Which Firms Require More Governance? Evidence from Mutual Funds' Revealed Preferences

Irene Yi *

January 2022

Abstract

This paper develops measures of mutual funds' governance preferences to study whether funds prefer that certain companies strengthen shareholder rights relative to others. To this end, I examine the differences in fund votes across their portfolio firms' proposals on a given issue and estimate funds' preference rankings of firms by implementing the Metropolis-Hastings Markov chain Monte Carlo algorithm. Greater enthusiasm among funds does not always translate into higher vote support. Funds prefer firms with more agency issues to strengthen shareholder rights. Contrary to the view that the net benefits of takeover defenses are higher for young and small firms, funds are not enthusiastic about large and mature firms increasing shareholder rights. This paper provides novel evidence on fund preferences in the cross-section of companies and uncovers that funds demand more governance from some companies rather than voting in a "one-size-fits-all" manner.

*Rotman School of Management, University of Toronto, 105 St. George Street, Toronto, ON M5S 3E6, Canada, e-mail: irene.yi@rotman.utoronto.ca. I thank Svetlana Bryzgalova, Jay Cao, Marta Crispino, Peter Cziraki, Alexander Dyck, Nickolay Gantchev, Raymond Kan, Rachel Li, Qinghua Liu, Michelle Lowry, Charles Martineau, John Matsusaka, Matthew Ringgenberg, Øystein Sørensen, and participants at Cornell University finance seminar, Financial Intermediation Research Society Conference (2021), Global Corporate Governance Colloquia (Yale, 2021), China International Conference in Finance (2021), Financial Management Association Annual Meeting (2021), and Seoul National University finance seminar for helpful discussions and suggestions. I also thank Penny Du, Timothy Lee, and Yizhong Wang for excellent research support and Chong Shu for sharing data on Glass Lewis recommendations and fund-advisor links. I gratefully acknowledge financial support from the TD Management Data and Analytics Lab, the David & Sharon Johnston Centre for Corporate Governance Innovation, the Connaught Secretariat, the Social Sciences and Humanities Research Council, and the University of Toronto.

1. Introduction

Mutual funds hold over one-quarter of the shares of U.S. companies, having the power to influence their portfolio companies' governance, direction, and value through votes on shareholder and management proposals.[1] Therefore, it is important to understand funds' decisions to vote in support of or against their portfolio companies' proposals. Theoretical work recognizes that managerial agency problems are important in determining the allocation of decision rights, and a survey of mutual fund managers by McCahery, Sautner, and Starks (2016) shows that funds frequently vote against management as an intervention channel.[2] Recent empirical studies examine fund voting patterns and show that fund votes can be explained by economic incentives, ideological preferences, proxy advisors' recommendations, and business or social networks.[3]

Less attention has been paid to the role of companies, although the essence of the issue is whether a particular company—that received the proposal—should adopt the proposed initiatives. Specifically, would some companies benefit more than others from having an independent board chairman or allowing proxy access? If so, is this related to some aspects of the companies? Understanding the role of companies in the scene is important for companies that strive to improve support from shareholders, scholars who study the merits of various governance provisions, and regulators that design policies on shareholder voting and proxy advisors' voting recommendations.

In this paper, I use the revealed preference argument to estimate whether mutual funds prefer some companies to adopt certain governance provisions relative to others. The estimation exploits the fact that funds vote "for" a proposal in some firms and "against" the same issue in other firms, allowing me to elicit their governance preferences. For example, suppose that a fund owns shares in firm i and firm j, both of which received a shareholder proposal requiring an independent board chairman during the same year. Also suppose that the fund voted for firm i's proposal and against firm j's proposal. I interpret this as, the fund preferring firm i

[1]Hirst and Bebchuk (2019) predict that BlackRock, Vanguard, and State Street could cast 40 percent of the votes in S&P 500 companies within the next two decades. Appel, Gormley, and Keim (2016) show that passive investors impact corporate governance through their voting power.

[2]Harris and Raviv (2010) and Matsusaka and Ozbas (2017) model optional decision rights in the presence of agency problems. Bebchuk (2005) argues that shareholders must have decision rights to limit agency problems.

[3]Iliev and Lowry (2015) show that funds' economic incentives lead them to vote in a value-enhancing manner. For evidence on fund-specific preferences, see Bolton, Li, Ravina, and Rosenthal (2020) and Bubb and Catan (2021). Iliev and Lowry (2015) and Malenko and Shen (2016) present evidence on the influence of the recommendations of proxy advisory firms. Davis and Kim (2007) and Cvijanović, Dasgupta, and Zachariadis (2016) provide evidence on the impact of business ties.

to have an independent board chairman relative to firm j. Holding constant each fund, it is possible to net out fund-specific preferences and isolate how the attributes of the two firms are related to each fund's governance preferences.

As each proposal is voted on by hundreds of funds and multiple companies receive the same type of proposal each proxy season, the challenge lies in how to aggregate funds' preferences. I address this challenge by implementing the Metropolis-Hastings Markov chain Monte Carlo (M-H MCMC) algorithm of Vitelli, Sørensen, Crispino, Frigessi, and Arjas (2018) and obtain funds' preference rankings of companies. The algorithm is based on the Mallows model (Mallows, 1957), the idea that there is a true ranking and the probability of observing a particular ranking in the data decreases as its distance from the true ranking increases. Although the model is theoretically well grounded in the statistics ranking literature, its implementation on large data sets or those with missing information has only recently become possible, thanks to advances in computing power and estimation techniques. The key advantage of this measure relative to vote support on proposals is that it eliminates some selection effects that stem from different shareholder bases at different firms with different preferences and holdings.

I develop measures of funds' governance preferences by implementing the M-H MCMC algorithm on fund votes on selected topics of shareholder proposals during the period 2004–2020. I require at least 25 proposals of the same type in a given year, with at least 50 funds with both "for" and "against" votes on a given topic. The main outputs are the annual rankings of firms based on funds' preferences for the following topics: independent board chairman (2004–2020), declassified board (2004–2013), majority vote for director elections (2005–2014; 2019), proxy access (2015–2019), shareholders' right to call special meetings (2008–2011; 2018–2020), and say-on-pay (2007–2010). A rank of one means that the proposed initiative is more preferred for the given firm from funds' perspectives than for any of the other firms that received the same proposal in a given year. For all the rankings, I also estimate the degree of consensus among the funds, which can be viewed as the precision of the estimated rankings. I find that the degree of consensus is the highest for the majority requirement and the lowest for say-on-pay.

A natural question is whether the rankings are correlated with vote support on shareholder proposals, a measure that has been commonly used to make inferences on the merits of proposals. I find a moderate correlation for the following topics: independent board chairman (Spearman's rank correlation = 0.48), majority vote for the election of directors ($\rho = 0.51$), proxy access ($\rho = 0.49$), and the right to call special meetings ($\rho = 0.35$). For board declassification and say-on-pay, the correlation is low ($\rho = 0.2$ and $\rho = 0.12$, respectively). As fund preferences and vote support show only a moderate level of correlation, I next decompose

the source of deviation into several components. The facts that voting power is not equally distributed amongst funds and different companies are owned by investors with different characteristics significantly explain why more enthusiasm among funds does not empirically translate into higher vote support.

I next investigate whether fund preferences regarding governance outcomes are related to proxies for agency problems and other firm characteristics that are believed to be important in predicting optimal governance structures.[4] For example, funds might be inclined to take control away from management with more agency problems by showing support for shareholder proposals. Among targeted firms, I find that funds prefer firms with low board independence, high insider ownership, and high abnormal compensation to adopt certain governance provisions that increase shareholder rights. This is consistent with the view that funds are mindful of the allocation of control between shareholders and managers.

As several studies show that takeover protection measures are more beneficial for small and young firms (e.g., Stratmann and Verret, 2012; Field and Lowry, 2019; Kim and Michaely, 2019), I next explore whether funds prefer stronger management rights for small and young firms. Perhaps surprisingly, funds are less enthusiastic about large and mature firms increasing their shareholder rights, sometimes in an economically meaningful and statistically significant manner. One possible interpretation is that large and mature firms are disproportionately targeted by proposals, which is what I find, and funds screen out proposals that do not benefit shareholders at large.[5] Fund preferences are not strongly associated with accounting performance, stock returns, or market-to-book ratios, with a few exceptions in mixed directions. Overall, funds view the voting process through the lens of correcting agency problems, but there is little evidence that funds value protective devices for young and small firms or that they consider performance in their voting decisions.

Next, I examine whether mutual funds favor proposals by certain sponsors. The preference rankings allow comparisons by sponsors while controlling for proposal topics and fund-specific preferences over the topics. I find that funds prefer proposals submitted by non-SRI funds: one interpretation is that non-SRI funds submit value-enhancing proposals, and an alternative interpretation is that non-SRI funds share similar preferences. Proposals by public pension

[4]This analysis cannot speak to whether firm characteristics have a causal impact on the value of governance provisions, as the estimated rankings are fundamentally intertwined with whether a firm has already adopted certain governance provisions and with which firms are targeted by shareholder proposals.

[5]Bhandari, Iliev, and Kalodimos (2019) report that proxy access proposals are concentrated in large, well-governed firms, which are not the firms that would benefit the most from proxy access. Matsusaka, Ozbas, and Yi (2021) show that approximately 37 percent of proposals were challenged by managers and sent to the SEC with a request for a no-action letter.

funds are also viewed more favorably than the average proposal. Proposals by labor unions are not as preferred as those by public pension funds; however, they are not particularly disliked, which is consistent with the mixed evidence in the literature.[6] The least-favored proposals were those submitted by SRI funds and individuals, in line with findings in the literature (e.g., Gantchev and Giannetti, 2020; Matsusaka et al., 2021).

The main assumption of the paper is that fund votes reflect their preferences in terms of governance outcomes. As votes can sometimes be determined by factors other than preferences, I next study two such factors and their correlations with rankings. I first examine the voting recommendations of proxy advisors, as they play an important role in voting outcomes (Iliev and Lowry, 2015; Malenko and Shen, 2016). I find that ISS recommendations are strongly correlated with estimated ranks and the pattern is muted for Glass Lewis recommendations. Specifically, when ISS recommends voting against a firm's independent board chairman proposals, that firm is consistently ranked at the bottom. That said, even within the subset of proposals that show no variation in recommendations, the estimated rank of each firm shows meaningful variation.[7] This indicates that numerous factors determine funds' preferences, above and beyond proxy advisors' recommendations.

As some funds might not be able to vote their true preferences if they have business ties with companies (e.g., provide consulting and receives fees), I next estimate rankings after excluding the votes of funds that have any business relationships. Although funds with business ties are more likely to be supportive of affiliated companies' management across all issues (Cvijanović et al., 2016), the votes cast by such funds in my sample account for about 3 percent, not enough to shift the consensus.[8] On average, affiliated companies' rank does not change after excluding those votes, indicating that the rankings are not biased by a potential conflict arising from business ties between companies and funds.

This paper belongs to the proxy voting literature (e.g., Gillan and Starks, 2000; Matvos and Ostrovsky, 2010). The main innovation of this paper is to characterize mutual funds' governance preferences for companies in terms of governance outcomes. Importantly, this paper addresses two fundamental challenges that have prevented researchers from measuring fund preferences in the cross-section of companies: differences in shareholder base across companies and fund-

[6]See Section 6 for further discussion.

[7]Specifically, I examine board independent chairman proposals with (ISS recommendation, Glass Lewis recommendation, Management recommendation) = (For, For, Against). For other topics studied in this paper, there is little need to separate proposals based on recommendations because proxy advisors almost always recommended to vote for and management almost always recommended to vote against.

[8]This is based on observations at the fund-proposal level and does not adjust for the number of shares.

specific preferences regarding an issue. This paper reveals that funds prefer some companies to adopt governance provisions relative to others, despite that funds have been criticized for voting in a "one-size-fits-all" manner. Thus, this paper is related to the literature that questions the "one-size-fits-all" approach to governance (e.g., Coles, Daniel, and Naveen, 2008; Duchin, Matsusaka, and Ozbas, 2010; Field and Lowry, 2019). A large body of literature discusses the average effect of adopting governance provisions on firm value. This paper focuses on how funds vote differently across their portfolio firms' proposals on the same issue; and shows that in the aggregate, funds demand more governance from some companies rather than voting in a "one-size-fits-all" manner.

This paper is closely related to Bolton et al. (2020) and Bubb and Catan (2021) in that it studies fund preferences employing a big data technique and creates a mapping between an object and a point in space. However, the object of interest in this paper is different. This paper's focus is on companies; the above two papers study funds by characterizing whether some funds differ from others in terms of the degree of support for social issues, management, and/or the tendency to vote with proxy advisors. In other words, this paper studies the cross-section of companies, whereas the above two papers study the cross-section of mutual funds.

This paper also makes a methodological contribution by introducing the novel machine learning technique of Vitelli et al. (2018) into economics and finance research. The algorithm can be useful in many different settings, as it enables researchers to construct rankings from rating or preference data, such as analyst ratings or buy/sell recommendations. It adapts to different kinds of data, even pairwise preferences or partial rankings. Importantly, the algorithm allows one to estimate rankings while mitigating some of the selection issues, for example, endogenous ownership structure in this paper's setting. This paper is also related to the statistics and econometrics literature on ranking. Methodologically, this paper belongs to the literature that employs the Mallows model to construct rankings (e.g., Vitelli et al., 2018; Li, Xu, Liu, and Fan, 2019). Avery, Glickman, Hoxby, and Metrick (2013) and Sorkin (2018), like this paper, study revealed preferences to construct rankings.[9]

[9]Avery et al. (2013) rank U.S. undergraduate programs based on students' revealed preferences, and Sorkin (2018) estimates workers' preferences for firms by studying the structure of employer-to-employer transitions.

2. Data and Sample

Since 2004, the SEC has required mutual funds to report their proxy votes on management and shareholder proposals using SEC Form N-PX. This information is collected by Institutional Shareholder Services (ISS) for firms in the Russell 3000, available in the ISS Mutual Fund Vote Records database. Information on annual meeting characteristics, proposal content, sponsors, voting outcomes, and ISS/management recommendations comes from two different databases maintained by ISS: Shareholder Proposals and Vote Results.

Figure 1 shows the number of voted on shareholder proposals from 2004 to 2020 for six individual proposal topics examined in this paper: require independent board chairman, declassify board, require majority vote for director elections, adopt proxy access, provide shareholders the right to call special meetings, and say-on-pay. I limit attention to years with at least 25 proposals of the same type and at least 50 funds with both "for" and "against" votes on a given topic in a given year. Table 1 presents the summary statistics of the variables examined in the paper, as well as some descriptive information on sample firms.

Accounting information comes from Compustat. Stock return information comes from CRSP, and information on executive compensation and insider ownership comes from Execucomp. Information on firm age is from Jay Ritter's website (Field and Karpoff, 2002; Loughran and Ritter, 2004).[10] I obtain the number of shares held by each fund by matching funds in the ISS Mutual Fund Vote Records database and the FactSet database by name. The names are not always identical in the two databases. After manually examining approximately 21,000 funds in the Voting Analytics database, the matches were identified for more than 14,000 funds. Information on Glass Lewis recommendations was provided by Chong Shu (Shu, 2021). I also obtain information on fund-company business ties from Forms 5500 filed with the Department of Labor. I obtained a mapping between entities (i.e., companies, funds) and their Employer Identification Numbers and identified votes cast by funds that have business ties with companies. Appendix Table A.2 presents the variable definitions and data sources.

This study analyzes votes at the mutual fund level. This is a natural choice because the algorithm takes votes at the voter level. The algorithm assumes that a voter casts only one vote on a given proposal, and therefore, it is important to understand to what extent funds within the same institution vote in a similar manner: if all funds within the same family vote in an identical manner, it would make more sense to use the data at the fund-family level. Appendix

[10] https://site.warrington.ufl.edu/ritter/files/2019/05/FoundingDates.pdf

Figure A.1 presents the fraction of non-unanimous votes within a fund family when multiple funds vote on the same proposal within a fund family. The first bar shows that when a fund family has 2–5 funds voting on the same proposal, there is disagreement in approximately 12 percent of cases. The next three bars show that there is disagreement approximately 20–30 percent of the time when a family has 6–50 funds voting on the same proposal. When there are more than 50 funds voting on the same proposal, the vote is not unanimous in approximately 64 percent of cases, suggesting that there is significant heterogeneity in voting behavior within a fund family (Bubb and Catan, 2021).[11]

3. Estimation of Mutual Fund Consensus

3.1. Bayesian Estimation of the Mallows Model

The Mallows model (Mallows, 1957) is based on the idea that the probability density of an observed ranking decreases exponentially as its distance from the consensus ranking increases. Specifically, the model specifies the probability of an observed ranking R as follows:

$$P(R \mid \alpha, \rho) = \frac{exp\Big[-\frac{\alpha}{n} d(R, \rho)\Big]}{Z_n(\alpha)} \tag{1}$$

where $\alpha \geq 0$ is a precision parameter (a larger α value corresponds to a higher level of consensus); n is the number of items being ranked; ρ is the consensus ranking; $d(R, \rho)$ is a distance function (e.g., Kendall, footrule) measuring the distance between R and ρ (i.e., how far the assessor's ranking is from the true ranking); and $Z_n(\alpha)$ is a normalizing constant.[12]

If N assessors provided complete rankings of the n items, the likelihood of N observed rankings $R_1, \ldots, R_N$, where $R_j = (R_{1j}, \ldots, R_{nj})$ is a ranking for assessor j, which is assumed to be conditionally independent given α and ρ, is:

$$P(R_1, \ldots, R_N \mid \alpha, \rho) = \frac{exp\Big[-\frac{\alpha}{n} \sum_{j=1}^{N} d(R_j, \rho)\Big]}{Z_n(\alpha)^N} \tag{2}$$

[11]The results are conservative estimates because they exclude any votes other than for or against.

[12]Kendall distance measures the minimum number of pairwise adjacent switches which convert R into ρ. Footrule distance is defined as the sum of absolute values. See p. 334 of Liu, Crispino, Scheel, Vitelli, and Frigessi (2019) for further information.

