votes is influenced by whether the fund will benefit more than its competitors if the stock rises in value. This strategic voting provides further evidence that tax lock-in affects mutual fund activism and is consistent with funds viewing these governance actions as value-enhancing, as they are more likely to engage in them when their portfolio weight in the stock exceeds that of their competitors.

3. Support, Oppose, or Exit: A Multinomial Logit Approach

The dependent variable in the previous section is an indicator variable that contrasts two choices – conditional upon holding the stock at the time of the vote, the fund can either support or oppose management. Relating this governance choice to the accrued capital gain that a fund has in a stock holding is the key specification of the paper. However, a fund can also decide simply to exit a position before the contentious vote occurs. Thus, an alternative specification, presented in this section, is to model the dependent variable as a choice among three alternatives: sell, stay and support management, or stay and oppose management. In this framework, the sample includes all fund holdings at the end of the quarter before a vote. We define sell (i.e., exit) as the complete

[26] All of these coefficients are statistically significant at the 1% level.

liquidation of the stock before the vote (i.e., in the time period from the start of the quarter until the date of record for voting in the shareholder meeting). For those funds that continue to hold the stock until the vote, we measure whether the fund supports or opposes management (as in Section 2).

We use a multinomial logit model to test the relation between the choice among these three alternatives and accrued capital gains. This approach, therefore, unites the results presented in Appendix Table 1 (relating sale propensity and accrued capital gains) and in Section 2 (relating opposing management and accrued capital gains), thereby simultaneously exploring the full range of choices available to the funds. The covariates are the same as in Table 2, and the specification includes both vote and fund-quarter fixed effects, as well as indicator variables for the number of quarters the fund has held the stock. We use the method of Chamberlain (1980) to control for the vote and fund-quarter fixed effects.[27] The multinomial logit model also provides a robustness test of the logit results presented in the prior section, in that we can test if those results were biased by conditioning on the fund holding the stock at the time of the vote (i.e., not having exited before the vote).

Table 5 presents the multinomial logit results. In Panel A, the key independent variable is *CapitalGain.* In Panel B, we add the interaction term *CapitalGain* × *HighDC*. For both panels, the first column shows results for the *Sell* decision and the second column shows results for the *OpposeManagement* decision. Continuing to hold the stock and supporting management is the excluded category. The *z*-scores are based on standard errors clustered by fund-quarter. The number of observations increases relative to Table 2 because the sample now includes fund-vote combinations for which the fund sells the stock before the vote. The unconditional probabilities of the three outcomes across all fund-quarter observations are: 6% probability of exit before the vote, 44% probability of holding the stock and supporting management, and 50% probability of holding the stock and opposing management.[28]

The results displayed in Table 5 are consistent with our earlier results.[29] Column (1) of Panel A shows that higher accrued capital gains in a stock holding are associated with a lower

[27] Charbonneau (2013) provides details on implementing Chamberlain (1980) in a model with multiple fixed effects.

[28] At first glance, the 6% probability of exiting before the vote seems inconsistent with the 11% probability of liquidating a stock holding over the subsequent quarter reported in footnote 16. However, across all observations in the multinomial logit model, 32% of the votes are in the first month of a quarter, 52% are in the middle month, and 16% are in the last month. Thus, the timeframe over which a stock can be sold before a vote is often only one or two months (as opposed to a full quarter).

[29] The coefficients in columns (2) and (4) of the multinomial specification are very similar to the coefficients of the logit specification in Table 2, suggesting that the assumption of independence of irrelevant alternatives is appropriate. Nonetheless, we

probability that the fund sells the stock (relative to the probability of supporting management). Column (2) shows that higher accrued capital gains are associated with a higher probability that the fund opposes management (again, relative to the probability of supporting management). Panel B of Table 5 includes an interaction term between accrued capital gains and an indicator variable for funds with a high proportion of defined contribution retirement plan assets (tax-insensitive funds). The results show that, as the accrued capital gain increases: (1) the probability of sale decreases, but the effect is weaker for the tax-insensitive funds; and (2) the probability of opposing management increases, but not for the tax-insensitive funds. Thus, our empirical results suggest that it is the funds with the weakest threat of exit (funds with high accrued capital gains in a stock holding and tax-sensitive investors) that are most likely to engage in one particular form of voice (voting against management).

Thus, in our setting, "exit" (i.e., the sale of a stock holding prior to a contentious vote) and "voice" (i.e., holding the stock and opposing management) seem to be substitutes. This result is consistent with papers such as Coffee (1991), Bhide (1993), and Kahn and Winton (1998), which define voice as active intervention (e.g., takeovers, proxy fights, or voting). In these studies, liquidity and voice are substitutes, with greater liquidity reducing intervention. These studies align closely with our empirical design, as the voting on contentious proposals we examine is a form of active intervention. Also, as mentioned in the introduction, our empirical design focuses on how the accrued gains of stocks already held by the mutual fund affect governance decisions. Therefore, we are not testing the theories that focus on whether liquidity attracts investors to accumulate blocks of shares in the first place. In our setting, the "liquidity" of a fund's holding is exogenously given to the investor *ex post* (through a combination of the stock purchased by the fund doing well and the fund's investors having a tax consequence if this capital gain were realized) and is not a characteristic identifiable *a priori*. Our finding that, conditional on already owning the stock, tax-induced illiquidity leads mutual funds to provide governance is consistent with the Edmans, Fang, and Zur (2013) result that, conditional on an institution already owning a block of shares, liquidity decreases the probability of active intervention.

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formally test this assumption using the Small and Hsiao (1985) test of the multinomial logit models in Table 5. The χ^2 value for excluding *Sell Stock* is 22.0 (*p*-value of 0.47) in Panel A and 28.5 (*p*-value of 0.16) for Panel B. The χ^2 value for excluding *Hold and Oppose Management* is 20.2 (*p*-value of 0.57) in Panel A and 11.8 (*p*-value of 0.96) for Panel B. Thus, we find support for the appropriateness of our modeling choice, as we cannot reject the assumption of independence of irrelevant alternatives.

To assess the economic magnitude of the multinomial logit regressions, we estimate the changes in likelihood of a fund's decision associated with a one standard-deviation increase in accrued capital gains in stock holding (σ_{CG} = 0.68 or 68%; Table 1). Figure 2 summarizes these marginal effects, evaluated at the sample average. Based on the coefficient estimates from Panel A of Table 5, the change in likelihood of selling the stock associated with a one standard-deviation increase in accrued capital gains is –1.1 percentage points,[30] the change in likelihood of continuing to hold the stock and supporting management is –0.5 percentage points,[31] and the change in likelihood of continuing to hold the stock and opposing management is 1.6 percentage points.[32] Consistent with the tax lock-in hypothesis and the results from the previous section, the effects are much stronger for the funds with more tax-sensitive investors (Panel B). In that subsample, as also shown in Figure 2, the change in likelihood of selling the stock is –2.8 percentage points (a 46% reduction relative to the unconditional probability of 6%), the change in likelihood of continuing to hold the stock and supporting management is –3.4 percentage points (an 8% reduction relative to the unconditional probability of 44%), and the change in likelihood of continuing to hold the stock and opposing management is 6.2 percentage points (a 12% increase relative to the unconditional probability of 50%).

TABLE 5 ABOUT HERE

FIGURE 2 ABOUT HERE

4. Tangible Effects of Tax-Motivated Mutual Fund Voting Behavior

In the prior sections, we analyzed the choices individual mutual funds made among exiting, supporting management, or opposing management on a given proposal. That framework enabled us to control for vote-specific fixed effects as well as fund-quarter fixed effects. Thus, we identified the effect of capital gains lock-in on fund voting by exploiting differences across funds in both the accrued capital gains since purchase in a given stock as well as the tax status of the funds' investors

[30] The change in likelihood of selling the stock is calculated as follows:
$\sigma_{CG} \cdot (Pr_{Sell} \cdot (\beta_{Sell} - (\beta_{Sell} \cdot Pr_{Sell} + \beta_{Oppose} \cdot Pr_{Oppose}))) = 0.68 \cdot (0.06 \cdot (-0.265 - (-0.265 \cdot 0.06 + 0.062 \cdot 0.5))) = -0.011$ or –1.1%.
[31] The change in likelihood of continuing to hold the stock and supporting management is calculated as follows:
$\sigma_{CG} \cdot (Pr_{Support} \cdot (\beta_{Support} - (\beta_{Sell} \cdot Pr_{Sell} + \beta_{Oppose} \cdot Pr_{Oppose}))) = 0.68 \cdot (0.44 \cdot (0 - (-0.265 \cdot 0.06 + 0.062 \cdot 0.5))) = -0.005$ or –0.5%.
[32] The change in likelihood of continuing to hold the stock and opposing management is calculated as follows:
$\sigma_{CG} \cdot (Pr_{Oppose} \cdot (\beta_{Oppose} - (\beta_{Sell} \cdot Pr_{Sell} + \beta_{Oppose} \cdot Pr_{Oppose}))) = 0.68 \cdot (0.5 \cdot (0.062 - (-0.265 \cdot 0.06 + 0.062 \cdot 0.5))) = 0.016$ or 1.6%.

