

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

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Irene Yi

Rotman School of Management, University of Toronto and
ECGI

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Keywords: proxy voting, mutual funds, shareholder proposals, machine learning

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*Rotman School of Management, University of Toronto, 105 St. George Street, Toronto, ON M5S 3E6, Canada; ECGI; E-mail: i.yi@rotman.utoronto.ca. I thank the Editor, Antoinette Schoar, the Associate Editor, and two anonymous referees whose comments substantially improved the paper. I also thank Svetlana Bryzgalova, Jay Cao, Marta Crispino, Peter Cziraki, Alexander Dyck, Nickolay Gantchev, Nataliya Gerasimova, Andrey Golubov, Camille Hebert, Kobi Kastiel, Raymond Kan, Rachel Li, Qinghua Liu, Michelle Lowry, Charles Martineau, John Matsusaka, Roni Michaely, Oguzhan Ozbas, Matthew Ringgenberg, Silvina Rubio, Øystein Sørensen, and conference participants at the Financial Intermediation Research Society Conference (2021), Global Corporate Governance Colloquia (Yale, 2021), China International Conference in Finance (2021), Financial Management Association Annual Meeting (2021), TD MDAL Research Roundtables (2022), Conference on Empirical Legal Studies (Toronto Law, 2022), Annual Meeting of the Swiss Society for Financial Market Research (2022), and Ackerman Corporate Governance Conference (2022), and seminar participants at Cornell University (2020), Bank of Italy (2021), Seoul National University (2021), Korea University (2022), University of Toronto (2022), The 2nd HKU Summer Finance Conference (2024), and Queen's University (2024) for helpful discussions and suggestions. I also thank Chong Shu for sharing data on Glass Lewis recommendations and fund-advisor links, and Penny Du, Timothy Lee, and Yizhong Wang for excellent research support. I gratefully acknowledge financial support from the TD Management Data and Analytics Lab, the Johnston Centre for Corporate Governance Innovation, the Connaught Secretariat, the Social Sciences and Humanities Research Council, and the University of Toronto. I have read the *Journal of Finance* disclosure policy and have no conflicts of interest to disclose.

Corporate governance research recognizes that not all firms benefit equally from the same governance structures; some may benefit from stronger shareholder rights, while others find them less necessary or even counterproductive (e.g., Coles, Daniel, and Naveen, 2008; Duchin, Matsusaka, and Ozbas, 2010; Field and Lowry, 2022). While this idea is conceptually well-established, detailed empirical evidence on which firms most need which governance interventions has proven elusive. The vast number of votes cast by mutual funds on shareholder proposals offers a powerful lens to examine this question, yet leveraging this rich data presents a fundamental challenge: funds hold only a subset of companies, and their ownership choices are not random. As a result, standard metrics like raw vote support can be misleading. For instance, a firm with high insider ownership might appear to have little support for a shareholder proposal simply because insiders consistently vote with management, obscuring the broader investor community’s assessment of its governance needs.

The goal of this paper is to develop a firm-level ranking of governance needs as assessed by the mutual fund community—a measure grounded in investors’ revealed preferences rather than firm characteristics alone (Gompers, Ishii, and Metrick, 2003; Bebchuk, Cohen, and Ferrell, 2008). Using fund votes on shareholder proposals, this paper infers each firm’s relative need for governance reform, by developing a ranking that corrects for the non-random selection of which firms funds choose to own. The approach builds on the Mallows (1957) rank model and employs the Bayesian extension developed by Vitelli, Sørensen, Crispino, Frigessi, and Arjas (2018), which is specifically designed to handle settings where each assessor evaluates only a subset of the objects being ranked. The key innovation is a *bridging* logic, analogous to how a recommender system like Netflix infers a user’s preference for an unseen movie from other viewers with similar tastes: when Fund 1 votes “For” a proposal at Firm A but “Against” at Firm B, it reveals a direct preference. For Firm C, which Fund 1 does not own, the algorithm starts with a tentative position for Firm C in Fund 1’s ranking, then iteratively refines it using votes from other investors who hold Firm C and at least one of Firm A or Firm B, guided by the observed voting patterns. By combining these comparisons, the model produces an *augmented ranking* for each fund: a full ordering of all firms built from actual votes and inferred preferences for unowned firms. Aggregating these

augmented rankings across all funds yields a posterior distribution of likely ranks for each firm, reflecting the collective assessment of the entire fund community and capturing the uncertainty around each firm’s position.

This approach differs fundamentally from a standard OLS regression with fund fixed effects. The firm fixed effect from such a regression captures the average vote support a firm receives relative to other firms, but only within the portfolios of funds that already own it. Since the decision to own a firm is deliberate, this confounds “who holds a firm” with “whether the firm truly needs stronger governance.” The Mallows-based approach corrects for this by incorporating the inferred views of funds that do not own the firm. A firm’s final rank, therefore, reflects the collective assessment of the entire fund community as expressed through proxy voting, rather than solely the preferences of its current owners.

I apply this approach to five prominent shareholder proposal topics—independent board chair, board declassification, majority voting for directors, proxy access, and say-on-pay—over the 2004–2020 proxy seasons, using data from the ISS Voting Analytics database. These topics largely address similar governance issues across firms, enabling direct firm-to-firm comparisons. For each topic-year, a single ranking is estimated for all firms that received a proposal on that topic. The model does not require funds to agree unanimously; rather, it identifies the aggregate ranking that best accounts for the observed voting patterns across all funds, treating individual deviations as noise around that aggregate.

The analysis reveals four main findings. The first three document what mutual funds collectively reveal about firms’ governance needs and why this differs from raw vote outcomes; the fourth establishes that the ranking captures information that raw votes cannot.

First, the analysis reveals a high alignment in the relative ordering of firms when mutual funds assess governance reform needs, speaking directly to the literature on investor heterogeneity. While prior studies document that investors have different ideological leanings (Bolton, Li, Ravina, and Rosenthal, 2020) and distinct voting philosophies (Bubb and Catan, 2022), this paper finds that they nonetheless converge on the relative ranking of firms—a finding that is compatible with, rather than contradictory to, the prior literature. Consider

the grading analogy: a strict and a lenient grader may assign different letter grades, yet agree on which student performed best. In this paper’s context, funds may differ in their overall voting patterns, yet converge on which firms most need governance reform. The raw voting data corroborate this directly, independently of any modeling assumptions: when two funds both vote differently on the same pair of firms, they agree on which firm needs more reform at a median rate of 93% across all proposal topics and proxy seasons, far exceeding the 50% expected if preferences were purely idiosyncratic. This convergence extends to fund types with very different incentive structures: rankings estimated separately for active and passive funds correlate at 0.6–0.8 across proposal topics. This occurs because funds can differ in their overall voting behavior, such as how often they vote against management, while still agreeing on which firms most need reform.

Second, the analysis reveals that firms receiving high raw vote support are not necessarily the firms the fund community views as most in need of governance reform. The paper’s ranking systematically diverges from raw vote support—a measure commonly used to gauge proposal merit (e.g., Gillan and Starks, 2000; Gantchev and Giannetti, 2020). The Spearman correlation between the two is moderate for some topics, in the 0.49–0.57 range for independent board chair, proxy access, and majority voting, but drops considerably for board declassification (0.27) and say-on-pay (0.15). More importantly, this divergence is systematically linked to firm ownership structure: at a firm with high insider ownership, raw vote support will likely be depressed relative to the fund-based rankings, not because of the proposal’s merits, but because insiders vote with management. In contrast, high institutional ownership can inflate raw vote support relative to the rankings, as institutions are generally more supportive of shareholder proposals than retail investors (Brav, Cain, and Zytznick, 2022). This offers empirical support for recent theoretical work showing that vote tallies may reflect the preferences of a firm’s current owners rather than the value-maximizing outcome (Levit, Malenko, and Maug, 2024).

Third, funds evaluate firms on structural governance characteristics. Companies with lower board independence, higher insider ownership, and higher abnormal executive compensation rank consistently higher as needing reform across all five proposal topics. Although

a prominent view holds that underperforming firms benefit most from governance reforms (e.g., Bebchuk et al., 2008), performance measures show mixed signs across topics and unstable significance across specifications. In contrast to evidence that firm life-cycle characteristics shape optimal governance structures (e.g., Cremers, Litov, and Sepe, 2017; Field and Lowry, 2022), firm age shows little systematic association with the rankings. Firm size is positively associated with rank across most topics, with the strongest effect for proxy access proposals, consistent with evidence that larger firms have more to benefit from such reforms (Cohn, Gillan, and Hartzell, 2016). Evidence from voting rationales—written explanations that institutional investors provide for their proxy voting decisions (Michaeli, Rubio, and Yi, 2026)—corroborates this picture. In these rationales, funds primarily cite governance conditions rather than performance or life-cycle factors, a pattern echoed in practitioner interviews.¹ Together, these patterns suggest that funds use the proxy voting channel primarily to address firm-specific governance deficits. Performance and life-cycle considerations play a secondary and less consistent role, even where prior literature suggests they should shape optimal governance structures.

Fourth, if ownership distortions suppress raw vote support, does the underlying demand for reform simply disappear? The evidence suggests not. I identify firms with *Unmet Governance Demand*—cases where a firm’s vote-support percentile falls more than 20 percentage points below its model-implied rank percentile—and ask whether this gap carries forward-looking information that raw vote outcomes cannot provide. When a low vote total reflects ownership composition rather than the fund community’s actual assessment, it gives management the justification to dismiss the proposal without resolving the underlying governance friction. Firms with *Unmet Governance Demand* are subsequently more likely to receive shareholder proposals on similar governance topics and to experience shareholder engagement and escalation (for example, exempt solicitations, board representation campaigns, vote-no campaigns) within three years. The probability of engagement and escalation increases by 12.6 percentage points relative to a baseline rate of 34%, a relative increase of

¹For instance, BlackRock’s rationale for supporting Avista’s majority-vote requirement proposal in 2016 cited the firm’s governance structure as the deciding factor, whereas its rationale for opposing a similar proposal at FedEx cited the absence of demonstrable governance concerns.

about 37% over this baseline rate, after controlling for observable ownership characteristics and the level of raw vote support. The ranking thus uncovers information about firms’ governance needs that raw vote outcomes obscure: where genuine demand for reform exists but ownership structure prevents it from surfacing in the vote.

One might wonder whether cross-firm rank differences simply reflect proxy advisor recommendations. In practice, ISS and Glass Lewis endorse most of the proposals studied, providing little variation to explain differences in firm rankings. Companies receiving the same “For” recommendation can still differ considerably in rank, suggesting the rankings reflect fund-level assessments that go beyond what proxy advisor recommendations alone can explain. Could the rankings instead be distorted by strategic voting behavior? I find that funds that provide pension, insurance, or brokerage services to a firm are more likely to vote with that firm’s management (Cvijanović, Dasgupta, and Zachariadis, 2016). However, excluding these votes leaves the average firm’s rank essentially unchanged, with a mean shift of only 0.12 percentile points. This is because each rank aggregates votes across many funds, and a small, biased subset cannot meaningfully distort overall rankings. A related concern is selection: are the results biased by the non-random nature of ownership decisions? Passive funds provide a natural benchmark for this concern: because they hold the market by construction, their rankings cannot reflect selective stock-picking. The high correlation between active and passive fund rankings (0.6–0.8) shows that active funds’ rankings closely resemble this benchmark, confirming that selective ownership is not distorting the rankings.

Relatedly, is the ownership network connected enough to support reliable inference? If no fund held both firms in a pair, no fund’s votes could bridge them (Ford, 1957; Avery, Glickman, Hoxby, and Metrick, 2013). On average, approximately 151 funds hold both firms in a given pair, confirming that the data provide sufficient overlap to place every firm within a single ranking. The most direct test is whether the algorithm can reliably infer preferences for firms a fund does not own. I mask each fund’s actual vote, re-estimate the full ranking without it, and compare the inferred preference to the actual rank distribution. The 87% overlap between the two confirms that the algorithm reliably infers preferences for unowned firms.

As a final check, the analysis steps back from the shareholder proposal setting and turns to mandatory say-on-pay votes. Unlike shareholder proposals, which target firms with governance concerns, say-on-pay votes are required for nearly all large public firms and generate near-unanimous support across the market. This makes them an ideal testing ground for two additional validation purposes. First, they test whether the model imposes structure when the data lack a differentiating signal: if it did, a well-defined ranking would emerge in this setting. Instead, the algorithm returns flat posterior distributions with overlapping credible intervals, confirming that rankings emerge from the data rather than the estimation procedure. Second, they test whether the rankings are stable when estimated in a broader, less selective sample: rankings estimated for the S&P 500 universe and for the narrow subset of firms that also received shareholder proposals correlate at 0.97, indicating that a firm’s relative rank is not simply a reflection of which firms happen to receive shareholder proposals.

This paper makes a methodological contribution by introducing the framework of Vitelli et al. (2018) to corporate governance, recovering collective investor preferences from voting data that is inherently partial and selectively observed. Unlike OLS, which can only analyze votes within a fund’s existing portfolio and therefore confounds ownership selection with governance assessment, this approach recovers preferences that extend beyond a firm’s current ownership base, producing a ranking that reflects the views of the entire fund community. For proxy access proposals, the two approaches reach opposite conclusions about the role of firm size, a concrete illustration that correcting for selective ownership has economic implications. The approach belongs to a literature that infers preferences from observed choices: for example, Avery et al. (2013) rank colleges from students’ enrollment decisions and Sorkin (2018) rank firms from workers’ job choices; this paper ranks firms from funds’ voting decisions. The same logic travels to other settings with selectively observed preferences—analyst recommendations, credit ratings, and beyond.

The analysis speaks directly to the literature on investor heterogeneity: while funds diverge in their voting philosophies and baseline propensity to support management (Bolton et al., 2020; Bubb and Catan, 2022), they converge on their assessments of firms’ relative governance needs, a finding that is compatible with rather than contradictory to the prior

evidence. Active and passive funds, despite their well-documented differences in monitoring incentives, produce highly correlated governance rankings, suggesting that convergence in firm assessments coexists with divergence in overall voting behavior. The key is distinguishing between two dimensions: funds may differ in how often they vote against management, yet agree on which firms most need reform. This collective assessment is consistent with research showing that governance effectiveness depends on firm-specific context rather than universal best practices (Coles et al., 2008; Chen, Core, and Guay, 2024): funds do not apply a one-size-fits-all governance standard but instead share a collective assessment that differentiates among firms based on their governance attributes.

Finally, the findings have direct implications for how researchers and regulators interpret voting outcomes. Raw vote support is commonly treated as a reliable signal of collective shareholder demand: a proposal receiving 30% support is typically interpreted as broad indifference, while one receiving 70% is widely viewed as reflecting demand for reform. Yet this interpretation conflates demand with ownership composition, and the gap between the two can be empirically substantial and systematically linked to ownership structure. This finding has concrete implications for regulators. Consider the SEC’s resubmission thresholds under Rule 14a-8, which require a proposal to receive a minimum percentage of votes to be resubmitted in subsequent years. These fixed thresholds may be met or missed based on ownership composition rather than proposal merit, potentially underestimating demand for reform at firms where insiders or blockholders mechanically suppress vote outcomes. Ultimately, this paper shows that demand suppressed in the proxy vote does not disappear: it resurfaces through other channels of governance pressure.

I. Methodology: From Fund Votes to Company Rankings

This section introduces the methodology used to aggregate individual mutual fund votes into comprehensive firm-level rankings that reflect collective investor preferences on governance proposals. This requires an approach capable of handling non-random ownership

patterns, since funds hold only a subset of companies and their ownership choices are not random. I first evaluate the suitability of standard regression techniques for this task (Section A). Next, I introduce the Mallows-based ranking framework, which uses a bridging logic to infer preferences even for unobserved fund-firm pairs, relying on the overlapping ownership structure in the data to propagate preferences across the full universe of firms (Section B). Finally, Section C discusses the key assumptions and explains how to interpret the resulting firm rankings.

A. Limitations of a Standard Regression

A seemingly straightforward approach to measure firms’ collective governance needs would be to regress fund votes on fund and firm fixed effects:

$$Vote_{ij} = \alpha_i + \gamma_j + \epsilon_{ij}, \quad (1)$$

where $Vote_{ij}$ is Fund i ’s vote on Firm j (1 for “For,” 0 for “Against”), α_i is a fund fixed effect capturing the fund’s baseline voting tendency, and γ_j is a firm fixed effect. If ownership were random, the estimated firm fixed effect, $\hat{\gamma}_j$, would represent the collective view of mutual funds towards proposals at Firm j .

In reality, however, ownership is not random. Funds follow diverse investment strategies, and their decision to hold and thus vote on a firm can be influenced by unobserved factors related to their governance preferences. This non-random selection means that applying the fixed-effects model in Equation (1) can confound a firm’s perceived need for reform with the specific characteristics of its current owners. As Bolton et al. (2020) highlight in a related context, such fixed effects regressions can be difficult to interpret without strong assumptions about the motivations behind each fund’s decisions.

This non-randomness directly challenges the interpretation of the firm fixed effects. Because the fund (α_i) and firm (γ_j) fixed effects are jointly estimated, the value of $\hat{\gamma}_j$ for a specific firm becomes highly dependent on the baseline preferences of the particular funds that happen to own it. That is, $\hat{\gamma}_j$ might be heavily influenced by a few funds with idiosyn-

cratic preferences, rather than reflecting a stable measure of the broader fund community’s view. Appendix B provides a toy example showing how a single outlier vote can generate a large and misleading firm fixed effect. Therefore, a standard fixed-effects regression struggles to produce a reliable cross-firm ranking of governance preferences when ownership is selective and funds vote only on firms they choose to own, a limitation that motivates the more robust framework introduced in Section B.

B. A Mallows-Based Ranking Method for Partial Coverage and Preference Inference

This section introduces the Mallows-based ranking framework designed specifically to address this challenge by inferring preferences from partially observed voting data. The paper’s methodology is built on two well-established statistical foundations, applied here in a novel context. The first is the Mallows rank model (Mallows, 1957), one of the most classic frameworks for analyzing preference rankings. The second is the estimation method: a Metropolis-Hastings Markov chain Monte Carlo (M-H MCMC) procedure, a computational workhorse in the statistics literature well-suited for making inferences from partial data. Further technical specifics of the Mallows model and the M-H MCMC algorithm are provided in Appendix C.

Formally, the Mallows model assumes that each fund i has a latent complete ranking, R_i , over all firms, and that these individual rankings cluster around a single overall ranking, ρ . The model’s key intuition is that the closer an individual fund’s ranking is to the overall ranking—as measured by a formal distance metric such as Kendall distance—the more probable that ranking is.

Because not all funds vote on all firms’ proposals, the goal is to infer the overall ranking ρ from this partial data. Figure 2 illustrates that even with partial data, meaningful patterns can emerge. While few funds hold all three of Intel, Amazon, and Tesla, Panel B shows that clear relative preferences still arise. For example, consider the off-diagonal cells in Panel B’s grid for Intel and Tesla. These cells isolate the funds that cast a different vote between the

two companies on an independent board chair proposal during the 2018 proxy season (voting “For” the proposal at one firm and “Against” at the other). It shows that 42 funds voted in favor of the proposal at Tesla but against it at Intel, while only two funds held the reverse preference. Among the funds that expressed a relative preference between Tesla and Intel, the agreement rate is 95% (42 out of 44). This one-sided pattern is also present in the other two pairs in Panel B. By combining these pairwise comparisons, we can place all three firms on a single scale: Tesla (highest need for reform), Amazon, and Intel (lowest need).

Before formally estimating any rankings, I apply the exact logic from Panel B to the entire dataset, isolating every distinct head-to-head comparison where funds cast a differentiating vote between two firms facing the same proposal topic in a given year. This procedure yields 42,382 distinct pairwise comparisons (Table 1 Panel D). If funds possessed fundamentally divergent views on firms’ relative governance needs, the agreement rate would hover near 50%. Instead, the data reveals remarkably strong agreement: the median agreement rate on the direction of preference is 93% among funds expressing a relative preference between the two firms (mean: 81%).

This high rate of agreement confirms that for any two firms held by the same fund, we can reliably infer how funds view their relative need for governance reform. However, scaling this logic to rank all targeted firms simultaneously is challenging because most funds only own a small subset of the companies in the sample. Extracting a systematic, global measure from this partially observed data requires a formal framework.

The key innovation from Vitelli et al. (2018) is an algorithm that extends the Mallows model to handle precisely the type of partial rankings found in proxy voting data, where not all funds vote on all firms. The underlying logic mirrors the collaborative filtering techniques used in recommender systems. Consider how a collaborative filtering system like Netflix works: it infers a user’s potential preference for a movie they have not seen by analyzing the ratings of other viewers with similar tastes.² In this paper’s context, the algorithm infers

²The Netflix Prize was a public competition held from 2006 to 2009, which famously spurred development in this area. The task was to develop an algorithm that could predict user ratings on a dataset of over 100 million movie ratings, with a \$1,000,000 grand prize awarded to the first team to achieve a 10% improvement over Netflix’s own recommender system: https://en.wikipedia.org/wiki/Netflix_Prize.

Fund A’s preference for Firm X (which it doesn’t own) by examining how other funds that hold many of the same firms as Fund A—and vote similarly on them—assessed Firm X.

This inference is achieved using the Bayesian M–H MCMC algorithm. The algorithm begins by creating a complete augmented ranking for each fund, generating a full ordering of all firms in the sample for that topic-year by inferring potential ranks for unowned firms. I employ a non-informative uniform prior on the overall ranking (ρ), effectively assuming that all possible rankings are equally likely *a priori*, while constraining the initial augmented ranking to respect the observed votes. For example, if a fund voted “For” Firm A and “Against” Firm B, Firm A is required to be ranked higher than Firm B in the initial ranking. Because the priors are non-informative, the posterior distribution is strictly determined by the likelihood function (the proxy voting data).

At each iteration, the algorithm proposes small changes to each fund’s augmented ranking (both owned and unowned) and, simultaneously, to the overall ranking. These changes are accepted or rejected based on their consistency with the observed votes. After many iterations, this process generates a posterior probability distribution over the possible ranks for each firm (Appendix C). The key output is not a single point estimate per firm (like $\hat{\gamma}_j$ from OLS), but a posterior distribution reflecting the collective assessment of the entire fund community and capturing the uncertainty around each firm’s position.

Bubb and Catan (2022) similarly address sparse voting matrices through iterative imputation, but toward a different end. They apply PCA to the fund-by-proposal matrix to identify the dimensions along which funds differ most from one another, revealed to be funds’ propensity to support management, and use these dimensions to cluster funds into distinct parties. The Mallows-based imputation used in this paper instead solves for the ordering of firms most consistent with the observed voting patterns. The two approaches thus recover different features of the same underlying data: one classifies funds, the other ranks firms.

C. Assumptions, Interpretation, and Endogeneity

A central assumption underpinning the interpretation of the rankings is that a fund’s “For” or “Against” vote reflects its preference regarding the specific governance proposal at that firm. The literature largely treats votes as informative signals of investors’ preferences (e.g., Bolton et al., 2020; Bubb and Catan, 2022), although strategic considerations can occasionally influence voting outcomes (e.g., Cvijanović et al., 2016). The Mallows-based ranking approach aggregates these revealed preferences to produce a descriptive measure of perceived governance needs as expressed through the voting channel, showing how strongly investors, as a whole, view a firm’s need for reform relative to others. The rankings are estimated separately for each proposal topic and proxy season, allowing preferences to vary over time and across governance dimensions rather than imposing stability across years.

The model’s goal is to measure the relative governance needs of firms using the overlapping network of mutual funds. Individual fund-level imputations serve as a mathematical tool to connect this network; the parameter of interest is the aggregate firm ranking. While any individual imputation is inherently imprecise, this imprecision averages out across the thousands of funds in the aggregation, so that the aggregate firm ranking reflects the underlying collective signal.