In a Bayesian framework, the goal is to estimate $P(\alpha, \rho \mid R_1, \ldots, R_N)$, the posterior distribution of α and ρ given the observed rankings of the N assessors. There are several hurdles in directly estimating the posterior distribution. First, numerical overflow can occur as the number of items (n) increases, which prevents the model from being implemented on a large dataset. Second, researchers rarely observe a complete ranking that consists of all items. This happens when assessors are presented with a subset of items, assessors choose to rank a subset of items, or certain ranks are missing at random. Finally, data can contain non-transitive preferences (e.g., $x \prec y$, $y \prec z$, and $z \prec x$) for reasons including assessor inattentiveness, preference uncertainty, and preference changes over time.

Vitelli et al. (2018) propose an M-H MCMC algorithm, which makes it possible to draw samples from the posterior distribution while addressing the issues of numerical overflow, partial ranking, and nontransitive preferences. The algorithm uses data augmentation techniques to address numerical overflow and computational complexity. It iterates between (i) updating the augmented ranks $\left\{\tilde{R}_j\right\}_{j=1}^{N}$ given the current values of ρ and α and (ii) updating ρ and α based on the augmented rankings. When updating the augmented ranks, the algorithm first proposes a candidate $\tilde{R}_j{}^{t}$ by locally perturbing $\tilde{R}_j{}^{t-1}$ from the previous iteration. With some probability, the candidate is either accepted, in which case the candidate value is used in the next iteration, or it is rejected, in which case the candidate value is discarded and the current value is reused in the next iteration. After a number of iterations, the empirical distribution of the accepted rankings will approach the posterior distribution of ρ.

The algorithm allows input data in the form of partial rankings or even pairwise preferences. To address nontransitive preferences, the algorithm adds a layer of latent variables to the model hierarchy to account for the fact that assessors can make mistakes, based on the idea of Crispino, Arjas, Vitelli, Barrett, and Frigessi (2019). Details on the estimation can be found in Section 4.2 of Vitelli et al. (2018). An R package named BayesMallows implements the algorithm.

3.2. Application of the Mallows Model to Proxy Voting Data

3.2.1. Setting & Assumptions

Mutual funds typically hold hundreds of securities and vote on many companies' proposals each year. If a fund votes differently on the same issue across its portfolio companies' proposals, those votes reveal the fund's preferences in terms of the proposed initiatives. For example, if a fund votes for Citigroup's proxy access proposal and against McDonald's proxy access proposal

around the same time, I assume that the fund prefers Citigroup to adopt proxy access compared to McDonald's. The main assumption of this paper is that funds' votes reveal their preferences in terms of governance outcomes, which comes from the revealed preference theory. Other funds holding the two firms might agree or disagree with this view. The goal is to estimate mutual funds' consensus in terms of governance preferences by first examining how funds vote differently across portfolio companies' proposals and then aggregating their preferences.

It is unclear whether there is any consensus among investors and how it can be measured if it exists. Figure 2 illustrates how fund votes can be used to measure such a consensus or the lack thereof. Panel A presents the number of funds that voted on a proxy access proposal during 2015 for three examined firms, Citigroup, McDonald's, and ConocoPhillips. A total of 279 funds voted on proxy access proposals for these three firms; 122 funds voted on ConocoPhillips' and McDonald's proxy access proposals but not on Citigroup's proposal, most likely because Citigroup was not part of their investment portfolio. Panel B presents how these funds voted on the three firms' proxy access proposals. Any votes other than "for" or "against" are excluded from the analyses. The top portion of Panel B shows that twelve funds voted for Citigroup's proxy access proposal and against McDonald's proposal (each black square represents a fund), but no fund voted against Citigroup's proposal and voted for McDonald's proposal. The evidence supports the view that funds prefer to see Citigroup implement proxy access relative to McDonald's. Similarly, by examining the sections below, one can infer that funds prefer McDonald's to allow proxy access compared to ConocoPhillips and Citigroup compared to ConocoPhillips. According to the revealed preference theory, proxy access is most preferred for Citigroup, followed by McDonald's and ConocoPhillips.

The first goal of this paper is to develop such preference rankings for all the firms that received the same type of proposal during the same year. Note that there might be no consensus among investors. Investors can agree to disagree; alternatively, their preferences in terms of governance outcomes might be similar across firms. In such cases, the estimated rank of one firm would be statistically indistinguishable from the estimated rank of another firm, and the goal is to measure this.

Once the number of firms grows, funds are more likely to vote differently across their portfolio firms' proposals and reveal information on relative preferences, as opposed to exhibiting indifference. Panel C of Figure 2 displays how 50 funds voted on 20 firms' proxy access proposals during 2015. Each column represents a firm, and each row displays how each fund voted on its portfolio firms' proxy access proposals. Some of the funds almost always voted for these proposals (shown by the rows that are mostly green and rarely red), and others almost always

voted against them (shown by the rows that are mostly red and rarely green), reflecting their ideological positions (Bolton et al., 2020). Some of the firms still managed to receive a "for" vote from a fund that almost always voted "against" and vice versa, indicating that funds' governance preferences are different for different firms. I aggregate these preferences across all the funds to construct funds' governance preference rankings of firms. Panel B of Table 1 shows the number of fund votes cast for each proposal, including and excluding the funds that always voted either for or against all the proposals on a particular topic. For an average proposal in my sample, about 38 percent of funds voted both "for" and "against" on the topic in a year.

3.2.2. Toy Example

This section presents a toy example and illustrates how fund votes can be used to estimate mutual funds' preferences. Assume that n=9 companies had a vote on proxy access in a given year and each of N=20 funds voted on a different subset of proposals (Exhibit 1A). The goal is to estimate $P(\alpha, \rho \mid R_1, \ldots, R_{20})$ that best represents these funds' preferences, where $(R_1, \ldots, R_{20})$ represents the votes of 20 funds, ρ is the true ranking of 9 companies, and α is the degree of consensus among 20 funds.[13] The algorithm starts with initial values of ρ and α, which I denote as ρ^1 and α^1. α^1 is set to 1 and ρ^1 is (3,9,4,8,7,6,5,1,2) when I use seed 101. The algorithm also calculates the augmented ranking, which can be viewed as an implicit ranking of all objects regardless of whether preferences were provided for all objects. The initial augmented ranking $\tilde{R}^1 = \left\{\tilde{R_1}^1, \tilde{R_2}^1, \ldots, \tilde{R_{20}}^1\right\}$ using seed 101 is provided in Exhibit 1B. The superscript represents the iteration number, and the subscript represents fund number.[14]

[13]Several distance measures can be used to calculate the distance between two different rankings. In this example, I use the footrule distance.

[14]Augmented rankings are consistent with mutual funds' voting patterns, with some added random components. For example, $\tilde{R}^1$ shows that fund 1 prefers company 2 to adopt proxy access over company 1 (rank 4 vs. 9) and prefers company 3 to adopt proxy access over company 1 (rank 1 vs. 9), consistent with the voting patterns. Between companies 2 and 3, either can be ranked higher at this stage since the fund did not provide relative preferences. Because fund 1 owns companies 1, 2, and 3 but not the rest, the augmented rank of companies 4–9 will be randomly assigned at this stage. Note that fund 20 does not appear in this matrix because it always voted for its portfolio firms' proposals.

Exhibit 1

A. Fund Votes

$$\tilde{R}^1 = \begin{bmatrix} 9 & 4 & 1 & 8 & 7 & 6 & 2 & 3 & 5 \\ 9 & 5 & 8 & 4 & 7 & 6 & 3 & 1 & 2 \\ 7 & 6 & 5 & 4 & 3 & 9 & 2 & 8 & 1 \\ 6 & 2 & 9 & 8 & 7 & 5 & 4 & 1 & 3 \\ 7 & 4 & 2 & 9 & 6 & 1 & 3 & 5 & 8 \\ 3 & 5 & 4 & 6 & 7 & 2 & 1 & 9 & 8 \\ 3 & 9 & 4 & 1 & 6 & 5 & 8 & 7 & 2 \\ 6 & 1 & 4 & 9 & 8 & 3 & 5 & 2 & 7 \\ 8 & 1 & 9 & 3 & 2 & 4 & 5 & 6 & 7 \\ 6 & 5 & 3 & 4 & 9 & 8 & 1 & 2 & 7 \\ 1 & 5 & 6 & 8 & 7 & 9 & 4 & 2 & 3 \\ 8 & 3 & 4 & 1 & 7 & 9 & 5 & 6 & 2 \\ 6 & 2 & 5 & 3 & 8 & 4 & 7 & 9 & 1 \\ 9 & 1 & 8 & 5 & 7 & 6 & 4 & 2 & 3 \\ 4 & 7 & 6 & 5 & 2 & 8 & 3 & 1 & 9 \\ 2 & 5 & 3 & 6 & 9 & 7 & 8 & 4 & 1 \\ 6 & 5 & 8 & 9 & 7 & 1 & 2 & 3 & 4 \\ 6 & 3 & 2 & 7 & 9 & 5 & 4 & 8 & 1 \\ 6 & 9 & 5 & 3 & 8 & 2 & 7 & 1 & 4 \end{bmatrix}^T$$

B. Each Assessor's Initial Ranking

For the next iteration, the M-H MCMC algorithm proposes a candidate for ρ^2 and α^2 by locally perturbing ρ^1 and α^1, and the proposal is accepted with some probability and rejected otherwise.[15] If the proposal is accepted, the proposed values become ρ^2 and α^2, and the algorithm updates the augmented ranking $\tilde{R}^2$; otherwise, the values from the previous iteration are retained. The same accept-reject procedure continues for the rest of the iterations. After running the algorithm for a sufficient number of iterations, the algorithm will draw ρ^t and α^t from the posterior distribution, $P(\alpha, \rho \mid R_1, \ldots, R_N)$.

Exhibit 2 displays how ρ^t and α^t change over 1,000,000 iterations. It show that company 2's rank stops drifting in one direction before 1,000 iterations, then oscillates between 1, 2, and 3 thereafter. Other companies' estimated ranks show more fluctuation. To ensure that the final outputs do not depend on the initial ranking, I discard the first 500,000 iterations as burn-ins and use the remaining 500,000 iterations to produce the posterior distributions of α and ρ (Exhibit 3).[16]

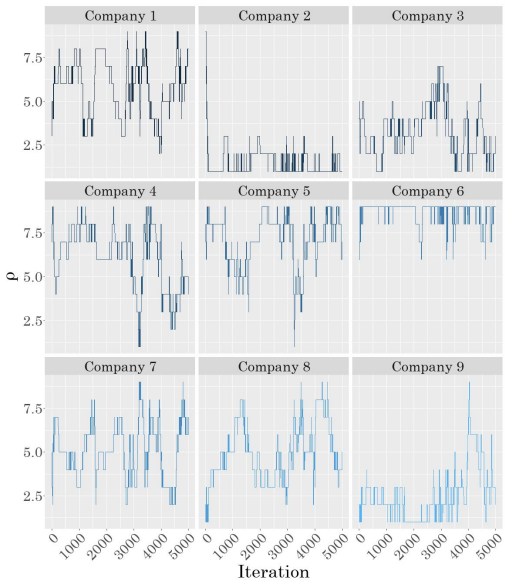
Exhibit 3A shows that company 3 is ranked the highest, whereas company 6 is ranked the lowest, followed by company 5. Company 6's rank shows a relatively narrow distribution,

[15]The probability is determined by a "leap-and-shift proposal." See Vitelli et al. (2018) for details.

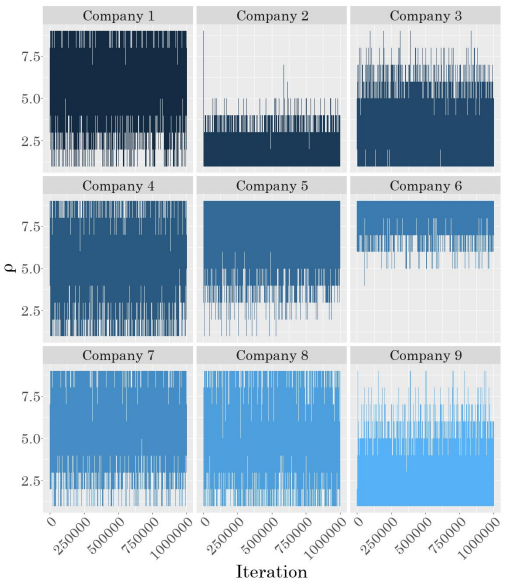
[16]In this setting, it would be acceptable to discard fewer than 500,000 iterations, but I choose to err on the safe side.

whereas company 8's rank shows a wider distribution. This can explained by either a relatively smaller number of votes on the company's proposal or disagreement between funds.

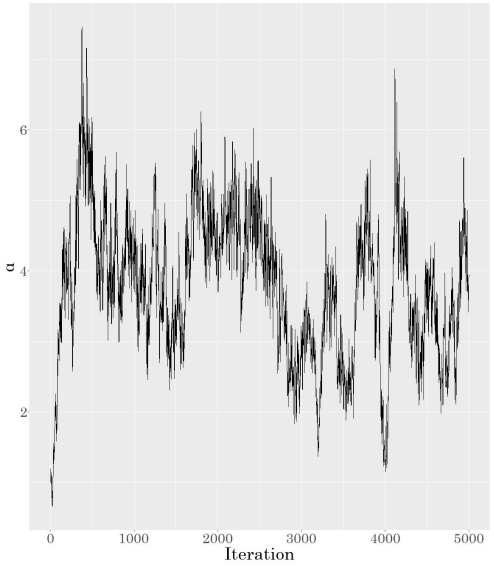
Exhibit 2



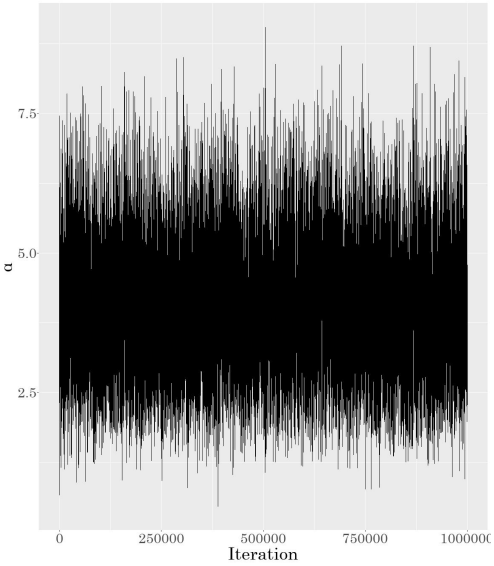
A. Trace Plot for ρ (5000 iterations)



B. Trace Plot for ρ (1M iterations)

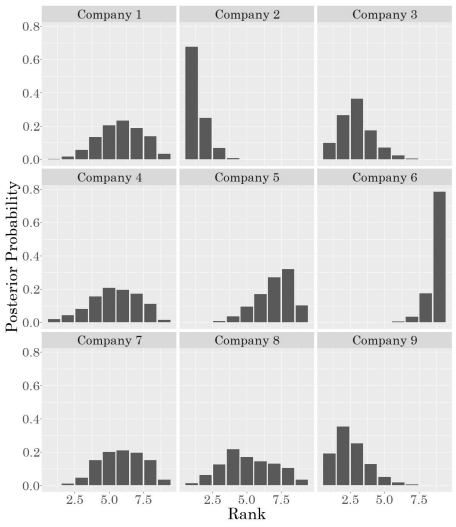


C. Trace Plot for α (5000 iterations)

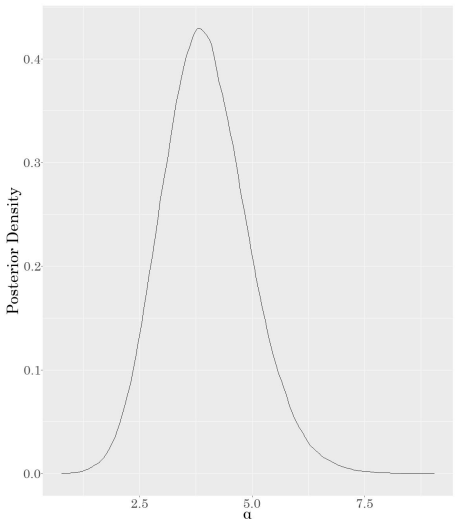


D. Trace Plot for α (1M iterations)

Exhibit 3



A. Posterior Distributions of ρ



B. Posterior Density of α

	Mean	Median	HPDI (95%)	CI (95%)
Company 1	6	6	[3, 9]	[3, 9]
Company 2	1	1	[1, 3]	[1, 3]
Company 3	3	3	[1, 5]	[1, 6]
Company 4	5	5	[2, 8]	[2, 8]
Company 5	7	7	[5, 9]	[4, 9]
Company 6	9	9	[8, 9]	[7, 9]
Company 7	6	6	[3, 8]	[3, 9]
Company 8	5	5	[2, 8]	[2, 9]
Company 9	3	2	[1, 5]	[1, 6]
α	3.97	3.92	[2.14, 5.87]	[2.23, 5.99]

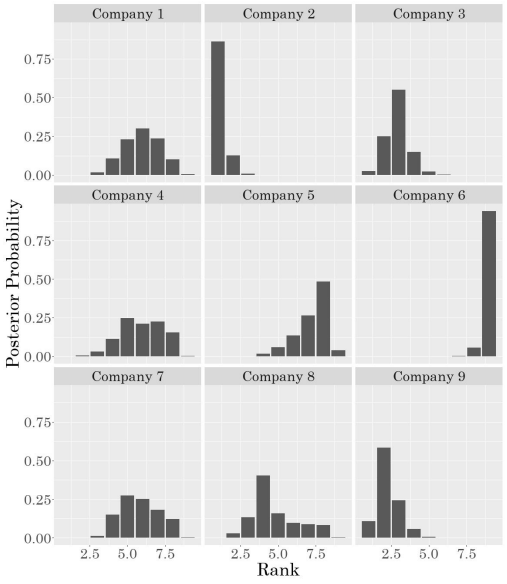
C. Mean and Median of ρ and α

If all funds held the same number of shares in a given company, and if these funds were the only owners, then company 7's vote support would be 50% (5 out of 10 funds voted for) whereas company 8's vote support would be 40% (2 of 5 funds voted for). Although this might suggest that funds prefer company 7 to adopt proxy access over company 8, the rankings indicate that funds prefer company 8 to adopt proxy access over company 7. Because the rankings account for fund-specific preferences (e.g., fund 14 that is generally against the issue) and the companies held by each fund, there is no guarantee that a company's rank will be aligned with its rank based on vote support. It is to observe a more pronounced misalignment once I vary the number of shares held by each fund.