(while simultaneously controlling for a fund's underlying tendency to oppose or support management).

In this section, we turn to exploring broader, tangible effects of the tax-motivated voting behavior of mutual funds in terms of actual vote outcomes, the presence of a contentious proposal on the meeting agenda, the stock market reaction to contentious proposals, and fund flows. We find evidence that the governance lock-in effect has economically substantive effects on all four outcomes. That is, the governance lock-in effect has tangible consequences for both the firms held by mutual funds and the funds themselves. Because the unit of observation in these analyses is at the vote-level, meeting-level, or fund-level, we necessarily need to relax some of the precision of our identification strategy because we can no longer control for some types of fixed effects. For example, vote-level regressions no longer can include vote-level fixed effects (which absorbed all firm characteristics that may influence whether a fund would oppose or support management). Nonetheless, these specifications provide useful evidence on the importance of this governance channel for mutual funds with taxable investors and, at a minimum, suggest that this governance channel has tangible effects on the firms held by the affected funds, as well as on the funds themselves.

A. Aggregate Capital Gains Lock-In and Vote Outcomes

The mutual fund-vote level analyses in Sections 2 and 3 are not suited to determine whether the effect of tax lock-in on voting is sufficiently large to influence *actual vote outcomes*. Answering that question requires analyses at the vote level. In Table 6, we examine whether the total amount of accrued capital gains held by all mutual fund investors in a firm's stock predicts whether the firm's management will lose a contentious vote (which occurs 24% of the time). The dependent variable in this analysis, *ManagementLosesVote*, is an indicator variable set to one if management actually loses a contentious vote (i.e., a vote in which the recommendations of ISS and management differ), and set to zero if management wins. The key explanatory variable, *MF Capital Gain % of Market Cap*, is the aggregate dollar value of capital gains held by mutual funds in the firm's stock normalized by the firm's total market capitalization.[33] It quantifies how

[33] The variable *MF Capital Gain % of Market Cap* has a mean of 0.006 (i.e., the aggregate capital gains held by mutual funds represent 0.6% of a firm's value), with a 75th percentile of 0.020 and a 90th percentile of 0.040, and a standard deviation of 0.033.

important the aggregate lock-in effect for mutual funds is for a particular firm and, thus, how influential it should be in determining the vote outcome.

Besides *MF Capital Gain % of Market Cap*, we also include the value-weighted average holding period of mutual funds (*VW Average MF Holding Period*), the share of the firm's stock owned by mutual funds (*MF % of Firm Owned*), and the value-weighted average capital gain in a stock by mutual funds (*VW MF Average Capital Gain*) – the product of these last two variables equals *MF Capital Gain % of Market Cap*. The inclusion of these additional aggregate mutual fund shareholder variables in the regression helps us test whether it is really the presence of large accrued capital gains that drives vote outcomes, as opposed to other characteristics of mutual fund shareholders in the firm. Finally, the regressions in Table 6 also include various controls for firm-level and proposal-level characteristics (all of which were absorbed by the fixed effects in our earlier analyses). Specifically, we include lagged 3-month and lagged 12-month stock returns, log(market capitalization), book-to-market ratio, leverage ratio, cash flow-to-assets, capital expenditure-to-assets, S&P 500 membership, the G-Index of Gompers, Ishii, and Metrick (2003), institutional ownership percentage, percent of the company owned by the top five executives, indicator variables for management sponsored proposals and for director elections, and quarter fixed effects.[34]

The coefficient on *MF Capital Gain % of Market Cap* of 4.531, presented in column (1) of Table 6, is positive and is both statistically and economically significant. For example, evaluated at the sample mean, a one standard-deviation increase in *MF Capital Gain % of Market Cap*, (0.033), is associated with a 2.7 percentage-point increase in the likelihood that management loses the vote ($0.033 \times 0.24 \times 0.76 \times 4.531 = 0.027 = 2.7\%$), an 11% increase relative to the unconditional probability of losing the vote (24%). Moreover, the coefficient on *MF Capital Gain % of Market Cap* is obtained while also controlling for the value-weighted holding period of mutual funds, the share of the firm's stock owned by mutual funds, and the value-weighted average capital gain in a stock by mutual funds.[35] Thus, the tax lock-in effect affects not only individual mutual fund voting decisions, but also the actual vote outcomes.

[34] These control variables follow from Matvos and Ostrovsky (2010), Morgan, Poulsen, Wolf, and Yang (2011), and Iliev and Lowry (2015), among others.

[35] We also estimated a version of the specification in column (1) of Table 6 in which we do not include these other mutual fund shareholder variables. In that specification, the coefficient on *MF Capital Gain % of Market Cap* is 4.715, which is very similar to the coefficient of 4.531 from column (1), and it is still highly significant. The similarity of these coefficients is not surprising, given the trivial magnitudes of the coefficients on these other mutual fund shareholder variables in Table 6. Thus, it really is the amount of accrued capital gains aggregated across mutual funds as a whole that affects vote outcomes.

For brevity, the coefficients for the other controls are suppressed from Table 6. The complete table is provided as Appendix Table 2. Other controls generally have the expected signs. The coefficient on the prior 3-month return is particularly noteworthy; although high accrued gains by mutual fund investors predicts management is more likely to lose the vote, a higher prior 3-month return predicts management is more likely to win.

In column (2) of Table 6, we split the four mutual fund shareholder variables into aggregates for the *HighDC* mutual funds and for the *LowDC* mutual funds (i.e., for each vote-level observation we create separate aggregated variables for all mutual funds whose proportion of assets held by retirement funds is above and below the sample median, respectively). For example, *MF Capital Gain % of MktCap by HighDC* is the accrued gains aggregated across all funds with a primarily tax-insensitive clientele (normalized by firm market value), whereas *MF Capital Gain % of MktCap by LowDC* is the analogous variable constructed for the funds with a tax-sensitive clientele. The *p*-value, reported below the coefficients of these two variables, gives the significance of the difference between these two coefficients.

If tax lock-in really influences vote outcomes, the coefficient on *MF Capital Gain % of MktCap by LowDC* should be larger than the coefficient on *MF Capital Gain % of MktCap by HighDC.* This is exactly what we find. In column (2) of Table 6, the coefficient on *MF Capital Gain % of MktCap by LowDC* is a highly significant 19.723, while the coefficient on *MF Capital Gain % of MktCap by HighDC* is a much smaller and statistically insignificant 2.479. Moreover, the difference between the two is significant at the 10% level (*p*-value = 0.071).

TABLE 6 ABOUT HERE

B. Presence of a Contentious Proposal on Meeting Agenda

McCahery, Sautner, and Starks (2015) survey institutional investors, including mutual funds, and report the prevalence of various exit and voice actions taken by these investors. The single most common action is having discussions with a firm's top management to improve corporate governance (reported by 63% of asset managers), while 53% report actually voting against management (the second most common action). As McCahery, Sautner, and Starks conclude (2015, p. 8), "Our findings of the widespread use of private discussions support the view that investors first try to engage firms behind the scenes through direct negotiations, and take public measures (e.g., shareholder proposals, public criticism) only after private interventions have

failed." The conclusion that private engagement of institutional investors with management is an important factor shaping a firm's governance is consistent with the evidence presented in Carleton, Nelson, and Weisbach (1998), Becht, Franks, Mayer, and Rossi (2009), and Dimson, Karakas, and Li (2015).

Thus, the expectation of an action can sometimes constrain a firm's management to the point at which the action becomes unnecessary. As we discussed in Section 4.A, the aggregate accrued capital gains of the mutual funds holding a firm's stock predicts management losing a contentious vote. Although we cannot observe private communications between locked-in mutual funds and a firm's management, we can observe the ultimate composition of the proposals voted on at a shareholder meeting. Therefore, we can test whether the presence of locked-in mutual fund investors deter some agency conflicts from arising by affecting whether a contentious proposal is included on the meeting agenda in the first place.

Table 7 shows the results of this analysis. *ContentiousVoteHeldAtMeeting* is an indicator variable set to one if there are any contentious proposals on the agenda of a particular meeting, and is set to zero otherwise (thus, this variable is measured at the firm-meeting level). We construct this variable using data from the full Voting Analytics database and find that 39% of shareholder meetings have at least one contentious proposal (defined as one in which the ISS and management voting recommendations differ). We include the same aggregate mutual fund investor variables and the same firm-level controls as in Table 6 (because the unit of observation is now at the firm-meeting level, the regressions do not include any proposal-specific variables); once again, the coefficients associated with the other controls are suppressed from the table, but are reported in Appendix Table 3.

The negative and statistically significant coefficient of –3.182 on *MF Capital Gain % of Market Cap*, presented in column (1) of Table 7, suggests that the aggregate accrued capital gains of mutual fund investors indeed deter contentious proposals from appearing on the firm's meeting agenda. This effect is economically substantive as well, with a one-standard-deviation increase in *MF Capital Gain % of Market Cap* associated with a 2.5 percentage point decrease in the likelihood a contentious proposal appears on the meeting agenda ($0.033 \times 0.39 \times 0.61 \times (-3.182) = -0.025 = -2.5\%$). The value-weighted holding period of mutual fund shareholders, the share of the firm's stock owned by mutual funds, and the value-weighted average capital gain of mutual

fund shareholders have no effect on the presence of contentious proposals; the only variable that matters is the aggregate amount of the accrued capital gains held by mutual funds.