The paper does not attempt to explain the underlying reasons a fund invests in certain stocks, nor does it resolve the deep endogeneity between ownership and firm policies. Instead, the Mallows framework is designed to handle the main statistical consequence of this selective ownership: a sparse voting matrix where most fund-firm pairs are unobserved. The framework addresses this through a bridging logic that leverages overlapping portfolios to infer preferences even for firms a fund does not own. This approach is effective in practice because real-world ownership data exhibits substantial overlap: many funds hold the same firms, so that any two firms across the universe can be linked—directly or indirectly—by funds that hold both. Quasi-indexers and broadly diversified funds in particular hold large, overlapping sets of firms, providing much of this connectivity. Section IV.A presents direct empirical evidence confirming that this network is sufficiently connected to support reliable

inference.

II. Data and Summary Statistics

A. Data Source and Sample

Mutual funds have been required by the SEC to disclose their proxy votes since 2003 via Form N-PX. This information is collected by ISS for Russell 3000 companies and is provided in the ISS *Mutual Fund Vote Records* database. Information on each proposal’s annual meeting characteristics, voting outcomes, and recommendations from management or ISS comes from two ISS databases, *Shareholder Proposals* and *Vote Results*. Glass Lewis recommendations are added using data from Shu (2024). Information on voting rationales comes from Diligent, covering the 2014 to 2020 proxy seasons (Michael et al., 2026). In categorizing funds as index or non-index funds, the paper follows Appel, Gormley, and Keim (2016) by examining fund names for specific index-related strings.³ Accounting variables come from Compustat, stock returns from CRSP, and executive compensation and insider ownership from Execucomp. Information on firm age is taken from Jay Ritter’s website (Field and Karpoff, 2002; Loughran and Ritter, 2004).⁴ Business ties between funds and companies are identified through Form 5500 filings with the Department of Labor, matching entities by Employer Identification Number. Finally, data on shareholder activism campaigns are obtained from the SharkWatch database (formerly SharkRepellent). Campaigns are classified into exempt solicitations (campaigns in which an investor publicly solicits support from other shareholders without seeking proxy authority), board control or representation campaigns, campaigns supporting shareholder proposals, vote-no campaigns, hostile or unsolicited acquisition campaigns, and a residual category of other governance campaigns, excluding cam-

³The specific strings I use to identify index funds are: INDEX, IDX, INDX, IND (followed by a space), RUSSELL, S & P, S AND P, S&P, SANDP, SP, DOW, DJ, MSCI, BLOOMBERG, KBW, NASDAQ, NYSE, STOXX, FTSE, WILSHIRE, MORNINGSTAR, and numerical strings such as 100, 400, 500, 600, 900, 1000, 1500, 2000, and 5000.

⁴<https://site.warrington.ufl.edu/ritter/files/founding-dates.pdf>

paings unrelated to the governance frictions examined in this paper.⁵ Appendix A describes all variable definitions and sources.

Votes are analyzed at the fund rather than the family level because the methodology employed in this paper requires votes to be provided at the voter level. That is, the algorithm does not allow votes to be aggregated into a cumulative percentage at the family level. Although funds in the same family tend to be similar, they are not always unanimous: Figure IA.1 shows that when 2–5 funds in one family vote on the same proposal, about 12% of them disagree, and when over 50 funds in a single family vote on a proposal, there is disagreement about 58% of the time, suggesting that there is significant heterogeneity in voting behavior within a fund family (e.g., Bubb and Catan, 2022; Michaely, Ringgenberg, Rubio, and Yi, 2025). Because this paper focuses on shareholder proposals, which tend to have lower levels of support than management proposals, the rates of non-unanimous votes are higher than Bolton et al. (2020) and Cvijanović et al. (2016), which cover both management and shareholder proposals.

The main analysis focuses on five shareholder-sponsored governance topics that were common during the 2004 to 2020 proxy seasons: requiring an independent board chair, declassifying the board, requiring a majority vote for director elections, adopting proxy access, and say-on-pay proposals (before they became management-sponsored under Dodd-Frank). These topics are selected because they are among the most frequent shareholder proposal categories, reflecting their relevance to investors, and because they generally involve consistent language across firms, which keeps the proposal content broadly similar. Holding the proposal content relatively constant thus enables a meaningful cross-firm comparison of how different funds evaluate the same governance reform. By contrast, many environmental or social proposals vary significantly in their requests; some may emphasize adopting specific policies, others disclosure, and still others broader strategic changes, often in a prescriptive manner (Khoo and Tallarita, 2024), making it difficult to place different proposals’ desirabil-

⁵Specifically, I exclude financially motivated campaigns, such as activism against mergers, short-selling campaigns and bear raids, and campaigns demanding buybacks or spin-offs (“Maximize Shareholder Value”); routine 13D filings without publicly disclosed activism; campaigns supporting management; and campaigns seeking to remove officers.

ity on a single scale.⁶ To ensure the analysis is based on a meaningful sample with sufficient variation, I apply two filters to the data: each topic-year must include at least 25 proposals, and include at least 50 funds that cast both “For” and “Against” votes. Abstentions and withheld votes are relatively uncommon (about 1%) and are excluded. Controlled or dual-class firms are dropped, as they frequently have different regulatory obligations and ownership structures that would confound the analysis.

B. Descriptive Statistics

Figure 1 displays the number of shareholder proposals across the 2004–2020 proxy seasons for these five topics. Some topics, such as requirements for an independent board chair, have consistently attracted attention throughout 2004–2020, while others, such as proxy access, experienced periods of heightened interest between 2015 and 2019. There is also considerable heterogeneity in proposal outcomes. For example, Table 1 Panel A shows that board declassification proposals receive around 70% support and pass about 75% of the time, while independent board chair proposals average only 30% support and a 4% passage rate.

Turning to proxy advisor recommendations, while proposal outcomes vary across topics, there is not much variation in what ISS and Glass Lewis recommend: both almost always support proposals on board declassification, majority voting requirement, and say-on-pay (Table 1 Panel A). ISS almost always supports proxy access proposals, while Glass Lewis supports them about 88% of the time. Glass Lewis almost always supports independent board chair proposals (94%), while ISS supports them about two-thirds of the time. Despite this near-uniform support from proxy advisors, mutual funds do not always follow these recommendations (Table 1 Panel B).

Panel C provides evidence on the extent of a “one-size-fits-all” approach toward the proposal topics examined in this paper. For funds that voted on more than 10 independent board chair proposals within a given proxy season, about 8% always supported such proposals

⁶Most proxy access proposals in this sample request the adoption of proxy access requiring at least 3% ownership for a minimum of 3 consecutive years, permitting shareholders to nominate up to 25% of the board, with no limit on the number of shareholders combining their shares. Proposals that merely amend existing proxy access rules are excluded, as they differ significantly from those establishing such provisions.

and 26% always voted against them. For board declassification proposals, mutual funds show overwhelming support: about 70% of funds voted in favor of all their portfolio companies' proposals, whereas only 2% always voted against. This heterogeneity across topics suggests that while some proposals receive blanket support regardless of the firm, others are evaluated on firm-specific criteria.

A natural question is whether this firm-specific evaluation reflects a shared assessment across funds or simply idiosyncratic differences in preferences. Panel D addresses this directly by examining pairwise agreement rates: for every pair of firms receiving the same proposal type in a given year, I identify all funds that cast a different vote between those two firms (voting "For" one and "Against" the other) and calculate the fraction that agreed on the direction of preference. If funds were purely idiosyncratic in their assessments, the agreement rate would hover near 50%. Instead, the median agreement rate is 93% across all topics (Column (6)), and the mean is 81%, exceeding the 50% expected under entirely idiosyncratic preferences. This indicates that funds share a collective assessment of firms' relative governance needs, rather than holding idiosyncratic views.

Panel E examines the proportion of mutual funds that consistently align with the recommendations of management, ISS, or Glass Lewis, defining consistent alignment as agreeing with a source more than 99% of the time within a proxy season. To assess the broad landscape of proxy advisor reliance, Column (1) examines this behavior across all shareholder proposals for funds that voted on at least 50 proposals: approximately 2.5% of funds consistently voted with management, 15.0% with ISS, and 0.6% with Glass Lewis. Column (2) focuses on the five governance topics studied in this paper, where the proportions voting consistently with ISS and Glass Lewis are higher, at 21.7% and 3.0% respectively. This is expected given that ISS and Glass Lewis almost always recommend in favor of these proposals: a fund that almost always supports these governance reforms will mechanically appear to vote in line with proxy advisors, regardless of whether it actually follows their recommendations.

Together, these patterns reveal that mutual fund voting behavior is neither uniform across proposal topics nor mechanically driven by proxy advisor recommendations. The

substantial variation in both vote outcomes and fund behavior across topics suggests that funds are making firm-specific assessments rather than applying blanket policies. Section III applies the Mallows-based framework to recover these collective assessments and examine what they reveal about firms’ relative governance needs.

III. Which Firms Require Stronger Shareholder Rights?

This section analyzes the firm-level rankings of governance needs, to examine what they reveal about mutual fund preferences. Section A introduces the paper’s main measure, the ranking, and provides an intuitive understanding of the model’s output, using the 2018 independent board chair proposals as an illustrative example. To establish what new information this ranking provides relative to widely used metrics, Section B compares it to raw vote support, revealing a systematic divergence between the two. Section C investigates what drives these preferences by examining which firm characteristics are associated with the rankings. Section D examines whether the single aggregate ranking adequately represents the preferences of different investor groups. Finally, Section E examines the potential influence of proxy advisor recommendations and business ties.

A. Rank Distributions

The main output from the Mallows-based ranking method is a posterior distribution of ranks for each firm that receives a shareholder-sponsored proposal on a specific topic in a given proxy season. To provide an intuitive understanding of this output, this section uses the 2018 proxy season for independent board chair proposals as an illustrative example. Figure 3 presents the posterior rank distributions for the 48 companies that received this proposal. Each firm’s rank ranges from 1 to 48, where a rank of 1 indicates the highest perceived need for an independent board chair.

Several patterns emerge from Figure 3. The rankings align with well-known firm-specific governance events: Tesla, which faced significant board independence concerns and an SEC investigation in 2018, and Wells Fargo, whose 2016 fake-account scandal raised oversight

concerns, are among the highest-ranked firms. By contrast, firms perceived as having less need for reform, such as Honeywell, are found at the bottom of the ranking. This alignment with real-world governance events suggests the rankings capture economically meaningful variation in the fund community’s collective assessment.

The width and shape of the distributions also provide insights into the degree of fund agreement. For firms like Tesla and Honeywell, the posterior intervals are narrow, suggesting broad agreement among funds on their relative positions. Conversely, some firms, such as Emerson Electric, exhibit wide distributions, reflecting either fewer funds voting on the proposal or sharper disagreement among those that did vote, resulting in less certainty about their precise rank. In a few cases, such as Flower Foods and AutoNation, the distributions are bimodal, indicating that fund opinion is not uniform but rather divided. Table 2 presents precise numerical details for the same 2018 independent-chair proposals, reporting each firm’s mean and median rank along with two types of 95% Bayesian credible intervals.⁷

While Figure 3 focuses on one topic-year, the same procedure is repeated for all five proposal topics across every proxy season, and these rankings are used for the subsequent analyses. The precision of the firm-level rankings varies across topics: topics like independent board chair, which receive a relatively balanced mix of “For” and “Against” votes, provide more differentiating signals and thus produce more precise estimates, while board declassification proposals, for which most funds vote in favor, offer less variation, resulting in broader posterior intervals (Table IA.1). Overall, across all topics, the rankings reflect a strong underlying agreement among funds: as documented in Table 1 Panel D, when funds express a differentiating preference between two firms, the median agreement rate is 93%, which translates into the relatively precise rank estimates observed across most firms and topics.

⁷Both the Highest Posterior Density Interval (HPDI) and the Central Interval (CI) are useful for gauging the precision of each firm’s estimated rank. Conceptually, they represent the range within which the firm’s rank lies with 95% probability. The 95% CI is constructed by removing the top and bottom 2.5% of the posterior distribution. By contrast, the 95% HPDI is the narrowest possible interval containing 95% of the posterior probability, which can be more informative for asymmetric or bimodal distributions.

B. Comparing Raw Vote Support and Fund-Based Rankings

Does high raw vote support for a proposal at a given firm necessarily indicate that the mutual fund community believes that firm is most in need of reform? While many studies interpret high vote support as evidence that a proposal is broadly beneficial (e.g., Gillan and Starks, 2000; Gantchev and Giannetti, 2020), this relies on the assumption that shareholder bases across firms hold similar preferences. In practice, ownership structures are complex and varied: some firms have significant insider or blockholder stakes, while others are dominated by large, diversified institutions (Amel-Zadeh, Kasperk, and Schmalz, 2022). This variation means a few insiders or blockholders may have outsized influence on the final outcome, even when most mutual funds deem a firm to have pressing governance needs. Examining whether raw vote support tracks or diverges from the fund-based rankings therefore clarifies how reliably raw vote support reflects the fund community’s collective assessment.

To examine how closely raw vote support reflects the fund-based ranking, I calculate the Spearman correlation between each firm’s vote-support percentile and its rank percentile. Table 3 Panel A shows that the correlations range from 0.57 for majority-vote proposals to 0.51 for independent board chair, 0.49 for proxy access, 0.27 for board declassification, and 0.15 for say-on-pay. These moderate-to-weak correlations suggest that raw vote support often diverges from how strongly the broader mutual fund community perceives a firm’s need for these proposals.

Such discrepancies raise the question of why some firms receive strong aggregate support yet rank relatively low in the fund-based measure, or vice versa. One likely explanation is ownership structure: insiders or blockholders may heavily influence outcomes, even when many funds hold different views of a firm’s governance needs. The following regression formalizes this idea:

$$Deviation_{jt} = \beta_0 + \beta_1 OwnershipChars_{jt} + \gamma X_{jt} + \varepsilon_{jt}, \quad (2)$$

where $Deviation_{jt}$ is the difference between firm j ’s vote-support percentile and its rank

percentile in proxy season t . A positive $Deviation_{jt}$ indicates that raw vote support exceeds what the fund-based rank would suggest, referred to as *Vote Inflation*; a negative value indicates the opposite, referred to as *Vote Deflation*. From this variable, I construct indicator variables for large mismatches of ± 20 or ± 30 percentile points. $OwnershipChars_{jt}$ includes insider ownership, overall institutional ownership, and ownership concentration (HHI). X_{jt} includes market capitalization and the fraction of funds holding the firm that cast the same vote on every firm within that proposal topic, controlling for the systematic impact of funds with uniform voting policies on raw vote support.

Table 3 Panel B presents the regression results. In Column (1), a one-percentage-point increase in insider ownership is associated with a 0.12 decrease in *Deviation* ($p < 0.01$), consistent with insiders generally siding with management and thereby lowering overall shareholder support relative to the fund-based rank. In contrast, institutional ownership increases *Deviation*, suggesting that institutions tend to vote more favorably on shareholder proposals than retail investors, causing raw vote support to exceed what mutual funds' overall ranking would predict. This aligns with Brav et al. (2022), who find that institutional owners often exhibit greater pro-shareholder stances than retail investors. The analysis also shows that as institutional ownership becomes more concentrated (a higher HHI), vote support tends to fall below what the fund-based rankings would indicate, consistent with the view that as institutions accumulate larger stakes, their incentives may align more closely with management (Schwartz-Ziv and Wermers, 2022).

Columns (2)–(4) focus on *Vote Inflation*. Column (2)'s linear probability model shows that higher insider ownership lowers the likelihood of excess vote support at the 20 percentile point threshold, consistent with Column (1). Columns (3) and (4) test alternative thresholds (30 points) and specifications (logistic), confirming the same pattern. Columns (5)–(7) parallel these models for *Vote Deflation*, where raw support falls significantly below the fund-based rank. Across both sets of columns, the fraction of funds uniformly voting “For” or “Against” all firms in a proposal topic strongly predicts larger mismatches, highlighting that companies with a high concentration of funds with uniform voting policies are prone to more pronounced deviations in either direction.

Overall, the evidence shows how ownership composition can create a systematic wedge between raw vote support and mutual funds’ collective assessment of a firm’s governance needs, consistent with Levit et al. (2024), who show that when the shareholder base reflects investor choices, vote tallies may reflect the preferences of a firm’s current owners rather than the value-maximizing outcome. This suggests that raw vote support reflects who owns a firm as much as how broadly the proposal is supported.

C. Firm Characteristics

Having established that mutual funds converge on which firms are perceived as needing stronger shareholder rights, this section investigates whether these rankings are associated with the firm characteristics that prior literature suggests are important for determining a firm’s optimal governance structure.

A key feature of the methodology (Section I.B) is that each firm’s rank is a posterior distribution, not a single point estimate. To account for the uncertainty inherent in the ranking, the analysis uses the full posterior distribution from the M-H MCMC algorithm rather than a single summary statistic like the mean or median rank. Specifically, multiple draws are taken from each firm’s posterior distribution of ranks.⁸ For each draw, both the firm’s rank and its characteristics are converted to percentiles. Each sampled rank percentile is then regressed on the corresponding firm characteristic percentile, producing a distribution of coefficient estimates.⁹ An effect is deemed statistically significant at the 5% level if at least 97.5% of these estimated coefficients lie above or below zero. This approach incorporates the full uncertainty of each firm’s estimated rank, avoiding the false precision that could arise

⁸Each MCMC chain produces 500,000 draws per seed, but only every 10,000th draw is retained—a thinning process commonly recommended by Gelman, Carlin, Stern, Dunson, Vehtari, and Rubin (2013)—to reduce autocorrelation and computational overhead. This generates 50 posterior samples per seed; pooling across multiple seeds results in 1,600 samples per firm per proposal-year.

⁹This two-step process—first estimating the aggregate ranking and then regressing that ranking on firm characteristics—is a deliberate design choice. It allows the paper to first construct a reliable measure of preferences that accounts for selective ownership, and then use a standard regression framework to transparently analyze the correlates of that new measure. It might seem more direct to regress votes on firm characteristics while including fund fixed effects. However, this within-fund approach answers a different question and can produce misleading results when ownership is not random. Section C of the Internet Appendix is dedicated to this issue. It provides a toy example illustrating how the two approaches can lead to opposite conclusions and presents an empirical comparison using this paper’s data.

from using a single, potentially noisy point estimate. The percentile conversion allows for a direct comparison of coefficient magnitudes, making it easier to identify which characteristics have a stronger association with the firm’s rank.

C.1. Governance Characteristics

Several theoretical and empirical studies suggest that firms with weaker governance structures benefit more from strengthening shareholder rights. For example, Harris and Raviv (2010) theoretically show that as agency costs increase, the optimal control should shift from management to shareholders. Empirically, Bhandari, Iliev, and Kalodimos (2021) find that proxy access becomes most valuable in firms with weak governance conditions, and Denes, Karpoff, and McWilliams (2017) document that companies with strong takeover defenses are more likely to receive shareholder proposals. These agency-cost concerns manifest in several observable firm characteristics, and the rankings are consistently associated with each.

The first column focuses on board independence. A negative coefficient (for example, -0.26 in Panel A for independent board chair proposals) indicates that lower board independence is associated with a higher rank, that is, a greater perceived need for reform. Similar negative coefficients emerge for board declassification, majority voting, and say-on-pay, suggesting that funds systematically favor proposals at companies with less-independent boards.¹⁰ In the next three columns, insider ownership, abnormal executive compensation, and the E-Index generally exhibit positive coefficients, suggesting that funds prioritize stronger shareholder oversight in firms with higher insider ownership, higher abnormal executive compensation, or more entrenched governance structures.

Figure 4 Panel B extends these regressions to a multivariate setting. Even after accounting for additional firm attributes, the coefficients on the core governance characteristics remain statistically significant and of comparable magnitude.¹¹ Because all variables are

¹⁰Controlled companies such as dual-class structures are excluded, given their fundamentally different board-independence requirements.

¹¹In Figure IA.2, additional multivariate regressions include five further controls frequently used in corporate finance research: leverage, cash, capital expenditures, repurchases, and the KZ-Index. The results are broadly similar to those reported in Figure 4.

expressed in percentile terms, these coefficients are directly comparable across characteristics—giving a sense of which firm attributes the ranking is most sensitive to. Among these characteristics, board independence stands out: for independent board chair proposals, its coefficient (-0.29) is approximately four times larger than that of the E-Index (-0.07) and six times larger than that of insider ownership (0.05), with similar relative patterns across the other proposal topics. These findings suggest that funds take governance conditions into account when determining which firms most require reforms that strengthen shareholder rights, consistent with the view that higher agency costs predict a shift in control from managers to shareholders.

C.2. Firm Performance

A widely held view in corporate governance posits that underperforming firms stand to benefit more from enhancing shareholder rights (e.g., Cohn et al., 2016; Denes et al., 2017). The evidence in Figure IA.2 offers only partial support for this view. Stock returns are negatively associated with rank for most proposal topics, suggesting funds perceive greater need for reform at firms with weaker recent performance, but this relationship is unstable across specifications and topics. ROA shows sign reversals across topics, being negative for most but positive for independent board chair and say-on-pay proposals. Market-to-book is more consistently negative across topics. The economic magnitudes of performance measures are substantially smaller than those of governance attributes, suggesting that while performance may play a secondary role in some contexts, governance attributes are the primary driver of mutual funds' assessments of which firms most need reform.

Because no single indicator perfectly represents firm performance, Figure IA.3 reports alternative specifications using short-and long-horizon returns and different performance windows for ROA. In a few cases, particularly for say-on-pay and proxy access proposals, stock returns show a consistent negative association with rank across multiple return windows and horizons, suggesting funds perceive greater need for reform at firms with weaker recent performance in these contexts. For other topics, the performance relationship is weaker and less stable across specifications.

Interviews with practitioners echo this conclusion. Several practitioners in charge of voting, including those from the Big Three, noted that short-term underperformance rarely triggers a push for governance reforms; rather, they might sell shares if a firm’s prospects look persistently weak. Others mentioned that performance enters explicitly only for say-on-pay proposals, whereas for shareholder-sponsored governance initiatives, they mainly prioritize governance concerns. Taken together, the empirical results and practitioner perspectives suggest that mutual funds prioritize governance attributes over performance when assessing which firms most need reform, though performance plays a secondary role in some contexts.

C.3. Firm Size and Age

A substantial body of research posits that governance structures evolve along a firm’s life cycle. Several papers show that younger firms may benefit more from insulating management against takeover pressures, whereas more mature firms might require stronger shareholder oversight to address agency issues (e.g., Cremers, Lauterbach, and Pajuste, 2024; Johnson, Karpoff, and Yi, 2021; Kim and Michaely, 2019; Karakas and Mohseni, 2021; Field and Lowry, 2022). Relatedly, firm size is also widely discussed as shaping both existing and optimal governance structures (e.g., Gompers et al., 2003; Cremers et al., 2017), and large firms tend to receive more shareholder proposals (Denes et al., 2017), consistent with the view that they benefit more from stronger shareholder rights.

The final two columns of Figure 4 examine whether mutual funds favor stronger shareholder rights in older and larger firms. The univariate regressions (Panel A) deliver mixed results for size and negative coefficients on age for several proposal topics, suggesting that funds are more inclined to support these proposals in younger companies. This finding contrasts with the notion that mature firms stand to gain the most from these reforms (e.g., Field and Lowry, 2022). Once additional variables are included in the multivariate regressions (Panel B), firm size becomes positively associated with rank, especially for proxy access, where the coefficient is both sizable and highly significant, consistent with Cohn et al. (2016), who find that proxy access is more beneficial for large companies. Firm age remains negative or insignificant across specifications, suggesting that funds treat proxy voting as a tool for

addressing specific, observable governance concerns rather than as a strategic instrument for guiding a firm’s long-term evolution. It is also possible that the negative coefficient on age reflects omitted variables correlated with maturity rather than age itself being the decisive factor. Section C.4 examines voting rationales for direct evidence of how funds weigh these attributes.