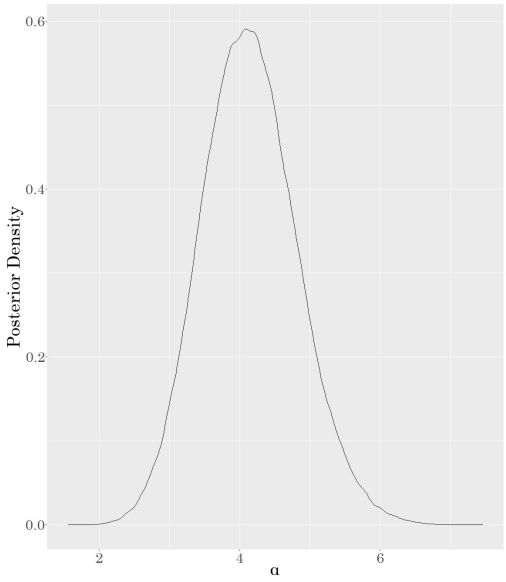
The example thus far only uses 20 funds' votes for illustration purposes, so it is not surprising that the estimated ranks show high dispersion. Exhibit 4 shows the posterior distributions of

α and ρ with 40 funds' votes, where the added 20 funds vote in exactly the same way as the 20 funds examined earlier. Each company's rank in Exhibit 4 is more precisely estimated than that in Exhibit 3, demonstrating that more information allows the algorithm to provide more accurate estimates. The median of α is the same as before, but the posterior distribution of α is narrower, indicating that a higher number of observations allows greater precision in the estimates.

Exhibit 4



A. Posterior Distributions of ρ



B. Posterior Density of α

3.2.3. Estimation and Outputs

I use the algorithm described in Section 3.1 to estimate the governance preference rankings of firms using the data on fund votes. As illustrated in Section 3.2.2, the M-H MCMC algorithm starts with initial values for the ranking and the precision parameter; the latter measures the degree of consensus among investors. The algorithm then locally perturbs the ranking and the precision parameter, proposing new values. These proposed values are accepted with some probability; if they are rejected, they are discarded, and the current values are reused in the next iteration. This step is repeated over and over, and the empirical distribution of the accepted rankings approaches the posterior distribution of the true ranking (ρ) after a sufficient number of iterations. The estimation was performed on the Compute Canada server, as it requires a considerable computational resources. For each ranking, I ran the M-H MCMC algorithm to obtain 1,000,000 accepted values, and I discarded the initial 500,000 iterations as burn-ins.

Another output is the posterior distribution of the precision parameter, which measures the degree of consensus among mutual funds and is simultaneously estimated with ρ. Appendix Figure A.2 shows the convergence and the posterior distribution of α. The posterior distribution of α is based on the 500,000 observations that remained after discarding the initial 500,000 observations. The mean and the median of α is 4.92, the 95% HPDI (highest posterior density interval) of α is [4.71, 5.13], and the 95% CI (central interval) is [4.71, 5.12].

Figure 4 displays how the degree of consensus varies by proposal topic, after accounting for the number of funds that expressed relative preferences, the number of companies ranked in a given year for a given topic, and year fixed effects. It shows that the degree of consensus varies somewhat by topic. Funds agree the most on which firms would benefit from the majority vote requirement. The most notable pattern is that the degree of consensus among funds is the lowest for the say-on-pay provision. This also means that each company's rank regarding preferences for say-on-pay is less precisely estimated, all else equal.

3.2.4. Interpretation, Advantages, and Limitations

In this section, I discuss several insights regarding the interpretation of preference rankings, along with their advantages and limitations. The rankings measure whether funds are more enthusiastic about governance changes at some companies than those at others. If one believes that funds vote in ways that maximize shareholders' interests, then the preference rankings demonstrate which firms benefit more from adopting the proposed initiatives. To what extent funds vote to maximize firm value is an open question: on the one hand, mutual funds have the fiduciary duty to vote their shares in the best interests of their clients, but not all funds will vote in a value-maximizing manner; funds might simply not have the capacity to correctly vote on thousands of votes each proxy season, and business relationships between funds and companies can incentivize funds to vote in a more management-friendly manner (Davis and Kim, 2007; Cvijanović et al., 2016).

To the best of my knowledge, this is the first attempt to characterize mutual funds' cross-sectional preferences in terms of the benefit of a particular provision. Given the debate on the "one-size-fits-all" approach to governance, it is crucial to understand which companies would benefit more from adopting certain governance provisions; however, it is not straightforward to make comparisons across companies. Vote support on proposals has been widely used in the literature, but different companies have different ownership structures, and each owner can potentially have different preferences on an issue (Bolton et al., 2020). The rankings developed

in this paper are not determined by the ownership structure and allow for the direct comparison of companies across ownership structures.

This paper also overcomes another challenge in estimating the consensus among mutual funds: the sparsity in mutual funds' votes on proposals. Sparsity becomes an issue because each fund owns different subsets of public companies and votes on different sets of proposals in a given year. The algorithm of Vitelli et al. (2018) becomes especially useful, as it allows the researcher to estimate consensus based on partial data. As finance and economics researchers rarely observe fully populated data, the algorithm could be useful in mitigating selection issues in empirical analyses.

Several important caveats are in order regarding the assumptions, estimation, and interpretation. First, the analysis in this paper is limited to companies that received proposals, making it difficult to compare companies that did and did not receive proposals. Therefore, any conclusions do not extend beyond companies that did not receive relevant proposals. Next, I take fund preferences as given and am agnostic regarding their origin, similar to many other studies based on the revealed preference argument. Although it is standard in the literature to interpret votes as preferences (e.g., Bubb and Catan, 2021; Bolton et al., 2020), it is also true that fund votes can also be affected by mistakes, ownership, proxy advisors' recommendations, business relationships, or peer funds' voting behavior. One company's voting outcome can affect how funds vote on its competitor's proposal on the same topic; moreover, a fund might simultaneously determine how it votes on multiple proposals, either for different companies or a single company (e.g., golden parachute and poison pill, in a given meeting). Although it is natural that preferences encapsulate all the influences and explaining the sources of preferences would be beyond the scope of this study, one limitation of my approach is that it cannot disentangle such influence.

Nevertheless, voting is the only channel that allows all shareholders to express their preferences in a systematic manner, and true preferences are notoriously difficult, if not impossible, to measure. Given this, I argue that votes predominantly reflect shareholder preferences. Even so, one would still be concerned if preferences were merely proxies for factors known to influence voting behavior, for example, proxy advisors' recommendations. Section 7 discusses such factors and explores their correlation with rankings.

3.3. Extensions and Application to Other Fields

The main focus of this paper is on companies, but the algorithm of Vitelli et al. (2018) offers possibilities to make inferences about mutual funds. For example, the algorithm allows users to cluster funds providing similar preferences. Furthermore, even if a fund did not vote on a given company's proposal, the algorithm allows users to calculate each fund's augmented rankings based on partial information, which can be potentially useful in predicting each funds' future voting behavior. Moreover, the algorithm can be applied to many different settings. For example, equity analysts' variation in buy or sell recommendations can be used to determine whether analysts believe that some companies' stocks are more worth purchasing. Similar inferences can be made based on credit ratings or ESG ratings.

4. Rankings vs. Vote Support

To better contextualize the rankings, I explore the correlation between fund preferences and vote support on related proposals, a measure that has been commonly used make inferences about the merits of proposals. I define vote support as (# votes in favor)/(# votes in favor + # votes against). On the one hand, it would not be surprising to observe some correlation between the rankings and vote support because fund votes are the main inputs used to construct the rankings and vote support influenced by the fund votes. However, each measure is constructed in a fundamentally different manner, and one can easily imagine a low level of correlation between the funds' preference rankings and vote support on proposals.

Table 3 reports the Spearman's correlation coefficient between the rankings and vote support, both displayed in a percentile rank format, calculated among firms that received the same proposal in a given year.[17] Panel A summarizes the pattern across all years, and Panel B reports the pattern by provision-year. A higher percentile rank translates to a higher preference for adoption. The first coefficient of 0.47 in column (1) of Panel A indicates that increasing vote support by 1 percentile is associated with a 0.47 percentage point increase in fund preferences. Funds' preference rankings and vote support on proposals point in the same direction: funds prefer firms with higher levels of vote support for independent board chairman proposals to have an independent board chairman. Columns (2)–(6) of Panel A show that the degree of correlation varies by topic: it is moderate for majority vote requirement (ρ=0.51), proxy

[17]Spearman's correlation, also known as rank correlation, is a nonparametric measure that captures the statistical dependence between the rankings of two variables.

access (ρ=0.49), and special meeting (ρ=0.35); and weak for board declassification (ρ=0.2) and say-on-pay (ρ=0.12).

Overall, funds generally prefer firms with higher vote support for shareholder proposals to adopt the relevant governance provisions, but the correlation is only moderate. This can be explained by the difference between fund vs. non-fund preferences, and/or the weighting mechanism because the rankings equally weight each investor's opinion whereas vote support weights the investors' opinions by the number of shares held by each investor. Another explanation is the difference in shareholder base between companies.

To explain which factor matters more, I next examine several variations of vote support. The goal is to explain the difference between rankings and vote support in a step by step manner. Figure 5 reports the results. The first measure I consider is funds' vote support: if funds and non-funds have difference preferences, then this can explain why funds' rankings and overall vote support show only moderate correlation.[18] To perform this analysis, I obtain information on the number of shares held by each fund by hand-matching funds in the Voting Analytics and FactSet databases using fund name as a common identifier. The correlation between funds' preference rankings and funds' vote support is larger than the correlation between funds' preference rankings and overall vote support, as the difference between the pink and the green bars indicates. However, the increase is not significant, suggesting that non-fund voting behavior is not what explains the lack of correlation between vote support and preference rankings.

Another potential explanation is the weighting mechanism. Although it is not possible to modify the rankings to be adjusted based on the size of the ownership, an alternative approach to comparison is to calculate the fraction of funds that were in support of a given proposal for each firm. The fraction is calculated as # of funds voted for/ (# of funds voted for + # of funds voted against). The teal bars show the correlation between funds' preference rankings and the fraction of funds that were in support of a given proposal. The correlation is somewhat larger than the correlation between funds' preference rankings and funds' vote support, as the difference between the green and teal bars shows: who has the decision power is what matters. At first glance, this might seem like an obvious statement, but if large shareholders' preferences are representative of the preferences of overall shareholders, then one can imagine weighting mechanism to not matter much.

The remaining deviation (i.e., the difference between the height of the teal bar and 1) can

[18]For example, funds have a stronger preference for American Airlines to separate the CEO and the chairman of the board than for Southwest, and non-fund investors might prefer Southwest to separate the CEO and the chairman of the board.

be explained the fact that different companies are owned by different sets of funds. This feature normally poses a challenge in comparing companies, but the method implemented in this paper offers ways to make cross-sectional comparisons across companies. As a final step, I remove funds that always voted for or against a given issue in a given year, then calculate the fraction of funds that were in support of a given proposal. There is not much economic meaning to this measure, but the measure and funds' preference rankings are based on identical input. The purple bars display the correlation. The increased correlation from the previous setup shows that the extent of funds' tendency to vote in a "one-size-fits-all" varies across companies.

To summarize, funds' governance preference rankings and vote support show a moderate correlation. Higher vote support does not always translate into higher fund preferences regarding the adoption of relevant governance provisions. I decompose the source of deviation into several components and show that both the weighting mechanism and the composition of shareholders make vote support deviate from funds' consensus.

5. Company Characteristics

5.1. Background

I next examine whether mutual funds prefer that firms with certain characteristics adopt the governance provisions examined in this paper. Several recent studies investigate the association between company characteristics and optimal board structures and the benefits of outside directors and classified boards (Coles et al., 2008; Duchin et al., 2010; Ahn and Shrestha, 2013; Field and Lowry, 2019).

Agency Proxies One important question is whether funds regard proxy voting as a way of voicing their concerns about managerial agency problems (Harris and Raviv, 2010; McCahery et al., 2016). As it is challenging to directly measure agency problems, I present results that employ several measures that have been commonly used as agency proxies in the literature: board independence, insider ownership, CEO ownership, and abnormal CEO compensation.

Performance Measures One idea that has been suggested in the literature is that it might be better to take control from the managers of poorly performing firms. For example, Cohn, Gillan, and Hartzell (2016) report evidence that it is more beneficial to allow proxy access in poorly performing firms than in firms that perform well. Karpoff, Malatesta, and Walkling (1996) and Renneboog and Szilagyi (2011) find that shareholder proposals are more likely to target poorly

performing firms, which could be interpreted as evidence that shareholder proposals are more beneficial for poorly performing firms. In this spirit, I also examine whether fund preferences are correlated with measures of firm performance: past abnormal stock returns, ROA, and market-to-book ratio.[19]

Firm Age and Size Several studies report that firms have different corporate governance structures at different stages of their life cycles, which naturally leads to the hypothesis that the optimal governance structures for firms change as they progress through their life cycles.[20] Although the literature does not seem to have reached consensus on whether certain governance provisions enhance shareholder value on average, it tends to concur that young firms benefit more from being insulated from takeover pressures than mature firms.[21] Firm size, which is often correlated with firm age, is employed in literature to predict governance structures in place and optimal corporate governance structures. For example, Cremers et al. (2017) find that large firms benefit more from having a declassified board. Stratmann and Verret (2012) suggest that proxy access can harm small companies.[22] Gompers, Ishii, and Metrick (2003) report that large firms tend to have weaker shareholder rights. In addition, the existing studies on this topic unanimously show that large firms attract shareholder proposals (e.g., Karpoff et al., 1996; Smith, 1996; Cai and Walkling, 2011). These findings seem to suggest that large firms benefit more than small firms from stronger shareholder rights.

[19]The market-to-book ratio, its inverse, and Tobin's Q have long been examined in the literature as proxies for firm value (Morck, Shleifer, and Vishny, 1988), investment or growth opportunities (Fazzari, Hubbard, and Petersen, 1988), risk factors (Fama and French, 1993), and monitoring costs (Boone, Field, Karpoff, and Raheja, 2007). Cremers, Litov, and Sepe (2017) and Bebchuk, Cohen, and Wang (2013) use Tobin's Q as a proxy for firm value/performance. Field and Lowry (2019) use the market-to-book ratio as a measure of information asymmetry. Cai, Garner, and Walkling (2013) use Tobin's Q as a proxy for performance and show that firms with low Tobin's Q attract more majority voting proposals.

[20]For example, Boone et al. (2007) use a panel dataset that tracks firms' board structures over time and show that board size and independence change as firms mature. Field and Lowry (2019) show that IPO firms have become more likely to have classified boards and dual class structures in recent years.

[21]For example, Field and Lowry (2019) report that young firms would optimally choose to implement classified boards, and Karakaş and Mohseni (2019) report that classified boards would be especially value-destroying for mature firms. Field and Lowry (2019), Kim and Michaely (2019), and Cremers, Lauterbach, and Pajuste (2018) suggest that dual class structures would be more beneficial for young firms. Johnson, Karpoff, and Yi (2018) show that takeover defenses enhance a firm's value when it is young but that they become costly over time.

[22]Stratmann and Verret (2012) examine the market reactions to unexpected changes in the SEC's proxy access rule and report evidence that proxy access decreases firm value in small firms below $75 million dollars in market capitalization.

5.2. Results

In this section, I examine whether fund preferences are correlated with agency proxies, performance measures, firm size and age. I calculate the Spearman correlation coefficient between the company's percentile rank of funds' preferences and the percentile of the company characteristic of interest. To calculate the company's percentile rank of funds' preferences, I first use the median of each company's rank, then covert it to percentile rank. The results are reported in Figure 6.[23] The bottom-left coefficient of -0.27, significant at the 1 percent level, indicates that funds are more enthusiastic about firms with low board independence having an independent board chairman than firms with high board independence: a one-percentile increase in board independence is associated with a 0.27 decrease in a firm's percentile rank, suggesting that board independence is important in how funds vote on independent board chairman proposals. Overall, the coefficients shown in the first four columns, with varying statistical significance, seem to support the view that mutual funds value a balance of power between shareholders and managers.

In a similar vein, a prominent view in the literature is that it might be better to take control from the managers of poorly performing firms. The next three columns report the relation between fund preferences and measures of firm performance: past abnormal stock returns, ROA, and market-to-book ratio. Although the coefficients typically have the correct sign, few coefficients are statistically significant, and the relation does not seem to be very strong. The most surprising result is the positive coefficient for independent board chairman: funds prefer firms with higher ROA to have an independent board chairman.[24] Overall, the results suggest that there is no strong relation between funds' governance preference rankings and firm performance.

Finally, the last two columns report whether funds' governance preference rankings are correlated with firm age and size. The results indicate that firm age is inversely related to fund preferences and the relationship is significant for a majority voting standard and say-on-pay. Given the findings in the literature, one might expect a positive coefficient in general and especially for board declassification, but this does not bear out when firms that received the same type of proposals in the same year are ranked against each other. I next turn to firm size,

[23] An alternative approach is to use the value from each of the 500,000 iterations and find the distribution of the correlation coefficient. The estimates are almost identical, with increased statistical significance.

[24] I also explored alternative specifications using different time horizons, with and without expected return adjustments. The relations between the rankings and the various performance measures are presented in Appendix Figure A.4.

measured by the natural log of market capitalization. The coefficients in the last column are generally negative, having the opposite sign from what the literature would predict.

Overall, large and mature firms attract shareholder proposals across all topics; among those firms that received the proposals, funds do not seem to prefer larger or more mature firms strengthening shareholder rights. One possible interpretation of the results is that firms targeted by proposals are not necessarily those that would benefit the most from adopting them. In fact, across all topics, large and mature firms are significantly more likely to be targeted by shareholder proposals. I find that the the targeted firms' median size and age percentile in the ISS universe are 87 and 76, respectively. Large and mature firms generally receive more attention from general public and have more shareholders who are eligible to submit shareholder proposals. Given the disproportionate targeting decisions, the setting does not allow one to draw conclusions on whether small and young firms would benefit more from having stronger takeover defenses. The evidence in this paper so far does not lend support to the view.