In column (2), we test whether the effect of locked-in gains by mutual fund shareholders differs for funds with tax-sensitive versus tax-insensitive clienteles. This is indeed the case. The coefficient on *MF Capital Gain % of MktCap by LowDC* is –12.492 (highly statistically significant), compared to the coefficient on *MF Capital Gain % of MktCap by HighDC* of only –2.203 (statistically insignificant), with the difference between the two effects just missing conventional levels of statistical significance with a *p*-value of 0.12.

We reiterate that, because we examine the outcomes of contentious votes and the presence of contentious votes on the meeting agenda, we cannot include vote-level fixed effects in these specifications. This was a key to our identification strategy of the tax lock-in effect earlier in the paper as we examined the voting behavior of individual mutual funds. Thus, we need to be more cautious in making causal interpretations of the coefficients from Tables 6 and 7. Nonetheless, any alternative explanation of the vote outcome and meeting agenda regressions must also be consistent with the finding in column (2) of each table; vote outcomes and the presence of a contentious proposal on the meeting agenda are significantly related to the aggregate accrued capital gains held by funds with tax-sensitive investors, but not to the gains held by funds with tax-insensitive investors. The significant positive relation between management losing a contentious vote and the aggregate accrued capital gains of mutual funds, particularly for the accrued gains held by funds with tax-sensitive clients, is certainly suggestive, and it complements our earlier results. Further, the analysis in Table 7 suggests that the presence of locked-in mutual funds not only influences vote outcomes, but also plays a role in deterring agency conflicts from even arising, perhaps through the private discussions with management documented in McCahery, Sautner, and Starks (2015).

C. Stock Market Reaction before a Contentious Vote

It is unlikely that management or investors attempt to ascertain other investors' tax lock-in and consider how it will affect voting. Instead, locked-in investors can participate in pre-vote communication, which, in turn, may affect other investors' expectations about the likelihood that management will lose an upcoming vote. Indeed, Alexander, Chen, Seppi, and Spatt (2010, p. 4424) point out that "ISS and Glass Lewis often host public conference calls at which opposing

sides in proxy contests can present their arguments." This suggests a mechanism through which the market can infer how capital gains lock-in affects the likelihood that management will lose a contentious vote, thus allowing the market to price in the effect before the vote.

Numerous prior studies use ISS recommendations as a proxy for value-increasing voting recommendations (Bethel and Gillian (2002); Morgan, Poulsen, and Wolf (2006); Cotter, Palmiter, and Thomas (2010); Morgan, Poulsen, Wolf, and Yang (2011)). Alexander, Chen, Seppi, and Spatt (2010) support this choice, as they find that an ISS recommendation to vote against management is accompanied by a positive return for the week leading up to and including the ISS announcement. Their interpretation is that the stock market views ISS opposition to management in these cases as good news. If the market generally views these ISS recommendations as value-enhancing, and given the results in Table 6 showing management is more likely to lose when the aggregate accrued capital gains of mutual funds is high, there should be a positive relation between stock returns and *MF Capital Gain % of Market Cap* around the ISS announcement opposing management.

In Table 8, we study stock returns before contentious votes (votes for which the ISS recommendation opposes management). Specifically, based on the work of Alexander, Chen, Seppi, and Spatt (2010), we examine stock returns over the three-week period before a contentious vote (–15 to –1 trading days) to evaluate the announcement effect of the ISS recommendation.[36] This window should fully measure the stock market's reaction to the ISS announcement. We express these stock returns as cumulative abnormal returns (CARs), calculated as the differences between daily stock returns and the corresponding Carhart four-factor model expected returns, summed over the interval from –15 to –1 trading days before the contentious vote. We relate these CARs to the aggregate mutual fund capital gains in the stock, scaled by the stock's market capitalization (*MF Capital Gain % of Market Cap*). Because higher *MF Capital Gain % of Market Cap* implies a higher probability of opposing management, if the market believes that, on average, opposing management under these circumstances is value-enhancing for the firm, there should be a positive relation between pre-vote CARs and *MF Capital Gain % of Market Cap*. Further refining

[36] Alexander, Chen, Seppi, and Spatt (2010, p. 4424) hand-collect 170 ISS recommendations and observe that "A vote recommendation is issued … privately to institutional clients one to two weeks before a scheduled vote. In contested elections, one or both of the contestants typically issue public press releases (within a few days of the original report) either responding to or touting a vote recommendation." When evaluating the announcement effect of ISS recommendations, these authors examine the period one week before to one day after the ISS announcement. Because of the large sample of ISS recommendations and votes we consider, we simply examine stock returns over the three-week period [–15, –1] before a vote occurs.

this hypothesis, this positive relation should be even stronger among funds with primarily taxable clientele (i.e., *MF CG % MktCap Low DC*).

We report the results of these regressions in Table 8. All the specifications reported in the table include controls for recent stock performance, namely lagged 3-month and lagged 12-month stock returns. The first two columns include the 10,192 contentious proposals examined in Table 6. Of course, some contentious votes will be closer than others. For the votes expected to be close, the presence of mutual funds with accrued capital gains in the firm's stock should be particularly important in determining whether management loses the vote. Therefore, we also consider how the aggregate accrued capital gains held by mutual funds affect pre-vote stock returns for votes that turn out to be close. Specifically, we also report the results estimated over the subsample of 778 votes (326 votes) that are within +/–10 percentage points (+/–5 percentage points) of the passing threshold.

As shown in column (1) of Table 8, the coefficient on *MF Capital Gain % of Market Cap* is positive and significant. A one standard-deviation increase in *MF Capital Gain % of Market Cap* (0.033) is associated with a 33 basis-point increase in CARs (0.099 × 0.033 = 0.0033) in the pre-vote, ISS announcement window. As predicted, the effects are stronger for votes that are more in doubt (at least *ex post* they were close votes). For example, the coefficient on *MF Capital Gain % by Market Cap* in column (5) implies that a one standard-deviation increase in aggregate accrued capital gains is associated with a 75 basis-point increase in CARs (0.226 × 0.033 = 0.0075) for the sample of votes that ultimately were within +/–5 percentage points of the passing threshold.

The even columns in Table 8 make clear that this effect on the stock returns during the ISS announcement window is driven by the aggregate capital gains of funds with a predominantly taxable clientele. For example, in the sample of all contentious votes displayed in column (2), the coefficient on aggregate capital gains in a stock held by mutual funds with more taxable clientele (*MF CG % MktCap Low DC*) is a highly significant 0.403, while the coefficient on aggregate capital gains in a stock held by mutual funds with less taxable clientele (*MF CG % MktCap High DC*) is a much smaller and insignificant 0.037. Moreover the difference between the two coefficients is significantly different at the 10% level (p-value = 0.089). In column (4), focusing on the contentious votes that were *ex post* settled by a margin within 10 percentage of the passing threshold, the coefficient on *MF CG % MktCap Low DC* is a highly significant 0.879 (almost four times the baseline coefficient on *MF Capital Gain % by Market Cap* of 0.221), while the

coefficient on *MF CG % MktCap High DC* is 0.110 (statistically insignificant); in this case, the difference between the two coefficients just misses conventional statistical significance levels (*p*-value = 0.115). Finally, in column (6), focusing on contentious votes that were *ex post* settled by a margin of within 5 percentage points of the passing threshold, the coefficient on *MF CG % MktCap Low DC* is 1.221 (although not significant at conventional levels), while the coefficient on *MF CG % MktCap High DC* is –0.032.

Thus, in the 15 trading days leading up to a contentious vote (which likely include the reaction window to the announcement of ISS recommendation), the stock market reaction is more positive if mutual funds hold a relatively large percentage of the firm's market capitalization in the form of accrued capital gains. This effect on stock returns is also larger if the accrued capital gains are all held by funds with tax sensitive investors and if the vote turns out to be *ex post* close. These results provide further supportive evidence of a tax lock-in induced channel of mutual fund activism.

D. Mutual Fund Governance Choices and Fund Flows

Finally, we consider whether current and prospective investors view mutual fund activism (as measured by recent opposition to firm management on contentious votes) as a desirable trait that is rewarded with higher net flows to the fund. Such a finding would provide evidence of a tangible benefit to the fund from the lock-in induced opposition to management documented in this paper.