Several factors may explain why older firms do not consistently receive stronger support for governance reforms. First, mutual funds may treat proxy voting as a tool for addressing specific, immediate governance concerns—such as a lack of board independence or problematic insider ownership—rather than as a strategic instrument for guiding a firm’s long-term evolution. This targeted focus suggests that funds use the proxy channel primarily to correct observable governance issues, which could explain why broader life-cycle attributes like firm age are less prioritized. Consequently, aligning a firm’s governance with its stage of maturity may depend on a combination of proxy voting and complementary monitoring mechanisms, such as direct engagement. Second, older firms may be targeted more frequently by shareholder proposals, yet funds might not perceive a pressing governance concern if no clear weaknesses emerge. Finally, it remains possible that the negative coefficient on age reflects omitted variables correlated with maturity, rather than age itself being the decisive factor. To explore these possibilities further, Section C.4 examines a dataset of voting rationales for direct evidence of how funds weigh these attributes.

Taken together, the results across Sections C.1–C.3 reveal a clear hierarchy in the determinants of mutual funds’ governance rankings. Board independence shows the largest effect of any characteristic examined. Performance measures, while sometimes significant, particularly for say-on-pay and proxy access proposals, are consistently smaller in magnitude and less stable across topics and specifications. Life-cycle characteristics show a different pattern: firm size becomes positively associated with rank in multivariate specifications, especially for proxy access, while firm age shows little systematic relationship with rank after controlling for governance attributes. These patterns suggest that funds evaluate firms primarily on structural governance attributes when voting on shareholder proposals, with performance and life-cycle considerations playing a secondary and less consistent role.

C.4. Evidence from Voting Rationales

Although the analyses so far relate mutual funds’ rankings to firm-level characteristics, these correlations are not necessarily causal. To provide more direct evidence on what drives mutual funds’ voting behavior, this section draws on a dataset of voting rationales, where investors voluntarily explain their decisions (Michaely et al., 2026).¹²

The data come from Diligent, covering proposals on independent board chair, board declassification, majority voting for directors, and proxy access at U.S. companies from 2014 to 2020.¹³ Although Diligent reports all fund-level votes, many investors disclose rationales only for certain votes. Multiple funds within the same voting manager often share a single rationale, especially when their votes do not differ. Following Michaely et al. (2026), these identical rationales are assigned across funds under the same manager when no within-manager vote variation occurs, yielding a final sample of 36,003 rationales from 1,691 funds.

To classify the rationales, I read each distinct rationale and assigned it to one or more categories reflecting the main justification for the vote. As shown in Table IA.2, the *Governance* category includes rationales emphasizing a firm’s governance condition, such as citing governance problems to support a proposal or highlighting good governance practices as grounds for opposition. The *Performance* category covers references to firm profitability or returns. The *Company characteristics* category includes less frequent mentions of firm-level features beyond performance or governance, such as scale or complexity. Finally, some rationales simply express a general stance without mentioning any specific firm attributes.

Table 4 presents the frequency of these categories for votes in favor (Panel A) and votes against (Panel B). Votes in favor of a proposal are most frequently explained by a general principle (74.5% of cases, Column (1)), such as “*We believe the chair and CEO roles should be separated.*” In contrast, votes against a proposal are overwhelmingly justified by citing

¹²Michaely et al. (2026) analyze voting rationales to understand the sources of investor heterogeneity, focusing primarily on director elections. In contrast, this paper uses rationales on shareholder proposals to provide direct, qualitative insight into the motivations behind the quantitative patterns observed in the vote-based rankings.

¹³Say-on-pay proposals are excluded because Diligent’s rationales begin in 2014, whereas the main say-on-pay sample covers 2007–2010.

the firm’s existing strong governance (80.6% of cases, Column (1)), with statements like *“This company’s governance practices are sufficiently strong.”*

The crucial question is why a fund supports a proposal at one company but opposes a similar one at another. To isolate the firm-specific factors driving these differential votes, Columns (2) and (3) focus on cases where the same fund explained votes in both directions for a given topic within a single proxy season. Within this subset, governance-related reasons become the clear basis for differentiation. When justifying a vote against a proposal, funds overwhelmingly cite the firm’s specific governance conditions. The pattern for votes in favor is more nuanced: while a general principle remains the most common rationale (70.5% of cases), a firm’s specific governance is often the deciding factor. In nearly a third (31.2%) of these instances, funds explicitly cite governance problems as the reason for supporting a reform at one company while opposing it at another.

By contrast, other attributes are mentioned far less frequently. Performance is noted in only 3.7% of rationales favoring a proposal and 1.4% of those opposing it (Column (1)). Mentions of other company characteristics such as size or age are even rarer. These patterns strongly corroborate the quantitative findings in Section C: when funds differentiate between firms on the same proposal, governance conditions are the primary basis for that judgment.

D. Fund Heterogeneity and Shared Governance Assessments

A central question for the paper’s methodology is whether the single aggregate ranking accurately represents the fund community’s preferences, or whether distinct investor groups hold fundamentally different preference orderings. If active and passive funds evaluate firms using divergent criteria—for example, if active funds weight performance more heavily while passive funds emphasize governance attributes—their rankings should be weakly correlated and load onto different firm characteristics, and the single ranking would be an inadequate representation of either group’s preferences. I test this directly by estimating separate rankings for index and non-index (active) funds and examining whether they converge.

Table 5 reports the Spearman correlations between the resulting rank percentiles for

each proposal topic. The correlations are high for most topics, generally lying between 0.5 and 0.8, indicating substantial alignment on which firms are perceived as needing stronger governance oversight. The correlations for board declassification (0.51) and say-on-pay (0.48) are somewhat lower, consistent with the lower rank precision observed for these topics (Table IA.1), which stems from the overall high level of support.

Critically, the alignment extends beyond correlations in rankings. If the two groups were using different criteria to evaluate firms, their rankings would load onto different firm characteristics reflecting their distinct mandates and investment strategies. Instead, as shown in Figure IA.6, both active and passive funds' rankings are strongly associated with the same governance attributes, including board independence, insider ownership, and abnormal executive compensation, and show little association with performance or life-cycle characteristics. This confirms that the two groups not only agree on the relative ordering of firms but evaluate them along the same dimensions, suggesting that the single aggregate ranking reflects a shared assessment rather than the preferences of any one group.

At first glance, this convergence may seem surprising given the extensive literature documenting differences in active and passive funds' monitoring incentives, fees, and stewardship resources (Corum, Malenko, and Malenko, 2023; Lewellen and Lewellen, 2022). The key is distinguishing between two dimensions of fund behavior: the threshold for intervention and the criteria for evaluating relative governance needs. Differences in incentives and fees naturally affect how often a fund votes against management, but not necessarily which firms they identify as most in need of reform relative to others. A fund with a high intervention threshold and one with a low threshold can both agree that Firm A has more severe governance deficits than Firm B, even if they disagree on whether either firm warrants a vote against management. The evidence in Table 5 confirms this: active and passive funds diverge in their voting rates but converge in their relative assessments of firm governance quality.¹⁴

¹⁴A closely analogous finding emerges in Avery et al. (2013), who estimate a ranking of U.S. colleges from students' matriculation choices using a similar revealed-preference framework. They construct rankings specific to various student subgroups and find that a single aggregate ranking best represents the underlying preferences: the same conclusion that emerges here across active and passive funds.

Taken together, the results in this section suggest that mutual funds converge on their assessments of firms’ relative governance needs—despite well-documented differences in investment mandates, monitoring incentives, and voting philosophies. These results support the use of a single aggregate ranking as the most accurate and parsimonious representation of the fund community’s collective assessment.

E. Other Influences: ISS & Business Ties

This paper interprets mutual funds’ votes as reflecting their underlying governance preferences. However, these preferences are shaped by external factors that could influence voting behavior independently of governance assessments. A natural concern is whether the fund rankings estimated earlier simply reflect mechanical responses to external pressures rather than independent, fund-level assessments. To address this question, this section examines two prominent external factors: first, whether the rankings simply mirror the recommendations of proxy advisors, and second, whether they are driven by conflicts of interest arising from business ties.

E.1. ISS

Extensive research highlights the role of proxy advisors in guiding fund voting behavior and outcomes (e.g., Iliev and Lowry, 2015; Malenko and Shen, 2016). One might naturally ask whether the firm-level rankings simply mirror the voting recommendations of major proxy advisors such as ISS and Glass Lewis. In practice, however, both ISS and Glass Lewis often issue identical recommendations for many of the governance proposals studied in this paper (Table 1 Panel A). For instance, for board declassification proposals, both ISS and Glass Lewis support in over 99% of cases, providing little variation to explain cross-firm differences in the rankings.

While Glass Lewis supports most proposals studied here, ISS recommendations offer more variation for certain topics. For independent board chair proposals, ISS endorses about 65%. Consistent with prior evidence, firms receiving an “Against” recommendation from ISS tend to appear lower in the fund-based rankings (Figure IA.4). However, do these recommen-

dations fully explain the observed rank variation? To investigate this, I estimate rankings specifically for a subset of companies where both ISS and Glass Lewis recommend voting “For” the shareholder proposal (contrary to management’s recommendation). Figure IA.5 shows that, even within this subsample where major proxy advisors agree, the resulting firm-level ranks (illustrated for independent chair proposals in 2018) still display meaningful separation. This indicates that while proxy advisors exert a notable influence, the rankings capture meaningful, independent variation in how funds perceive the governance needs of different firms.

E.2. Business Ties

Another possibility is that the rankings are biased by business ties between funds and the companies in which they invest. For example, certain funds provide or manage services such as pension plans, insurance, or brokerage for companies whose proposals they vote on. Such affiliated funds might be inclined to vote in favor of management, potentially distorting the rankings of affiliated companies. To explore this, I re-estimate rankings excluding the votes of affiliated funds.

In this sample, affiliated funds account for approximately 3% of total votes cast. Consistent with Cvijanović et al. (2016), these affiliated funds are indeed 2–5 percentage points more likely to vote with management recommendations compared to unaffiliated funds (Table IA.3, Panel A). However, their aggregate impact on the overall firm rankings is negligible. Re-estimating the rankings after excluding all votes from affiliated funds leaves the average firm’s percentile rank essentially unchanged: Table IA.3 Panel B shows the mean rank shift is 0.12 percentile points, statistically indistinguishable from zero. While business ties influence the votes of specific affiliated funds, they do not systematically distort the aggregate firm-level rankings.

IV. Robustness of the Ranking Methodology

While the Mallows-based framework is designed to handle the statistical challenges of partial data, this section provides direct empirical evidence to confirm the reliability of the

resulting rankings. Sections A through B examine whether the rankings are biased by the non-random nature of ownership decisions, where funds only vote on firms they choose to own, confirming that the rankings are a reliable measure of collective preference. Section C uses mandatory say-on-pay votes to address two additional questions: whether the model imposes structure when the underlying data lack a differentiating signal, and whether a firm’s relative standing simply reflects the specific sample of targeted firms.

A. Robustness to Data Sparsity: The Connectedness Condition

A fundamental requirement for the Mallows-based ranking approach is that the network of observed votes allows any pair of firms to be compared, either directly—through a fund that holds both—or indirectly, through a chain of such connections. If certain firms were completely disconnected, there would be no empirical basis to position them relative to each other within a single ranking. Formally, this idea of *connectedness* ensures that a well-defined ranking can be obtained (e.g., Ford, 1957; Avery et al., 2013).¹⁵

The voting data used in this paper exhibits substantial overlap that satisfies this condition. For a typical topic-proxy season with N firms receiving proposals, there are $N(N-1)/2$ unique firm pairs. On average, approximately 151 funds hold and vote on both firms in a given pair, indicating that the ownership landscape is highly integrated rather than segmented into isolated groups.

However, for the model to learn relative preferences, it is not enough for funds to simply hold the same firms; they must sometimes vote differently on them. Therefore, a more stringent test is to examine the overlap of different votes. The analysis confirms that for over 80% of relevant firm pairs, at least one fund holds both firms and casts a different vote on each (for example, “For” one and “Against” the other). The model links the remaining pairs indirectly, through chains of firms connected in this same way, ensuring all firms can

¹⁵Ford (1957) first showed that maximum-likelihood estimation in Bradley-Terry-Luce-type models is unique only if every item is connected to every other item. Avery et al. (2013) illustrate a similar idea in the context of college admissions. Each student applies to only a subset of colleges, so in principle the set of schools could fragment into disconnected groups. However, if enough students apply to overlapping subsets, each college can still be linked to every other college through a chain of shared applicants.

be reliably compared within the same ranking. Among pairs with different votes, an average of 25 funds vote differently on the two firms.

B. Robustness of Inferences: The Withheld-Vote Experiment

A key question is whether the model can make reliable inferences given that it relies on partial data. To directly test this, I detail a withheld-vote validation exercise, following the logic of Vitelli et al. (2018).¹⁶ The test uses independent board chair proposals during the 2018 proxy season, consistent with the running example used throughout the paper, and randomly removes a known vote from the dataset to assess how well the model can reconstruct it using only the remaining information.

The procedure is as follows: for each fund, I randomly remove one of its actual observed votes and then re-estimate the model. The validation then compares, for that specific fund, the two rank distributions for the firm whose vote was withheld: the original distribution (estimated with the full data) and the re-estimated distribution (generated after that fund’s vote was removed). The degree of overlap between these two fund-specific distributions quantifies how accurately the method reconstructs the preference implied by the withheld vote. Section D of the Internet Appendix provides further procedural details and a fund-firm level illustration.

Across 1,403 funds in this sample, the mean overlap is 87% (median 91%). This measure captures the similarity between two posterior distributions rather than the accuracy of a point prediction, consistent with the paper’s goal of recovering a distribution of likely ranks rather than a single estimate. This high degree of consistency confirms that the model reliably infers preferences for unowned firms.

C. Evidence from Mandatory Say-on-Pay

Stepping back from the five governance proposal topics examined throughout the paper, I use mandatory say-on-pay votes, which are required for nearly all large public firms, to

¹⁶Vitelli et al. (2018) use movie rating data (*MovieLens*) and showed that withholding a user’s rating on one movie allowed the algorithm to recover the withheld rating with approximately 82% accuracy.

examine whether a firm’s relative ranking is stable across samples or simply reflects the specific targeted group. I first estimate say-on-pay rankings for the broad universe of S&P 500 firms and then separately for the narrow subset of those firms that also received one of the five shareholder proposals studied in this paper. A comparison reveals a high correlation of approximately 0.97 (Table IA.4), confirming that rankings are stable and do not simply reflect which firms happen to receive shareholder proposals.

This setting also serves as an empirical diagnostic for whether the model imposes structure regardless of the underlying data. Because the vast majority of mandatory say-on-pay proposals receive near-unanimous support, the data contains significantly less relative signal than contested governance proposals. If the model were mechanically imposing structure, a well-defined ranking would emerge even in this setting. Instead, the posterior distributions for mandatory say-on-pay are notably flat (Figure IA.7), confirming that the model does not impose structure where the data lack a differentiating signal. Taken together, these findings confirm that the rankings are a reliable measure of the fund community’s collective governance assessments, stable across samples and reflecting the signal present in the data.

V. Unmet Governance Demand and Future Shareholder Pressure

Section III.B establishes that a firm’s ownership structure can cause raw vote support to diverge from what the fund community’s collective assessment would predict. A natural economic question is whether this divergence has real consequences. Shareholder votes on governance proposals are precatory: even a passing vote does not legally require adoption. However, the prior literature establishes that passage overwhelmingly leads to adoption in practice, while a failed vote typically gives management the latitude to dismiss the proposal (Bach and Metzger, 2019). Consequently, when insiders or blockholders vote against a proposal, the reported tally falls below what a broader investor population would support, leaving the underlying governance friction unresolved and likely to resurface through other channels of shareholder pressure.

To formalize this intuition, I construct an indicator for *Unmet Governance Demand*. A firm is classified as having *Unmet Governance Demand* if its rank percentile exceeds its raw vote-support percentile by more than 20 percentage points: instances where the fund community’s collective assessment identifies a strong need for governance reform, but the vote count is deflated by ownership distortions. If a firm faces multiple proposals in a single proxy season, I average the percentile deviation across all topics.

I examine whether *Unmet Governance Demand* predicts two outcomes over the subsequent three years.¹⁷ The first is whether the firm receives another shareholder proposal on the five governance topics studied in this paper: if governance demand goes unaddressed, proponents may resubmit proposals in subsequent proxy seasons.¹⁸ The second is whether the firm experiences shareholder engagement and escalation—such as exempt solicitations, letters to boards, vote-no campaigns, and board representation requests—capturing governance pressure that surfaces through different channels.

Table 6 Panel A presents linear probability models estimating the likelihood of each outcome. Columns (1) and (4) report baseline specifications without controls. Columns (2) and (5) add standard firm-level controls, including the log of market capitalization, log of firm age, profitability, and board independence, as well as raw vote support percentile: the firm’s average raw vote support expressed in percentile terms, averaged across proposal topics within the proxy season. Columns (3) and (6) further add ownership controls—institutional ownership percentage, institutional ownership concentration (HHI), and the number of blockholders—to test whether the model-implied ranking provides predictive information beyond observable ownership characteristics, representing the most conservative test. All specifications include proxy season and Fama-French 12-industry fixed effects, with

¹⁷Table IA.5, Panel A, examines the symmetric case, where ownership distortions inflate vote support more than 20 percentage points above the fund community’s collective assessment (*Excess Vote Support*). If the direction of the gap between the collective assessment and vote support is what drives subsequent shareholder pressure, firms with materially inflated vote support should face *less* pressure, consistent with the evidence in Table 6. Panel A of Figure IA.11 shows that this pattern holds across thresholds from 0 to 50 percentage points in the specification of Column (6) (Table IA.5 Panel A).

¹⁸While the main analysis focuses on proposals on the same five governance topics, unresolved governance demand need not resurface through the same channel: shareholders dissatisfied with a failed governance proposal may instead pursue executive compensation disclosure or shareholder rights proposals. Examining any subsequent shareholder proposal yields similar results (Table IA.5 Panel B).

standard errors clustered at the firm level.

The results in Columns (1)–(3) examine future shareholder proposals. Column (1) shows that *Unmet Governance Demand* increases the probability of receiving a subsequent proposal within three years by 6.9 percentage points, a 12% increase relative to the unconditional mean that is statistically significant at the 10% level.¹⁹ The results are similar in Column (2) after adding firm-level controls and raw vote support percentile, with the coefficient increasing slightly to 8.6 percentage points. In Column (3), the coefficient becomes smaller and loses statistical significance once ownership controls are further included, though it remains economically meaningful at 6.2 percentage points. The attenuation reflects the fact that *Unmet Governance Demand* is directly correlated with ownership structures (Table 3): when insider or blockholder ownership is high, investors face a higher bar for securing majority support through the voting channel, making resubmission less likely to be the most effective path to reform.

An important contrast emerges in the engagement and escalation specifications in Columns (4)–(6). Shareholder engagement and escalation events exert governance pressure through means that do not depend on winning a majority vote. Columns (4) and (5) show that *Unmet Governance Demand* increases the probability of such events by 7.5–13.9 percentage points. Importantly, this result holds in Column (6), the most conservative specification, which controls for both ownership characteristics and raw vote support percentile: *Unmet Governance Demand* increases the likelihood of shareholder engagement and escalation by 12.6 percentage points. Given the baseline rate of 34.3%, the 12.6-percentage-point estimate represents a relative increase of about 37% over this baseline.²⁰ Panel C of Table 6 provides

¹⁹The result is subject to two opposing forces that affect the interpretation of the coefficient. Under Rule 14a-8, a proposal that fails to meet the applicable resubmission threshold may be excluded in subsequent years, mechanically reducing the number of observable future proposals for precisely the firms with the most severe ownership distortions, suggesting the estimate is a lower bound for this subset. At the same time, firms where a proposal passes are less likely to receive a resubmission since the proposal is typically implemented following passage (Bach and Metzger, 2019), working in the opposite direction. Another consideration is that managers can preempt resubmission by challenging proposals via SEC no-action letters (Matsusaka, Ozbas, and Yi, 2021). The net effect on the estimated coefficient is therefore ambiguous in direction, and the results should be interpreted with these opposing forces in mind.

²⁰The baseline rate of 34.3% is the share of the 934 firm-proxy season observations in the Column (6) estimation sample that experience at least one engagement or escalation event within the subsequent three

details on the campaign type: escalation for sample firms largely comprises exempt solicitations, with board control or representation campaigns, campaigns supporting shareholder proposals, and vote-no campaigns each accounting for smaller shares.²¹

Panel B of Table 6 replaces the indicator with *Percentile Difference* itself. The estimate in Column (6) implies that each percentage-point increase in the difference between the model-implied rank percentile and the raw vote-support percentile raises the likelihood of shareholder engagement and escalation by 0.2 percentage points, statistically significant at the 1% level. By definition, *Percentile Difference* can range from -100 to 100 , and its sample mean is approximately zero. Using the Column (6) specification, moving from this sample mean to a 20-point difference implies a 4-percentage-point increase in the probability of engagement and escalation (about 12% of the 34.3% baseline incidence). Moving to a difference of 50 points implies a 10-percentage-point increase (about 29% of the baseline). The same pattern holds for the shareholder proposal outcome, which is positive and statistically significant before ownership controls are added and attenuates once they are included (Columns (1)–(3)).

Taken together, these results establish that *Unmet Governance Demand* has real economic consequences. When ownership distortions suppress the proxy vote substantially below the fund community’s collective assessment, the underlying friction does not disappear; it resurfaces through subsequent shareholder proposals and engagement events. Critically, the latter effect persists after controlling for both ownership characteristics and raw vote support percentile, suggesting that the model-implied ranking captures governance vulnerabilities that neither ownership structure nor raw vote outcomes can fully predict.

years, reported as *Mean of Dependent Variable* in Table 6. Panel B of Figure IA.11 shows that the findings do not rely strictly on this 20-percentage-point threshold, with estimates remaining significant across a range of 10 to 30 percentage points.

²¹This composition reflects the sample: because this paper’s sample comprises firms that receive shareholder proposals, it leans toward larger firms (e.g., Denes et al., 2017), which face fewer board control contests compared to smaller firms.

VI. Conclusion

Measuring which firms most need reform is challenging: standard metrics like raw vote support reflect the preferences of a firm’s current owners rather than the broader investor community’s assessment. This paper addresses this challenge by developing firm-level rankings through a Mallows-based framework that infers the collective preferences of the entire mutual fund community. In doing so, it overcomes the sparse and selective data inherent in proxy voting, offering potential applications for aggregating selectively reported preference data in other settings.

Although prior work documents significant heterogeneity in how funds vote—with funds differing in their ideological leanings (Bolton et al., 2020) and clustering into distinct parties that differ in how they approach corporate governance (Bubb and Catan, 2022)—this paper finds that those same funds share assessments of firms’ relative governance needs. These findings are compatible: a fund that rarely votes against management and one that frequently does can still agree that Firm A has a greater need for reform than Firm B. This conclusion is supported directly by the raw voting data, independent of any model: when funds cast a different vote between two firms, the median agreement rate is 93%, far exceeding the 50% expected under purely idiosyncratic preferences. This convergence extends across fund types with very different incentive structures: active and passive funds, despite well-documented differences in monitoring incentives, produce highly correlated rankings that load onto the same firm characteristics. The rankings diverge systematically from raw vote support in ways linked to ownership structure, suggesting that raw votes reflect who owns a firm as much as how broadly a proposal is supported.

The rankings also reveal that funds evaluate firms primarily on structural governance characteristics, including board composition and insider ownership, rather than performance or life-cycle considerations, consistent with funds using the proxy voting channel as a channel to address their governance concerns. This pattern is corroborated by qualitative evidence from voting rationales and practitioner interviews.

The rankings also diverge systematically from raw vote support in ways linked to ownership structure, suggesting that raw votes reflect who owns a firm as much as how broadly a proposal is supported. This divergence has real economic consequences: firms whose ownership structures suppress vote support materially below the fund community’s collective assessment subsequently face greater shareholder pressure through both resubmission of proposals and shareholder engagement and escalation. The ranking thus captures information about firms’ governance needs that raw votes obscure.