6. Sponsors

An important question in the shareholder activism literature is whether proposals that are brought by certain proponents are more aligned with the interests of shareholders at large. Labor unions, public pension funds, and religious groups combined submit nearly half of all shareholder proposals, raising the question of whether these proposals are submitted to enhance firm value or to advance private interests. Previous studies on this subject have examined shareholder activism by labor unions and public pension funds, with mixed evidence on their motivation and effectiveness.[25] The rankings developed in this paper can shed light on whether funds favor proposals submitted by certain proponents more than others, while holding constant proposal topics and each fund's overall preference regarding those topics. The inference in this paper is based on the consensus of the mutual funds, whereas the extant literature has drawn conclusions based on votes in favor and stock market reactions to key events.

Figure 7 shows whether proposals by certain types of proponents are more welcomed by funds than others.[26] The sponsor type classification comes from the ISS Proposals database, and I

[25]For evidence on labor unions, see Cai and Walkling (2011), Ertimur, Ferri, and Muslu (2011), Agrawal (2012), Prevost, Rao, and Williams (2012), and Matsusaka, Ozbas, and Yi (2019). For evidence on public pension funds, see Romano (1993), Wahal (1996), Del Guercio and Hawkins (1999), and Prevost and Rao (2000).

[26]The sample period ends in 2019 because ISS reduced coverage in a recent data update between 2020 and 2021.

correct obvious misclassifications, building on the classification of Matsusaka et al. (2019). I group the proposals into seven broad categories, and the proposals by others or without sponsor information were grouped into the "others" category. The figure displays the kernel density estimate of the percentile rank of each sponsor type across all the individual proposal topics.

Most notably, the proposals brought by non-SRI funds are the most welcomed by mutual funds. This pattern is obvious, although the number of observations is relatively small (N=44). This result contrasts with the kernel density estimate directly below it: the proposals submitted by SRI funds are not as welcomed by mutual funds. The proposals submitted by public pension funds are, on average, viewed more favorably than those brought by most of the other groups; this is consistent with Del Guercio and Hawkins (1999), who find no evidence to question the motivations of public pension funds. The proposals brought by religious groups and labor unions are not particularly liked or disliked, and the proposals brought by individuals are the least favored. The proposals by individuals are mostly brought by a handful of activists and typically receive a low level of vote support, as shown in Gantchev and Giannetti (2020). Matsusaka et al. (2021) also show that companies are more likely to send individuals' proposals to the SEC for a no-action letter request, and the SEC is more likely to allow companies to exclude those proposals from their proxy statements. All the evidence points in a consistent direction: proposals by individuals are less likely to benefit shareholders.

I repeat the same analysis for each topic, but I do not report these results because the sample size for each sponsor type is usually too small to draw strong conclusions: for each topic, one or two groups sponsor most of the proposals. The majority of independent board chairman proposals are brought by either individuals or labor unions, and funds prefer labor unions' proposals to individuals' proposals. More than 80 percent of the board declassification proposals are brought by either individuals or public pension funds, and mutual funds prefer the public pension funds' proposals to individuals' proposals. Unions sponsor more than 80 percent of the proposals requiring a majority vote, and public pension funds sponsor more than 15 percent of such proposals. Funds prefer public pension funds' proposals to labor unions' proposals. Public pension funds sponsor more than 50 percent of the proxy access proposals, and individuals sponsor more than 30 percent of these proposals; the funds prefer public pension funds' proposals to individuals' proposals.[27]

[27]For the rest of the topics, comparisons between the different sponsor types are infeasible: almost all the special meeting proposals are sponsored by individuals; additionally, the say-on-pay proposals are brought by almost all sponsor types, and there is an usually a small number of proposals per sponsor type for this topic.

7. Other Considerations

This paper assumes that funds' votes reflect their preferences, which can be affected by third-party advice, media coverage, peer funds' opinions, or interaction between companies and funds. Although decomposing the sources of preference is beyond the scope of this paper, one potential concern is that votes do not truly reflect funds' preferences. For example, some funds might simply follow proxy advisors' recommendations, as opposed to forming preferences after reviewing recommendations. It is also possible that funds vote with management regardless of their own views, because not doing so would hurt their ongoing business relationships with companies. This section reports how such factors are correlated with rankings.

7.1. Proxy Advisors' Recommendations

In this section, I explore whether the firms' rankings are related to ISS recommendations, which is influential in fund voting behavior as well as voting outcomes (Iliev and Lowry, 2015; Malenko and Shen, 2016). For independent board chairman proposals, ISS recommended to vote for about 66 percent of proposals and against the rest (Table 1 Panel A). Figure 8 Panel A shows the distribution of percentile rank, separately for independent board chairman proposals with for vs. against recommendations from the ISS.[28] Perhaps not surprisingly, ISS recommendation is strongly correlated with a firm's estimated rank: when ISS recommends voting against a firm's independent board chairman proposals, that firm is consistently ranked at the bottom.

In contrast, Figure 8 Panel B shows that Glass Lewis recommendation is not highly correlated with funds' preferences. This can be explained by the fact that Glass Lewis recommended their customers to vote for most of these proposals, and the fact that funds are much more likely to be customers of ISS (vs. Glass Lewis).[29] Figure 8 Panel C shows the results for proposals that received (ISS recommendation, Glass Lewis recommendation, Management recommendation) = (For, For, Against). The patterns are almost identical to that reported in Figure 8 Panel A, showing that adding Glass Lewis recommendation does not change the overall picture.

Given the results, a natural follow-up question is whether proxy advisors' recommendations

[28]For all but one proposal, management recommended to vote against independent board chairman proposals, so there is no variation in management recommendation.

[29]Glass Lewis recommended to vote for 94 percent of proposals (Table 1). For independent board chairman proposals during 2006–2018 analyzed in this paper, about 50 percent of votes are cast by ISS customers, whereas about 8 percent of votes are cast by Glass Lewis customers.

explain all the variations in rank or, in other words, whether the estimated ranks show any variation once when there is no variation in proxy advisors' recommendations. To explore this question, I estimate the ranking for a subset of companies whose proposals show no variation in proxy advisors' recommendation: (ISS recommendation, Glass Lewis recommendation, Management recommendation) = (For, For, Against). In Appendix Figure A.5, the estimated rank of each company exhibits meaningful variation even within this subsample.

For the rest of the topics, ISS almost always recommends voting for the relevant proposals (Table 1 Panel A). For proposals on those topics, it is fair to say that the rankings are determined by factors other than ISS recommendations. Glass Lewis also recommended to vote for most of these proposals, with the exception of proxy access and special meeting proposals.[30] Taken together, proxy advisors' recommendations are influential in determining the rankings when they are split, yet cannot explain all the variation in rank. This indicates that the recommendations are one of the many factors that determine funds' votes and preferences.

7.2. Business Ties

Some of the votes in my sample are cast by funds that have business ties with companies, where business ties include but not limited to investment management, retirement asset management, and brokerage. If such funds are more inclined to vote in support of management (against shareholder proposals in most cases), their votes can potentially bias the rankings developed in this paper. One might be concerned that companies with business ties appear as if they do not benefit much from adopting proposed governance changes relative to other companies. To address this question, I identify votes cast by funds that belong to affiliated financial institutions ("affiliated funds" hereafter) and estimate rankings excluding such votes.

In my sample, affiliate funds' votes account for approximately 3 percent of total observations, where each observation is a vote at the fund-proposal level. For about one-third of the firm-years, there is at least one vote by affiliated funds. Conditional on a firm having at least one business affiliation, about 50 percent of the firm-years have one affiliated institution and another 20 percent have two affiliated institutions. In my sample, General Electric Company has the most number of business ties: it is affiliated with 27 different institutions.[31] For companies

[30]For these exceptions, Glass Lewis recommendations are more influential than what is shown in Figure 8 Panel B. However, the sample size is small in most cases, and there is no strong evidence that Glass Lewis is as influential as the ISS.

[31]General Electric Company has Fidelity as the third-party administrator, BlackRock Advisors, Inc. as an investment manager, State Street Global Advisors and many others as security brokerage firms, and General

with business ties, the mean and the median fraction of affiliated funds is 6 and 5 percent, respectively.

Before examining the contribution of affiliated funds in determining each company's rank, I first explore the voting patterns of affiliated funds. Panel A of Table 4 reports the results: columns (1)–(4) show that funds with business ties are 2 to 5 percentage points more likely to vote with management. Column (4) includes fund-company fixed effects, so the coefficient shows whether funds are more likely to vote with management when they have business ties compared to when they do not. The coefficient increases in magnitude compared to the previous specifications. The findings are in line with Cvijanović et al. (2016) who show that affiliated funds are more likely to be supportive of management.

Panels B and C of Table 4 explores whether the votes by affiliated funds affect affiliated companies' ranks. Although affiliated funds are much more likely to vote in favor of management, I do not find that their votes affect affiliated companies' rank in a material manner. Panel C shows that when I compare each affiliated firm's estimated rank, before and after excluding affiliated funds' votes, the average difference is close to zero and statistically insignificant. Specifically, the average percentile rank of affiliated companies is 50.54 when I include affiliated funds' votes and 50.51 when I exclude their votes (Panel B.1).[32] Across all firm-years, the average percentile change after the exclusion is -0.03 and statistically indifferent from zero (Panel C.1).[33] I also break down the pattern by topic. With the exception of proxy access, there is little evidence that affiliated companies' ranks change materially. Panel C.2 shows that the median rank change is zero for all six provisions.

The findings indicate that votes by affiliated funds are not influential enough to have an impact on affiliated firms' rank. This is partly because the fraction of votes cast by affiliated funds is rather small (i.e., 3 percent), and also because the algorithm does not take a simple average of all votes; It rather estimates the distribution of each company's rank.[34] Overall, there is little evidence that the rankings in this paper are biased by a potential conflict of interest arising from business ties between companies and affiliated financial institutions.

Electric Asset Management as a wholly owned subsidiary.

[32]This also shows that affiliated companies' ranks are not materially different from unaffiliated companies' ranks, as percentile ranges from 0 to 100.

[33]If the original ranks were biased, the average percentile change would have a positive sign.

[34]In unreported analysis, I find that affiliated funds are overall 12 percentage points more likely to vote with management after including several fixed effects, compared to funds with no business relationship at all. This is in line with the findings and interpretation of Davis and Kim (2007): fund families with a larger client base generally vote in a more management-friendly manner. This can also explain why affiliated companies' ranks do not change much before and after the exclusion.

8. Conclusion

In this paper, I develop measures of mutual funds' governance preferences by examining how funds vote differently across their portfolio firms' shareholder proposals. I exploit the fact that funds typically vote on many firms' shareholder proposals on the same topic every year and reveal their preferences regarding governance outcomes—by casting a for vote on some firms' shareholder proposals and casting an against vote on other firms' proposals on the same issue. Using a novel machine learning technique developed by Vitelli et al. (2018), I implement the M-H MCMC algorithm and estimate funds' preferences regarding the adoption of six governance provisions that have gained traction during the last two decades: independent board chairman, board declassification, majority vote requirements for director elections, proxy access, shareholders' rights to call special meetings, and say-on-pay.

I find a moderate correlation between funds' governance preference rankings and vote support. Higher vote support does not necessarily translate into higher fund preferences regarding the adoption of relevant governance provisions. I decompose the source of deviation into several components and show that both the weighting mechanism and the composition of shareholders can cause vote support to deviate from funds' consensus.

I also find that funds prefer firms with low board independence, high insider ownership, and high abnormal compensation to adopt certain governance provisions that increase shareholder rights. I also find that large and mature firms frequently become targets of shareholder proposals but that funds are not particularly enthusiastic about the proposed governance changes at those firms. This suggests the possibility that large and mature firms are disproportionately targeted by these proposals and funds vote down proposals that do not benefit shareholders at large. I find a mixed relation between funds' preferences and firm performance. Funds prefer proposals submitted by non-SRI funds and dislike individuals' proposals. Proposals submitted by public pension funds are more welcomed than the rest, and the proposals brought by unions are not particularly welcomed or disliked.

The corporate governance literature has long examined whether the governance provisions examined in this paper are on average beneficial for firms; thus far, the evidence seems mixed. One possible explanation for this is that these benefits are not uniform across heterogeneous firms. This paper ranks firms according to the governance preferences of mutual funds and takes a step toward understanding firms' unique governance demands.

References

Agrawal, Ashwini K, 2012, Corporate governance objectives of labor union shareholders: Evidence from proxy voting, *The Review of Financial Studies* 25, 187–226.

Ahn, Seoungpil, and Keshab Shrestha, 2013, The differential effects of classified boards on firm value, *Journal of Banking & Finance* 37, 3993–4013.

Appel, Ian R, Todd A Gormley, and Donald B Keim, 2016, Passive investors, not passive owners, *Journal of Financial Economics* 121, 111–141.

Avery, Christopher N, Mark E Glickman, Caroline M Hoxby, and Andrew Metrick, 2013, A revealed preference ranking of U.S. colleges and universities, *The Quarterly Journal of Economics* 128, 425–467.

Bebchuk, Lucian A, Alma Cohen, and Charles CY Wang, 2013, Learning and the disappearing association between governance and returns, *Journal of Financial Economics* 108, 323–348.

Bebchuk, Lucian Arye, 2005, The case for increasing shareholder power, *Harvard Law Review* 118, 833.

Bhandari, Tara, Peter Iliev, and Jonathan Kalodimos, 2019, Governance changes through shareholder initiatives: The case of proxy access.

Bolton, Patrick, Tao Li, Enrichetta Ravina, and Howard L Rosenthal, 2020, Investor ideology, *Journal of Financial Economics* 137, 320–352.

Boone, Audra L, Laura Casares Field, Jonathan M Karpoff, and Charu G Raheja, 2007, The determinants of corporate board size and composition: An empirical analysis, *Journal of Financial Economics* 85, 66–101.

Bubb, Ryan, and Emiliano M Catan, 2021, The party structure of mutual funds, *The Review of Financial Studies* .

Cai, Jay, Jacqueline L Garner, and Ralph A Walkling, 2013, A paper tiger? an empirical analysis of majority voting, *Journal of Corporate Finance* 21, 119–135.

Cai, Jie, and Ralph A Walkling, 2011, Shareholders' say on pay: Does it create value?, *Journal of Financial and Quantitative Analysis* 299–339.

Cohn, Jonathan B, Stuart L Gillan, and Jay C Hartzell, 2016, On enhancing shareholder control: A (dodd-) frank assessment of proxy access, *The Journal of Finance* 71, 1623–1668.

Coles, Jeffrey L, Naveen D Daniel, and Lalitha Naveen, 2008, Boards: Does one size fit all?, *Journal of Financial Economics* 87, 329–356.

Cremers, KJ Martijn, Lubomir P Litov, and Simone M Sepe, 2017, Staggered boards and long-term firm value, revisited, *Journal of Financial Economics* 126, 422–444.

Cremers, Martijn, Beni Lauterbach, and Anete Pajuste, 2018, The life-cycle of dual class firm valuation.

Crispino, Marta, Elja Arjas, Valeria Vitelli, Natasha Barrett, and Arnoldo Frigessi, 2019, A bayesian mallows approach to nontransitive pair comparison data: How human are sounds?, *The Annals of Applied Statistics* 13, 492–519.

Cvijanović, Dragana, Amil Dasgupta, and Konstantinos E Zachariadis, 2016, Ties that bind: How business connections affect mutual fund activism, *The Journal of Finance* 71, 2933–2966.

Davis, Gerald F, and E Han Kim, 2007, Business ties and proxy voting by mutual funds, *Journal of Financial Economics* 85, 552–570.

Del Guercio, Diane, and Jennifer Hawkins, 1999, The motivation and impact of pension fund activism, *Journal of Financial Economics* 52, 293–340.

Duchin, Ran, John G Matsusaka, and Oguzhan Ozbas, 2010, When are outside directors effective?, *Journal of Financial Economics* 96, 195–214.

Ertimur, Yonca, Fabrizio Ferri, and Volkan Muslu, 2011, Shareholder activism and CEO pay, *The Review of Financial Studies* 24, 535–592.

Fama, Eugene F, and Kenneth R French, 1993, Common risk factors in the returns on stocks and bonds, *Journal of Financial Economics* 33, 3–56.

Fazzari, Steven M, R Glenn Hubbard, and Bruce Petersen, 1988, Financing constraints and corporate investment, *Brookings Papers on Economic Activity* 141–206.

Field, Laura Casares, and Jonathan M Karpoff, 2002, Takeover defenses of ipo firms, *The Journal of Finance* 57, 1857–1889.

Field, Laura Casares, and Michelle Lowry, 2019, Bucking the trend: Why do IPOs choose controversial governance structures and why do investors let them.

Gantchev, Nickolay, and Mariassunta Giannetti, 2020, The Costs and Benefits of Shareholder Democracy: Gadflies and Low-Cost Activism, *The Review of Financial Studies* 34, 5629–5675.

Gillan, Stuart L, and Laura T Starks, 2000, Corporate governance proposals and shareholder activism: The role of institutional investors, *Journal of Financial Economics* 57, 275–305.

Gompers, Paul, Joy Ishii, and Andrew Metrick, 2003, Corporate governance and equity prices, *The Quarterly Journal of Economics* 118, 107–156.

Harris, Milton, and Artur Raviv, 2010, Control of corporate decisions: shareholders vs. management, *The Review of Financial Studies* 23, 4115–4147.

Hirst, Scott, and Lucian Bebchuk, 2019, The specter of the giant three, *Boston University Law Review* 99, 721.

Iliev, Peter, and Michelle Lowry, 2015, Are mutual funds active voters?, *The Review of Financial Studies* 28, 446–485.

Johnson, William C, Jonathan M Karpoff, and Sangho Yi, 2018, The lifecycle effects of firm takeover defenses.

Karakaş, Oğuzhan, and Mahdi Mohseni, 2019, Staggered boards and the value of voting rights.

Karpoff, Jonathan M, Paul H Malatesta, and Ralph A Walkling, 1996, Corporate governance and shareholder initiatives: Empirical evidence, *Journal of Financial Economics* 42, 365–395.

Kim, Hyunseob, and Roni Michaely, 2019, Sticking around too long? dynamics of the benefits of dual-class voting.