To disentangle the effect of opposition to management from a host of other determinants of fund flows, we relate monthly fund flows over the period 2004 to 2008[37] to a broad range of covariates (Table 9). Similar to Bergstresser and Poterba (2002), we regress monthly net fund flows[38] on variables related to fund tax efficiency (*Capital Gain Realized %* and *Tax Burden*), the variable *Fund Vote Against Management %* (defined as the percentages of contentious proposals in which the fund voted against management during the past four quarters), fund performance over the past 12 months in both absolute and relative terms (*Pre-Tax Return*, *Top 20% Style Return*, *Bottom 20% Style Return*), and other controls: ln(TNA), ln(fund age), fund overhang, expense

[37] Our sample of monthly net flows spans 2004 to 2008, reflecting that our sample of contentious votes spans the period from 2003 to 2008 and that the fund's voting record over the past four quarters is included as an explanatory variable.

[38] Fund *i* net flows for month *t* are calculated using data from the fund's NSAR filing as: $Flow_{i,t}$ = \$Net Flows$_{i,t}$ / $TNA_{i,t-1}$, where *TNA* is the total net assets of fund *i* at time *t*–1.

ratio, indicator variables for front-end and back-end loads, fund turnover, and both fund-style and date fixed effects. The reported *t*-statistics are based on standard errors clustered by fund.

Capital Gain Realized % and *Tax Burden*, capture capital gains realizations in the recent past. *Capital Gain Realized %*, expressed in percentages, is featured in the first two columns of Table 9. It is defined as:

$$\frac{\$\,Long-Term\ CG\ Realized_{t-1,t}}{TNA_{t-1}}+\frac{\$\,Short-Term\ CG\ Realized_{t-1,t}}{TNA_{t-1}} \tag{5}$$

Tax Burden of capital gains, which takes into account different long- and short-term capital gains tax rates, is featured in the last two columns of Table 9. It is defined as:

$$\begin{aligned} 0.15\times\frac{\$\,Long-Term\ CG\ Realized_{t-1,t}}{TNA_{t-1}}+0.35 \\ \times\frac{\$\,Short-Term\ CG\ Realized_{t-1,t}}{TNA_{t-1}} \end{aligned} \tag{6}$$

The first and the third columns of Table 9 present specifications akin to Bergstresser and Poterba (2002). The second and the fourth columns of the table add the variable *Fund Vote Against Management %*, which measures the fund's propensity to oppose management in contentious votes. As is well-known in the literature, there is a positive relation between net fund flows and relative fund performance, with highly pronounced nonlinearity in regard to recent winners (top quintile within-style performers over the past 12 months) and somewhat pronounced nonlinearity in regard to recent losers (bottom quintile within-style performers over the past 12 months). There is also a strong positive relation between net flows and past pre-tax returns on an absolute basis.

Consistent with Bergstresser and Poterba (2002), we also find that tax-inefficient funds have lower net fund flows. For example, both the percent of capital gains realized by the fund (columns (1) and (2)) and the tax burden the fund imposes on investors (columns (3) and (4)) are negatively correlated with fund flows. A one standard-deviation increase in the *Capital Gain Realized %* (0.050) is associated with a decrease in net flows of 0.25% of assets per month, while a one standard-deviation increase in the *Tax Burden* (0.009) is associated with a decrease in net flows of 0.20% of assets per month. To put these economic magnitudes into context, a fund in the top performance quartile enjoys net flows that are approximately 0.8% of net assets higher per month than the net flows to the funds in the middle three quintiles. This nontrivial cost in terms of

lower fund flows is consistent with our finding that mutual funds are more likely to realize losses than gains, with the capital gains induced lock-in ultimately affecting fund governance choices.

The positive and statistically significant coefficient on *Fund Vote Against Management %* suggests that investors may appreciate mutual funds that oppose management on contentious proposals. Assessing the economic magnitude of a one standard-deviation increase in the average propensity to oppose management (0.535) suggests an effect on net flows of 0.18% of assets per month.

In untabulated results, we also consider how fund alphas relate to funds' recent voting behavior (i.e., opposition to management on contentious votes over the prior four quarters), while controlling for fund characteristics similar to those used in the flow regressions. Perhaps consistent with Berk and Green (2004), while such opposition to management is associated with increased net future fund flows, it is unrelated to future fund alphas. The coefficient on *Fund Vote Against Management %* in the fund alpha regression is very small in magnitude and highly insignificant. For example, a one standard-deviation shift in the average propensity to oppose management suggests an effect on the fund alpha of only –0.01% per month.[39]

In sum, we find that opposition to management has a tangible effect for the funds themselves in terms of future fund flows. Controlling for the usual determinants of fund flows established in the literature, we find that the funds that have more frequently voted against management on contentious votes over the past four quarters have experienced greater future net fund flows, while funds that choose to exit positions with large capital gains, thus creating tax burdens for their investors, have experienced lower net fund flows.

5. Conclusion

Over the last thirty years, the share of U.S. equity held by mutual funds has grown drastically, accounting for roughly a third of total U.S. equity (French (2008)). This study investigates one channel that may influence the governance activities of this growing shareholder

[39] In this monthly fund alpha regression, alphas are calculated as follows: estimate the fund's Carhart model factor loadings using the preceding 36 months of returns; apply those factor loadings to the current month's factor returns to get the benchmark return (and add back the risk-free rate); and take the difference between the actual fund return and the Carhart benchmark return. We also find that, consistent with Iliev and Lowry (2015), funds that *always* voted with ISS against management on contentious votes during the past four quarters underperform those that neither always supported ISS nor always supported management by 0.043% per month on a risk-adjusted basis. Funds that always voted with management on contentious votes during the past four quarters also underperform those that neither always supported ISS nor always supported management by a 0.052% per month on a risk-adjusted basis.

group – the capital gains lock-in effect. In particular, we investigate whether the taxation of realized gains not only deters mutual funds from selling shares with accrued capital gains, but also whether these accrued gains make the funds more likely to oppose the firm's management on contentious votes.

Our empirical design is well-suited to answer this question. Capital gains lock-in varies across funds simply based on the fund's accrued gain and on the tax status of the fund's investors – thus, the magnitude of the capital gains lock-in varies across funds even for the *same* stock at the *same* time. Therefore, our identification comes from variation across investors in a given stock at a given time. To implement our identification strategy, we construct a rich data set that combines mutual fund holdings, their clientele (taxable and tax-deferred), and detailed voting data for proposals at the company meeting.

Consistent with prior studies, we find that there is a negative relation between a mutual fund's propensity to sell a stock and accrued capital gains on the stock, and that this relation is stronger for funds with more tax-sensitive investors. Given this tax-induced reluctance to sell, we next examine whether funds with higher accrued capital gains in a stock are more likely to oppose the company's management (in a sample of contentious votes). Simply put, given these locked-in funds are likely to continue to hold the stock, they could potentially benefit from monitoring the company. Relatedly, the tax lock-in effect may prompt the affected funds to continue holding a stock even if they are not enamored with the management, making them more likely to vote against management on contentious proposals relative to the funds not "forced" by taxes to be holding the stock at the time of a vote.

We find that funds with higher accrued capital gains in a stock are indeed more likely to oppose management in our sample of contentious votes. Our results further demonstrate that, consistent with a tax motivation, the relation between accrued capital gains and funds' voting decisions is stronger for funds with a high fraction of tax-sensitive investors. Consistent with funds weighing the costs and benefits of this tax lock-in induced opposition to a firm's management, this effect is mitigated if the fund family has a lot of retirement-plan business, the fund's portfolio weight in the firm's stock is small relative to its competitors, or the fund has sizeable losses elsewhere in its portfolio to offset gain realizations. We also find that opposition to management has a tangible benefit for the funds themselves in terms of future fund flows. Controlling for the usual determinants of fund flows, we find that the proportion of contentious votes for which the

fund opposed management over the past four quarters is associated with greater future net fund flows.

This paper documents a new avenue through which capital gains taxation influences the behavior of institutional investors. Huddart and Narayanan (2002), Cici (2012), and Sialm and Starks (2012) show that capital gains taxation affects mutual funds' trading decisions. We further find that capital gains lock-in not only reduces the likelihood that a fund will sell a stock, but also increases the likelihood that a locked-in fund will oppose the firm's management.

Finally, the effect of capital gains lock-in on voting has important implications for the firm, that is, the effects on mutual fund voting behavior at shareholder meetings are large enough to materially affect vote outcomes as well the type of proposals put up for vote on the meeting agenda. Specifically, the presence of accrued capital gains among mutual funds with taxable investors leads to a higher likelihood that management loses a vote and a lower likelihood of a contentious proposal being voted on at the meeting *in the first place*. In sum, our results show one determinant of corporate governance by mutual funds, operating through the tax-induced capital gains lock-in channel. As open-end mutual funds continue to own an increasingly larger fraction of total U.S. equities, their decisions regarding whether to exit, stay and support, or stay and fight a firm's management will be an increasingly important component of corporate governance.