These findings have direct implications for how researchers and regulators interpret voting outcomes. The divergence between rankings and raw vote support suggests that fixed vote hurdles under regulations like the SEC’s resubmission thresholds under Rule 14a-8 may systematically fail to capture reform demand at firms where insiders or blockholders mechanically suppress vote outcomes, precisely where shareholder engagement and escalation are most likely to follow. While this paper establishes where funds favor reforms, future research can explore the endogeneity between ownership choices and preference formation. Ultimately, this paper shows that what the proxy vote fails to register does not disappear: it resurfaces elsewhere, and the ranking identifies where.

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Appendix A. Variable Definitions

Variable Name	Description and Definition	Source
Abnormal executive compensation	Residual from regressing log of CEO’s total annual compensation (<i>tdc1</i>) on the interaction of market capitalization and industry (3-digit SIC), and fiscal year dummy	Execucomp
Age	Year minus the year in which the firm was incorporated; log of firm age: $\ln(1 + \text{Firm age})$	Jay Ritter’s website
Blockholders	Number of blockholders.	Thomson Reuters
Board independence	Percentage of board of directors classified as independent.	ISS
Capital expenditures	<i>capx/at</i>	Compustat
Cash	<i>che/at</i>	Compustat
Cumulative abnormal returns	Cumulative abnormal returns using either the market-adjusted, market, Fama French three-factor, and Fama French four-factor model, over various time horizons. The default uses the Fama French four-factor model over a one-year period (250 trading days).	CRSP

Variable Name	Description and Definition	Source
Deviation	The difference between vote support and a firm's rank derived from mutual fund votes, both represented in percentiles.	ISS
E-Index	Index ranging from 0 to 6 based on anti-takeover provisions identified by Bebchuk et al. (2008).	Lucian Bebchuk's website
Funds voting one-size-fits-all	Fraction of funds that always vote for or against for a given topic within a proxy season.	ISS
Institutional ownership	Percent of institutional ownership.	Thomson Reuters
Institutional ownership HHI	HHI of institutional ownership.	Thomson Reuters
KZ-Index	The Kaplan-Zingales Index measuring financial constraints. $-1.002 \times (oibdp/at) + 0.283 \times (at + csho \times prcc_f - ceq - txdB)/(0.9 \times at + 0.1 \times (at + csho \times prcc_f - ceq - txdB)) + 3.319 \times (dltt + dlc)/at - 39.368 \times (dvc + dvp)/at - 1.315 \times (che/at)$	Compustat
Market capitalization	Natural log of market value of common equity, in \$ million, $\ln(prcc_f \times csho)$	Compustat
Market-to-book	$(at + csho \times prcc_f - ceq - txdB)/at$	Compustat
Insider ownership	Total percentage of shares owned by the CEO and directors (<i>shrown_tot_pct</i>)	Execucomp
Leverage	$(dltt + dlc)/at$	Compustat
Repurchases	$(prstk - (pstkrv - lag_pstkrv))/at$	Compustat
Shareholder engagement and escalation	Indicator equal to one if the firm experiences at least one shareholder activism campaign within three years of the proxy season. Campaigns comprise exempt solicitations, board control or representation campaigns, campaigns supporting shareholder proposals, vote-no campaigns, hostile or unsolicited acquisition campaigns, and a residual category of other governance campaigns. Financially motivated campaigns, such as activism against mergers, short-selling campaigns and bear raids, and campaigns demanding buybacks or spin-offs ("Maximize Shareholder Value"), routine 13D filings without publicly disclosed activism, campaigns supporting management, and campaigns seeking to remove officers are excluded.	SharkWatch
Stock return	$((prcc_f_t + dvpsx_f_t)/ajex_t)/(prcc_f_{t-1}/ajex_{t-1}) - 1$	Compustat
Raw vote support percentile	A firm's raw vote support expressed in percentile terms within a given proposal topic and proxy season, averaged across proposal topics within the proxy season when a firm receives multiple proposals.	ISS
ROA	$oibdp/at$	Compustat
Unmet governance demand	Indicator equal to one if a firm's rank percentile exceeds its raw vote-support percentile by more than 20 percentage points, averaged across proposal topics within the proxy season when a firm receives multiple proposals.	ISS
Vote inflation	Dummy equal to one if the variable <i>Deviation</i> is greater than 20 for a given proposal topic and proxy season, indicating cases where the perceived benefits from vote support exceed those evaluated by mutual funds. Vote Deflation if <i>Deviation</i> is less than than -20 for a given proposal topic and proxy season.	ISS
Vote support	Total votes in favor/(Total votes in favor + Total votes against)	ISS

Appendix B. Limitations of OLS Fixed Effects in Sparse Ownership Settings: A Toy Example

Overview. A seemingly natural way to measure investor preferences is to run an OLS regression with fund and firm fixed effects, interpreting each firm’s coefficient as a proxy for how investors collectively view its governance proposals. However, when only certain funds own a given firm, those coefficients can be dominated by the voting patterns of a few investors. This appendix provides a toy example illustrating the problem and contrasts it with the Mallows-based ranking approach from Section I.B. Exhibit 1 shows a hypothetical dataset with five funds and 10 firms. Fund 1 typically votes “Against” at firms with which it has business ties (Firms 1–9) but casts a “For” vote at Firm 10.

OLS Fixed-Effects Results. Exhibit 2 shows that Company 10’s coefficient $\hat{\gamma}_{10}$ is large and statistically significant at the 10% level, even though only one fund (Fund 1) actually voted “For.” Because fund and firm fixed effects are jointly determined in a system of equations, the results can heavily reflect which funds hold which firms, undermining any interpretation of the firm’s coefficient as a stable measure of how investors at large view that proposal.

Contrast With the Mallows-Based Ranking Approach. Exhibit 3 shows how a Mallows-based M–H MCMC produces posterior distributions of rank for each firm based on Exhibit 1 data. Because only five funds voted across 10 firms, all rank distributions are wide. Specifically, even though Fund 1 supports the proposal at Firm 10, the model recognizes limited coverage and produces a broad range of plausible ranks for that firm.

Implications for Linking Estimates to Firm Characteristics. OLS provides only a coefficient and standard error for each firm, allowing limited flexibility to account for uncertainty when relating these estimates to firm characteristics (e.g., size, performance). By contrast, the Mallows-based approach generates a posterior distribution for each firm’s estimated rank, capturing both central tendencies and the uncertainty stemming from in-

complete or non-random coverage. This helps avoid overstating correlations that might arise simply because a small set of investors holds (and votes on) particular firms.

Exhibit 1. Toy Example: Fund Ownership and Votes

Each row shows one fund's votes (1 = "For", 0 = "Against") across ten firms. A "." means the fund does not own that firm (thus, no vote). In this hypothetical example, Fund 1 generally votes "Against" but casts one "For" at Firm 10.

	Firm 1	Firm 2	Firm 3	Firm 4	Firm 5	Firm 6	Firm 7	Firm 8	Firm 9	Firm 10
Fund 1	0	0	0	0	0	0	0	0	0	1
Fund 2	.	.	.	0	.	0	1	.	0	.
Fund 3	0	0	.	.	1	.	.	.	.	.
Fund 4	.	.	1	.	.	.	.	.	.	.
Fund 5	.	.	.	1	.	0	.	.	.	.

Exhibit 2. OLS Results With Fund and Firm Fixed Effects

The dependent variable is a vote (1 = For, 0 = Against). All regressions include fixed effects for Funds 1–5 (with Fund 1 as baseline) and Firms 1–10 (with Firm 1 as baseline).

	Coeff.	Std. Err.	t-stat	p-value
<i>Fund Fixed Effects</i>				
Fund 2	0.25	0.29	0.85	0.43
Fund 3	0.33	0.34	0.98	0.37
Fund 4	1.00	0.59	1.70	0.14
Fund 5	0.63	0.39	1.60	0.16
<i>Firm Fixed Effects</i>				
Firm 2	−0.00	0.42	−0.00	1.00
Firm 3	0.17	0.54	0.31	0.77
Firm 4	0.21	0.46	0.45	0.67
Firm 5	0.50	0.42	1.20	0.28
Firm 6	−0.13	0.46	−0.27	0.79
Firm 7	0.54	0.47	1.14	0.30
Firm 8	0.17	0.54	0.31	0.77
Firm 9	0.04	0.47	0.09	0.93
Firm 10	1.17	0.54	2.17	0.07
<i>Intercept</i>	−0.17	0.34	−0.49	0.64
Number of obs				20
R-squared				0.72
Adj R-squared				0.12

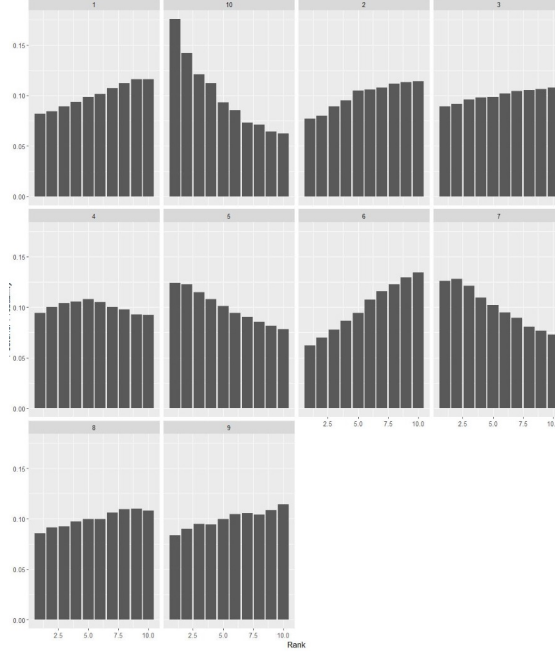


Exhibit 3. Posterior Distribution of Rank from the Mallows-based Ranking Method. Based on the same data in Exhibit 1, the Mallows-based approach produces posterior distributions over each firm’s rank. With minimal overlap and few total votes, each firm’s distribution is wide, indicating high uncertainty.

Appendix C. Technical Details of the Mallows Model and M–H MCMC Algorithm

This appendix provides the formal definition of the Mallows model (Mallows, 1957), extended by Vitelli et al. (2018) to accommodate incomplete or partial rankings, and outlines the M–H MCMC algorithm that implements the model in a Bayesian framework.

C.1. Mallows Model (Mallows, 1957)

Let n be the number of items, and let R_i be the ranking provided by assessor i , for $i = 1, \dots, N$. The model assumes that each assessor provides a complete ranking of all n items. The Mallows model posits an overall ranking ρ and a scale parameter $\alpha \geq 0$ controlling how tightly individual rankings cluster around ρ . Denote by $d(\cdot, \cdot)$ a distance function, such as Kendall’s τ , footrule, between two rankings. For an observed ranking R ,

$$P(R \mid \rho, \alpha) = \frac{\exp[-(\alpha/n) d(R, \rho)]}{Z_n(\alpha)}, \quad (\text{C1})$$

where $Z_n(\alpha)$ is a normalizing constant. If N complete rankings $\{R_1, \dots, R_N\}$ are conditionally independent given (ρ, α) , then

$$P(R_1, \dots, R_N \mid \rho, \alpha) = \frac{1}{Z_n(\alpha)^N} \exp\left[-\frac{\alpha}{n} \sum_{i=1}^N d(R_i, \rho)\right]. \quad (\text{C2})$$

Although ρ is sometimes referred to as a “true” or “consensus” ranking, this does not imply perfect unanimity among assessors; rather, ρ is a single reference ordering around which observed rankings cluster. In practice, n can be large, and not all funds rank all firms. That is, fund i may only vote on a subset $S_i \subseteq \{1, \dots, n\}$. Further, real-world votes may contain inconsistencies, for example, $A \prec B$, $B \prec C$, yet $C \prec A$. These complexities require extending the original model, as described next.

C.2. Bayesian Extension to Partial Rankings (Vitelli et al., 2018)

While the classical Mallows model requires each assessor to provide a complete ranking of all items, this assumption rarely holds in real-world settings. A Bayesian approach can more naturally handle partial or even inconsistent data: it treats unranked items as missing information and infers their plausible positions. For a step-by-step empirical illustration of these procedures, please refer to Section B of the Internet Appendix, where the 2018 independent board chair sample shows how the algorithm estimates each fund’s augmented ranking and the overall ranking.

Posterior Objective and Augmented Rankings. In a Bayesian version of the Mallows model (Vitelli et al., 2018), the main goal is to estimate

$$P(\rho, \alpha, \{\tilde{R}_i\} \mid \{\text{partial } R_i\}),$$

where ρ is the overall ranking, $\alpha \geq 0$ is the scale parameter controlling how tightly individual rankings cluster around ρ , and $\tilde{R}_i$ is the augmented ranking for assessor i , extending its

partial ranking R_i to all n items.²² Following Vitelli et al. (2018), each partial ranking R_i is converted into a complete (augmented) ranking $\tilde{R}_i$ by inserting any unranked items in a provisional order that respects known relative positions. These augmented rankings are updated iteratively rather than fixed in advance, allowing the sampler to “fill in” missing votes consistently across overlapping portfolios.

Priors and Initialization. The model employs a non-informative uniform prior on the overall ranking ρ . Consistent with Vitelli et al. (2018), the algorithm initializes the augmented rankings $\tilde{R}_i$ via a constrained randomization procedure. For each fund i , the initial ranking $\tilde{R}_i^{(0)}$ is generated by randomly permuting all n firms, constrained to respect the observed partial order R_i . For example, if a fund voted “For” firm A and “Against” firm B , the initialization restricts $\tilde{R}_i^{(0)}(A) < \tilde{R}_i^{(0)}(B)$. Firms not voted on are inserted uniformly at random. These augmented rankings are then updated iteratively as latent parameters, allowing the model to infer missing preferences based on the collective signal.

M–H MCMC Algorithm. The posterior distribution is approximated through a M–H MCMC, which at each iteration:

1. **Augmented Ranking Updates.** For each assessor i , the algorithm proposes a small local change to its augmented ranking $\tilde{R}_i$, for example, swapping two adjacent items or performing a short “leap-and-shift”. This proposal is then probabilistically accepted or rejected²³ according to how well the new ranking aligns with the overall ranking ρ and with the partial data R_i . By iterating this process, the algorithm refines each fund’s augmented ranking to reflect missing votes more consistently.
2. **Overall Ranking Update.** A small local modification, such as swapping two adjacent items, is proposed in ρ . The chain then accepts or rejects the new ρ based on how well the modified ranking fits all $\{\tilde{R}_i\}$.

²²Formally, $P(\rho, \alpha, \{\tilde{R}_i\} \mid \{\text{partial } R_i\}) \propto \prod_{i=1}^N \exp[-(\alpha/n) d(\tilde{R}_i, \rho)] \times (\text{priors on } \rho, \alpha, \tilde{R}_i)$.

²³Formally, the acceptance probability for a proposed update from $\tilde{R}_i^{t-1}$ to $\tilde{R}_i^*$ is

$$\min\left\{1, \frac{\exp[-(\alpha/n) d(\tilde{R}_i^*, \rho)]}{\exp[-(\alpha/n) d(\tilde{R}_i^{t-1}, \rho)]} \times \frac{q(\tilde{R}_i^{t-1} \mid \tilde{R}_i^*)}{q(\tilde{R}_i^* \mid \tilde{R}_i^{t-1})}\right\},$$

where $q(\cdot \mid \cdot)$ is the proposal density. This is the standard M–H step.

3. Scale Parameter Update. Propose a new α (the scale parameter) via a random-walk move, then accept or reject it according to the M–H ratio.

These updates repeat for many iterations, during which the Markov chain gradually converges to its stationary distribution (the posterior). The initial portion of the chain (the “burn-in” phase) is discarded to reduce dependence on arbitrary starting values. In this paper, each chain is run for 1 million iterations, discarding the first 500,000 as burn-in, and results from 32 chains with distinct seeds are combined. After convergence, the retained draws approximate $P(\rho, \alpha, \{\tilde{R}_i\} \mid \{\text{partial } R_i\})$.

Interpretation of Posterior Samples. Because each retained draw includes a sampled ρ , the posterior provides a full probability distribution over each firm’s rank, rather than a single coefficient (as in OLS). One can thus compute point estimates like the median rank, along with credible intervals capturing uncertainty. Firms with sparser or more conflicting votes typically exhibit wider posterior intervals, indicating less certainty about their true position in the overall ranking.

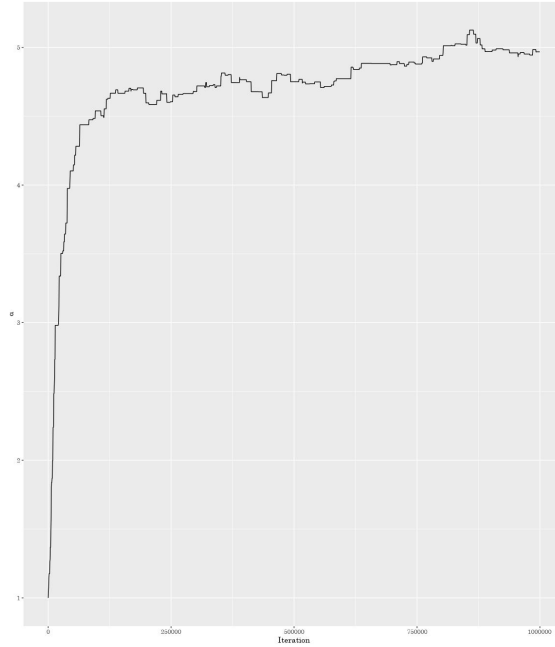


Figure C.1. Convergence of α . This figure displays in the estimated value of the scale parameter α over 1,000,000 iterations for firms receiving independent board chairman proposals in the 2018 proxy season. Results from seed 101 is shown as an example.

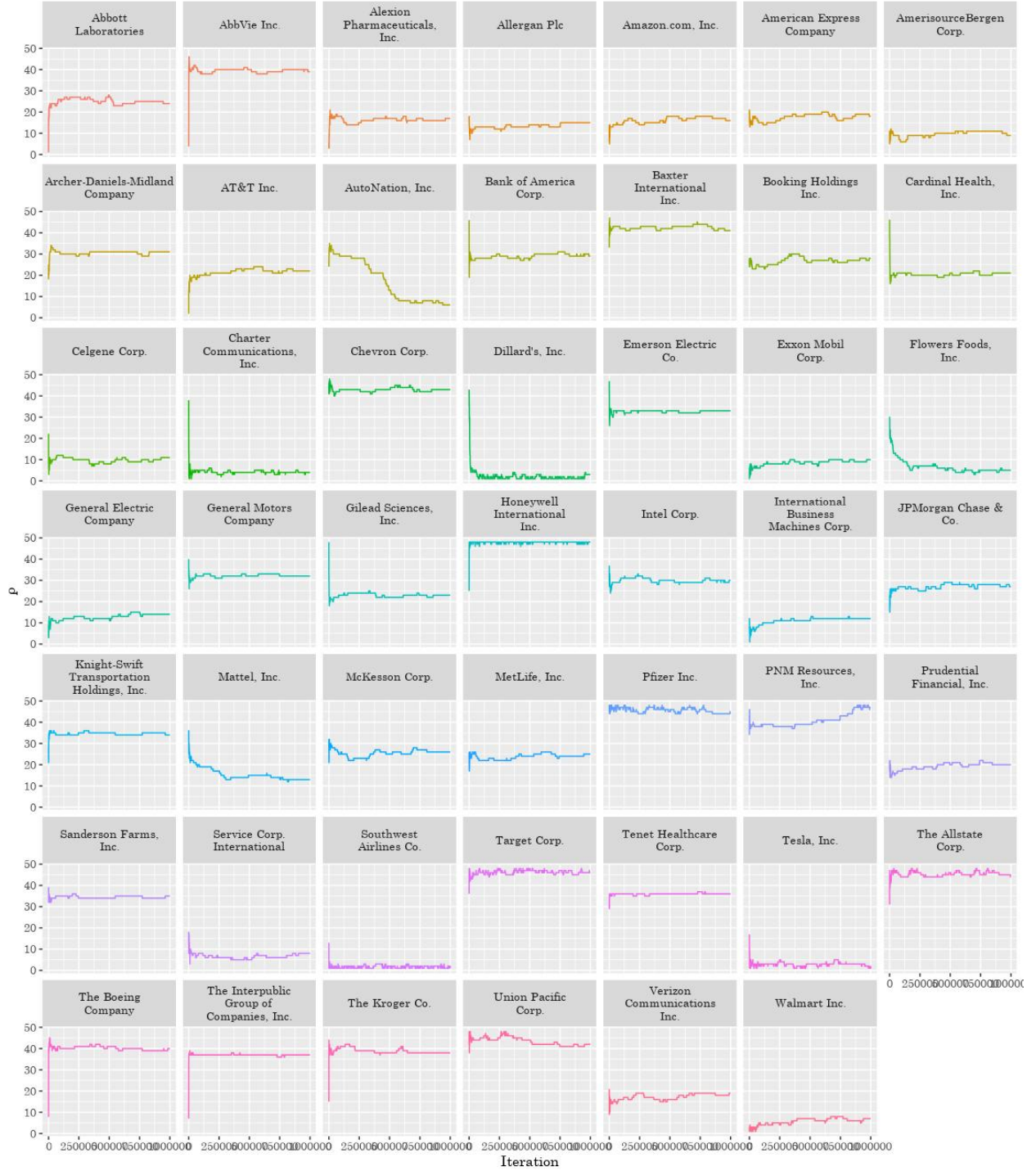


Figure C.2. Convergence of ρ . This figure displays changes in estimated rank (ρ) over 1,000,000 iterations for firms receiving independent board chair proposals during the 2018 proxy season. The results from seed 101 are shown as an example. The initial 500,000 observations are burn-ins, and the latter 500,000 observations from each of 32 seeds are used to produce Panel A of Table 2 and Figure 3.

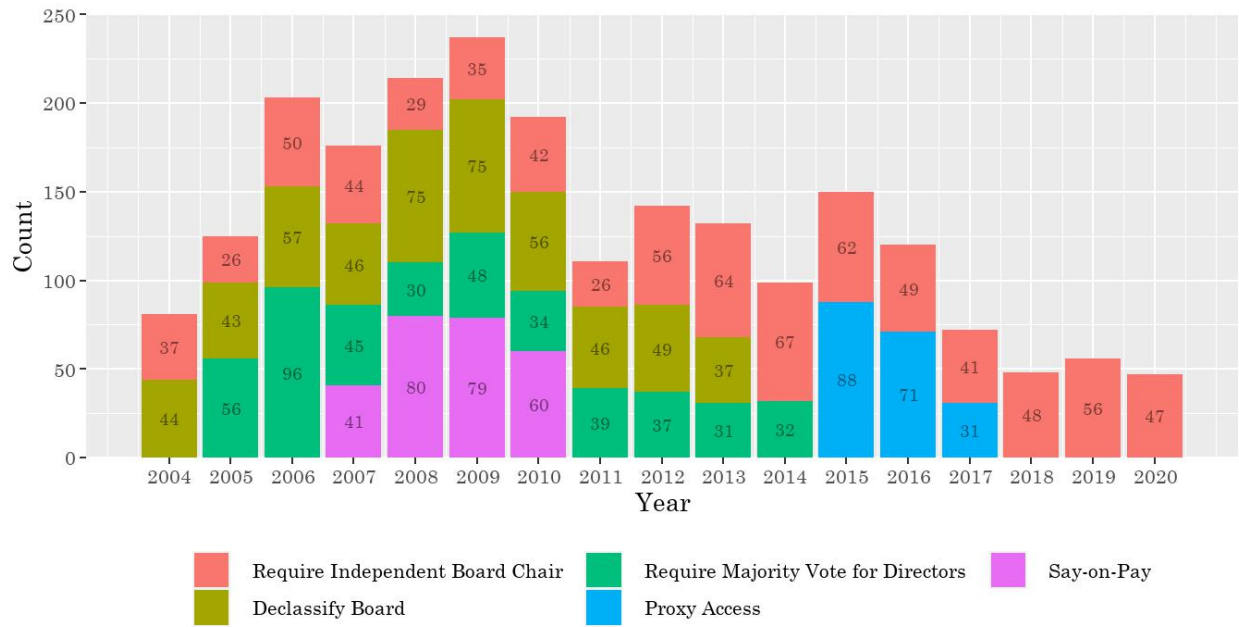
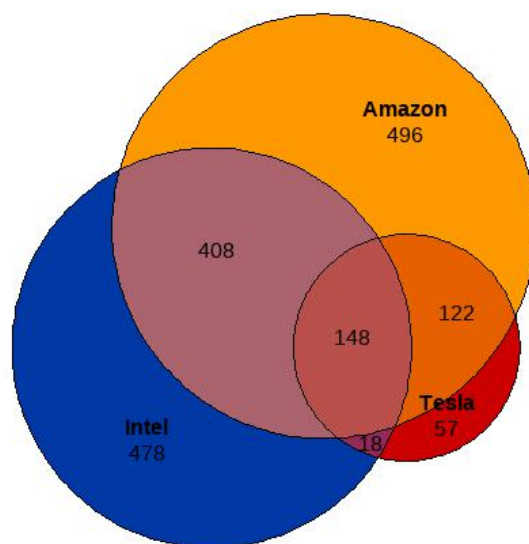


Figure 1. Number of Companies with Shareholder-Sponsored Proposals by Topic. This figure shows the number of companies with shareholder-sponsored governance proposals, by proposal topic and year. The information comes from the ISS Voting Analytics Mutual Fund Vote Records database. I require at least 25 proposals on the same topic and at least 50 funds that voted both for and against a given topic in a given proxy season.