Li, Han, Minxuan Xu, Jun S Liu, and Xiaodan Fan, 2019, An extended mallows model for ranked data aggregation, *Journal of the American Statistical Association* 1–27.

Liu, Qinghua, Marta Crispino, Ida Scheel, Valeria Vitelli, and Arnoldo Frigessi, 2019, Model-based learning from preference data, *Annual Review of Statistics and Its Application* 6, 329–354.

Loughran, Tim, and Jay Ritter, 2004, Why has ipo underpricing changed over time?, *Financial Management* 5–37.

Malenko, Nadya, and Yao Shen, 2016, The role of proxy advisory firms: Evidence from a regression-discontinuity design, *The Review of Financial Studies* 29, 3394–3427.

Mallows, Colin L, 1957, Non-null ranking models. I, *Biometrika* 44, 114–130.

Matsusaka, John G, and Oguzhan Ozbas, 2017, A theory of shareholder approval and proposal rights, *The Journal of Law, Economics, and Organization* 33, 377–411.

Matsusaka, John G, Oguzhan Ozbas, and Irene Yi, 2019, Opportunistic proposals by union shareholders, *The Review of Financial Studies* 32, 3215–3265.

Matsusaka, John G, Oguzhan Ozbas, and Irene Yi, 2021, Can shareholder proposals hurt shareholders? evidence from Securities and Exchange Commission no-action-letter decisions, *The Journal of Law and Economics* 64, 107–152.

Matvos, Gregor, and Michael Ostrovsky, 2010, Heterogeneity and peer effects in mutual fund proxy voting, *Journal of Financial Economics* 98, 90–112.

McCahery, Joseph A, Zacharias Sautner, and Laura T Starks, 2016, Behind the scenes: The corporate governance preferences of institutional investors, *The Journal of Finance* 71, 2905–2932.

Morck, Randall, Andrei Shleifer, and Robert W Vishny, 1988, Management ownership and market valuation: An empirical analysis, *Journal of Financial Economics* 20, 293–315.

Prevost, Andrew K, and Ramesh P Rao, 2000, Of what value are shareholder proposals sponsored by public pension funds, *The Journal of Business* 73, 177–204.

Prevost, Andrew K, Ramesh P Rao, and Melissa A Williams, 2012, Labor unions as shareholder activists: champions or detractors?, *Financial Review* 47, 327–349.

Renneboog, Luc, and Peter G Szilagyi, 2011, The role of shareholder proposals in corporate governance, *Journal of Corporate Finance* 17, 167–188.

Romano, Roberta, 1993, Public pension fund activism in corporate governance reconsidered, *Columbia Law Review* 93, 795–853.

Shu, Chong, 2021, The proxy advisory industry: Influencing and being influenced.

Smith, Michael P, 1996, Shareholder activism by institutional investors: Evidence from calpers, *The Journal of Finance* 51, 227–252.

Sorkin, Isaac, 2018, Ranking firms using revealed preference, *The Quarterly Journal of Economics* 133, 1331–1393.

Stratmann, Thomas, and JW Verret, 2012, Does shareholder proxy access damage share value in small publicity traded companies, *Stan. L. Rev.* 64, 1431.

Vitelli, Valeria, Øystein Sørensen, Marta Crispino, Arnoldo Frigessi, and Elja Arjas, 2018, Probabilistic preference learning with the mallows rank model, *Journal of Machine Learning Research* 18, 1–49.

Wahal, Sunil, 1996, Pension fund activism and firm performance, *Journal of Financial and Quantitative Analysis* 1–23.

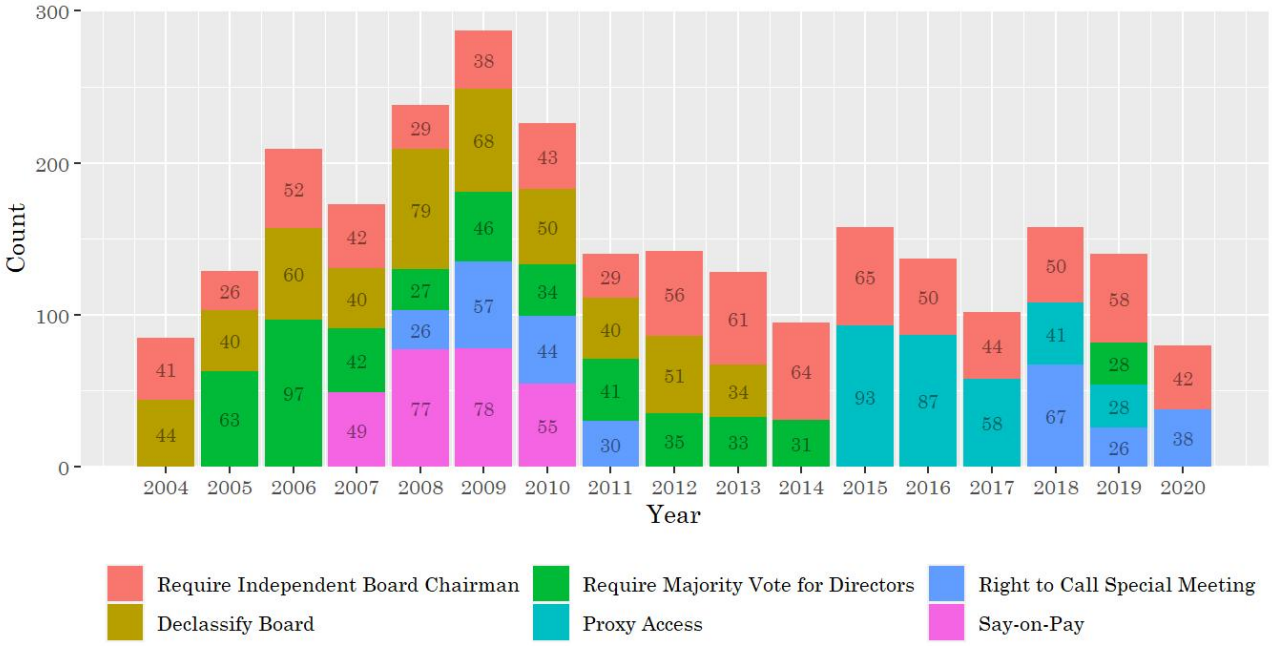
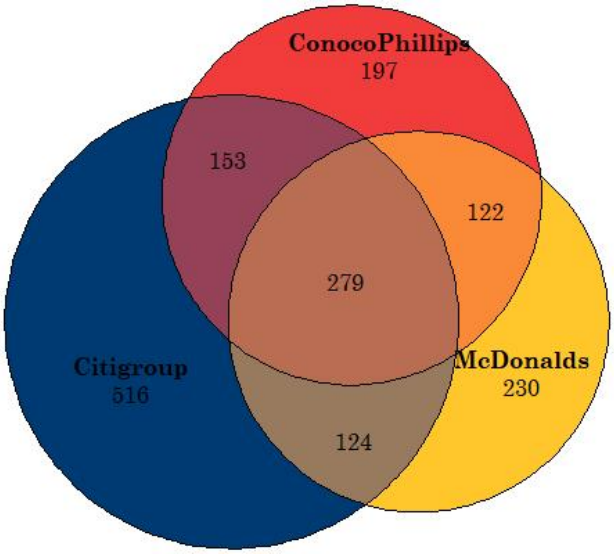


Figure 1. Number of Companies with Shareholder-Sponsored Proposals by Topic. This figure shows the number of companies with shareholder-sponsored governance proposals, by proposal topic and year. The information comes from the ISS Voting Analytics Mutual Fund Vote Records database. I require at least 25 proposals on the same topic and at least 50 funds with both "for" and "against" vote on a given topic in a given year. The topic categorization is based on ISS's topic code "issagendaitemid"(Appendix Table A.1).

Panel A. Number of Funds that Voted on Three Firms' Proxy Access Proposals in 2015



Panel B. Fund Votes on Three Firms' Proxy Access Proposals in 2015

	Against	For
Citigroup \ McDonald's		
Against	[redacted]	[redacted]
For	[redacted]	[redacted]
McDonald's \ ConocoPhillips		
Against	[redacted]	[redacted]
For	[redacted]	[redacted]
Citigroup \ ConocoPhillips		
Against	[redacted]	[redacted]
For	[redacted]	[redacted]

(*Continued*)

Panel C. 50 Funds' Votes on 20 Firms' Proxy Access Proposals in 2015

Figure 2. Mutual Fund Voting Patterns: An Illustration. Panel A presents a Venn Diagram of the mutual funds that voted on the proxy access proposals of Citigroup, McDonald's, and/or Conoco Phillips' during 2015. Panel B shows the votes cast by these funds. Each black square represents one fund. For example, the top row shows that 54 funds voted against both Citigroup and McDonalds' proxy access proposals and no funds voted against Citigroup's proposal and for McDonald's proposal. Any votes other than For and Against are excluded from this figure. Panel C shows how 50 mutual funds voted on 20 firms' proxy access proposals during 2015. Each column represents a company, and each row represents a fund's votes.

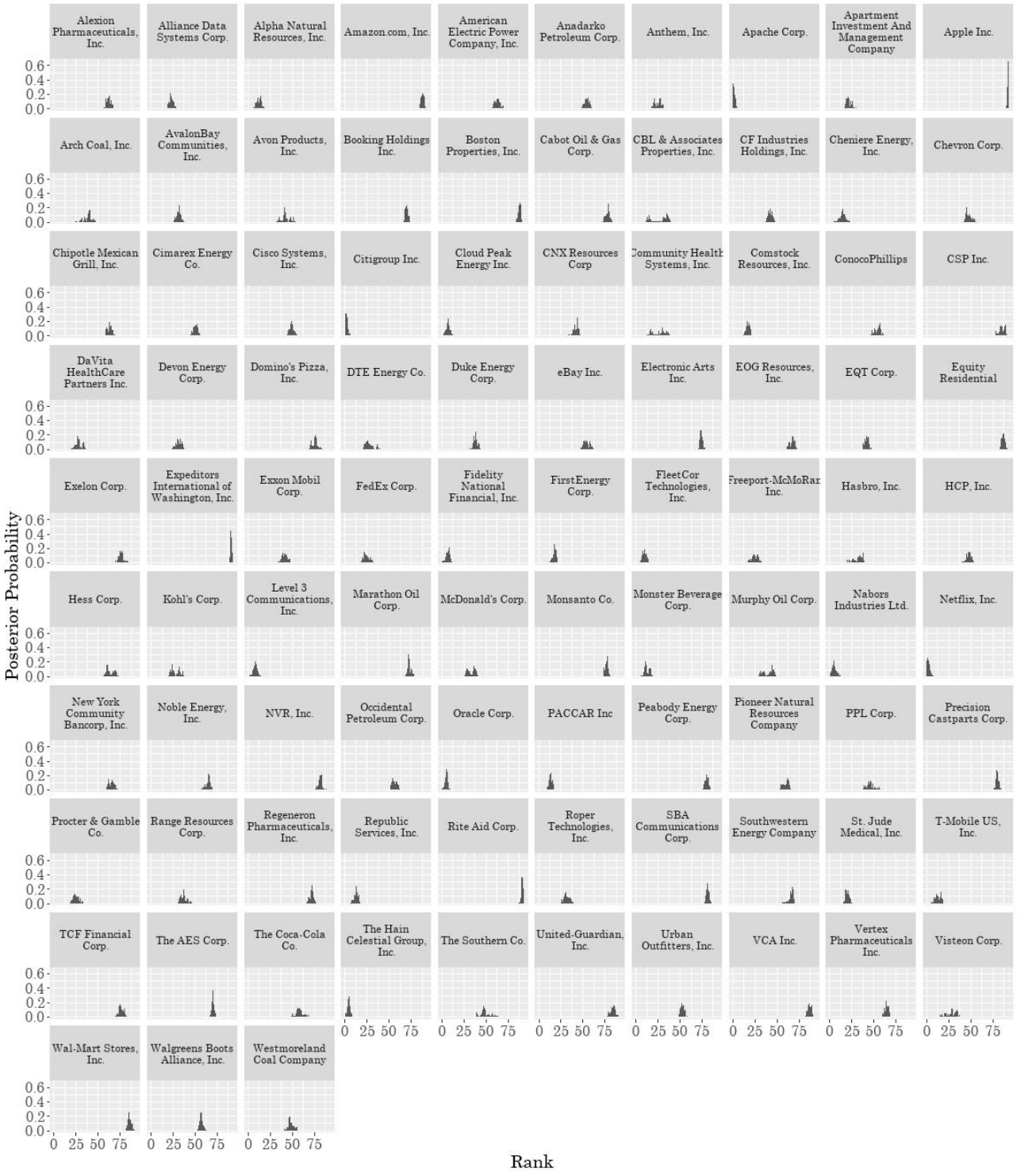


Figure 3. Posterior Distribution of Rank. This figure presents the posterior distribution of each firm's rank based on funds' preferences, for companies that received proxy access proposals during 2015. A rank of 1 means that the governance topic under consideration is the most desirable for the given firm from the perspective of mutual funds. Seed 101 is used to produce this graph.

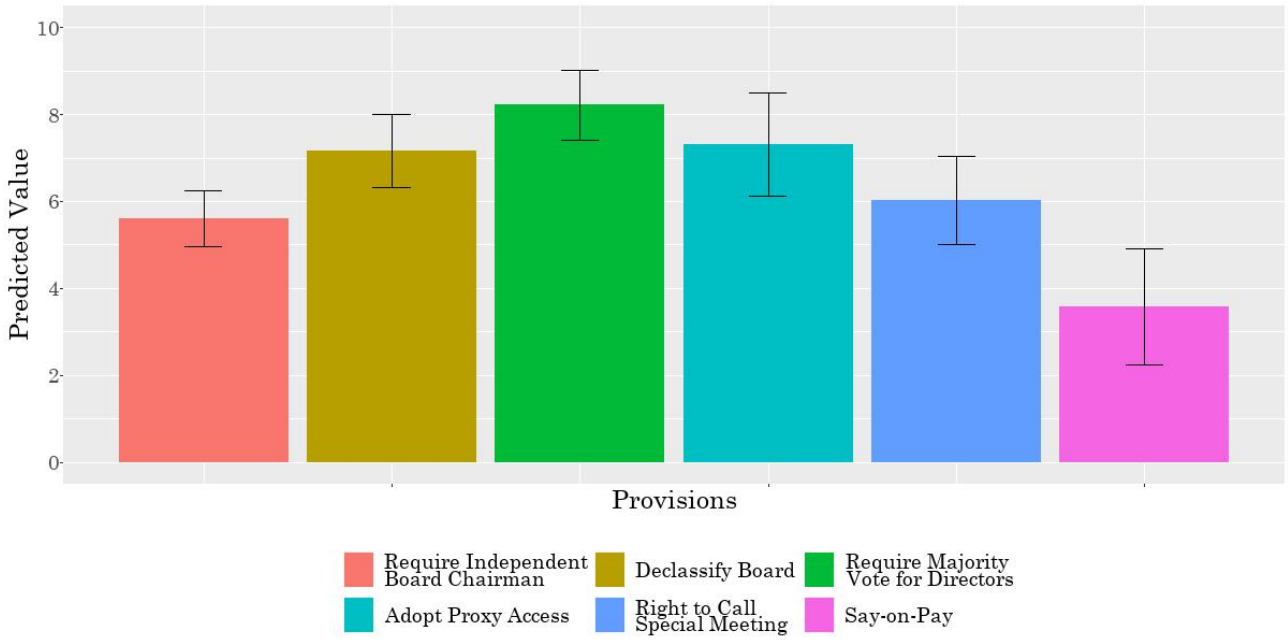


Figure 4. Degree of Consensus (α) by Topic. This figure presents how the degree of consensus among funds vary by topic. The height of the bar shows the predictive margins with 95% confidence interval, where the estimates come from regressing the median value of α on the log of the number of companies, log of the number of funds that voted both for and against, year dummies, and topic dummies. The observation is at the topic-year level.

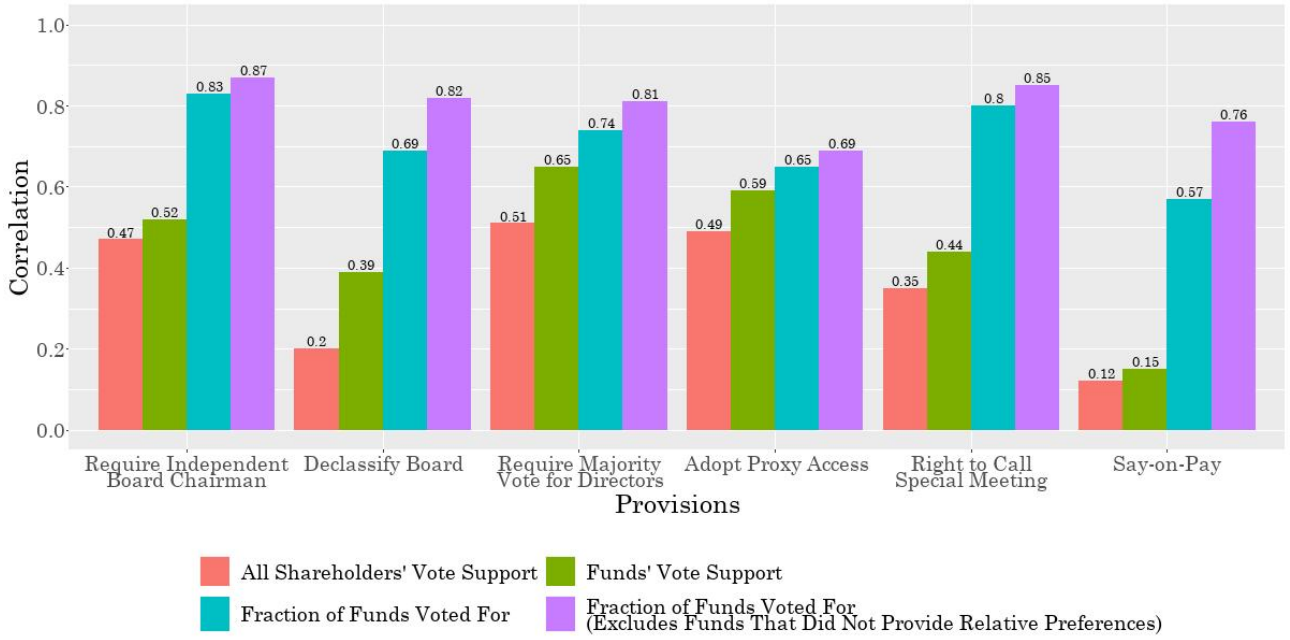


Figure 5. Correlation Between Rankings and Different Measures of Vote Support. This figure presents the correlation between funds' preference rankings and (i) all shareholders' vote support, (ii) mutual funds' vote support, (iii) the fraction of funds that voted for, and (iv) the fraction of funds that voted for, excluding funds that always voted for or against a given issue in a given year. The fraction of funds that voted for is defined as: # of funds voted for/ (# of funds voted for + # funds of voted against).