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Table 1
Summary Statistics

This table contains summary statistics for the merged fund holding – Voting Analytics dataset over the sample period from 2003 to 2008, limited to the sample of votes in which the ISS recommendation does not equal the management recommendation (i.e., a sample of contentious votes). *OpposeManagement* is an indicator variable set to one if the mutual fund votes against the management recommendation (or withholds its vote) and set to zero if the fund votes to support management. *ManagementLosesVote* is an indicator variable set to one if management loses a contentious vote (i.e., a vote in which ISS and management offer differing recommendations) and set to zero if management wins the vote (measured at the vote-level). *ContentiousVoteHeldAtMeeting* is an indicator variable set to one if management has any contentious proposal to be voted on in a particular meeting and set to zero otherwise (measured at the firm-meeting level, typically once a year). This variable is calculated using the full sample of votes from Voting Analytics, determining for a given firm meeting whether the voting recommendations of ISS and management differ for any of the proposals. *CapitalGain* is the percentage accrued capital gain or loss of a mutual fund in a given stock holding since purchase, expressed in natural units (e.g., 0.34 = 34% and –0.61 = 61%). *CapitalGain – within Vote S.D.* is the standard deviation of *CapitalGain* across funds within each vote. *CapitalGain – within Fund-Quarter S.D.* is the standard deviation of *CapitalGain* across all stockholdings within each fund-quarter combination. *% Defined-Contribution Plan Investors* is the percentage of the fund owned by defined-contribution retirement plans.

	Mean	S.D.	1st %	10th %	25th %	50th %	75th %	90th %	99th %
Key Dependent Variables:									
OpposeManagement	0.53	0.50	0	0	0	1	1	1	1
ManagementLosesVote	0.24	0.43	0	0	0	0	0	1	1
ContentiousVoteHeldAtMeeting	0.39	0.49	0	0	0	0	1	1	1
Key Explanatory Variables:									
CapitalGain	0.34	0.68	–0.61	–0.17	–0.02	0.14	0.46	1.09	3.15
CapitalGain – within Vote S.D.	0.49	0.29	0.04	0.13	0.23	0.46	0.71	0.91	1.16
CapitalGain – within Fund-Quarter S.D.	0.51	0.31	0.01	0.16	0.27	0.45	0.69	0.95	1.33
% Defined-Contribution Plan Investors	29.1	20.7	0.9	5.6	10.3	27.1	40.6	61.4	80.8

Table 2
Propensity to Oppose Management, Accrued Capital Gains, and Tax Motivation

This table presents results of the logit models, described by Equations (3) and (4), in which we relate a mutual fund's voting decision for a stock to the fund's accrued capital gain or loss since purchase of the stock. The dependent variable is an indicator variable *OpposeManagement*, set to one if the mutual fund does not follow the management recommendation (either by voting against management or by withholding its vote) and set to zero if the mutual fund votes to support the management recommendation. This regression is estimated for funds holding the stock at the time of the shareholder meeting. *CapitalGain* is the accrued capital gain or loss since purchase of the stock. The regression in column (2), described by Equation (4), tests for the effects of a high presence of defined-contribution retirement accounts in the fund. *HighDC* is an indicator variable set to one if the proportion of fund assets held by retirement plans is above the median and set to zero otherwise. Direct effects of *HighDC* on *OpposeManagement* are absorbed by fund-quarter fixed effects. The sample includes all observations in the merged mutual fund holding – Voting Analytics dataset, covering the period from 2003 to 2008, in which the ISS recommendation for a proposal does not equal the management recommendation (i.e., a sample of contentious votes). Finally, ***, **, * denote significance at the 1%, 5%, and 10% levels, respectively, and *z*-scores are listed in square brackets below the point estimates (*z*-scores are based on standard errors clustered at the fund-quarter level).

	(1)	(2)
CapitalGain	0.070***	0.302***
	[4.58]	[7.15]
CapitalGain × *HighDC*		–0.440***
		[6.77]
Vote Fixed Effects?	Yes	Yes
Fund-Quarter Fixed Effects?	Yes	Yes
Length of Holding Period Fixed Effects?	Yes	Yes
Number of Observations	366,644	107,377

Table 3
Propensity to Oppose Management, Accrued Capital Gains, and Tax Motivation: Interactions

This table presents results of logit models in which we relate a mutual fund's voting decision for a stock to the fund's accrued capital gain or loss since purchase of the stock. The dependent variable is an indicator variable *OpposeManagement,* set to one if the mutual fund does not follow the management recommendation (either by voting against management or by withholding its vote) and set to zero if the mutual fund votes to support the management recommendation. *CapitalGain* is the accrued capital gain or loss since purchase of the stock. *HighDC* is an indicator variable set to one if the proportion of fund assets held by retirement plans is above the median and set to zero otherwise. *Low Overhang* is an indicator variable set to one for funds with a level of total accrued capital gains across all of their holdings that is below the median. *Short-Term* is an indicator variable set to one if the capital gains are short-term (less than a year) and thus taxed at a higher rate (roughly a third of fund-quarter observations). *High Turnover* is an indicator variable set to one if the fund's turnover rate is above the sample median. *High Family DC* is an indicator variable set to one if the fund's family has an above the median level of defined contribution business in terms of the percent of its total assets under management held by DC plans. Columns (1) through (4) include interactions of *Low Overhang, Short-Term, High Turnover,* and *High Family DC* with *CapitalGain* and *CapitalGain* × *HighDC*, respectively. Column (5) includes all four sets of interactions. Direct effects and interactions of *HighDC, Low Overhang, High Turnover,* and *High Family DC* on *OpposeManagement* are absorbed by fund-quarter fixed effects. This regression is estimated for funds holding the stock at the time of the shareholder meeting. The sample includes all observations in the merged mutual fund holding – Voting Analytics dataset, covering the period from 2003 to 2008, in which the ISS recommendation for a proposal does not equal the management recommendation (i.e., a sample of contentious votes). Finally, ***, **, * denote significance at the 1%, 5%, and 10% levels, respectively, and *z*-scores are listed in square brackets below the point estimates (*z*-scores are based on standard errors clustered at the fund-quarter level).

Table 3 (Continued)

	(1)	(2)	(3)	(4)	(5)
CapitalGain	0.406***	0.390***	0.415***	0.545***	0.716***
	[7.77]	[9.10]	[7.71]	[7.59]	[7.28]
CapitalGain × HighDC	–0.526***	–0.483***	–0.517***	–0.413***	–0.559***
	[6.95]	[7.36]	[6.56]	[3.64]	[4.09]
CapitalGain × Low Overhang	–0.236***				–0.111
	[2.81]				[1.40]
CapitalGain × HighDC × Low Overhang	0.272***				0.242**
	[2.57]				[2.38]
CapitalGain × Short-Term		0.775***			0.702***
		[5.17]			[4.14]
CapitalGain × HighDC × Short-Term		–0.496***			–0.356
		[2.39]			[1.60]
CapitalGain × High Turnover			–0.193***		–0.381***
			[2.42]		[3.73]
CapitalGain × HighDC × High Turnover			0.130		0.226*
			[1.26]		[1.88]
CapitalGain × High Family DC				–0.642***	–0.750***
				[6.81]	[6.75]
CapitalGain × HighDC × High Family DC				0.269***	0.358**
				[2.09]	[2.55]
Vote Fixed Effects?	Yes	Yes	Yes	Yes	Yes
Fund-Quarter Fixed Effects?	Yes	Yes	Yes	Yes	Yes
Length of Holding Period Fixed Effects?	Yes	Yes	Yes	Yes	Yes
Number of Observations	107,377	107,377	107,377	83,936	83,936

Table 4
Additional Robustness Tests

This table presents results of logit models in which we relate a mutual fund's voting decision for a stock to the fund's accrued capital gain or loss since purchase of the stock. The dependent variable is an indicator variable *OpposeManagement*, set to one if the mutual fund does not follow the management recommendation (either by voting against management or by withholding its vote) and set to zero if the mutual fund votes to support the management recommendation. These regressions are estimated for funds holding the stock at the time of the shareholder meeting. *CapitalGain* is the accrued capital gain or loss since purchase of the stock. *HighDC* is an indicator variable set to one if the proportion of fund assets held by retirement plans is above the median and set to zero otherwise. *MF weight below MF-Style weight* is an indicator variable set to one if the fund's portfolio weight in a stock is below the unconditional average across other funds of the same investment style at the time. Mutual funds are assigned to one of nine style-categories based on the rankings of the average market capitalization and average book-to-market ratio of their holdings. In column (1), rather than examine contentious votes only, the sample includes mutual fund votes on all proposals in the Voting Analytics database. Column (2) includes interactions of *MF weight below MF-Style weight* with *CapitalGain* and *CapitalGain* × *HighDC*, respectively, for our baseline sample of contentious votes. This regression is estimated for funds holding the stock at the time of the shareholder meeting. In both columns, the data from the merged mutual fund holding – Voting Analytics dataset covers the period from 2003 to 2008. Finally, ***, **, * denote significance at the 1%, 5%, and 10% levels, respectively, and *z*-scores are listed in square brackets below the point estimates (*z*-scores are based on standard errors clustered at the fund-quarter level).