Panel A. Number of Funds that Voted on Three Firms' Independent Board Chair Proposals



Panel B. Fund Votes on Three Firms' Independent Board Chair Proposals

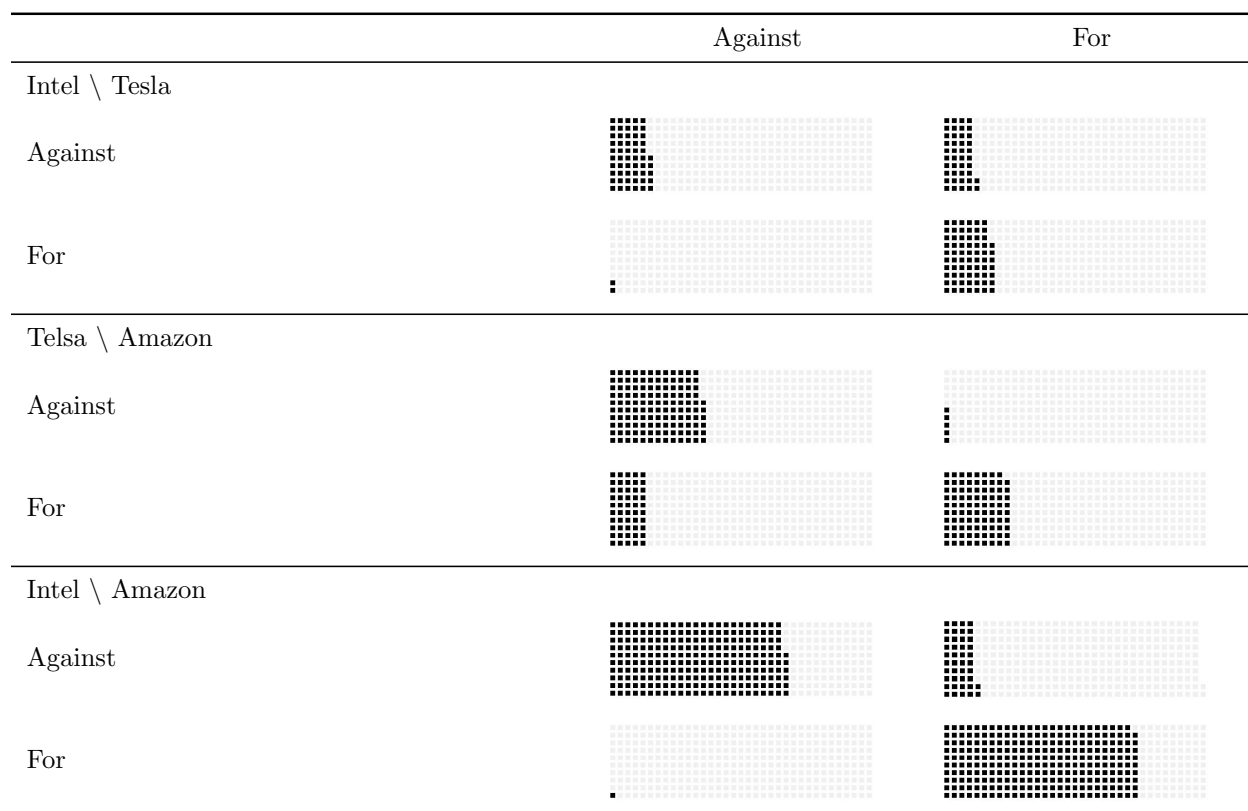


Figure 2. Mutual Fund Voting Patterns: An Illustration. Panel A presents a Venn diagram of the mutual funds that voted on Intel's, Amazon's, and Tesla's independent board chair proposals during the 2018 proxy season. Panel B shows the votes cast by these funds. Each black square represents one fund. For example, the top row shows that 55 funds voted against both Intel's and Tesla's proposals, and 42 funds voted against Intel's proposal and in favor of Tesla's proposal. Any votes other than For and Against are excluded from this figure.

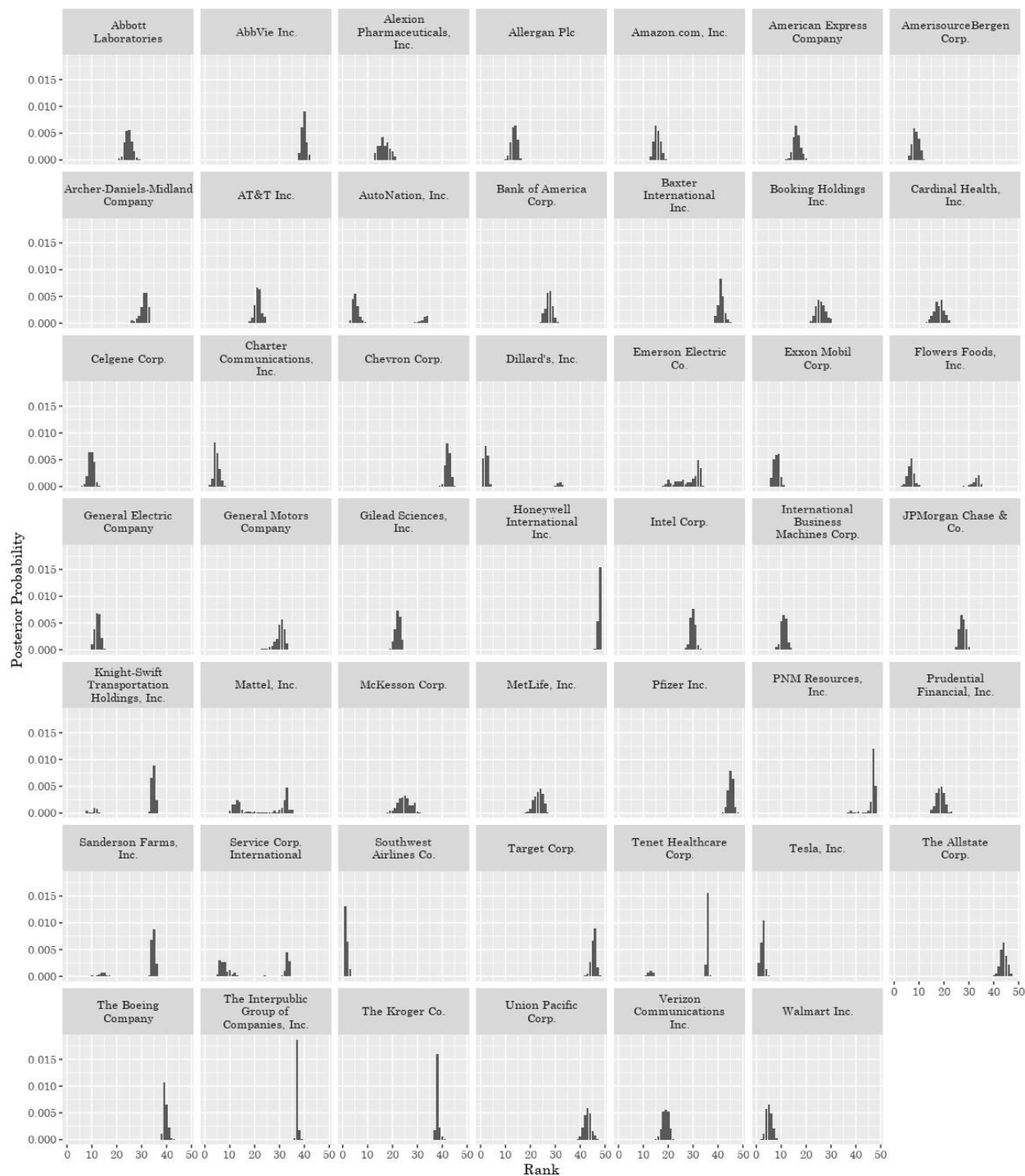
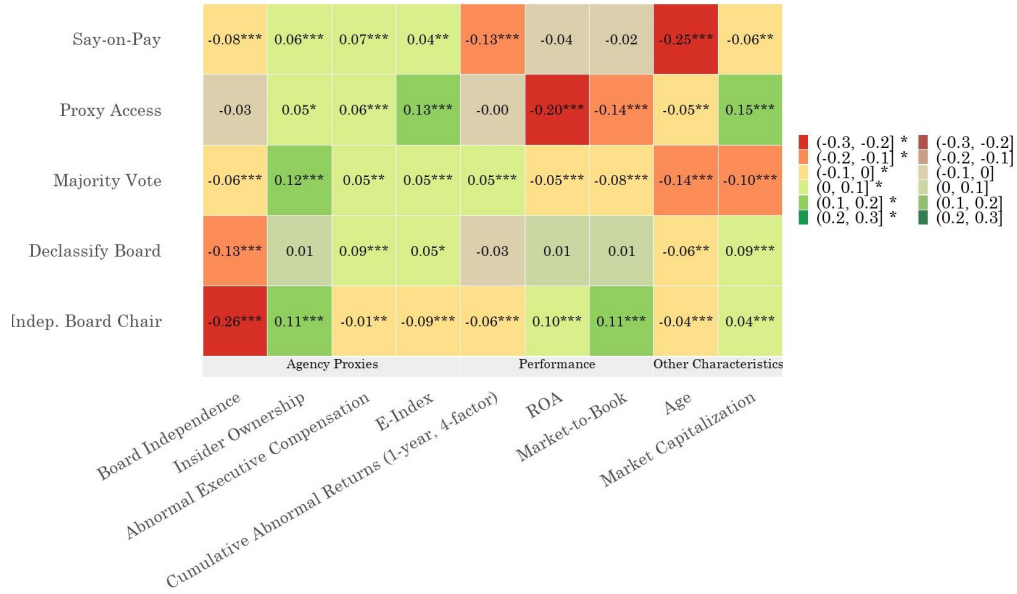


Figure 3. Posterior Distribution of Rank. This figure presents the posterior distribution of each firm's rank based on fund preferences for companies that received independent board chair proposals during the 2018 proxy season, aggregated across 32 independent chains with different initial rankings. 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. Figure C.2 in Appendix C illustrates the convergence of the estimated ranks across iterations for one seed (101).

Panel A. Univariate Regressions



Panel B. Multivariate Regressions

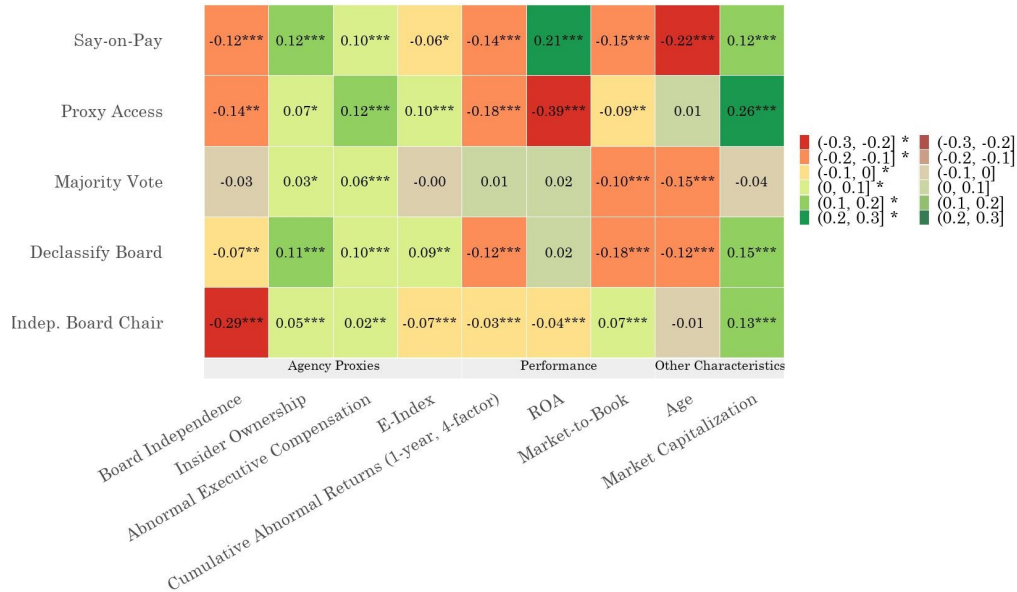


Figure 4. Company Rankings vs. Characteristics. This figure presents the relationship between company rankings and their characteristics, indicated at the bottom of the graph. For each topic displayed on the y-axis, Panel A displays the results from univariate regressions where the dependent variable is each firm's percentile rank, and the independent variable is firm characteristics. Panel B displays the results from multivariate regressions, with all nine variables indicated at the bottom of the graph. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively. 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.

Table 1. Summary Statistics

This table presents descriptive statistics for proposals (Panel A) and mutual fund voting behavior (Panels B–E) during the 2004–2020 proxy seasons. Panel A reports proposal outcomes and proxy advisor recommendations by proposal topic, where the unit of analysis is a proposal. Panel B reports fund voting patterns by proposal topic, where the unit of analysis is a vote; since management almost always recommends voting against the shareholder proposal topics studied in this paper, votes in line with management almost always correspond to votes against the proposal. Panel C displays the percentage of fund-proxy seasons with identical votes across all portfolio companies for funds that voted on at least 10 proposals on a given topic within a proxy season, where the unit of analysis is a fund-proxy season. Panel D reports pairwise agreement rates in fund preferences from the voting data, calculated as follows: for every pair of firms receiving the same proposal type in a given year, I identify all funds that cast a different vote between them, voting “For” one firm and “Against” the other, and calculate the fraction that agreed on the direction of preference. The median and mean agreement rates are reported by proposal topic, with Column (6) reporting the aggregated statistics across all 42,382 distinct firm pairs. Under purely idiosyncratic preferences, this rate would approach 50%. Panel E displays the percentage of fund-proxy seasons with votes in line with the recommendations of management, ISS, or Glass Lewis more than 99% of the time, where the unit of analysis is a fund-proxy season. Column (1) reports these results for funds voting on at least 50 total shareholder proposals in a proxy season, while Column (2) reports the results for funds voting on at least 50 proposals within the five shareholder proposal topics studied in this paper. The 99% threshold is calculated among proposals for which a recommendation is available, excluding observations where the recommendation is missing or coded as “Do Not Vote.”

	Require Independent Board Chair (1)	Declassify Board (2)	Require Majority Vote for Directors (3)	Proxy Access (4)	Say-on-Pay (5)
<i>Panel A. Proposal Outcomes and Recommendations: By Proposal Topic</i>					
Mean % of votes in favor	30	70	54	54	43
% proposal passes	4	75	47	57	15
% mgmt. recommends For	0	3	2	4	0
% ISS recommends For	66	99	99	97	99
% GL recommends For	94	99	100	88	96
N	763	477	430	190	254
<i>Panel B. Funds' Voting Patterns: By Proposal Topic</i>					
% Votes in favor	37	91	68	72	58
% Votes in line with management	63	12	33	31	42
% Votes in line with ISS	62	91	69	76	58
% Votes in line with Glass Lewis	39	93	71	75	58
N	414,706	106,496	138,645	97,121	133,489
<i>Panel C. Funds' "One-size-fits-all" Voting Behavior</i>					
Always votes against	26	2	13	11	25
Always votes in favor	8	70	37	25	38
N	13,978	2,637	3,859	2,804	4,422

Table 1. Summary Statistics (*—Continued from previous page*)*Panel D. Pairwise Agreement in Fund Preferences*

	Require Independent Board Chair (1)	Declassify Board (2)	Require Majority Vote for Directors (3)	Proxy Access (4)	Say-on-Pay (5)	All (6)
Median agreement	0.89	1.00	1.00	1.00	0.67	0.93
Mean agreement	0.81	0.86	0.87	0.86	0.70	0.81
N	17,283	4,237	8,282	5,239	7,341	42,382

Panel E. Fund Votes Mostly in Line with Management, ISS, or Glass Lewis Recommendations

	All Shareholder Proposals (1)	Five Governance Topics (2)
Management	2.5	2.8
ISS	14.9	21.7
Glass Lewis	0.6	3.0
N	30,351	3,562

Table 2. Mutual Funds' Governance Preference Ranking of Firms

The table presents each firm's estimated rank based on fund votes on shareholder proposals for companies that received independent board chair proposals during the 2018 proxy season. In all columns, a lower number corresponds to a higher preference (or 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)
Abbott Laboratories	25	25	[22,27]	[22,28]
AbbVie Inc.	40	40	[38,41]	[38,42]
Alexion Pharmaceuticals, Inc.	17	16	[13,20]	[13,21]
Allergan Plc	13	14	[11,15]	[11,15]
Amazon.com, Inc.	16	15	[14,18]	[13,18]
American Express Company	16	16	[14,19]	[14,19]
AmerisourceBergen Corp.	9	9	[7,11]	[6,11]
Archer-Daniels-Midland Company	31	31	[28,33]	[26,33]
AT&T Inc.	21	21	[19,24]	[19,24]
AutoNation, Inc.	11	5	[3,9],[29,34]	[3,34]
Bank of America Corp.	27	27	[25,30]	[25,30]
Baxter International Inc.	41	41	[39,43]	[39,44]
Booking Holdings Inc.	26	26	[23,30]	[23,30]
Cardinal Health, Inc.	18	18	[14,21]	[14,22]
Celgene Corp.	10	10	[8,12]	[7,12]
Charter Communications, Inc.	5	5	[3,7]	[3,7]
Chevron Corp.	42	42	[41,44]	[40,44]
Dillard's, Inc.	5	2	[1,3],[31,32]	[1,32]
Emerson Electric Co.	29	31	[20,21],[23,33]	[19,33]
Exxon Mobil Corp.	8	8	[6,10]	[6,10]
Flowers Foods, Inc.	14	7	[4,9],[31,35]	[5,34]
General Electric Company	12	12	[10,14]	[10,14]
General Motors Company	30	31	[26,33]	[25,33]
Gilead Sciences, Inc.	22	22	[20,24]	[20,24]
Honeywell International Inc.	48	48	[47,48]	[47,48]
Intel Corp.	30	30	[28,32]	[28,32]
International Business Machines Corp.	11	11	[9,13]	[9,13]
JPMorgan Chase & Co.	27	27	[26,29]	[26,29]
Knight-Swift Transportation Holdings, Inc.	32	35	[8],[11,12],[34,36]	[9,36]
Mattel, Inc.	23	26	[10,15],[17,18],[20],[28,35]	[11,35]
McKesson Corp.	25	25	[19],[21,29]	[19,29]
MetLife, Inc.	23	23	[20,26]	[20,26]
Pfizer Inc.	45	45	[43,47]	[43,47]
PNM Resources, Inc.	47	47	[38],[45,48]	[39,48]
Prudential Financial, Inc.	19	19	[16,21]	[15,21]
Sanderson Farms, Inc.	32	35	[13,15],[33,36]	[13,36]
Service Corp. International	18	10	[5,12],[32,34]	[6,34]
Southwest Airlines Co.	1	1	[1,3]	[1,3]
Target Corp.	45	46	[44,47]	[43,47]
Tenet Healthcare Corp.	33	36	[12,14],[35,36]	[12,36]
Tesla, Inc.	3	3	[1,4]	[1,4]
The Allstate Corp.	44	44	[42,47]	[41,47]
The Boeing Company	40	39	[38,41]	[38,41]
The Interpublic Group of Companies, Inc.	37	37	[37,38]	[37,38]
The Kroger Co.	38	38	[37,39]	[37,40]
Union Pacific Corp.	43	43	[41,46]	[40,46]
Verizon Communications Inc.	19	19	[17,21]	[16,21]
Walmart Inc.	5	5	[3,7]	[3,7]

Table 3. Firm Rankings vs. Vote Support

Panel A presents Spearman's correlation coefficients between each company's rank and vote support for each topic, both in percentile rank. Vote support is calculated as $(\# \text{ votes in favor})/(\# \text{ votes in favor} + \# \text{ votes against})$. The topics are indicated at the top of each panel. Panel B examines whether the deviation between each company's rank and vote support can be explained by the company's ownership characteristics. In Column (1), *Deviation* is the difference between vote support and a firm's rank derived from mutual fund votes, both represented in percentiles. For example, if a firm's vote support reaches the 95th percentile but ranks at the 70th percentile through mutual fund votes, then the deviation is 25. This reflects a case where the perceived benefits from vote support exceed those evaluated by mutual funds. In Columns (2)–(7), I indicate whether a vote is inflated or deflated, defining a proposal with a deviation greater than 20 as inflated, and less than -20 as deflated. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Panel A. Spearman's correlation between vote support and firm rankings

Require Independent Board Chair (1)	Declassify Board (2)	Require Majority Vote for Directors (3)	Proxy Access (4)	Say-on-Pay (5)
0.51*** (N=746)	0.27*** (N=452)	0.57*** (N=421)	0.49*** (N=185)	0.15** (N=252)

Panel B. Deviation between vote support and firm ranking percentiles

<i>Dependent variable:</i>	Deviation	Vote Inflation			Vote Deflation		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Insider Ownership	−0.12*** (0.02)	−0.11*** (0.03)	−0.06** (0.02)	−0.01*** (0.00)	0.10*** (0.03)	0.09*** (0.03)	0.01*** (0.00)
Institutional Ownership	0.23*** (0.04)	0.18*** (0.05)	0.16*** (0.04)	0.01*** (0.00)	−0.26*** (0.05)	−0.20*** (0.04)	−0.02*** (0.00)
Institutional Ownership HHI	−0.24*** (0.03)	−0.17*** (0.05)	−0.10** (0.04)	−0.01*** (0.00)	0.25*** (0.05)	0.22*** (0.04)	0.02*** (0.00)
Blockholders	0.02 (0.04)	0.01 (0.05)	0.01 (0.04)	0.00 (0.00)	−0.01 (0.05)	−0.04 (0.04)	0.00 (0.00)
Market Capitalization	−0.11*** (0.03)	−0.17*** (0.04)	−0.12*** (0.04)	−0.01*** (0.00)	0.01 (0.04)	0.02 (0.04)	0.00 (0.00)
Funds Voting One-Size-Fits-All	4.05 (3.62)	16.03*** (4.88)	16.92*** (3.94)	1.02*** (0.31)	9.09* (4.93)	10.69** (4.28)	0.53* (0.31)
Observations	1,591	1,591	1,591	1,591	1,591	1,591	1,591
R-squared	0.10	0.05	0.05		0.06	0.06	
Specification	OLS	OLS	OLS	Logit	OLS	OLS	Logit
Threshold	.	20	30	20	20	30	20

Table 4. Voting Rationales on Shareholder Proposals

The table presents the frequency of rationale categories for votes in favor (Panel A) and votes against (Panel B). Column (1) reports the relative importance of each category. Column (2) is similar to Column (1) but focuses on cases where a fund provides rationales for “Against” and “For” votes on a given topic within a proxy season. Column (3) reports the proportion of fund-proxy season-topic combinations that reference the category, focusing on funds that provide rationales for both votes For and Against. Note that the percentages in Column (3) do not sum up to 100 because funds may provide more than one rationale.