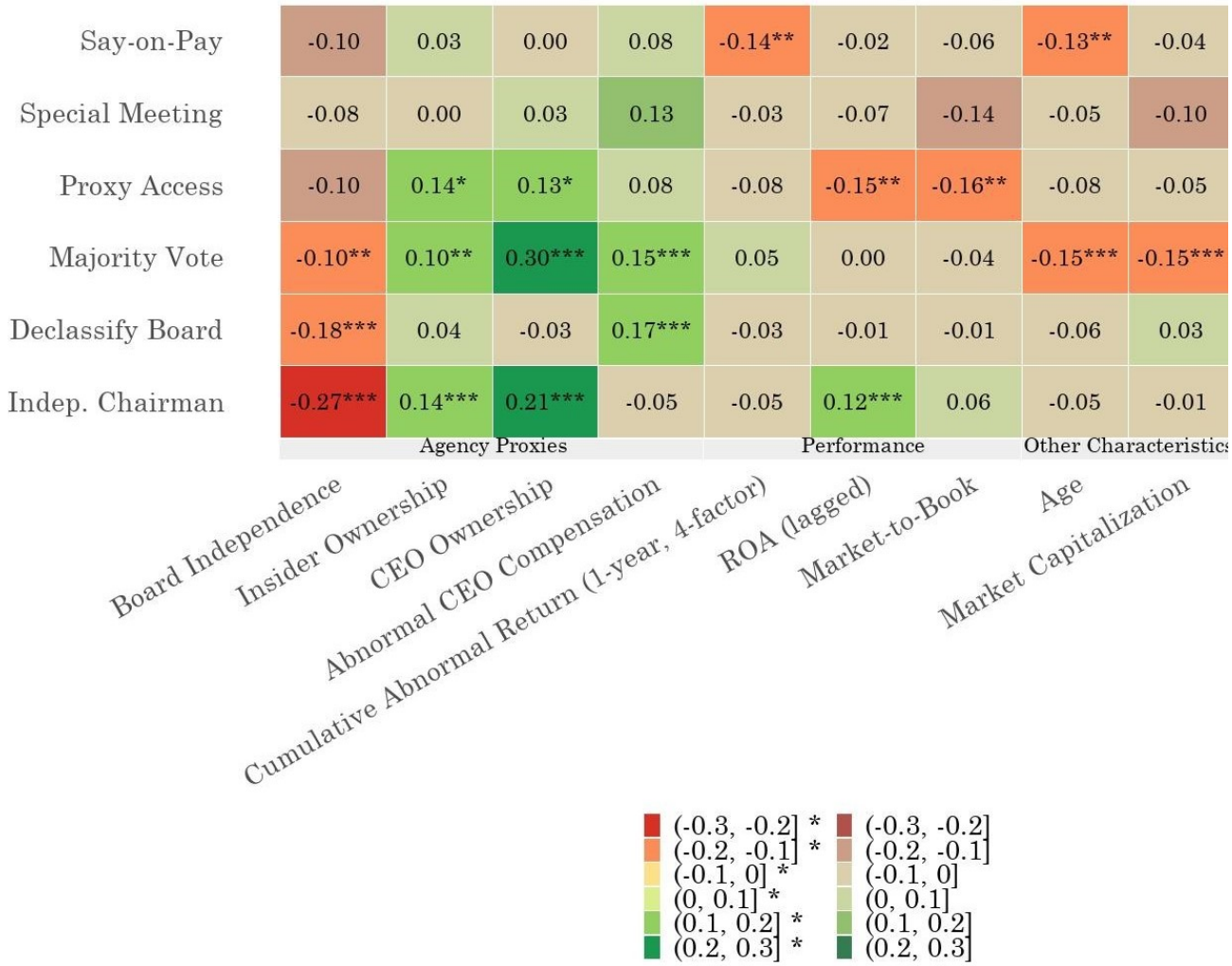


Figure 6. Fund Preferences and Company Characteristics. This figure presents the relationship between funds' preference rankings and firm characteristics. For each topic displayed on the y-axis, I calculate the Spearman correlation between the company's percentile rank of funds' preferences and the percentile of company characteristic of interest, as indicated at the bottom of the graph. ***, **, and * indicate significance at the 1, 5, and 10% levels. The colors show the magnitude of the coefficients and whether the coefficients are statistically significant at least at the 10% level. For example, red is mapped to coefficients that fall within the range of $(-0.3, -0.2]$ and are statistically significant at least at the 10% level. The second column of the legend shows the color-coding of the coefficients that are not statistically significant at the 10% level.

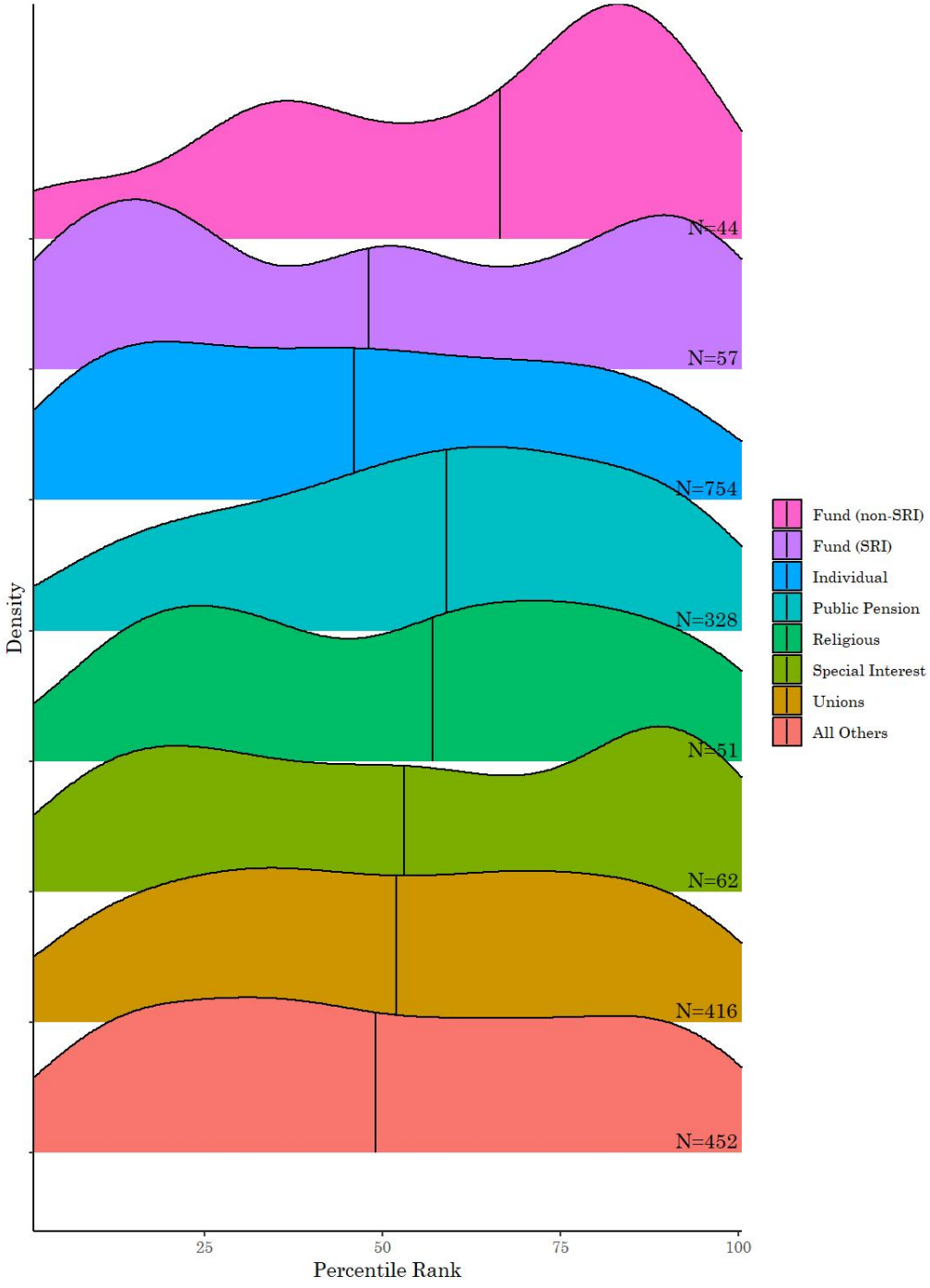
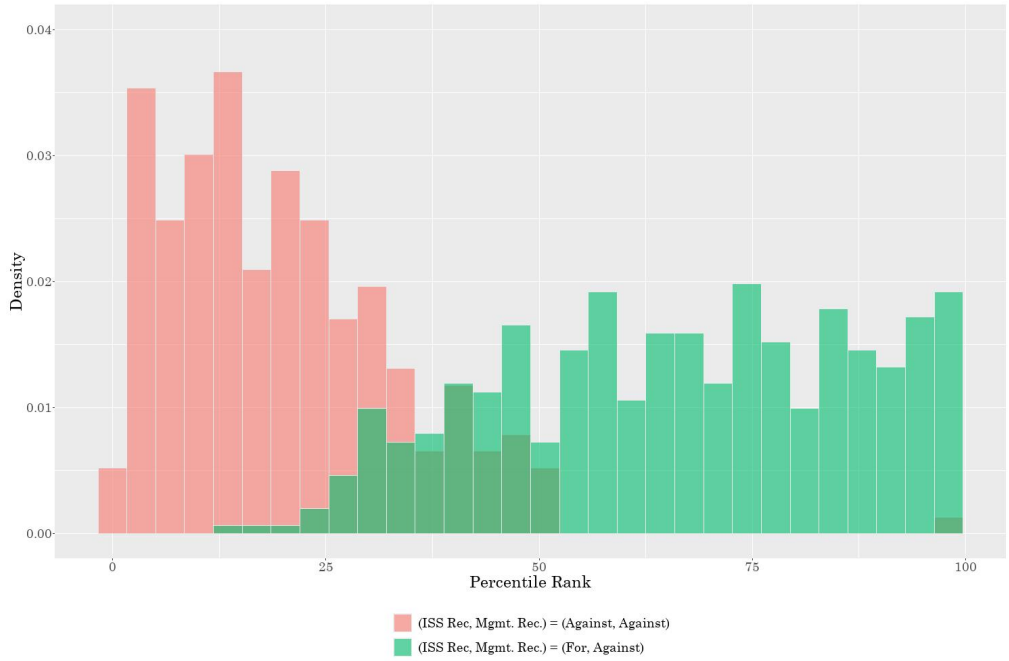
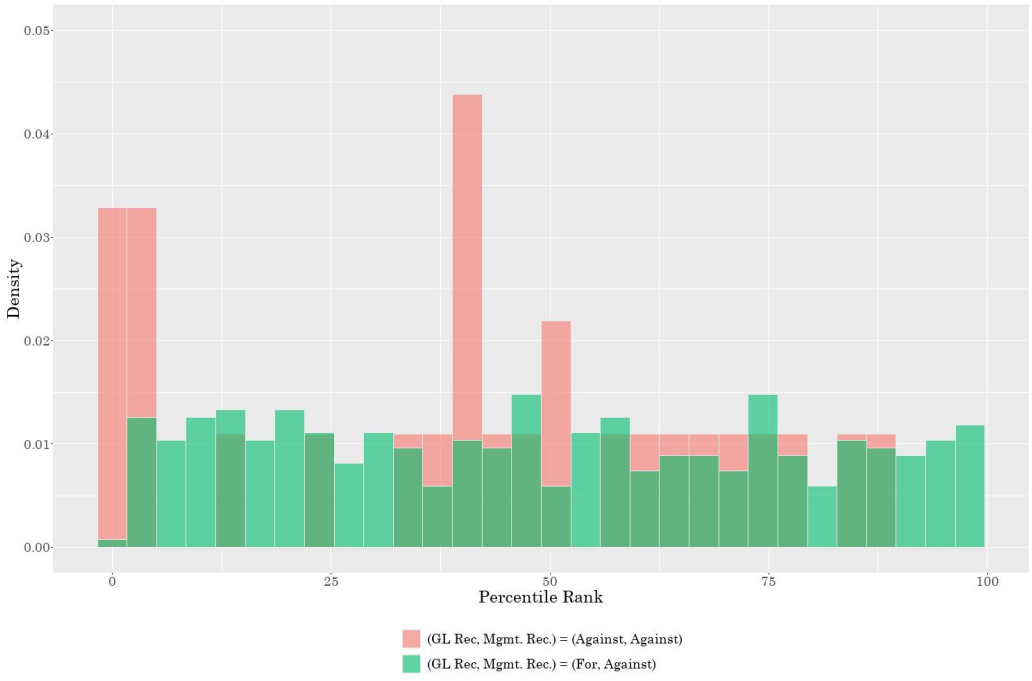


Figure 7. Kernel Density Estimate of the Percentile Rank by Sponsor Type. This figure presents the kernel density estimate of the percentile rank for each sponsor type using the joint bandwidth of 9.91. The vertical lines display the median percentile rank for each sponsor type. A higher percentile rank indicates a higher fund preference.

Panel A. By ISS Recommendation



Panel B. By Glass Lewis Recommendation



(*Continued*)

Panel C. By ISS Recommendation, Controlling for Glass Lewis Recommendation

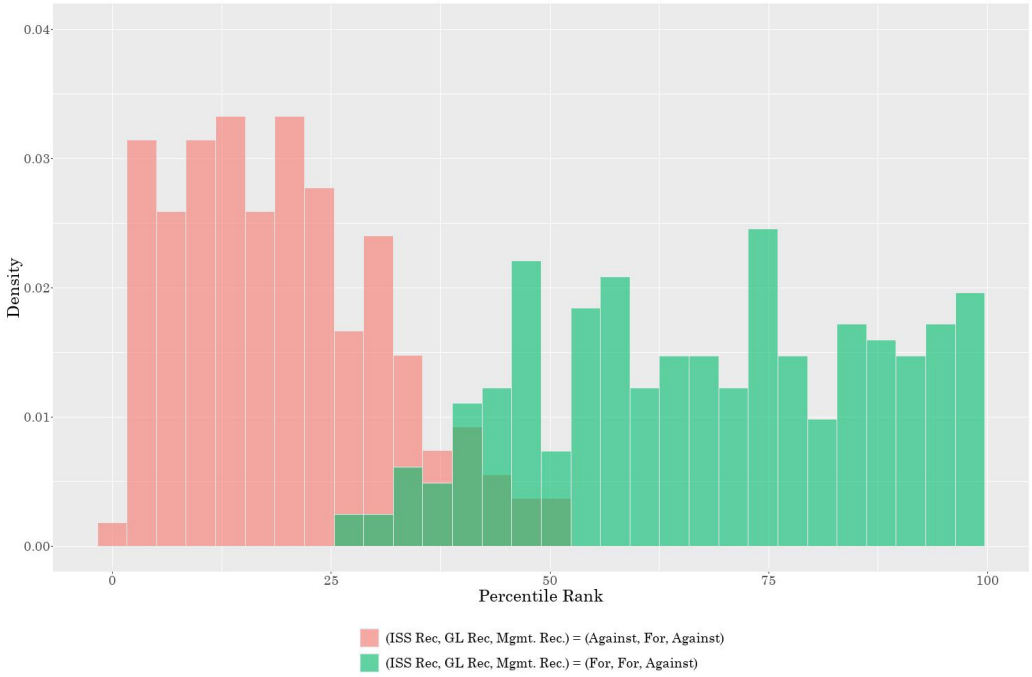


Figure 8. ISS Recommendations and Fund Preferences. This figure presents the histogram of the percentile rank of funds' governance preferences, separately for independent board chairman proposals that received for vs. against ISS recommendations, limiting the sample to proposals for which management recommended to vote against. A higher percentile rank indicates a higher fund preference.

Table 1. Summary Statistics

Panel A reports information on each proposal topic, and the topics are indicated by the top row. Panel B reports the number of fund votes per proposal in the sample, and examines the six topics included in Panel A. Panel B excludes the funds that did not vote "for" or "against." Panel C presents the fund-level information. Panel D reports the number of proposals voted on by each fund during a given year, as well as the fraction of these votes that were cast in accordance with the ISS and management recommendations during a given year. Panel E reports the summary statistics for the sample firms that were ranked during the period 2004–2020. The accounting variables are winsorized at the 1 percent level in each tail, including those from the firms with and without rank information. GL stands for Glass Lewis. Appendix Table A.2 presents the variable definitions.