	(1)	(2)
CapitalGain	0.066***	0.349***
	[9.10]	[9.49]
CapitalGain × *HighDC*	–0.151***	–0.449***
	[15.87]	[7.54]
CapitalGain × *MF weight below MF-Style weight*		–0.207***
		[3.11]
CapitalGain × *HighDC* × *MF weight below MF-Style weight*		0.221***
		[3.11]
Sample	All Proposals	Contentious Proposals
Vote Fixed Effects?	Yes	Yes
Fund-Quarter Fixed Effects?	Yes	Yes
Length of Holding Period Fixed Effects?	Yes	Yes
Number of Observations	716,343	107,377

Table 5
Multinomial Logit Analyses of Exit/Voting Decisions

This table presents results of multinomial logit models in which the dependent variable has three alternatives – sell the stock, continue to hold the stock and support management (the excluded category), or continue to hold the stock and oppose management. The independent variables are the same as in Table 2. A fund is classified as holding and opposing management if the fund continues to hold the stock and either votes against the management recommendation or withholds its vote. *CapitalGain* is the accrued capital gain or loss since purchase of the stock. *HighDC* is an indicator variable set to one if the proportion of fund assets held by defined-contribution retirement plans is above the median and set to zero otherwise. Panel A displays estimates from a multinomial logit model without any interaction terms; Panel B displays estimates from a model with an interaction between *CapitalGain* and *HighDC*. Each specification includes vote fixed effects, fund-quarter fixed effects, and length of holding period fixed effects for the number of quarters that the fund has held the stock. The sample includes all observations in the merged mutual fund holding – Voting Analytics dataset, covering the period from 2003 to 2008, in which the ISS recommendation for a proposal does not equal the management recommendation (i.e., a sample of contentious votes). Finally, ***, **, * denote significance at the 1%, 5%, and 10% levels, respectively, and *z*-scores are listed in square brackets below the point estimates (*z*-scores are based on standard errors clustered at the fund-quarter level).

	Panel A: No interaction with *HighDC*		**Panel B: Interaction with *HighDC***	
	Sell Stock	**Hold, Oppose Management**	**Sell Stock**	**Hold, Oppose Management**
	(1)	(2)	(3)	(4)
CapitalGain	–0.265***	0.062***	–0.563***	0.296***
	[6.21]	[4.08]	[4.45]	[7.03]
CapitalGain × *HighDC*			0.154*	–0.437***
			[1.75]	[6.74]
Vote, Fund-Quarter, & Holding Period Effects?	Yes	Yes	Yes	Yes
Number of Observations	391,040		112,027	

Table 6
Management Loses a Contentious Vote

This table presents results of logit models that relate the vote outcome to a range of aggregate mutual fund shareholder variables as well as various firm and vote characteristics. The dependent variable is an indicator variable, *ManagementLosesVote*, set to one if management loses a contentious vote and set to zero if management wins (thus, this variable is measured at the vote-level). Our sample includes all proposals in the merged mutual fund holding – Voting Analytics dataset, covering the period from 2003 to 2008, in which the ISS recommendation for a proposal does not equal the management recommendation (i.e., contentious votes). The key independent variable is *MF Capital Gain % of Market Cap*, the aggregate dollar value of capital gains held by mutual funds in the firm's stock normalized by the firm's total market capitalization. *VW Average MF Holding Period* is the value-weighted holding period of mutual funds. *MF % of Firm Owned* is the share of the firm's stock owned by mutual funds, and *VW MF Average Capital Gain* is the value-weighted average capital gain in a stock by mutual funds. The specifications contain various firm-level and proposal-level characteristics (lagged 3-month and lagged 12-month stock returns, log(market capitalization), book-to-market ratio, leverage ratio, cash flow-to-assets, capital expenditure-to-assets, S&P 500 membership, the *G-Index* of Gompers, Ishii, and Metrick (2003), institutional ownership percentage, the percent of the company owned by the top five executives), indicator variables for management sponsored proposals and for director elections, as well as quarter fixed effects. The second column of the table includes versions of the four aggregate mutual fund shareholder variables calculated separately for all *HighDC* and *LowDC* mutual funds (i.e., mutual funds whose proportion of assets held by retirement funds is above and below the sample median, respectively). Finally, ***, **, * denote significance at the 1%, 5%, and 10% levels, respectively, and *z*-scores are listed in square brackets below the point estimates (*z*-scores are based on standard errors clustered at the fund-quarter level). For brevity, the coefficients are suppressed for the other controls beyond the aggregate mutual fund shareholder variables. The complete table is provided as Appendix Table 2.

Table 6 (continued)

	(1)	(2)
MF Capital Gain % of Market Cap	4.531***	
	[2.70]	
MF CG% of MktCap by HighDC		2.479
		[0.81]
MF CG% of MktCap by LowDC		19.723**
		[2.43]
p-value of difference		*0.071**
VW Average MF Holding Period	0.010*	
	[1.83]	
VW Avg Hold Period of HighDC		0.004
		[0.97]
VW Avg Hold Period of LowDC		0.003
		[0.44]
MF % of Firm Owned	–0.004	
	[0.47]	
MF% of Firm Owned of HighDC		–0.012
		[0.86]
MF% of Firm Owned of LowDC		–0.048
		[1.43]
VW MF Average Capital Gain	–0.040	
	[0.28]	
VW MF Avg CG by HighDC		0.105
		[0.94]
VW MF Avg CG by LowDC		–0.143
		[0.77]
Other Controls?	Yes	Yes
Quarter Fixed Effects?	Yes	Yes
Pseudo R^2	0.624	0.625
Number of Observations	10,192	10,192

Table 7
Presence of a Contentious Proposal on Meeting Agenda

This table presents results of logit models that relate the presence of a contentious proposal on the meeting agenda to a range of aggregate mutual fund shareholder variables as well as various firm characteristics. The dependent variable is an indicator variable *ContentiousVoteHeldAtMeeting*, set to one if there are any contentious proposals to be voted on in a particular meeting and set to zero if none of the proposals are contentious (thus, this variable is measured at the firm-meeting level). Our sample of meeting agendas includes all proposals in the merged mutual fund holding – Voting Analytics dataset, covering the period from 2003 to 2008. A contentious proposal is one in which the ISS recommendation as to how to vote does not equal the management recommendation. We include the same aggregate mutual fund shareholder variables, as well as the same firm-level controls as in Table 6 (since the unit of observation is now at the firm-meeting level, the regressions do not include any proposal-specific variables). The second column of the table includes versions of the four aggregate mutual fund shareholder variables calculated separately for all *HighDC* and *LowDC* mutual funds (i.e., mutual funds whose proportion of assets held by retirement funds is above and below the sample median, respectively). Finally, ***, **, * denote significance at the 1%, 5%, and 10% levels, respectively, and *z*-scores are listed in square brackets below the point estimates (*z*-scores are based on standard errors clustered at the fund-quarter level). For brevity, the coefficients associated with other controls beyond the aggregate mutual fund shareholder variables are suppressed. The complete table is provided as Appendix Table 3.

Table 7 (continued)

	(1)	(2)
MF Capital Gain % of Market Cap	–3.182***	
	[3.21]	
MF CG% of MktCap by HighDC		–2.203
		[1.28]
MF CG% of MktCap by LowDC		–12.492**
		[2.11]
p-value of difference		*0.120*
VW Average MF Holding Period	0.003	
	[1.19]	
VW Avg Hold Period of HighDC		–0.001
		[0.40]
VW Avg Hold Period of LowDC		0.001
		[0.09]
MF % of Firm Owned	–0.005	
	[1.09]	
MF% of Firm Owned of HighDC		0.004
		[0.66]
MF% of Firm Owned of LowDC		–0.008
		[0.43]
VW MF Average Capital Gain	0.087	
	[1.22]	
VW MF Avg CG by HighDC		0.093*
		[1.67]
VW MF Avg CG by LowDC		0.021
		[0.33]
Other Controls?	Yes	Yes
Quarter Fixed Effects?	Yes	Yes
Pseudo R^2	0.037	0.037
Number of Observations	11,062	11,062

Table 8
Returns before a Contentious Vote (around ISS announcement window)

This table presents results of linear models that relate cumulative abnormal stock returns around the announcement by ISS of a recommendation to vote against management with aggregate mutual fund capital gains. The dependent variable is a stock's cumulative abnormal return (CAR) over the period –15 to –1 trading days prior to the vote. Abnormal returns are calculated by subtracting from raw returns the expected returns based on the Carhart four-factor model. In columns (1) and (2), the sample includes one observation for each contentious vote in the sample, and thus spans the period 2003 to 2008. In columns (3) and (4), the sample includes one observation for each contentious vote whose outcome is within +/–10 percentage points of the passing threshold. In columns (5) and (6), the sample includes one observation for each contentious vote whose outcome is within +/–5 percentage points of the passing threshold. In columns (1), (3), and (5) the key independent variable is *MF Capital Gain % of Market Cap*, the aggregate dollar value of capital gains held by mutual funds in the firm's stock normalized by the firm's total market capitalization. In columns (2), (4), and (6), the aggregate mutual fund capital gains are calculated separately for all *HighDC* and *LowDC* mutual funds (i.e., mutual funds whose proportion of assets held by retirement funds is above and below the sample median, respectively). The regressions control for lagged 3-month and 12-month stock returns. Finally, ***, **, * denote significance at the 1%, 5%, and 10% levels, respectively, and robust *t*-statistics are listed in square brackets below the point estimates.