Panel A. Votes in favor

Category	(1) (N=24,361)	(2) (N=6,512)	(3) (N=1,229)
General support/opposition	74.5	70.5	76.2
Governance	9.7	12.5	31.2
Others	3.9	8.0	15.2
Performance	3.7	4.4	8.8
Proposal term/scope	5.6	2.7	5.0
Data error	0.5	0.7	3.4
Engagement	0.2	0.6	3.4
Company characteristics	0.9	0.4	1.5
Follow policy	0.9	0.3	1.5
Total	100	100	.

Panel B. Votes against

Category	(1) (N=11,642)	(2) (N=8,106)	(3) (N=1,229)
Governance	80.6	80.1	66.4
General support/opposition	5.8	6.1	31.2
Others	3.3	3.5	16.8
Engagement	3.6	3.4	16.2
Data error	2.8	2.7	11.7
Performance	1.4	1.9	4.4
Proposal term/scope	1.9	1.8	10.3
Follow policy	0.6	0.5	2.4
Company characteristics	0.0	0.0	0.0
Total	100	100	.

Table 5. Correlation Between Index vs. Non-Index Fund Rankings

This table presents Spearman’s correlation coefficients between index and non-index funds’ rankings. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Require Independent Board Chair (1)	Declassify Board (2)	Require Majority Vote for Directors (3)	Proxy Access (4)	Say-on-Pay (5)
0.82*** (N=710)	0.51*** (N=263)	0.82*** (N=384)	0.67*** (N=189)	0.48*** (N=257)

Table 6. Unmet Governance Demand and Future Shareholder Pressure

This table presents linear regressions estimating the likelihood that a firm receives a shareholder proposal on any of the five proposal topics examined in this paper (Columns (1)–(3)) or experiences shareholder engagement and escalation (Columns (4)–(6)) over the subsequent three years. In Panel A, the variable of interest is *Unmet Governance Demand*, an indicator equal to one if the firm’s model-implied rank percentile exceeds its raw vote-support percentile by more than 20 percentage points, averaged across proposal topics within the proxy season: cases in which the fund community’s collective assessment identifies a strong need for reform but the vote count is deflated by ownership distortions. In Panel B, the variable of interest is *Percentile Difference*: the firm’s model-implied rank percentile minus its raw vote-support percentile, averaged across proposal topics within the proxy season, so that positive values indicate that the collective assessment implies a greater need for reform than raw vote support would indicate. Coefficients in Panel B correspond to a one-percentage-point increase in *Percentile Difference*. Columns (1) and (4) present baseline estimates without controls. Columns (2) and (5) include *Raw Vote Support Percentile*, defined as the firm’s average raw vote support in percentile terms, averaged across proposal topics within the proxy season, and firm characteristics (market capitalization, firm age, cumulative abnormal returns, ROA, market-to-book, leverage, cash, capital expenditures, repurchases, the KZ index, board independence, abnormal executive compensation, and the E-index). Columns (3) and (6) additionally control for the following ownership characteristics: insider ownership, institutional ownership, institutional ownership HHI, and the number of blockholders. All specifications include proxy season fixed effects and Fama–French 12-industry fixed effects. *Mean of Dependent Variable* reports the unconditional mean of the dependent variable in each column’s estimation sample. Coefficients on the firm and ownership control variables are suppressed for brevity. Standard errors are clustered at the firm level and reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively. Variables are defined in Appendix A. Panel C reports the share of firm-proxy season observations experiencing at least one shareholder engagement or escalation event of each type within three years of the proxy season, computed on the estimation samples of Columns (4)–(6) of this table’s Panels A–B; the first row corresponds to *Mean of Dependent Variable* in those columns. Because a firm-proxy season can experience multiple campaign types, component incidences need not sum to the total.

Panel A. Unmet Governance Demand

	Shareholder Proposals			Shareholder Engagement & Escalation		
	(1)	(2)	(3)	(4)	(5)	(6)
Unmet Governance Demand	0.069* (0.036)	0.086* (0.046)	0.062 (0.047)	0.075** (0.032)	0.139*** (0.044)	0.126*** (0.045)
Raw Vote Support Percentile		0.001 (0.001)	0.000 (0.001)		−0.002** (0.001)	−0.002** (0.001)
Observations	1,597	830	823	1,741	944	934
Adjusted R^2	0.025	0.151	0.161	0.127	0.239	0.254
Mean of Dependent Variable	0.554	0.630	0.631	0.265	0.343	0.343

Table 6. Unmet Governance Demand and Future Shareholder Pressure (*—Continued from previous page*)

Panel B. Percentile Difference

	Shareholder Proposals			Shareholder Engagement & Escalation		
	(1)	(2)	(3)	(4)	(5)	(6)
Percentile Difference	0.001*** (0.000)	0.001** (0.001)	0.001 (0.001)	0.001** (0.000)	0.002*** (0.001)	0.002*** (0.001)
Raw Vote Support Percentile		0.000 (0.001)	0.000 (0.001)		−0.003** (0.001)	−0.002** (0.001)
Observations	1,597	830	823	1,741	944	934
Adjusted R^2	0.029	0.151	0.160	0.126	0.237	0.253
Mean of Dependent Variable	0.554	0.630	0.631	0.265	0.343	0.343

Panel C. Composition of Shareholder Engagement and Escalation Events

	Sample		
	Column (4) (N = 1,741)	Column (5) (N = 944)	Column (6) (N = 934)
Any engagement or escalation event	0.265	0.343	0.343
Exempt solicitation	0.194	0.268	0.270
Board control or representation campaign	0.051	0.058	0.057
Campaign supporting a shareholder proposal	0.037	0.047	0.047
Vote-no campaign	0.019	0.021	0.021
Other governance campaign	0.022	0.019	0.018
Hostile or unsolicited acquisition campaign	0.005	0.006	0.005

Internet Appendix for “Which Firms Require More Governance? Evidence from Mutual Funds’ Revealed Preferences”

This internet appendix presents additional results to accompany the paper “Which Firms Require More Governance? Evidence from Mutual Funds’ Revealed Preferences.”

A. Additional Figures and Tables

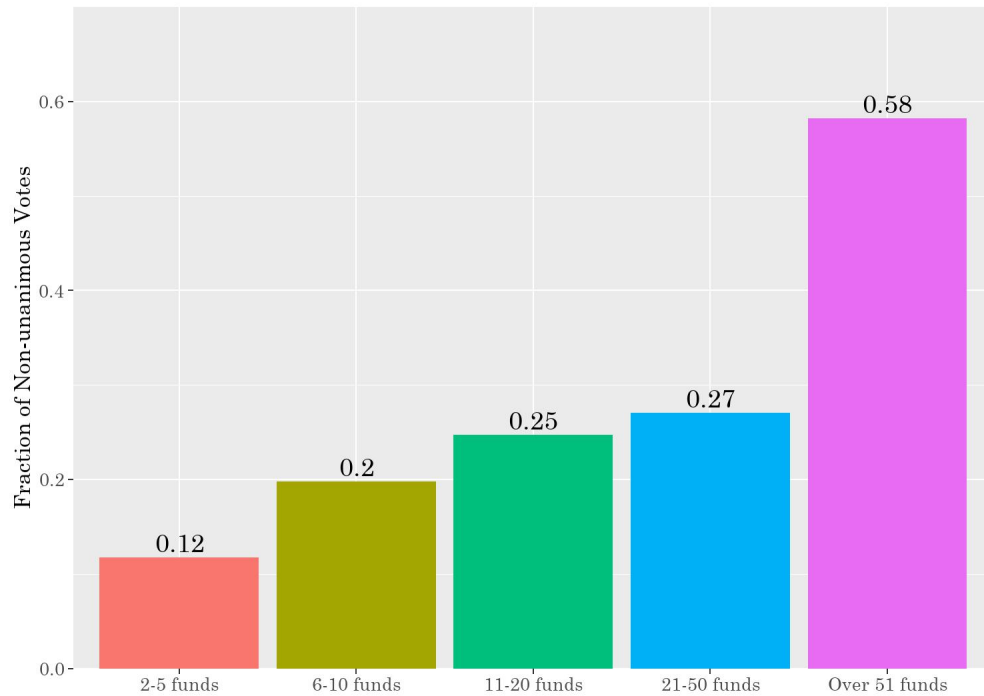


Figure IA.1. Fraction of Non-Unanimous Votes Within a Fund Family. The figure presents the fraction of non-unanimous votes within a fund family when an institution has multiple funds voting on the same proposal, focusing on the five proposal topics studied in this paper. The x-axis displays the number of funds within a family voting on the same proposal.

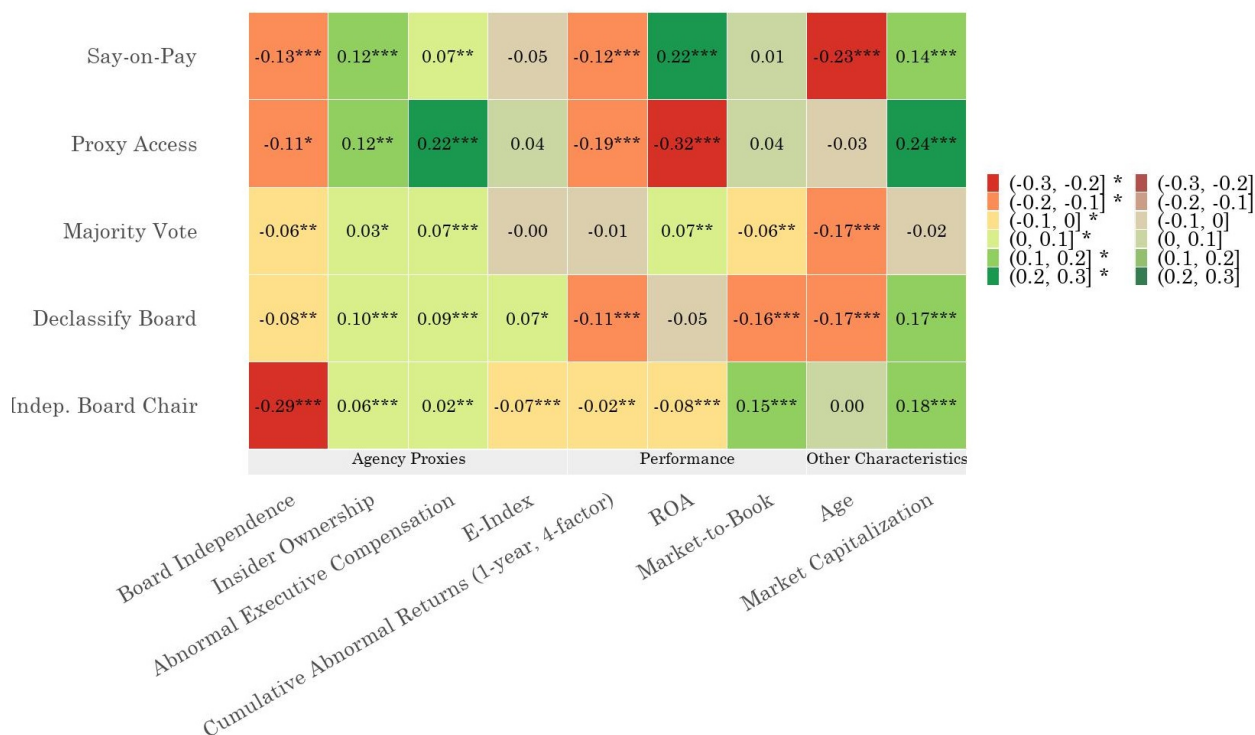
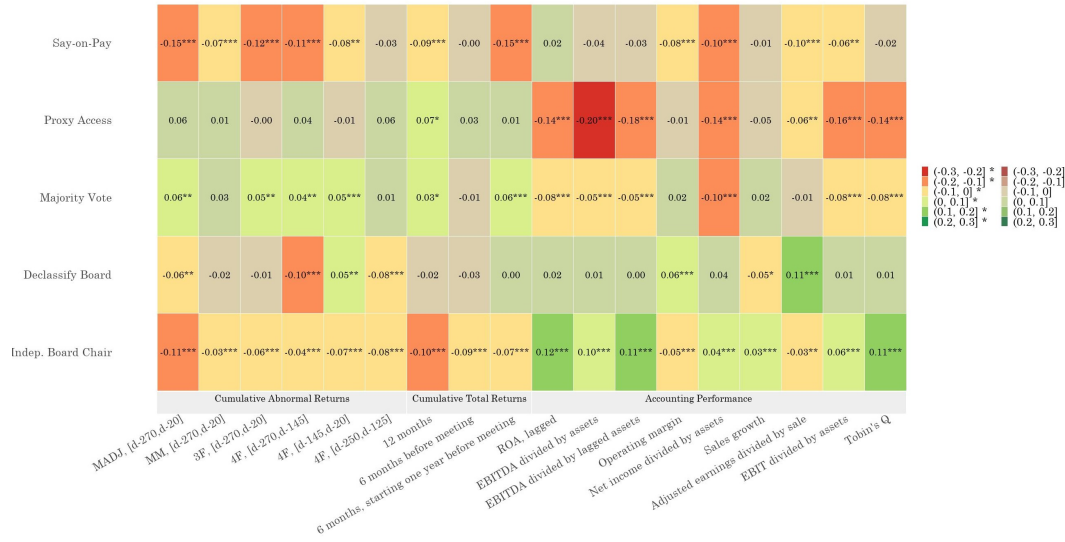


Figure IA.2. Company Rankings vs. Characteristics: Results with Additional Controls. This figure presents the relationship between company rankings and their characteristics. For each topic displayed on the y-axis, the figure displays the coefficients from multivariate regressions that include all nine variables indicated at the bottom of the graph, as well as variables that are frequently used as controls in the empirical corporate finance literature: leverage, cash, capital expenditures, repurchases, and the Kaplan–Zingales (KZ) index measuring financial constraints. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively. 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.

Panel A. Univariate Regressions



Panel B. Multivariate Regressions

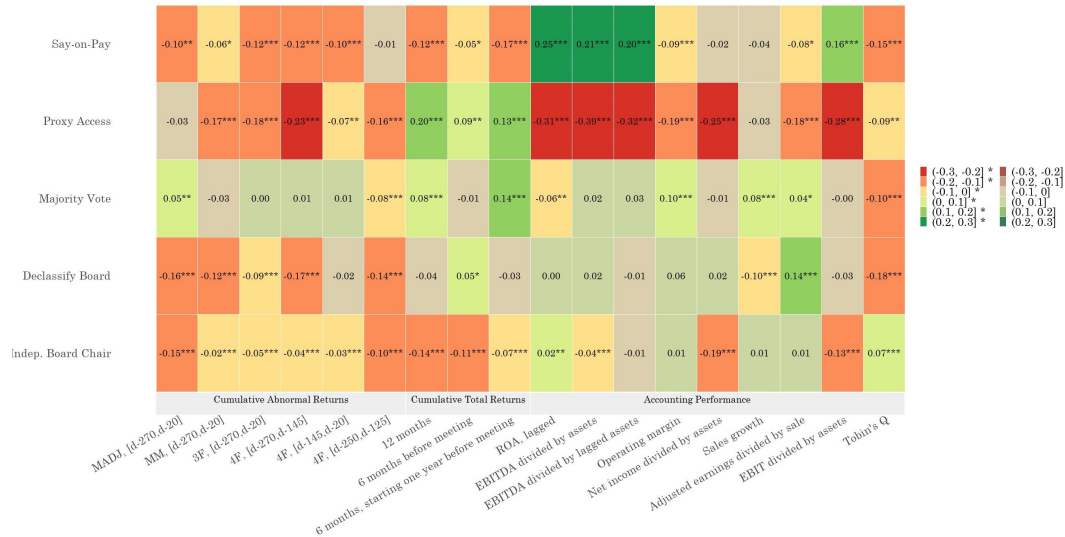


Figure IA.3. Company Rankings vs. Characteristics: Alternative Performance Measures. This figure presents the relationship between company rankings and various alternative performance measures indicated at the bottom of the graph. The dependent variable is each firm's percentile rank. Panel A displays the results from univariate regressions. Panel B displays the results from multivariate regressions with the nine explanatory variables shown in Figure 4, replacing one relevant performance variable at a time. For example, the first column of this figure incorporates board independence, insider ownership, abnormal compensation, E-Index, market-adjusted returns (over the [270,−20] trading day window), ROA, market-to-book, age, and market capitalization and presents the coefficients on market-adjusted returns. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively. 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.

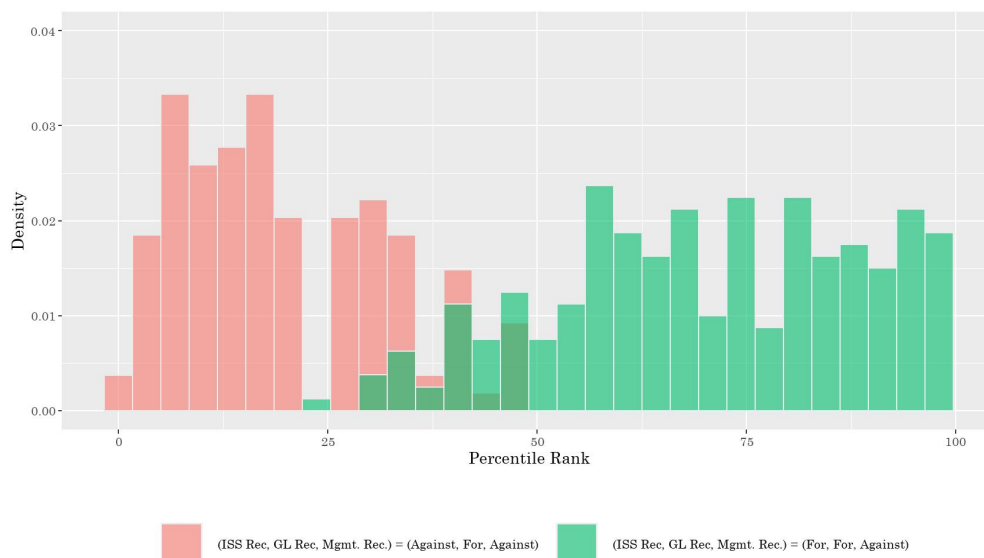


Figure IA.4. Proxy Advisors’ Recommendations and Fund Preferences. This Figure presents the histogram of the percentile rank of fund governance preferences, separately for independent board chair proposals that received for vs. against ISS recommendations, limited to proposals for which management recommends voting against and Glass Lewis recommends voting in favor. A percentile rank of 100 means that the proposal under consideration is the most desirable for the given firm from the perspective of mutual funds.

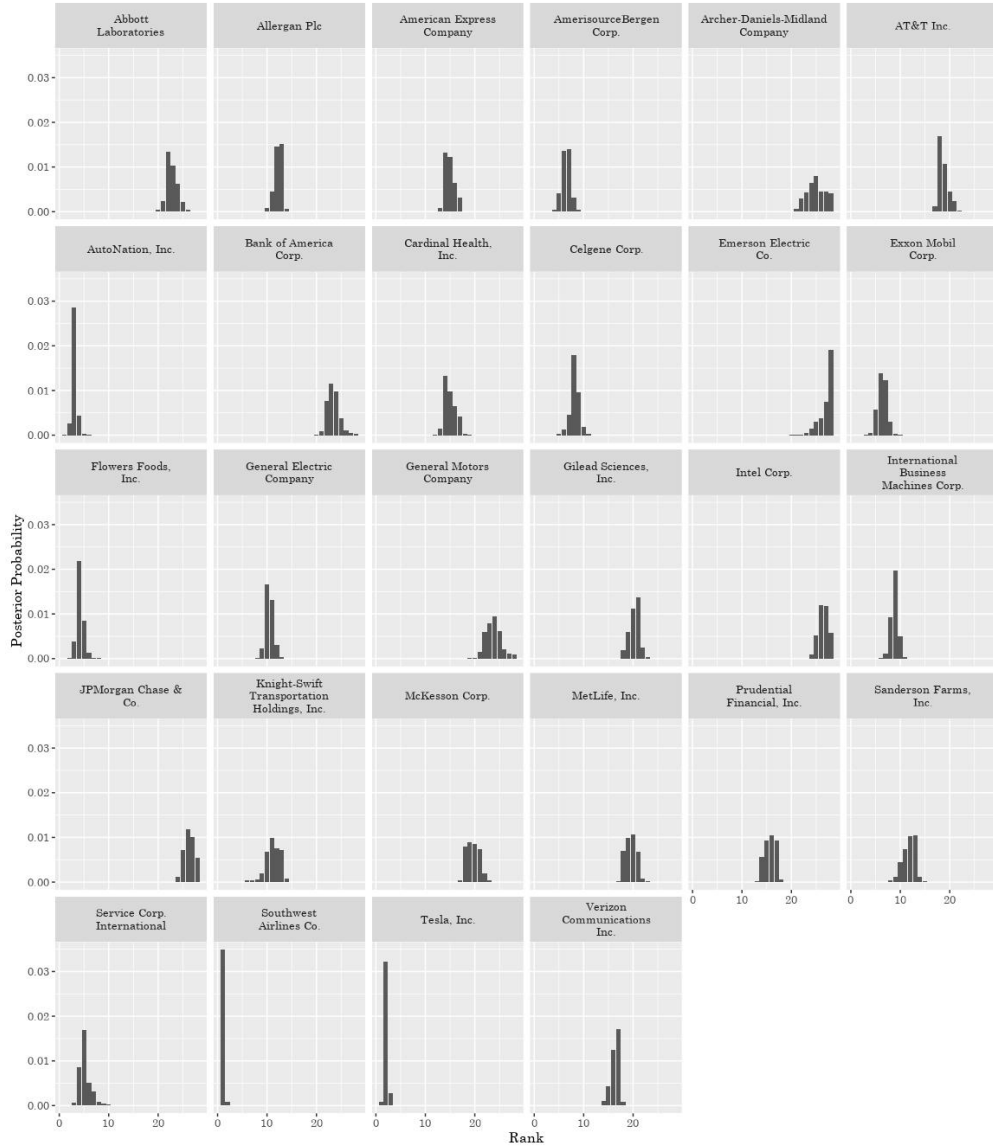
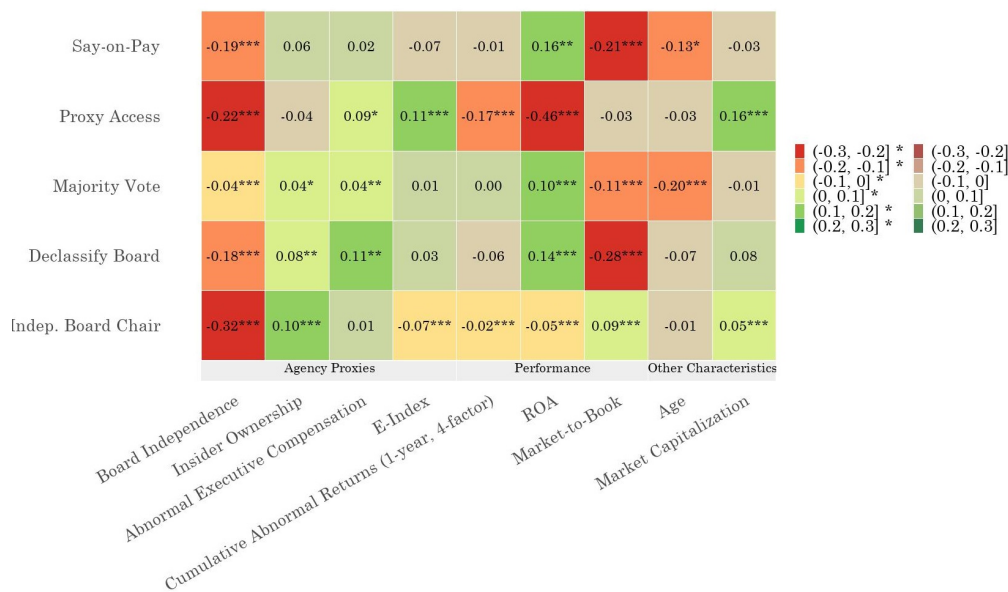


Figure IA.5. Proxy Advisors' Recommendations and Fund Preferences. This figure presents the posterior distribution of each firm's rank for companies that received independent board chair proposals during 2018 and that had the following voting recommendations: (ISS recommendation, Glass Lewis recommendation, 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.