Panel A. By Proposal Topic

	Require Independent Board Chairman	Declassify Board	Require Majority Vote for Directors	Proxy Access	Right to Call Special Meeting	Say-on-Pay
% fund votes "for"	38	91	69	71	59	58
% ISS recommends "for"	66	99	99	99	98	99
% GL recommends "for"	94	99	100	84	73	96
% Mgmt. recommends "for"	0	3	2	3	0	0
Mean % of votes in favor	30	70	53	52	41	43
Median % of votes in favor	30	73	50	53	44	43
% Proposal passes	4	75	46	52	26	15
% 40 $\leq$ votes in favor $\leq$60	19	18	49	32	52	64

Panel B. By Proposal

	Mean	25%	50%	75%
# funds voted on a given proposal	404	177	357	562
# funds voted on a given proposal, excl. always voted "for"/"against"	170	38	127	258
% funds voted both "for" & "against" on the topic in a given year	38	24	36	55

Panel C. By Fund

	# or %
# funds voted on at least one shareholder proposal (ISS)	21,151
# funds voted on at least one shareholder proposal (sample)	17,019
% funds voted 100% with ISS in a given year (sample)	16
% funds voted $\geq$ 95% with ISS in a given year (sample)	20
% funds voted 100% with GL in a given year (sample)	3
% funds voted $\geq$ 95% with GL in a given year (sample)	3
% funds voted 100% with Management in a given year (sample)	8
% funds voted $\geq$ 95% with Management in a given year (sample)	10

Table 1. Summary Statistics (*—Continued*)

Panel D. By Fund-Year

	Mean	25%	50%	75%
# voted shareholder proposals	69	8	30	82
% shareholder proposals voted with ISS	56	33	58	87
% shareholder proposals voted with GL	32	0	32	57
% shareholder proposals voted with Management	28	0	24	49

Panel E. By Firm-Year

	Mean	25%	50%	75%	S.D.	*N*
Accounting variables						
Capital expenditures/Assets	0.04	0.01	0.03	0.06	0.05	9,692
Cash/Assets	0.14	0.03	0.07	0.18	0.16	9,741
Debt/Assets	0.27	0.11	0.24	0.38	0.20	9,714
Firm age	32.28	16	27	51	19.5	11,190
Market capitalization	17,607	1,396	4,766	15,904	35,669	9,599
Market-to-book ratio	1.84	1.09	1.41	2.06	1.23	8,681
ROA	0.12	0.06	0.11	0.17	0.10	9,327
Total assets	31,109	1,906	5,716	19,243	99,852	9,741
Governance variables						
G-Index (2004 & 2006)	9.76	8	10	11	2.42	1,007
% CEO = Chairman (2004, 2006–2020)	0.62	0	1	1	0.49	8,316
% Classified board (2004, 2006–2020)	0.37	0	0	1	0.48	8,180
% Limited ability to call special meeting	0.49	0	0	1	0.5	8,180
% Majority vote for director elections	0.71	0	1	1	0.46	6,162
Ownership variables						
# 13-F institutional owners	432	162	311	554	409	10,465
# Blockholders > 5%	2.59	1	3	4	1.58	10,465
Total institutional ownership	0.73	0.64	0.79	0.89	0.23	10,461

Table 2. Mutual Funds' Governance Preference Ranking of Firms

This table present each firm's estimated rank based on funds' votes on shareholder proposals, for companies that received proxy access proposals during 2015. In all the columns, a lower number corresponds to a higher preference (i.e., priority) and a larger value corresponds to a lower preference. The 95% HPDI (Highest Posterior Density Interval) and 95% CI (Central Interval) are shown in the last two columns.

Firm	Mean	Median	HPDI (Highest Posterior Density Interval)	CI (Central Interval)
Alexion Pharmaceuticals, Inc.	60	60	[56,64]	[55,64]
Alliance Data Systems Corp.	25	25	[19,23],[25,31]	[19,31]
Alpha Natural Resources, Inc.	16	17	[10,11],[14,20],[22]	[10,20]
Amazon.com, Inc.	88	88	[85,90]	[85,90]
American Electric Power Company, Inc.	66	67	[60,63],[65,70]	[60,70]
Anadarko Petroleum Corp.	52	53	[44,45],[48,58]	[44,58]
Anthem, Inc.	31	30	[27,35]	[27,36]
Apache Corp.	2	2	[1,4]	[1,6]
Apartment Investment And Management Company	39	38	[34,45]	[35,46]
Apple Inc.	93	93	[91,93]	[91,93]
Arch Coal, Inc.	19	19	[12,13],[15,23]	[12,23]
AvalonBay Communities, Inc.	40	42	[30,31],[33,39],[41,48]	[30,48]
Avon Products, Inc.	42	43	[36,37],[40,46]	[36,46]
Booking Holdings Inc.	68	68	[64,72],[74]	[64,74]
Boston Properties, Inc.	89	89	[85,91]	[85,91]
CBL & Associates Properties, Inc.	19	18	[12,24],[27],[30]	[12,29]
CF Industries Holdings, Inc.	34	34	[30,36]	[30,37]
CNX Resources Corp	41	41	[38,43],[45,48]	[38,48]
CSP Inc.	15	16	[10,19]	[9,19]
Cabot Oil & Gas Corp.	79	79	[77,82]	[76,82]
Cheniere Energy, Inc.	19	19	[16,21]	[16,22]
Chevron Corp.	47	47	[37],[40,41],[43,52]	[37,51]
Chipotle Mexican Grill, Inc.	64	62	[58,65],[67,71]	[58,71]
Cimarex Energy Co.	54	54	[48,59]	[48,59]
Cisco Systems, Inc.	47	47	[44,51],[53]	[44,53]
Citigroup Inc.	2	2	[1,4]	[1,5]
Cloud Peak Energy Inc.	7	8	[3,11]	[2,11]
Community Health Systems, Inc.	41	42	[32,33],[36,39],[41,45],[50],[53,54]	[32,53]
Comstock Resources, Inc.	53	55	[25],[28,29],[32,37],[40],[43,45],[49], [51,59],[61],[64],[68,74]	[25,74]
ConocoPhillips	56	57	[51,59]	[51,60]
DTE Energy Co.	28	28	[25,31]	[25,32]
DaVita HealthCare Partners Inc.	48	49	[44,52]	[44,52]
Devon Energy Corp.	39	39	[36,42]	[36,42]
Domino's Pizza, Inc.	78	78	[75,81],[83,84]	[75,84]
Duke Energy Corp.	35	34	[27,31],[33,39],[41,44]	[27,44]
EOG Resources, Inc.	67	67	[63,70]	[63,70]
EQT Corp.	56	58	[44,54],[57,64],[69,70]	[44,69]
Electronic Arts Inc.	73	74	[68],[70,77]	[68,78]
Equity Residential	88	88	[85,90]	[85,90]
Exelon Corp.	77	77	[72,81]	[72,81]
Expeditors International of Washington, Inc.	91	91	[90,93]	[90,93]
Exxon Mobil Corp.	50	49	[47,53]	[46,53]
FedEx Corp.	24	22	[17,23],[26],[29,34]	[17,34]
Fidelity National Financial, Inc.	6	6	[3,10]	[2,10]
FirstEnergy Corp.	23	23	[16,20],[22,29],[33,34]	[17,34]
FleetCor Technologies, Inc.	8	8	[5,10],[12]	[5,11]
Freeport-McMoRan Inc.	36	35	[31,35],[37,43]	[31,43]
HCP, Inc.	48	47	[41,42],[44,54],[57,58]	[41,58]
Hasbro, Inc.	42	40	[24],[27,34],[36],[38,42],[46],[50,57]	[24,56]
Hess Corp.	68	69	[62],[64,73]	[62,73]
Kohl's Corp.	26	26	[22,30]	[22,30]
Level 3 Communications, Inc.	10	10	[5],[7,14]	[5,14]

Table 2. Mutual Funds' Governance Preference Ranking of Firms (*—Continued*)

Firm	Mean	Median	HPDI (Highest Posterior Density Interval)	CI (Central Interval)
Marathon Oil Corp.	73	73	[70,77]	[70,77]
McDonald's Corp.	39	39	[35,42]	[35,42]
Monsanto Co.	76	76	[73,80]	[72,80]
Monster Beverage Corp.	15	15	[11,19]	[11,19]
Murphy Oil Corp.	30	30	[21,25],[28,37]	[21,37]
NVR, Inc.	82	82	[79,85]	[78,85]
Nabors Industries Ltd.	5	5	[1,9]	[1,9]
Netflix, Inc.	4	4	[1,8]	[1,8]
New York Community Bancorp, Inc.	74	75	[66],[68,69],[71,78],[80]	[66,80]
Noble Energy, Inc.	65	66	[57],[59],[62,70]	[57,70]
Occidental Petroleum Corp.	59	60	[51,53],[55,56],[58,64]	[51,64]
Oracle Corp.	8	8	[4,12]	[3,12]
PACCAR Inc	15	14	[10,19]	[10,19]
PPL Corp.	47	47	[39,53]	[38,53]
Peabody Energy Corp.	82	83	[79,85]	[78,85]
Pioneer Natural Resources Company	61	61	[53],[55,57],[59,66]	[53,66]
Precision Castparts Corp.	82	82	[79,85]	[79,85]
Procter & Gamble Co.	26	27	[20],[23,31]	[20,31]
Range Resources Corp.	34	32	[27,35],[37,43]	[27,43]
Regeneron Pharmaceuticals, Inc.	73	72	[65,78],[81]	[65,81]
Republic Services, Inc.	13	13	[8,16],[18,19]	[8,19]
Rite Aid Corp.	92	92	[91,93]	[91,93]
Roper Technologies, Inc.	35	35	[32,39]	[32,39]
SBA Communications Corp.	83	83	[80,85]	[80,86]
Southwestern Energy Company	67	68	[60,68],[70,74]	[60,74]
St. Jude Medical, Inc.	23	22	[20,28]	[19,28]
T-Mobile US, Inc.	12	12	[9,15]	[9,15]
TCF Financial Corp.	78	78	[75,82]	[75,82]
The AES Corp.	70	71	[65,73],[75]	[65,75]
The Coca-Cola Co.	62	62	[56,59],[61,65],[67,70]	[56,70]
The Hain Celestial Group, Inc.	5	4	[1,8]	[1,9]
The Southern Co.	29	29	[23,38]	[22,38]
United-Guardian, Inc.	86	86	[82,90]	[81,90]
Urban Outfitters, Inc.	51	50	[43,57],[59]	[43,59]
VCA Inc.	88	89	[86,90]	[86,90]
Vertex Pharmaceuticals Inc.	63	63	[60,67]	[59,67]
Visteon Corp.	24	24	[20,27]	[20,27]
Wal-Mart Stores, Inc.	86	86	[84,90]	[84,90]
Walgreens Boots Alliance, Inc.	56	56	[52,59]	[52,59]
Westmoreland Coal Company	15	14	[9,17],[20],[22,25]	[9,24]
eBay Inc.	55	55	[52,58]	[51,58]

Table 3. Mutual Funds' Preference Rankings vs. Voting Outcomes

This table presents the Spearman's correlation coefficients between funds preference rankings and vote support, both in percentile rank. Vote support is calculated as (# votes in favor)/(# votes in favor + # votes against). The topics are indicated at the top of each panel. ***, **, and * indicate significance at the 1, 5, and 10% levels. For some provision-years, the number of observations is significantly smaller than the number of companies ranked, because the information on vote support is not available in the ISS Vote Results database.

Year	Require Independent Board Chairman (1)	Declassify Board (2)	Require Majority Vote for Directors (3)	Proxy Access (4)	Right to Call Special Meeting (5)	Say-on-Pay (6)
All	0.47*** (N=760)	0.20*** (N=451)	0.51*** (N=450)	0.49*** (N=232)	0.35*** (N=285)	0.12* (N=253)
2004	0.11 (N=34)	0.33** (N=38)	·	·	·	·
2005	0.54*** (N=24)	0.11 (N=36)	0.37*** (N=56)	·	·	·
2006	0.57*** (N=50)	0.31** (N=51)	0.52*** (N=94)	·	·	·
2007	0.48*** (N=39)	−0.02 (N=34)	0.55*** (N=38)	·	·	−0.01 (N=48)
2008	0.63*** (N=27)	0.02 (N=66)	0.54*** (N=25)	·	0.88*** (N=26)	0.14 (N=76)
2009	0.52*** (N=35)	0.12 (N=58)	0.55*** (N=43)	·	0.26* (N=57)	0.11 (N=76)
2010	0.42*** (N=41)	0.19 (N=47)	0.56*** (N=33)	·	0.43*** (N=43)	0.22 (N=53)
2011	0.62*** (N=29)	0.14 (N=39)	0.65*** (N=36)	·	0.19 (N=30)	·
2012	0.60*** (N=56)	0.55*** (N=51)	0.64*** (N=35)	·	·	·
2013	0.72*** (N=61)	0.34* (N=31)	0.59*** (N=33)	·	·	·
2014	0.64*** (N=63)	·	0.43** (N=30)	·	·	·
2015	0.47*** (N=63)	·	·	0.46*** (N=91)	·	·
2016	0.36** (N=48)	·	·	0.65*** (N=85)	·	·
2017	0.17 (N=43)	·	·	0.51*** (N=36)	·	·
2018	0.33** (N=49)	·	·	0.22 (N=14)	0.37*** (N=65)	·
2019	0.61*** (N=57)	·	0.24 (N=27)	−0.71 (N=6)	0.36* (N=26)	·
2020	0.12 (N=41)	·	·	·	0.13 (N=38)	·

Table 4. Business Ties

Panel A shows whether funds with business ties are more likely to vote with management. The dependent variable is equal to one if the fund votes with management and the independent variable, business ties, is equal to one if the fund's financial institution has a business tie with the company with proposals. The coefficients are scaled by 100 to represent percentage. *** and ** indicates significance at the 1% and 5% levels. In Panel C, the asterisk indicates whether the mean change is different from zero.

Panel A. Business Ties and Fund Votes

	Dependent variable: Vote with Management			
	(1)	(2)	(3)	(4)
Business Ties	3.635***	1.629***	1.768***	4.672***
	(0.196)	(0.191)	(0.181)	(0.577)
Fund × Topic F.E.	Yes	Yes	Yes	Yes
Topic × Year F.E.	·	Yes	·	·
Company F.E.	·	Yes	Yes	·
Proposal F.E.	·	·	Yes	Yes
Fund × Company F.E.	·	·	·	Yes
R^2	0.568	0.626	0.676	0.788
N	1,276,233	1,276,227	1,276,223	882,332

Panel B. Business Ties and Affiliated Firm's Rank

	Companies with Business Ties		Companies without Business Ties	
	Before Exclusion	After Exclusion	Before Exclusion	After Exclusion
Panel B.1. All Provisions				
Mean	50.54	50.51	51.10	51.11
Median	49	49	52	51.50
S.D.	28.65	28.73	28.98	28.98
N	810	810	1,684	1,684
Panel B.2. By Each Provision				
Require Independent Board Chairman				
Mean	49.97	49.18	51.41	51.90
Median	48.5	47	52	53
S.D.	30.15	29.64	27.96	28.38
N	320	320	456	456
Declassify Board				
Mean	54.12	52.58	50.60	50.93
Median	53.5	52.5	51	51
S.D.	25.71	26.38	29.61	29.50
N	84	84	393	393
Require Majority Vote for Directors				
Mean	46.73	47.36	52.18	52.03
Median	43	47	53	53
S.D.	28.05	28.50	28.99	29.01
N	108	108	353	353
Proxy Access				
Mean	52.26	56.28	50.00	48.01
Median	52	59	50	45
S.D.	27.15	27.94	29.81	29.08
N	78	78	159	159

(*Continued*)

Table 4. Business Ties (*—Continued*)

	Companies with Business Ties		Companies without Business Ties	
	Before Exclusion	After Exclusion	Before Exclusion	After Exclusion
Right to Call Special Meeting				
Mean	50.62	50.50	51.23	51.46
Median	49	49	52.5	52.5
S.D.	28.42	28.55	29.49	29.33
N	138	138	150	150
Say-on-Pay				
Mean	52.38	52.28	50.12	50.12
Median	48.5	51	51	51
S.D.	28.17	28.57	29.33	29.17
N	82	82	173	173

Panel C. Business Ties and Affiliated Firm's Rank Change

	Companies with Business Ties	Companies without Business Ties
Panel C.1. All Provisions		
Mean	−0.03	0.01
Median	0	0
S.D.	14.39	15.73
N	810	1,684
Panel C.2. By Each Provision		
Require Independent Board Chairman		
Mean	−0.79	0.48
Median	0	0
S.D.	14.17	14.76
N	320	456
Declassify Board		
Mean	−1.54	0.33
Median	0	0
S.D.	9.65	13.97
N	84	393
Require Majority Vote for Director		
Mean	0.63	−0.14
Median	0	0
S.D.	13.29	16.23
N	108	353
Proxy Access		
Mean	4.03**	−1.98
Median	0	0
S.D.	14.40	18.98
N	78	159
Right to Call Special Meeting		
Mean	−0.12	0.23
Median	0	0
S.D	17.56	20.05
N	138	150
Say-on-Pay		
Mean	−0.10	0.01
Median	0	0
S.D.	14.50	13.27
N	82	173

Appendix A. Additional Figures and Tables

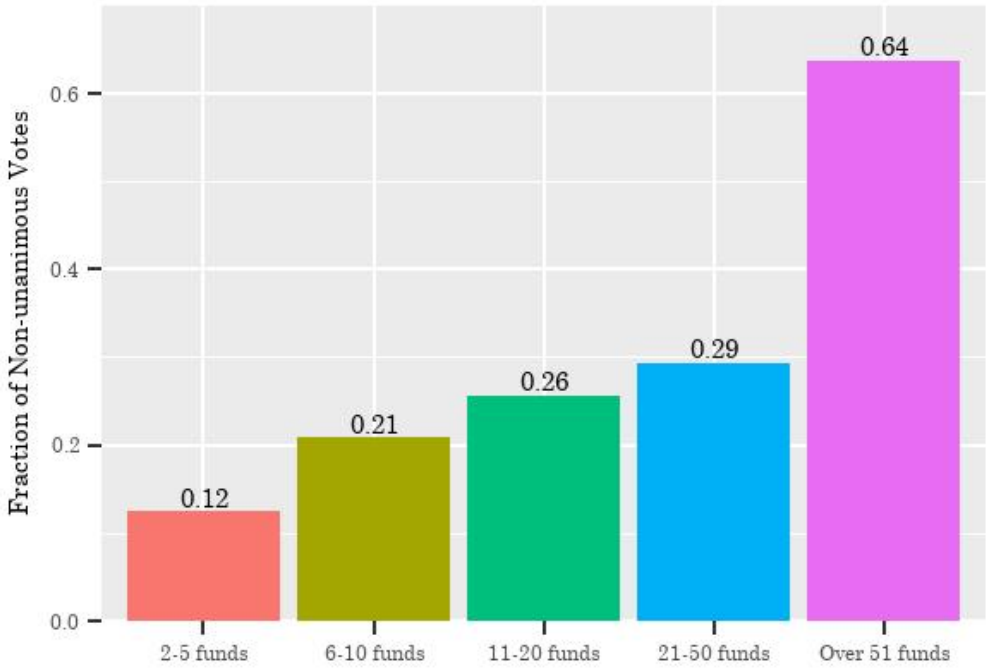
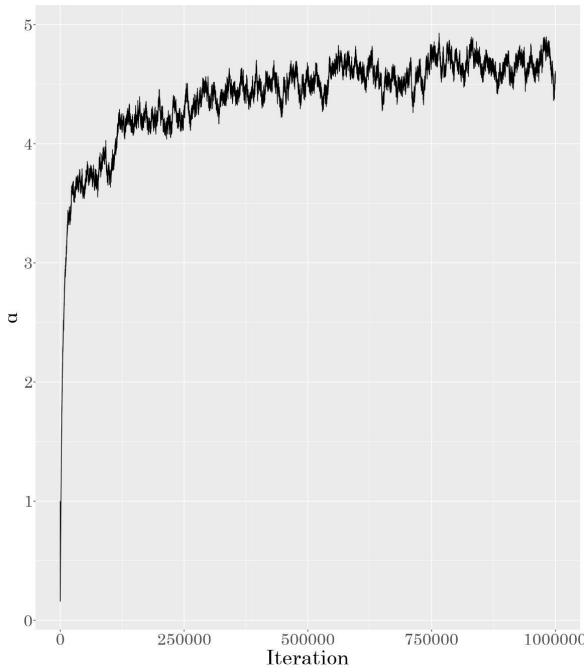


Figure A.1. Fund vs. Fund Family. The figure presents the fraction of non-unanimous votes within a fund family when an institution has multiple funds voting on the same proposal. The x-axis displays the number of funds within a family. The sample consists of proposals examined in this paper.