Abnormal Stock Return –15 to –1 Days Before a Contentious Vote (ISS announcement window)						
			Threshold for Ex-Post Close Votes			
	All Contentious Proposals		*Within 10% Margin*		*Within 5% Margin*	
	(1)	(2)	(3)	(4)	(5)	(6)
MF Capital Gain % of Market Cap	0.099***		0.221***		0.226*	
	[3.53]		[3.23]		[1.85]	
MF CG % MktCap by Low DC		0.403**		0.879**		1.221
		[2.30]		[2.35]		[1.37]
MF CG % MktCap by High DC		0.037		0.110		–0.032
		[0.59]		[0.71]		[0.09]
p-value of difference		*0.089**		*0.115*		*0.290*
Lag 3-Month Stock Return	–0.014***	–0.014**	–0.022	–0.017	–0.011	–0.011
	[2.62]	[2.51]	[1.08]	[0.85]	[0.36]	[0.38]
Lag 12-Month Stock Return	0.001	0.002	0.015**	0.015**	0.008	0.008
	[0.77]	[0.95]	[2.22]	[2.17]	[0.78]	[0.88]
Number Observations	10,192	10,192	778	778	326	326

Table 9
Net Mutual Fund Flows Related to Tax Efficiency and Opposition to Management by Fund

This table presents results of linear models that relate net fund flows over the period 2004 to 2008 to mutual funds' tax efficiency and voting records. The dependent variable is each fund's monthly net fund flow as a percentage of beginning of month net assets. Net fund flow data are obtained from NSAR filings. The sample contains monthly observations for all funds in the main data sample. *Capital Gain Realized %* is the dollar value of capital gains realized during the prior calendar year divided by the NAV as of the beginning of the prior calendar year. *Tax Burden* is calculated, following Bergstresser and Poterba (2002), as 0.15 multiplied by the long-term *Capital Gain Realized %* plus 0.35 multiplied by the short-term *Capital Gain Realized %. Fund Vote Against Management %* is the percentage of contentious votes during the prior four quarters in which the fund voted against management. All regressions include pre-tax returns over the past year, indicator variables for funds in either the top or bottom 20% of funds in their style-category over the past year, as well as controls for fund age, net asset values, fund overhang, expense ratios, turnover, and indicator variables for funds with front or back end loads. All regressions also include fund-style fixed effects and date fixed effects. Finally, ***, **, * denote significance at the 1%, 5%, and 10% levels, respectively, and *t*-statistics are listed in square brackets below the point estimates (*t*-statistics are based on standard errors clustered at the fund level). For brevity, the coefficients associated with other controls beyond the tax efficiency, mutual fund voting pattern, and past return variables are suppressed.

	(1)	(2)	(3)	(4)
Capital Gain Realized %	–4.952***	–4.954***		
	[11.80]	[11.81]		
Tax Burden			–22.404***	–22.383***
			[9.67]	[9.66]
Fund Vote Against Management %		0.343***		0.341***
		[4.77]		[4.73]
Pre-Tax Return	11.763***	11.721***	11.850***	11.809***
	[26.82]	[26.73]	[27.01]	[26.92]
Top 20% Style Return	0.779***	0.786***	0.778***	0.784***
	[10.11]	[10.20]	[10.08]	[10.17]
Bottom 20% Style Return	–0.570***	–0.567***	–0.569***	–0.567***
	[8.11]	[8.08]	[8.09]	[8.06]
Other Controls?	Yes	Yes	Yes	Yes
Number of Observations	24,712	24,712	24,712	24,712

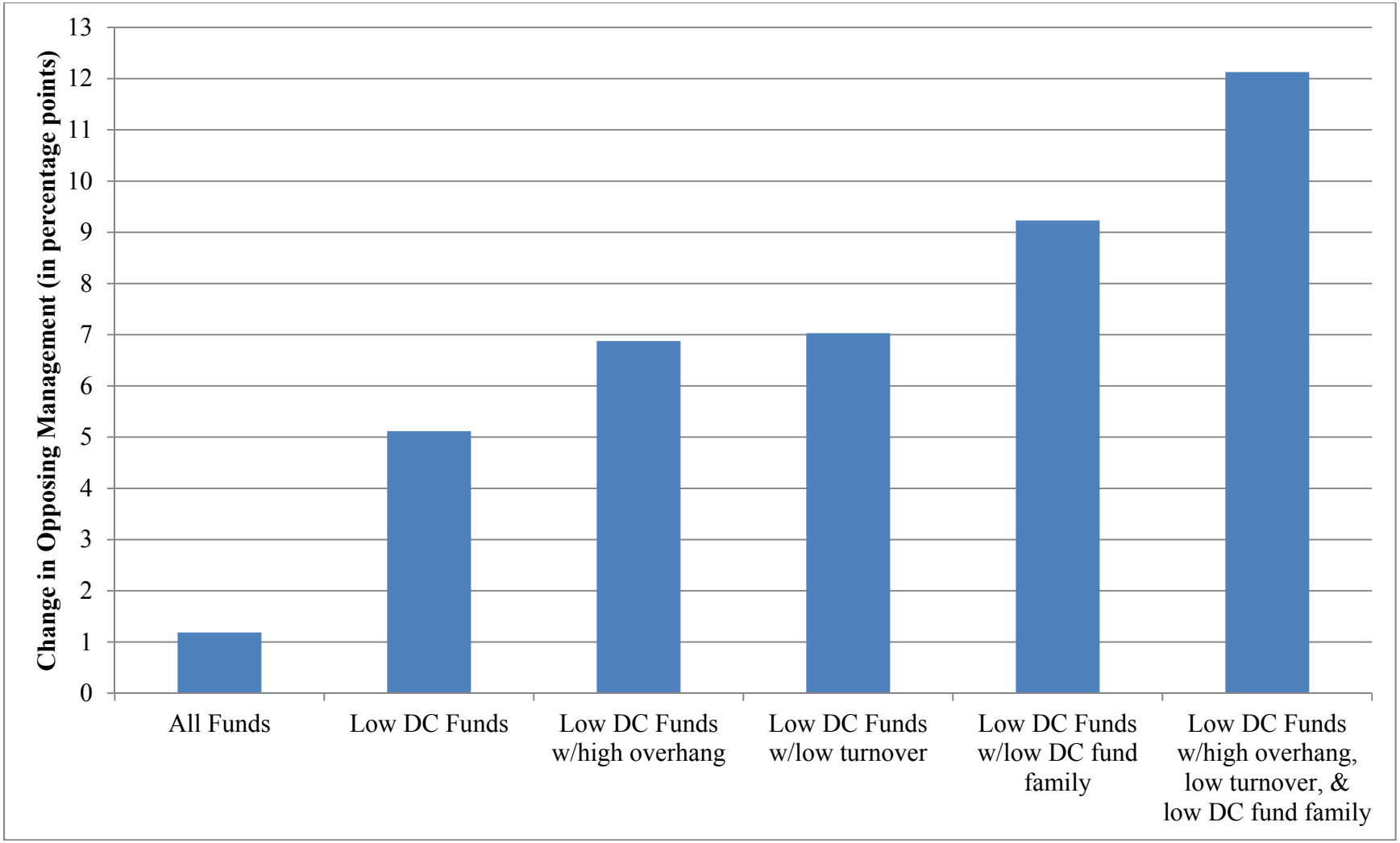

Figure 1: Change in the Likelihood of a Mutual Fund Opposing a Firm's Management from a one standard-deviation increase in Accrued Capital Gains in Stock Holding, by type of mutual fund. These marginal effects are based on coefficients from the logit models presented in Table 2 and Table 3 and are evaluated at the sample mean.