Panel A. Index Funds



Panel B. Non-Index Funds

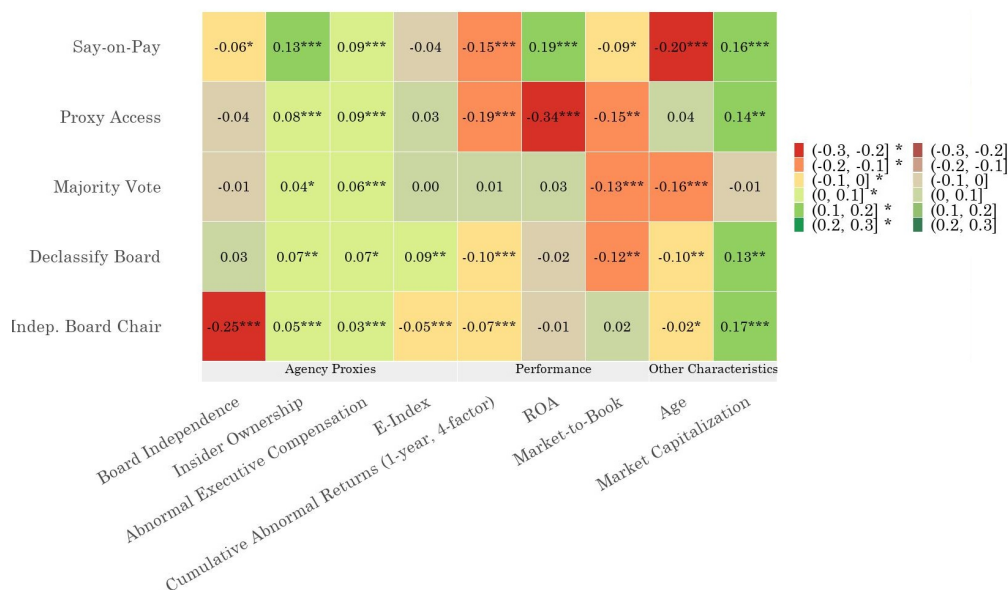


Figure IA.6. Index vs. Non-Index Funds. This figure presents the relationships between the rankings of index and non-index funds and their characteristics, indicated at the bottom of the graph, based on multivariate regressions with all nine variables indicated at the bottom of the graph. Panel A presents the results for index funds and Panel B presents the results for non-index funds. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively. 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.

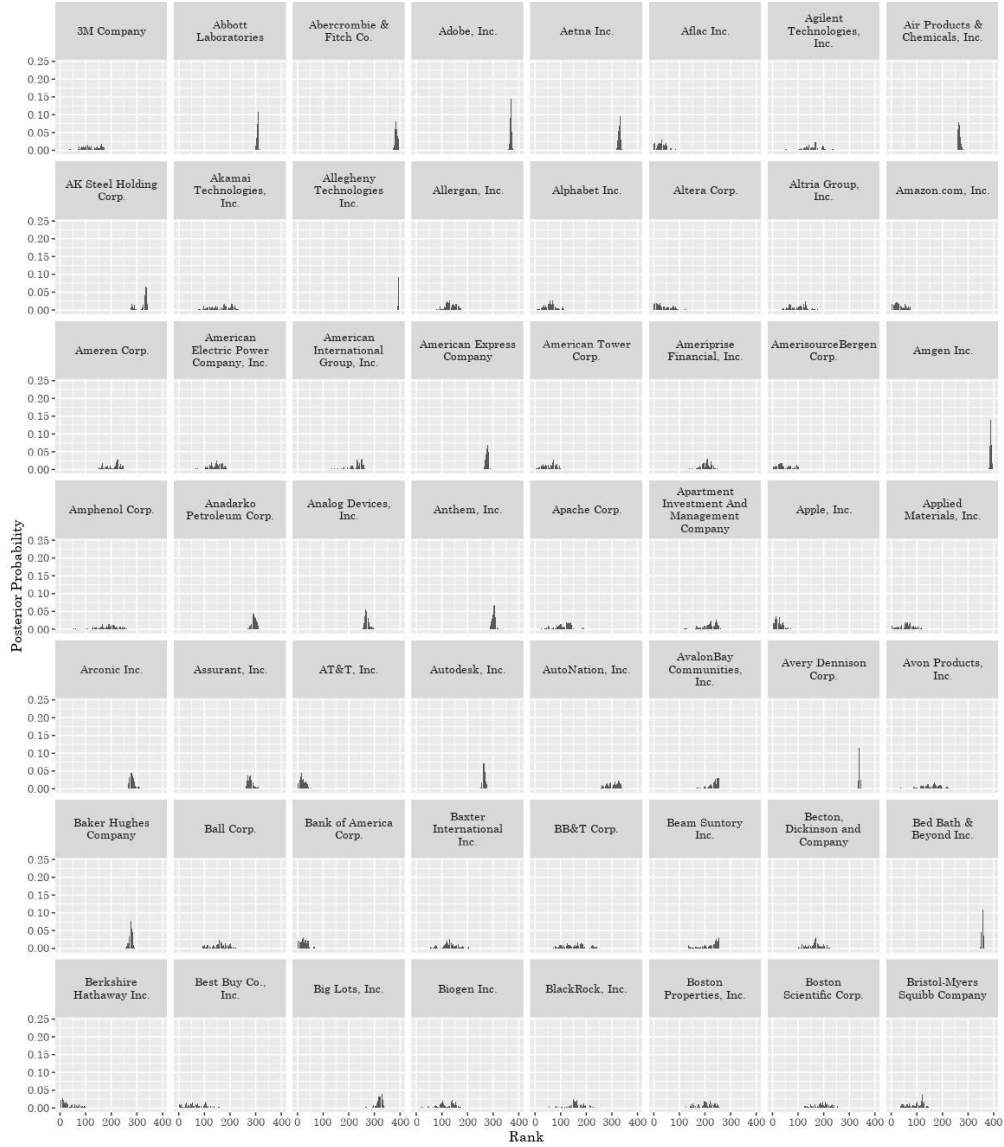


Figure IA.7. Posterior Rank Distributions for Mandatory Say-on-Pay Votes. This figure presents the posterior distribution of each firm’s rank based on fund preferences for companies that received mandatory say-on-pay proposals during the 2011 proxy season, estimated using the Mallows-based ranking method. Distributions for the first 56 companies (alphabetically) out of the entire S&P 500 firms receiving votes are displayed for legibility. A rank closer to 1 (left side of plots) indicates stronger collective support from mutual funds for the firm’s compensation package, while higher ranks (right side) reflect less support.

Table IA.1. Precision of Estimated Ranks

This table presents the average of each firm's 95% central interval (CI), scaled by the number of firms receiving a given proposal in that proxy season. Specifically, for each firm j with a 95% CI range $[L_j, U_j]$ and N total firms in that topic-year, the scaled CI is $(U_j - L_j)/N$. We then take the mean across all firms in that topic-year. A smaller average scaled CI indicates more precise rank estimates. For example, in 2018, 48 companies received independent board chair proposals. Abbott Laboratories' 95% CI is [22,28], so its scaled CI is $(28 - 22)/48 = 0.125$. For the 2018 independent chair proposals, the average over all 48 firms is 0.183.

Topic	Proxy Season	Mean of 95% CI Range (Scaled)
Independent Board Chair	2016	0.112
Independent Board Chair	2008	0.117
Independent Board Chair	2017	0.120
Independent Board Chair	2007	0.129
Independent Board Chair	2011	0.135
Independent Board Chair	2014	0.136
Independent Board Chair	2020	0.137
Majority Vote	2007	0.138
Independent Board Chair	2010	0.141
Independent Board Chair	2015	0.142
Independent Board Chair	2009	0.143
Independent Board Chair	2019	0.154
Independent Board Chair	2006	0.163
Independent Board Chair	2013	0.167
Independent Board Chair	2012	0.168
Independent Board Chair	2018	0.183
Majority Vote	2012	0.195
Majority Vote	2006	0.197
Majority Vote	2010	0.213
Majority Vote	2009	0.241
Majority Vote	2011	0.246
Majority Vote	2014	0.251
Proxy Access	2016	0.255
Majority Vote	2013	0.262
Majority Vote	2008	0.287
Say-on-Pay	2007	0.287
Say-on-Pay	2009	0.306
Independent Board Chair	2005	0.306
Say-on-Pay	2008	0.312
Declassify Board	2013	0.320
Say-on-Pay	2010	0.322
Proxy Access	2017	0.330
Declassify Board	2012	0.340
Independent Board Chair	2004	0.366
Declassify Board	2009	0.386
Declassify Board	2007	0.392
Proxy Access	2015	0.399
Declassify Board	2011	0.436
Declassify Board	2004	0.465
Declassify Board	2008	0.476
Declassify Board	2010	0.487
Declassify Board	2006	0.491
Declassify Board	2005	0.573
Majority Vote	2005	0.637

Table IA.2. Classification and Examples of Voting Rationales on Shareholder Proposals

This table presents categories used to classify voting rationales on shareholder proposals, accompanied by a brief description and examples of the rationales under each category.

Category	Rationales refer to...		Example: Votes For	Example: Votes Against
Governance	Governance or compensation concerns, unresponsiveness to concerns as reasons for support; good governance or lack of governance concerns, existing policy in place to address issues, or already implemented the proposal as reasons for opposition		A vote FOR this proposal is warranted given that the lead directors' duties are not considered robust and there is a concern regarding the lack of a fully independent key board committee, suggesting that shareholders would benefit from the most robust form of independent oversight in the form of an independent board chair.	1) Company has a designated lead director who fulfills the requirements appropriate to such role; 2) Management has been very shareholder focused and exercises good governance practices. Will support current management at this time.
General support/opposition	Investor generally believes in the proposed initiatives, sometimes unaccompanied by further reasoning.		1) We believe that the chairman and CEO roles should be separated; 2) A vote for this proposal is warranted given the importance of having an independent chairman of the board; 3) We supported this resolution.	Janus will generally vote with management on proposals to declassify the board.
Performance	Good, acceptable, poor	performance	A vote for this proposal is warranted. The company's TSR has underperformed its peers over the past one- and three-year periods, and...	A vote against this proposal is warranted as there are no significant concerns with respect to the company's board leadership structure, governance practices, or performance at this time.
Company characteristics	Company-specific characteristics or situation		..., given the company's scale, complexity, and legacy legal and regulatory issues, shareholders would benefit from greater oversight in the form of an independent chairman.	NA
Follow policy	Follow institutional policy, or recommendations of proxy advisors or management		1) A FOR vote is warranted per policy guidelines; 2) Per client instruction.	This item does not merit support per policy guidelines.
Proposal term/scope	Terms or scope of the proposal		A vote for this item is warranted, as adoption of proxy access will enhance shareholder rights and this proposal includes appropriate safeguards.	This item does not merit support due to concerns with the terms of the proposal.
Engagement	Decision made after engagement, usually with the company		... Upon engagement, decided to support shareholder proposal.	Upon engagement decided to vote with management
Others	Idiosyncratic rationales	excluded from above.	NA	While we support the idea of an independent chairman, we believe the board should make that decision. Blended rationale: .
Data error	Rationales that do not offer insights behind votes, or rationales for votes against, accompanied by votes in favor, and vice versa.		Separate CEO and chair with an independent lead director in place; governance process is robust.	

Table IA.3. Business Ties

Panel A shows whether funds with business ties to a company 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 to the company receiving the proposal. The coefficients are scaled by 100 to represent the percentage. In Panel B, the asterisk indicates whether the mean change is statistically different from zero. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

<i>Panel A. Business Ties and Fund Votes</i>				
<i>Dependent variable:</i>	(1)	Vote with Management		(4)
		(2)	(3)	
Business Ties	3.096*** (0.239)	0.899*** (0.232)	0.858*** (0.220)	3.214*** (0.707)
Fund $\times$ Topic F.E.	Yes	Yes	Yes	Yes
Topic $\times$ Year F.E.	.	Yes	.	.
Company F.E.	.	Yes	Yes	.
Proposal F.E.	.	.	Yes	Yes
Fund $\times$ Company F.E.	.	.	.	Yes
R^2	0.567	0.629	0.680	0.801
N	962,344	962,338	962,334	589,470

<i>Panel B. Business Ties and Affiliated Firm's Percentile Rank</i>						
	Companies with Business Ties			Companies without Business ties		
	Before Exclusion (1)	After Exclusion (2)	Change (3)	Before Exclusion (4)	After Exclusion (5)	Change (6)
<i>Panel B.1. All Provisions</i>						
Mean	50.94	51.07	0.12	51.39	51.35	-0.04
Median	51	50	0	52	52	0
S.D.	28.97	28.81	5.85	28.85	28.85	4.15
N	647	647	647	1,522	1,522	1,522
<i>Panel B.2. By Each Provision</i>						
<i>Require Independent Board Chair</i>						
Mean	49.90	49.97	0.07	52.08	52.18	0.10
Median	49	49	0	53	53	0
S.D.	29.89	29.86	4.11	28.02	28.04	3.15
N	315	315	315	459	459	459
<i>Declassify Board</i>						
Mean	54.91	54.44	-0.47	50.80	50.83	0.03
Median	57	55	0	51	51	0
S.D.	26.43	26.39	6.72	29.44	29.37	5.31
N	85	85	85	417	417	417
<i>Require Majority Vote for Directors</i>						
Mean	46.42	47.20	0.79	52.99	52.66	-0.33**
Median	39	42	0	55	55	0
S.D.	28.48	28.06	4.95	28.94	29.00	2.96
N	103	103	103	343	343	343
<i>Proxy Access</i>						
Mean	57.08	57.53	0.45	47.93	47.66	-0.27
Median	62	64	0	46	46	0
S.D.	29.32	29.42	5.01	28.37	28.30	6.93
N	62	62	62	128	128	128
<i>Say-on-Pay</i>						
Mean	51.90	51.78	-0.12	50.38	50.50	0.12
Median	51	50	0	53	51	0
S.D.	27.56	27.03	10.48	29.73	29.83	2.13
N	82	82	82	175	175	175

Table IA.4. Stability of Rankings: Evidence from a Mandatory Say-on-Pay Analysis of Broad vs. Targeted Samples

This table tests the stability of the firm-level rankings by comparing the mandatory say-on-pay rankings estimated on two different samples. The first sample includes the broad universe of S&P 500 firms that held an SOP vote in a given year. The second sample is restricted to the subset of those S&P 500 firms that were also targeted with one of the five shareholder proposal topics studied in this paper. For each year, the table reports the Spearman correlation between the median ranks of the firms common to both samples. The final column reports the number of firms in this overlapping sample for each year. All correlation coefficients are statistically significant at the 1% level.

Year	Median Correlation	Observations
2011	1.00	44
2012	0.97	80
2013	0.93	71
2014	0.95	55
2015	0.97	88
2016	0.98	56
2017	0.97	36
2018	0.96	35
2019	0.97	39
2020	0.97	40
Average	0.97	.

Table IA.5. Robustness Checks: Unmet Governance Demand and Future Shareholder Pressure

This table presents robustness checks for the baseline results in Table 6. Panel A replaces the *Unmet Governance Demand* indicator with an *Excess Vote Support* indicator, defined as cases where a firm's vote-support percentile exceeds its model-implied rank percentile by more than 20 percentage points. Panel B replicates Columns (1)–(3) of Table 6 using any shareholder proposal rather than restricting to the five governance topics studied in the main analysis. Columns (1) and (4) present baseline estimates without controls. Columns (2) and (5) include firm characteristics and *Raw Vote Support Percentile*: the firm's average raw vote support in percentile terms, averaged across proposal topics within the proxy season. Columns (3) and (6) add ownership characteristics. Controls and constants are suppressed for brevity. Standard errors are clustered at the firm level and reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Panel A. Falsification: Excess Vote Support Indicator

	Shareholder Proposals			SShareholder Engagement & Escalation		
	(1)	(2)	(3)	(4)	(5)	(6)
Excess Vote Support	−0.063** (0.032)	−0.015 (0.038)	0.005 (0.038)	−0.065** (0.027)	−0.073** (0.036)	−0.065* (0.036)
Observations	1,597	830	823	1,741	944	934
Adjusted R^2	0.025	0.147	0.159	0.126	0.232	0.248
Mean of Dependent Variable	0.554	0.630	0.631	0.265	0.343	0.343

Panel B. Any Shareholder Proposals

	Any Shareholder Proposals		
	(1)	(2)	(3)
Unmet Governance Demand	0.031 (0.030)	0.064* (0.033)	0.064* (0.034)
Observations	1,597	830	823
Adjusted R^2	0.032	0.196	0.195
Mean of Dependent Variable	0.554	0.630	0.631

B. M–H MCMC: Empirical Illustration

This section provides a step-by-step illustration of how the augmented rankings, overall ranking, and scale parameter are jointly estimated under partial coverage. Specifically, I use data from independent board chair proposals during the 2018 proxy season as an illustrative example, walking through each stage of the M–H MCMC procedure. A formal definition of the Mallows model and algorithmic details can be found in Appendix C.

B.1. Augmented Rankings

Table IA.6 presents a single fund’s augmented rankings for illustrative purposes; the algorithm repeats the same procedure for every fund in the sample. At the start of the Markov chain (iteration 1), each assessor is assigned a random ranking for the 48 companies under consideration, but in a way that remains consistent with the fund’s voting data. Specifically, companies the fund voted against (highlighted in red in Table IA.6) receive higher numeric values (closer to 48), reflecting a lower perceived need for an independent board chair, whereas companies the fund voted for (highlighted in green) receive lower numeric values (closer to 1). In other words, the algorithm enforces that all companies voted for receive lower numerical ranks (closer to 1) than any company voted against (closer to 48).

Table IA.6 reports the augmented rankings at selected iteration points: (1, 101, 201, 301, 401) from the early, non-converged phase of the chain and (999,501, 999,601, 999,701, 999,801, and 999,901) after the chain has converged. Each assessor’s augmented ranks can change or remain the same at each iteration. Given the high autocorrelation between consecutive iterations, I report iteration points that are 100 iterations apart to reduce redundancy. The early phases of the chain exhibit considerable fluctuation due to the randomness at iteration 1. For companies with no direct vote (neither in red nor green), the chain typically exhibits more persistent fluctuations, as the algorithm continues to guess their relative positions. Meanwhile, companies with vote information (red or green) often fluctuate less.

Figure IA.8 complements Table IA.6 by visualizing the fund’s augmented ranks at every iteration. Darker colors (reflecting higher numeric ranks, closer to 48) are predominantly

observed for firms that received votes against (highlighted in red in Table IA.6), whereas lighter colors are associated with firms that received votes in favor (highlighted in green in Table IA.6). Figure IA.8 also shows how the model corrects its initial random assignments for unowned firms and converges to a stable assessment. For example, the color for AutoNation Inc., an unowned firm, begins as a relatively random assignment but becomes progressively lighter over the 1 million iterations, showing the model converging to a stable assessment of the fund’s preference for that firm.

Overall, the augmented rankings are consistent with the fund’s underlying vote data; and when there is less information available (firms with no vote), the algorithm makes guesses and appropriately maintains uncertainty by allowing for greater rank variability.

B.2. Overall Ranking

In addition to each fund’s augmented rankings, the chain also uses data from all funds to produce a single ρ at each iteration. Starting from a random ranking at iteration 1, the overall ranking ρ is updated by proposing small local modifications, then accepting or rejecting these proposals based on how well they fit the augmented rankings, as described in Appendix C. Figure C.2 shows how the overall ranking ρ converges for seed 101. To ensure the results are not dependent on any particular seed, I repeat this procedure for 32 seeds, discarding the first half-million iterations of each as burn-in. From the remaining half-million, I retain every 10,000th draw (a practice known as thinning, which helps reduce autocorrelation in the Markov chain and manage data size, recommended by Gelman et al. (2013)), producing a posterior sample of overall rankings for each seed. Combining these samples provides a posterior distribution of rank for each firm, as presented in Figure 3.

B.3. Scale Parameter

While the main focus is on rankings, the algorithm also estimates a scale parameter α that controls how tightly the distribution of rankings is concentrated around ρ . Larger values indicate greater certainty in the overall ranking (in other words, less dispersion among possible rankings), whereas smaller values imply more variability. Figure C.1 illustrates how α evolves over one million iterations for seed 101.

Table IA.6. Evolution of One Fund’s Augmented Rankings

This table presents the augmented ranks assigned by a single fund to 48 companies that received independent board chair proposals during the 2018 proxy season. The ranks are shown at selected iteration points out of one million total iterations (Seed 101). Higher values correspond to less perceived need for an independent board chair. Companies the fund voted against are highlighted in red, and those the fund voted for are highlighted in green. Specifically, the fund voted against the following companies’ proposals: Abbott Laboratories, AbbVie Inc., Archer-Daniels-Midland Company, Chevron Corp., Honeywell International Inc., Intel Corp., Pfizer Inc., The Allstate Corp., Union Pacific Corp., and Verizon Communications Inc. The fund voted for the following companies’ proposals: Allergan Plc, Amazon.com, Inc., AT&T Inc., Cardinal Health, Inc., Celgene Corp., JPMorgan Chase & Co., Knight-Swift Transportation Holdings, Inc., Prudential Financial, Inc., and Southwest Airlines Co. The fund did not own the remaining companies in the table.