Panel A. Convergence of the precision parameter(α)



Panel B. Posterior distribution of the precision parameter(α)

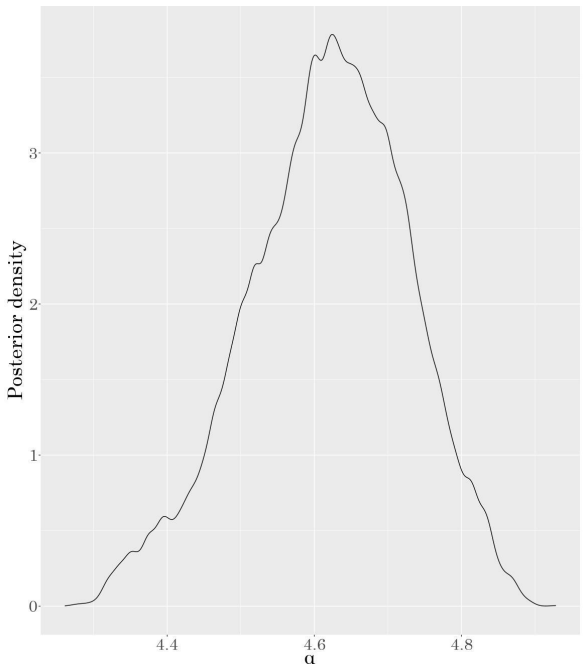


Figure A.2. Convergence and Posterior Distribution of α. Panel A presents the changes in the estimated value of the precision parameter α over 1,000,000 iterations for the firms that received proxy access proposals during 2015. In Panel A, the initial 500,000 observations are burn-ins. The distribution of the remaining 500,000 observations is shown in Panel B. The estimation uses seed 101.

Figure A.3. Convergence of ρ. This figure shows how each firm's estimated rank (ρ) changes over 1,000,000 iterations, for the firms that received proxy access proposals during 2015. The initial 500,000 observations are discarded as burn-ins, and the remaining 500,000 observations are used to produce Panel A of Table 2 and Panel A of Figure 3.

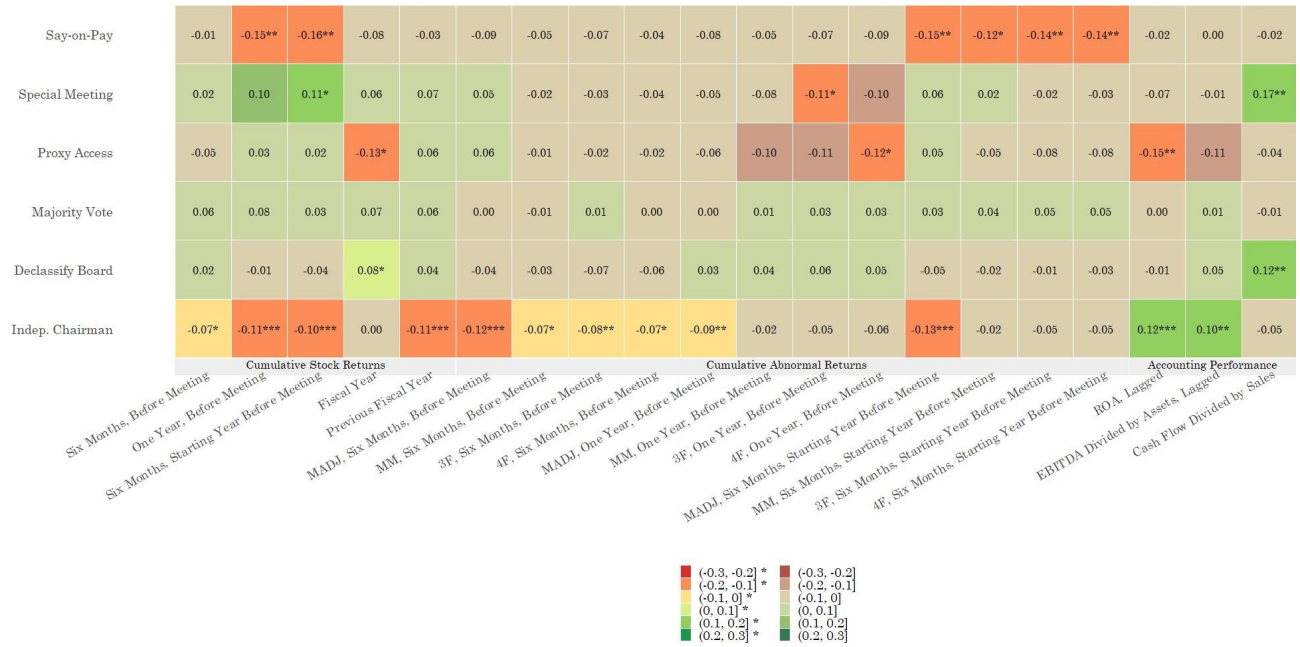


Figure A.4. Alternative Performance Measures. This figure presents the relationship between the funds' preference rankings and various performance measures. For each topic, I calculate the Spearman correlation coefficient estimate between the company's percentile rank of funds' preferences and the percentile of company characteristic of interest, as indicated at the bottom of the graph. ***, **, and * indicate significance at the 1, 5, and 10% levels. The colors show the magnitude of the coefficients and whether the coefficients are statistically significant at least at the 10% level. The second column of the legend shows the color-coding of the coefficients that are not statistically significant at the 10% level.

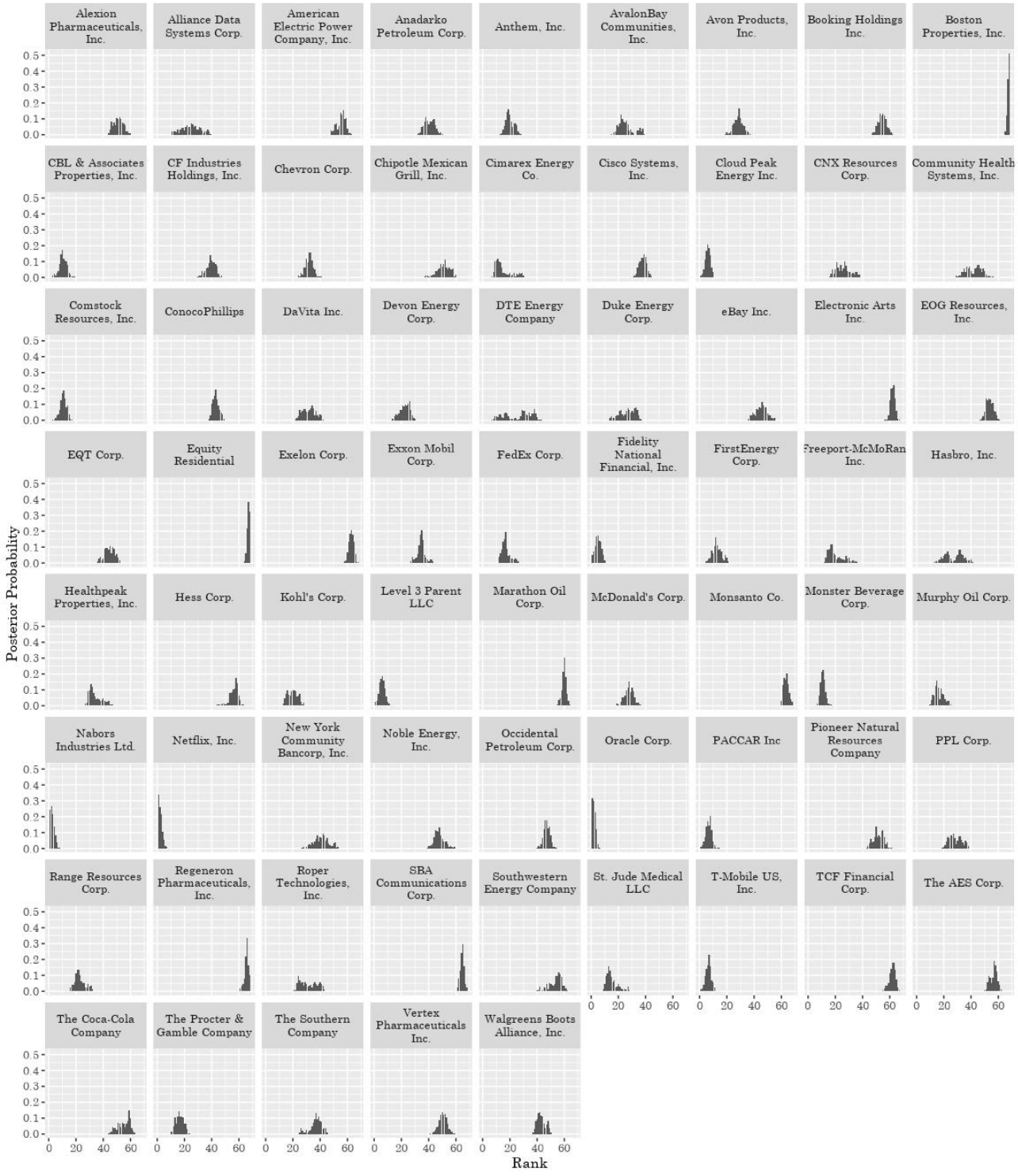


Figure A.5. Posterior Distribution of Rank This figure presents the posterior distribution of each firm's rank based on funds' preferences, for companies that received proxy access proposals during 2015 and that had the following voting recommendations: (ISS recommendation, Glass Lewis recommendation, Management recommendation) = (For, For, Against). A rank of 1 means that the governance topic under consideration is the most desirable for the given firm from the perspective of mutual funds. Seed 101 is used to produce this graph.

Table A.1. Governance Proposal Topics Mapped into ISS Codes

This table presents a mapping between the proposal topics and the topic codes used by the ISS, extending the Internet Appendix of Matsusaka et al. (2019). If a code is followed by (select), then the items with that code include multiple topics.

Topic	G-Index	E-Index	ISS codes (Voting Analytics)	ISS codes (RiskMetrics)
Board Organization and Processes				
Meetings				
Improve meeting reports	·	·	·	2120
Annual report on web	·	·	·	2121
Change annual meeting location	·	·	S0101	2130
Change annual meeting date	·	·	S0102	2131
Right to call special meeting	Yes	·	S0235	2325
Right to act by written consent	Yes	·	S0238	2326
Miscellaneous meetings	·	·	·	2903
Miscellaneous routine	·	·	·	2904*
Miscellaneous shareholder	·	·	·	2906*
Organization and Process				
Report prior government service of execs	·	·	·	2020, 3222
Board inclusiveness, diversity	·	·	S0227	2201
Increase board independence	·	·	S0215	2202
Limit director tenure/set retirement age	·	·	S0202, S0211	2203
Require directors to own stock	·	·	S0209	2204
Create shareholder committee	·	·	S0110	2212
Independent board chair	·	·	S0107	2214
Lead director	·	·	S0352*	2215
Director liability	Yes	·	S0237	2240
Create compensation committee	·	·	·	2420
Hire independent compensation consultant	·	·	·	2421, 2431
Compensation committee independence	·	·	·	2422
Audit committee independence	·	·	·	2500
Key committee independence	·	·	·	2501
Miscellaneous board related	·	·	·	2900*
Miscellaneous shareholder	·	·	·	2906*
Miscellaneous social issue	·	·	·	3907*
Compensation of Directors & Executives				
Director compensation				
Limit/restrict	·	·	·	2402
Pay in stock	·	·	·	2405
Restrict pensions	·	·	·	2407
Miscellaneous board related	·	·	·	2900*
Miscellaneous director pay	·	·	·	2905
Miscellaneous shareholder	·	·	·	2906*
Executive compensation				
Restrict/reform	·	·	·	2400
Disclose	·	·	·	2401
Limit	·	·	·	2403
Approve/advisory vote	·	·	S0517	2406, 2908
Link to social criteria	·	·	S0510	2408
Limit option repricing	·	·	·	2409
Vote on golden parachutes	Yes	Yes	S0318, S0321,	2414
Link stock/option awards to performance	·	·	S0512	2415, 2423
Expense options	·	·	S0514	2416
Approve/disclose retirement plans	·	·	S0506, S0519	2418
Requires options to be held	·	·	S0500	2419
Miscellaneous executive pay	·	·	·	2901
Miscellaneous board*	·	·	·	2900*
Miscellaneous shareholder	·	·	·	2906*

Topic	G-Index	E-Index	ISS codes (Voting Analytics)	ISS codes (RiskMetrics)
Miscellaneous shareholder	·	·	·	2908
Miscellaneous social	·	·	·	3907*
Director Elections and Qualifications				
Confidential voting	Yes	·	S0304, S0305*	2100
Counting votes	·	·	·	2101
Prohibit discretionary voting	·	·	·	2102
Equal access to proxy	·	·	S0221, S0226	2110
Majority vote to elect directors	·	·	S0212	2111
Allow union/employee reps on board	·	·	·	2205
Nominating committee independence	·	·	·	2210
Create nominating committee	·	·	·	2211
Adopt cumulative voting	Yes	·	S0207	2220
Require nominee statement in proxy	·	·	·	2230
Double board nominees	·	·	·	2231
Repeal classified board	Yes	Yes	S0201*	2300
Miscellaneous	·	·	·	2900*
Miscellaneous routine	·	·	·	2904*
Miscellaneous shareholder	·	·	·	2906*
Miscellaneous				
Auditors				
Shareholders approve auditors	·	·	·	2000
Limit non-audit fees	·	·	·	2002
Rotate auditors	·	·	·	2003
Miscellaneous routine	·	·	·	2904*
Miscellaneous shareholder	·	·	·	2906*
Labor				
Pension fund surplus	·	·	·	2417
Miscellaneous shareholder	·	·	·	2906*
Review job cuts/relocations	·	·	·	3600, 3611
Miscellaneous workplace	·	·	·	3906*
Other				
Shareholder pre-emptive rights	·	·	·	2010
Miscellaneous board	·	·	·	2900*
Miscellaneous shareholder	·	·	·	2906*
Miscellaneous shareholder	·	·	·	2907
Miscellaneous shareholder	·	·	·	2909
Politics				
Encouragement of political contributions	·	·	·	2022, 3224
Review political spending	·	·	·	3220
Limit political spending	·	·	·	3221
Miscellaneous contributions	·	·	·	3902*
Shareholder Proposals				
Miscellaneous shareholder	·	·	·	2906*
Takeovers, Mergers, and Divestitures				
Miscellaneous	·	·	·	1909
Study sale or spinoff	·	·	·	2030
Redeem or vote on poison pill	Yes	Yes	S0302, S0303	2310
Eliminate/reduce supermajority provision	Yes	Yes	S0311, S0236*	2320, 2321
Repeal fair price provision	Yes	·	S0326*	2324
Prohibit targeted stock placement	·	·	·	2330
Opt out of state takeover law	Yes	·	S0326*, S0352*	2341
Change state/country of incorporation	·	·	·	2342
Prohibit greenmail	Yes	·	S0352*, S0810*	2350
Miscellaneous antitakeover	Yes	·	S0353*	2902
Miscellaneous shareholder	·	·	·	2906*

Table A.2. Variable Description

Variable Name	Description and Definition (Source)
Abnormal Executive Compensation	Residual from regressing log of CEO's total annual compensation ($tdc1$) on the interaction of market capitalization and industry (3-digit SIC), and fiscal year dummy (Execucomp)
Board independence	Percentage of board of directors classified as independent (ISS)
Capital expenditures/Assets	$capx/at$ (Compustat)
Cash/Assets	che/at (Compustat)
CEO ownership	Percentage of total shares owned by the CEO ($shrown\_tot\_pct$) (Execucomp)
Cumulative abnormal return	Cumulative abnormal return using the market-adjusted, market, Fama French three factor, and Fama French four factor model over one-year (250 trading days) or half-year (125 trading days) (CRSP)
Debt/Assets	$(dltt + dlc)/at$ (Compustat)
Market capitalization	Natural log of market value of common equity, in $ million, $ln\ (prcc\_f \times csho)$ (Compustat)
Market-to-Book ratio	$(at + csho \times prcc\_f - ceq - txdb)/at$ (Compustat)
Firm age	Year minus the year in which the firm was incorporated; log of firm age: $ln(1 + Firm\ age)$ (Jay Ritter's website)
Firm size	Log of total assets $ln\ (at)$ (Compustat)
Insider ownership	total percentage of shares owned by the CEO and directors ($shrown\_tot\_pct$) (Execucomp)
Stock Return	$((prcc\_f_t + dvpsx\_f_t)/ajex_t)/(prcc\_f_{t-1}/ajex_{t-1}) - 1$
ROA	$oibdp/at$ (Compustat)
Total assets	at (Compustat)
Vote support	# votes in favor/(# votes in favor + # votes against) (ISS)