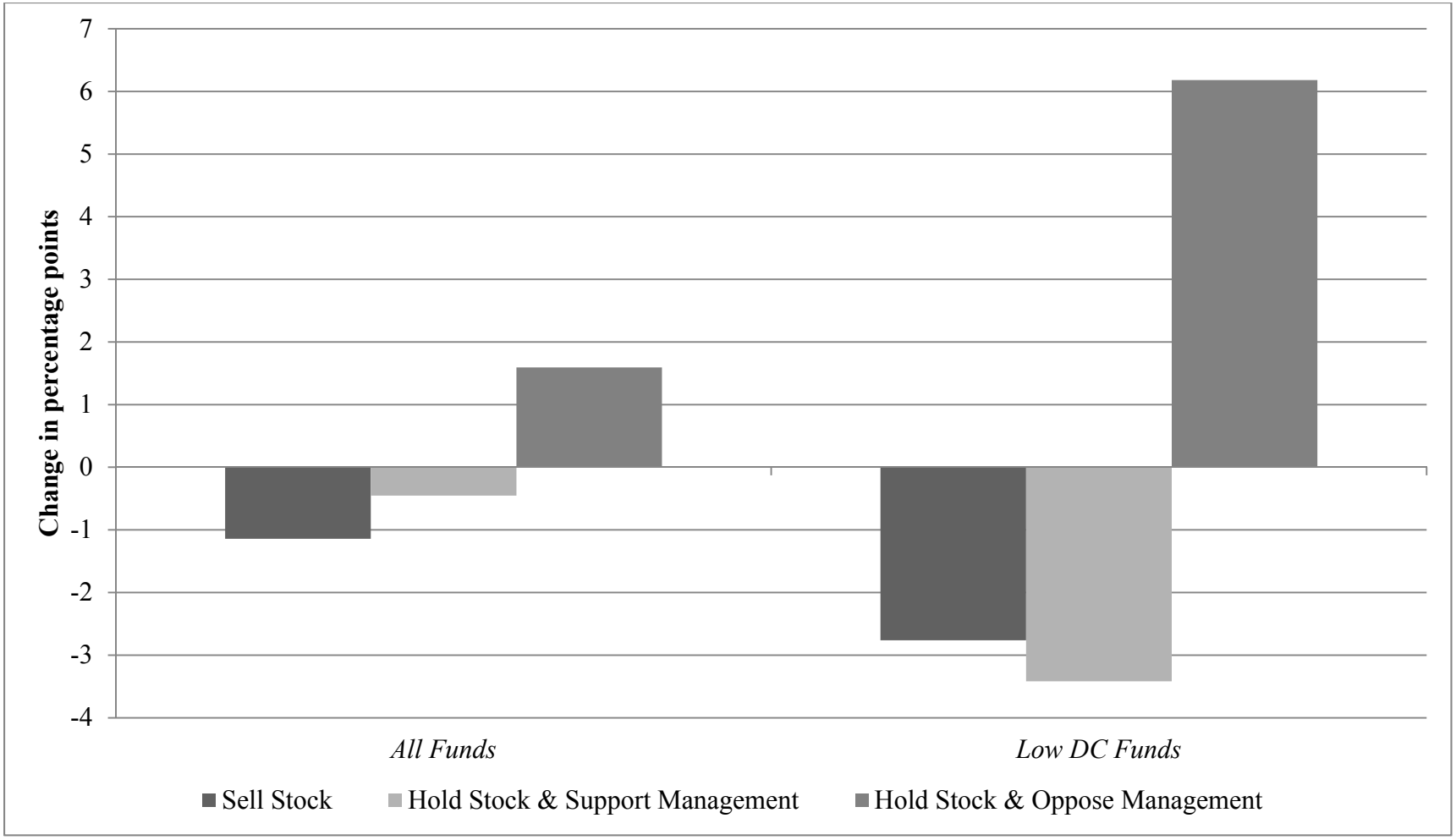

Figure 2: Change in the Likelihood of a Mutual Fund's Exit/Voting Decision from a one standard-deviation increase in Accrued Capital Gains in Stock Holding, by type of mutual fund. These marginal effects are based on coefficients from the multinomial logit models presented in Table 5 (Panel A model for *All Funds* and Panel B model for *Low DC Funds*) and are evaluated at the sample mean.

APPENDIX Table 1
Cox Proportional Hazards Model of Stock Sales

This table presents results of Cox proportional hazards models that relate a mutual fund's propensity to sell a stock to the fund's accrued capital gain on that stock and the tax status of the fund's investors. The baseline hazard rates are estimated non-parametrically, following Han and Hausman (1990), with a separate baseline for each fund-quarter combination (i.e., each fund can have different sale propensities from quarter to quarter, at different calendar times *t*):

$$Sell_{f,i,t}(q) = \gamma_{f,t}(q) \cdot e^{(\boldsymbol{X_{f,i,t} \cdot \beta})} \tag{A1}$$

where $Sell_{f,i,t}(q)$ is the hazard rate of fund *f* selling stock *i* at time *t* (quarter *t* in calendar time) after holding the stock for the past *q*–1 quarters, $\gamma_{f,t}(q)$ is the non-parametric (fund-calendar-quarter specific) baseline rate of fund *f* selling a stock previously held for *q*–1 quarters at time *t*, and ***X*** are covariates that shift the baseline rate: *CapitalGain*, accrued capital gains or losses since the purchase of the stock; *HighDC*, an indicator variable set to one if the proportion of fund assets held by defined-contribution retirement plans is above the sample median and set to zero otherwise; and the interactions of *HighDC* with *CapitalGain*. Panel A shows the results of estimation over the full sample of observations in the period from 2003 to 2008. Panel B shows results from the subsample of observations with coverage in the Voting Analytics data, also from 2003 to 2008. We lose observations as we move from Panel A to Panel B because the Voting Analytics data do not include all mutual funds, especially for the first two years of the sample (in which Voting Analytics focused on large mutual funds). The coverage is better for the defined contribution subsample, as *Pensions & Investments* also focuses on the largest mutual funds, so fewer observations are lost in the merged subsample. Finally, ***, **, * denote significance at the 1%, 5%, and 10% levels, respectively, and *z*-scores are listed in square brackets below the point estimates (*z*-scores are based on standard errors clustered at the fund level).

	Panel A: All Observations		**Panel B: Observations with Data in Voting Analytics**	
	(1)	(2)	(3)	(4)
CapitalGain	–0.482***	–0.500***	–0.525***	–0.511***
	[26.13]	[14.80]	[24.79]	[14.08]
CapitalGain × *HighDC*		0.128***		0.107**
		[2.89]		[2.29]
Fund-Quarter Fixed Effects?	Yes	Yes	Yes	Yes
Number of Observations	8,063,230	1,247,917	5,998,671	1,128,516

APPENDIX Table 2
Management Loses a Contentious Vote, All Controls Displayed

This table presents results of logit models that relates the vote outcome to a range of aggregate mutual fund shareholder variables as well as various firm and vote characteristics. It replicates Table 6 and further provides all the regression coefficients associated with the controls that are suppressed from Table 6. Regressions based on 10,192 contentious votes. For brevity, we only report the coefficient estimates, with ***, **, * denoting significance at the 1%, 5%, and 10% levels.

	(1)	(2)
MF Capital Gain % of Market Cap	4.531***	
MF CG% of MktCap by HighDC		2.479
MF CG% of MktCap by LowDC		19.723**
p-value of difference		*0.071**
VW Average MF Holding Period	0.010*	
VW Avg Hold Period of HighDC		0.004
VW Avg Hold Period of LowDC		0.003
MF % of Firm Owned	–0.004	
MF% of Firm Owned of HighDC		–0.012
MF% of Firm Owned of LowDC		–0.048
VW MF Average Capital Gain	–0.040	
VW MF Avg CG by HighDC		0.105
VW MF Avg CG by LowDC		–0.143
Lag 3-Month Stock Return	–0.797***	–0.858***
Lag 12-Month Stock Return	0.068	0.024
log(Market Cap)	–0.267***	–0.272***
Book-to-Market Ratio	0.035	0.030
Leverage Ratio	0.072	0.080
CF-to-Assets	–0.639**	–0.750**
Capex-to-Assets	1.891**	1.925**
S&P 500 Member	0.001	0.052
G-Index	0.010	0.009
Institutional Ownership %	0.350	0.408**
Top 5 Executive Ownership %	–2.535***	–2.615***
Management Sponsored Proposal	–5.431***	–5.485***
Elect Director Vote	–3.010***	–3.008***
Quarter Fixed Effects?	Yes	Yes
Pseudo R^2	0.624	0.625

APPENDIX Table 3
Presence of a Contentious Proposal on Meeting Agenda, All Controls Displayed

This table presents results of logit models that relates the presence of a contentious proposal on the meeting agenda to a range of aggregate mutual fund shareholder variables as well as various firm characteristics. It replicates Table 7 and further provides all the regression coefficients associated with the controls that are suppressed from Table 7. For brevity, we only report the coefficient estimates, with ***, **, * denoting significance at the 1%, 5%, and 10% levels.

	(1)	(2)
MF Capital Gain % of Market Cap	–3.182***	
MF CG% of MktCap by HighDC		–2.203
MF CG% of MktCap by LowDC		–12.492**
p-value of difference		*0.120*
VW Average MF Holding Period	0.003	
VW Avg Hold Period of HighDC		–0.001
VW Avg Hold Period of LowDC		0.001
MF % of Firm Owned	–0.005	
MF% of Firm Owned of HighDC		0.004
MF% of Firm Owned of LowDC		–0.008
VW MF Average Capital Gain	0.087	
VW MF Avg CG by HighDC		0.093*
VW MF Avg CG by LowDC		0.021
Lag 3-Month Stock Return	0.150	0.127
Lag 12-Month Stock Return	–0.040	–0.065
log(Market Cap)	0.157***	0.154***
Book-to-Market Ratio	0.128*	0.146**
Leverage Ratio	0.094**	0.102**
CF-to-Assets	–0.101	–0.112
Capex-to-Assets	0.103	0.023
S&P 500 Member	0.278***	0.326***
G-Index	–1.906***	–1.875***
Institutional Ownership %	–1.105***	–1.200***
Top 5 Executive Ownership %	1.267***	1.273***
Quarter Fixed Effects?	Yes	Yes
Pseudo R^2	0.037	0.037
Number of Observations	11,062	11,062