Firm	Iteration									
	1	101	201	301	401	999501	999601	999701	999801	999901
Abbott Laboratories	46	44	46	32	29	26	36	34	28	33
AbbVie Inc.	25	34	34	43	40	45	33	39	48	28
Alexion Pharmaceuticals, Inc.	30	42	29	15	42	10	20	21	21	12
Allergan Plc	6	4	14	12	16	15	7	9	18	7
Amazon.com, Inc.	19	6	6	4	2	6	3	10	2	20
American Express Company	22	12	15	18	36	20	23	30	8	6
AmerisourceBergen Corp.	20	11	13	6	9	19	21	45	12	16
Archer-Daniels-Midland Company	44	21	26	34	41	24	42	47	34	38
AT&T Inc.	8	16	17	29	3	4	19	4	13	4
AutoNation, Inc.	13	25	21	25	47	11	13	8	7	5
Bank of America Corp.	32	40	8	5	17	30	24	42	32	36
Baxter International Inc.	21	22	30	22	27	39	41	28	30	30
Booking Holdings Inc.	37	47	39	13	20	25	28	35	19	47
Cardinal Health, Inc.	18	20	18	17	13	17	16	19	20	23
Celgene Corp.	14	15	11	14	5	8	5	6	3	25
Charter Communications, Inc.	36	33	27	37	10	29	11	5	5	3
Chevron Corp.	26	32	42	40	39	48	47	48	44	44
Dillard’s, Inc.	1	2	43	11	6	5	1	1	1	1
Emerson Electric Co.	24	8	28	44	45	36	43	36	33	29
Exxon Mobil Corp.	4	1	33	19	4	9	10	15	26	17
Flowers Foods, Inc.	35	17	35	28	35	33	8	12	11	8
General Electric Company	48	43	32	21	1	23	25	14	24	15
General Motors Company	47	30	24	7	30	47	18	33	36	11
Gilead Sciences, Inc.	23	24	1	1	21	12	12	38	46	43
Honeywell International Inc.	39	27	38	41	34	38	38	25	43	48
Intel Corp.	33	41	41	42	44	28	35	32	27	26
International Business Machines Corp.	41	37	44	2	7	34	31	24	29	13
JPMorgan Chase & Co.	3	18	7	20	15	16	15	18	17	19
Knight-Swift Transportation Holdings, Inc.	10	3	10	3	19	22	4	7	6	18
Mattel, Inc.	40	10	2	45	25	37	27	3	4	34
McKesson Corp.	11	35	31	23	8	1	29	16	22	21
MetLife, Inc.	38	13	37	9	24	21	30	40	23	22
Pfizer Inc.	29	26	19	36	37	31	48	46	45	27
PNM Resources, Inc.	5	38	45	35	12	44	44	20	39	41
Prudential Financial, Inc.	2	9	16	26	14	13	17	22	14	2
Sanderson Farms, Inc.	17	29	22	27	18	35	37	26	31	45
Service Corp. International	34	39	5	8	11	14	14	17	16	10
Southwest Airlines Co.	7	19	3	16	22	2	6	11	10	9
Target Corp.	31	46	12	10	43	32	34	44	42	46
Tenet Healthcare Corp.	42	7	23	33	31	18	39	37	35	39
Tesla, Inc.	9	5	40	24	48	3	2	2	9	24
The Allstate Corp.	45	28	47	47	28	42	46	43	38	37
The Boeing Company	28	31	36	39	33	40	45	41	41	42
The Interpublic Group of Companies, Inc.	15	45	9	46	46	43	40	31	47	35
The Kroger Co.	12	14	25	30	26	41	32	27	37	40
Union Pacific Corp.	43	48	48	48	23	46	22	29	40	31
Verizon Communications Inc.	27	23	20	31	38	27	26	23	25	32
Walmart Inc.	16	36	4	38	32	7	9	13	15	14

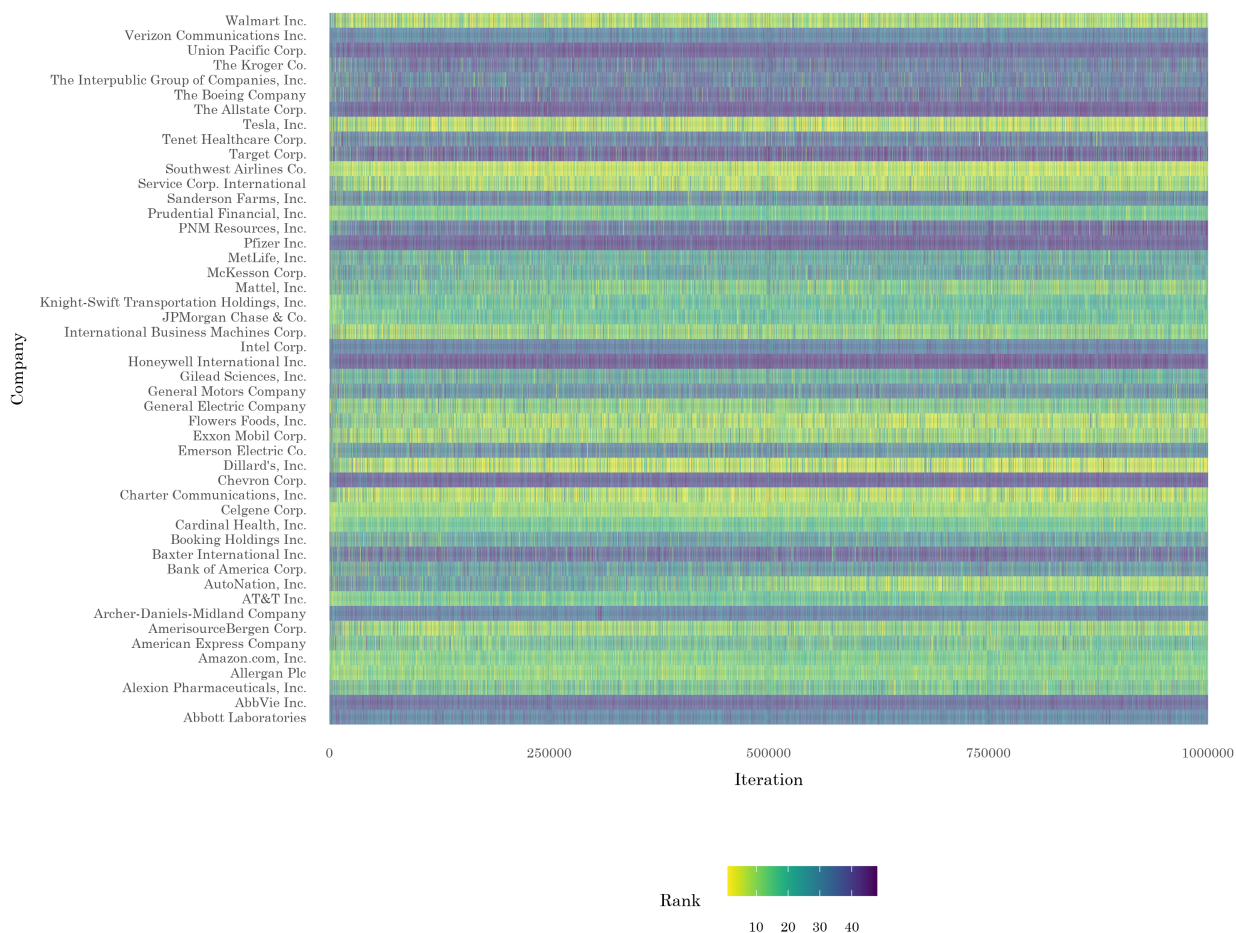


Figure IA.8. Heatmap of One Fund's Augmented Rankings. This heatmap shows how one fund's augmented ranking evolves over one million iterations for companies that received independent board chair proposals during the 2018 proxy season. The color scale indicates the rank at each iteration, with darker hues representing less perceived need for an independent board chair. The fund voted against the following companies' proposals: Abbott Laboratories, AbbVie Inc., Archer-Daniels-Midland Company, Chevron Corp., Honeywell International Inc., Intel Corp., Pfizer Inc., The Allstate Corp., Union Pacific Corp., and Verizon Communications Inc. The fund voted for the following companies' proposals: Allergan Plc, Amazon.com, Inc., AT&T Inc., Cardinal Health, Inc., Celgene Corp., JPMorgan Chase & Co., Knight-Swift Transportation Holdings, Inc., Prudential Financial, Inc., and Southwest Airlines Co. The fund did not own the rest of the companies. Seed 101 is used to produce this figure.

C. Preferences & Firm Characteristics: Mallows-Based Ranking vs. OLS

This appendix compares the Mallows-based ranking method to a standard OLS approach for the task of relating investor preferences to firm characteristics. It first clarifies the conceptual differences, then uses a toy example to illustrate how these differences can lead to opposite conclusions, and finally compares the results from both methods on this paper’s dataset.

C.1. Conceptual Differences and the Potential for Opposite Conclusions

The Mallows-based ranking method and an OLS regression with fund fixed effects are not interchangeable; they are designed to answer fundamentally different questions. The Mallows-based approach answers the question: How does the entire mutual fund community, as a collective, rank the governance needs of all firms relative to each other? In contrast, an OLS regression with fund fixed effects answers the question: For a given fund, how do its votes correlate with firm characteristics among the companies it has chosen to hold? This within-fund analysis, while valuable, cannot provide the overall, cross-firm assessment that is the goal of this paper.

This distinction is not just semantic; answering these different questions can lead to opposite conclusions from the exact same data, a dynamic that is referred to as the Simpson’s paradox: a phenomenon where an association between two variables in a population reverses or disappears when the population is divided into subgroups. Exhibit 4 provides a conceptual illustration of this, where the y-axis can be thought of as the propensity to support a governance reform. While the overall relationship across all funds and firms appears positive (Panel A), the relationship within each fund’s individual portfolio is consistently negative (Panel B). This discrepancy arises because of selection: for example, funds that prefer to support reforms at larger firms may systematically choose to own larger firms. The OLS within-fund analysis would therefore incorrectly suggest that funds prefer reform at smaller

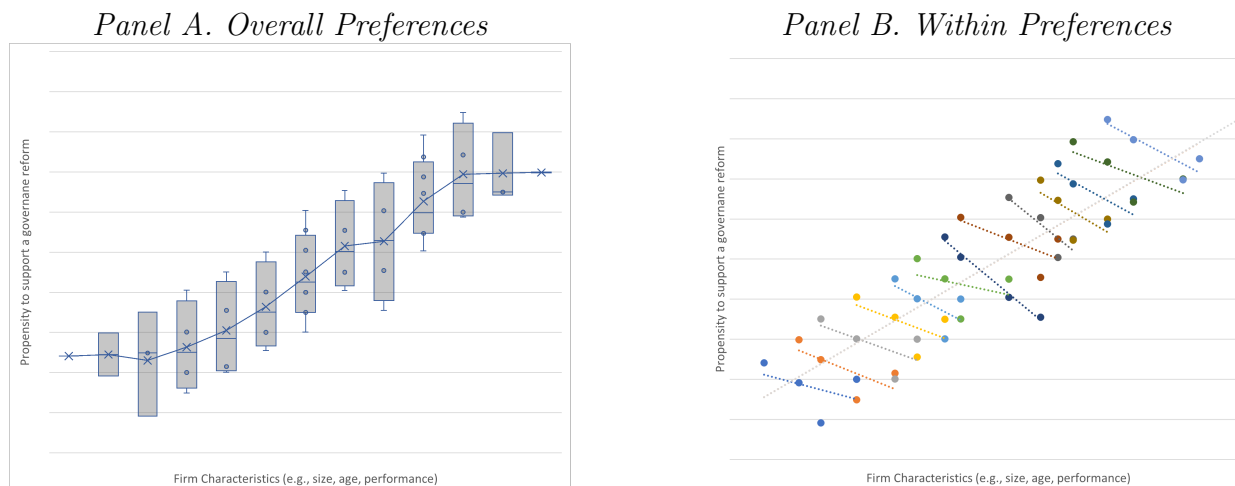


Exhibit 4. Overall vs. Within-Fund Preferences: Conceptual Illustration. These two panels use the same hypothetical dataset yet produce opposite patterns depending on whether one looks at the overall (Panel A) or within-fund (Panel B) perspective. The figure shows that the same underlying data can imply quite different conclusions if one focuses on aggregate investor preferences versus within-fund variation.

firms, while the Mallows approach, designed to capture the aggregate view, would correctly identify the positive overall relationship.

C.2. Empirical Comparison and Takeaway

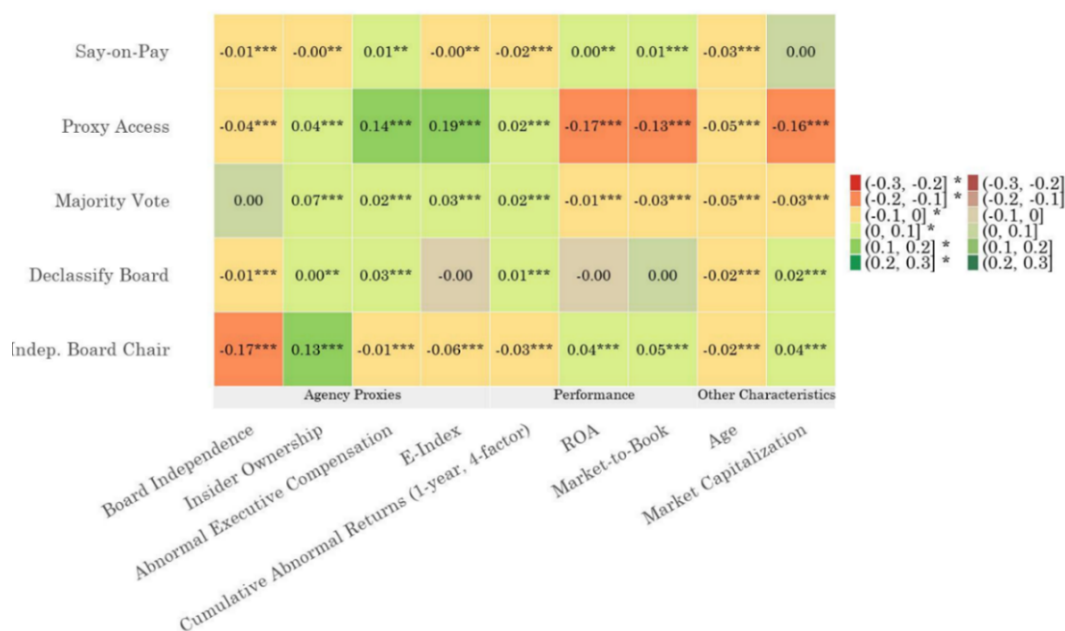
The discussion above raises the question of how these conceptual differences play out in the actual data. A comparison of the paper's aggregate results (Figure 4) with the comparable within-fund OLS results (Figure IA.9) reveals that while the directional findings for some core governance attributes often align. This is not surprising, because both methods use the same underlying votes. However, the magnitudes, statistical significance, and even the signs of the relationships differ in many instances.

A notable example appears for proxy access proposals: the aggregate Mallows results show a strong positive relationship between a firm's market capitalization and support for proxy access (+0.26, $p < 0.01$), while the within-fund OLS results show a significant negative relationship (−0.14, $p < 0.01$). Similarly, the aggregate Mallows results show a pronounced negative relationship between firm age and say-on-pay support, while this relationship appears much weaker and less stable in the within-fund OLS results.

This sign reversal illustrates the selection bias inherent in within-fund analysis. Funds that tend to support proxy access may systematically choose to hold different firms than funds that oppose it, creating a spurious within-fund relationship between firm size and vote support. The Mallows framework, by recovering the aggregate view across all funds rather than within each fund’s chosen portfolio, surfaces a different relationship between firm size and perceived governance needs—one that is consistent with prior evidence that proxy access generates greater benefits at larger firms (Cohn et al., 2016).

These differences illustrate that the Mallows-based ranking method and OLS are not interchangeable tools for this analysis. The key contribution of the Mallows framework is not just that the coefficients differ, but that it produces a reliable overall ranking in the first place—a task for which OLS is not well-suited. By correcting for the biases induced by selective ownership, it provides a more credible measure of the entire fund community’s collective assessment. It is this overall ranking that allows for a cleaner analysis of which firm characteristics are truly associated with the collective view of mutual funds.

Panel A. Univariate Regressions



Panel B. Multivariate Regressions

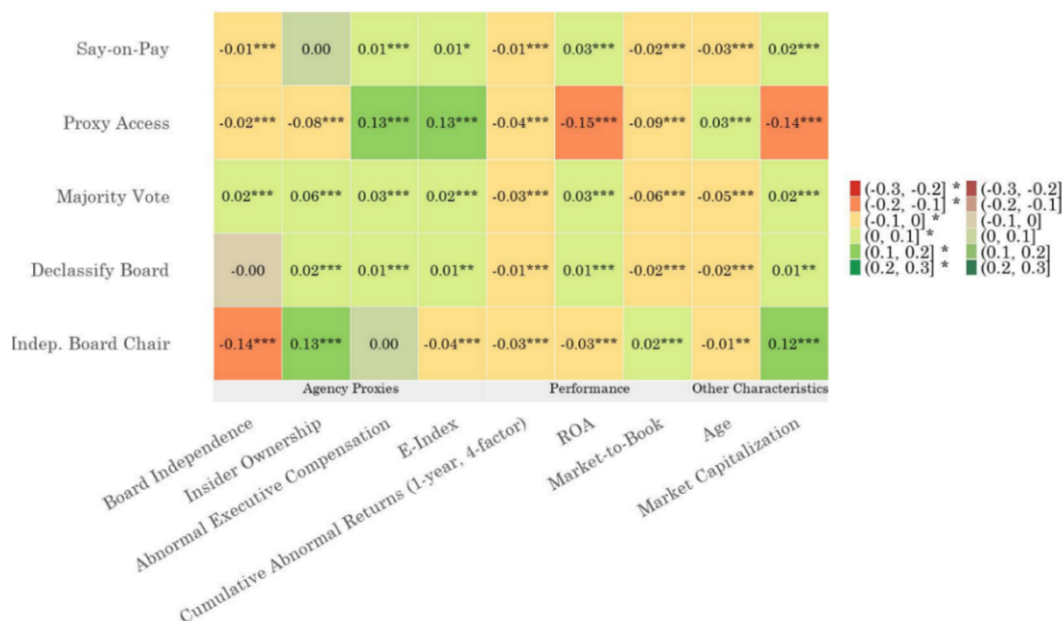


Figure IA.9. Within-Fund Analysis (OLS with Fund Fixed Effects) vs. Firm Characteristics This figure reports OLS regressions of fund votes on firm characteristics, controlling for fund fixed effects. Panel A shows univariate regressions; Panel B shows multivariate regressions.

D. Withheld-Vote Validation: Procedure and Illustration

This appendix describes a predictive validation exercise designed to assess whether the algorithm makes reliable inferences in predicting each fund’s preferences for a company for which it hasn’t voted on the proposal. The full procedure can be summarized as follows:

1. **Randomly select one vote to redact per fund.** For a concrete example, consider the fund whose augmented rankings appear in Table IA.6 and Figure IA.8. This fund voted on 19 independent board chair proposals during the 2018 proxy season (9 “For” and 10 “Against”). The withheld vote belongs to Union Pacific Corp, and the fund’s original vote is “Against.” Similarly, I randomly withhold one vote per fund.
2. **Re-estimate the augmented rankings with the redacted data.** The algorithm estimates company rankings (overall ranking) as well as each fund’s augmented ranking with the redacted data.
3. **Isolate the rank distribution of the withheld company under both scenarios (original vs. redacted).** Figure IA.10 compares the aforementioned fund’s newly estimated distribution for Union Pacific with the original distribution, showing a 91% overlap.¹
4. **Compute the distributional overlap for each fund and summarize the results such as mean or median across all funds.** I repeat the same procedure for all funds that voted on independent board chair proposals during the 2018 proxy season. The overlap is high, with a mean of 87% and a median of 91% across 1,403 funds, suggesting that the algorithm is overall capable of inferring preferences for firms for which it had not voted on.

¹To quantify overlap formally, each distribution is broken into relative frequencies by rank, the minimum of the two frequencies is taken at each rank, and these minima are summed. For example, assuming a 5-draw scenario, if the original draws for the withheld company were {3, 3, 3, 4, 5} while the redacted draws for the withheld company were {3, 3, 4, 5, 6}, then the overlap is 80%.

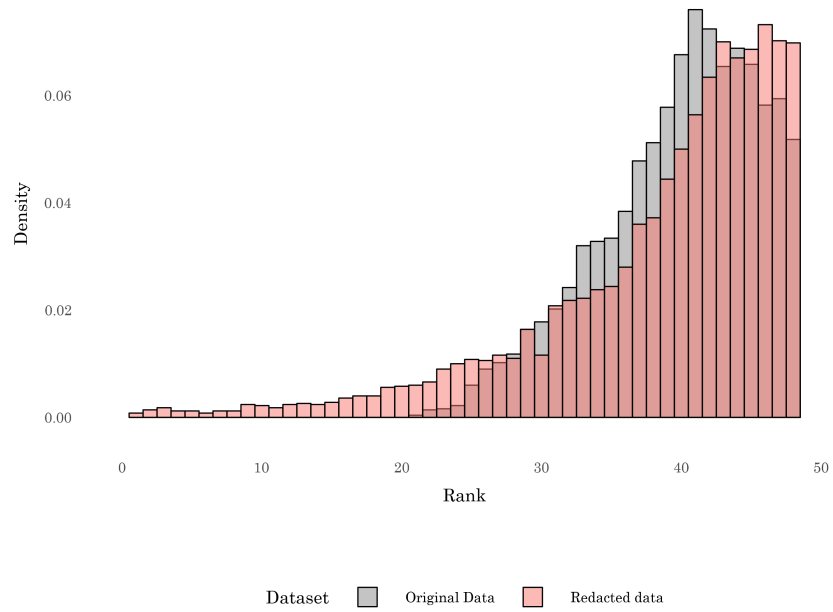


Figure IA.10. Comparison of One Fund’s Original vs. Redacted Rank Distributions for Union Pacific Corp. This figure shows the distribution of possible ranks for Union Pacific’s proposal under the original data (gray bars) versus the distribution estimated after withholding one vote (pink bars). The overlap of these two histograms is 91%, indicating that the algorithm can reliably recover missing preferences.

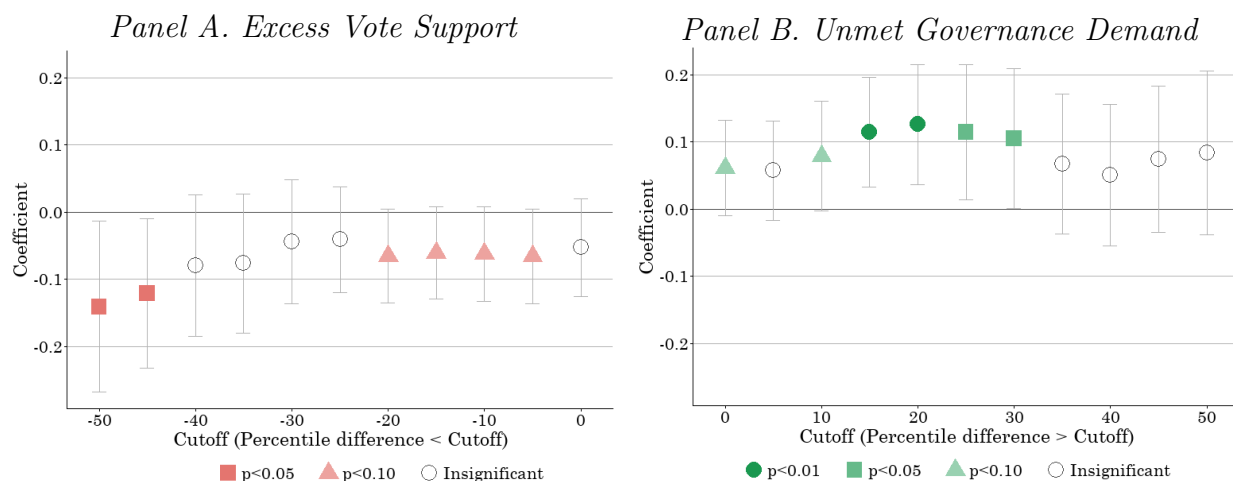


Figure IA.11. Sensitivity of Shareholder Engagement and Escalation to the Threshold Defining Excess Vote Support and Unmet Governance Demand. This figure reports the sensitivity of the engagement and escalation results to the threshold used to classify firms. *Percentile Difference* is the firm’s model-implied rank percentile minus its raw vote-support percentile, averaged across proposal topics within the proxy season (as in Table 6), so that positive values indicate unmet governance demand (Panel B) and negative values indicate excess vote support (Panel A). Each marker reports the coefficient from a separate regression of an indicator for shareholder engagement and escalation in the following three proxy seasons on an indicator equal to one if *Percentile Difference* falls below the cutoff (Panel A) or exceeds the cutoff (Panel B), varying the cutoff in five-percentage-point increments from -50 to 50 . The baseline definitions of *Excess Vote Support* (Table IA.5, Panel A) and *Unmet Governance Demand* (Table 6) correspond to cutoffs of -20 and 20 , respectively. All specifications include *Raw Vote Support Percentile*, the full set of firm and ownership controls from Column (6) of Table 6, and proxy season and Fama–French 12-industry fixed effects; standard errors are clustered at the firm level. Vertical bars show 95% confidence intervals. Marker color and shape indicate statistical significance ($p < 0.01$, $p < 0.05$, $p < 0.10$, or insignificant).

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