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Investor Ideology

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Abstract

We estimate institutional investor preferences from proxy voting records. The W-NOMINATE method maps investors onto a left-right dimension based on votes for fiscal year 2012. Public pension funds and other investors on the left support a more social and environment-friendly orientation of the firm and fewer executive compensation proposals. “Money conscious” investors appear on the right. The proxy adviser ISS makes voting recommendations that place it center, to the left of most mutual funds. A second dimension reflects a more traditional governance view, with management disciplinarian investors, the proxy adviser Glass-Lewis among them, pitted against more management friendly ones.

Keywords: Institutional Investors, Proxy Voting, Ideology, Spatial Model

JEL Classifications: G23, G30, D72, C80

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Investor Ideology

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September 3, 2019

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1. Introduction

We analyze institutional investor preferences based on their proxy voting records in Russell 3000 firms. We follow the approach pioneered in political science by Poole and Rosenthal (1985). We use the votes of 229 mutual fund families and 37 public pension funds on 15,035 proxy proposals from fiscal year 2012 to estimate voters' ideal points along one and two dimensions. This methodology doesn't take an a priori stand on the proposal attributes investors care about and is silent about their identity and motivations.

Kenneth J. Arrow explains that he was led to formulate his celebrated Impossibility Theorem by his attempts to generalize the theory of the firm to include multiple owners: "To be sure, it could be assumed that all were seeking to maximize profits; but suppose they had different expectations of the future? They would then have different preferences over investment projects. I first supposed that they would decide, as the legal framework would imply, by majority voting… It was immediately clear that majority voting did not necessarily lead to an ordering." He further recounts: "Sometime in the winter of 1947-48 my mind again turned involuntarily to voting. This time I happened to start with a political context and thought of parties arrayed in a natural left-right ordering." [Pages 2-3, *Collected Papers of Kenneth J. Arrow*, Volume 1, 1984] In this paper, we reverse the path that led Arrow from the theory of the firm to political science and ask what light political science methods could shed on institutional shareholder voting.

Our analysis elicits *institutional investor ideology* as understood by Converse (1964): an institution's voting behavior is ideological when voting across a wide set of issues is predictable, presumably because an underlying belief system binds voting preferences over these issues together. In the case of proxy voting the set of different issues ranges from environmental proposals, director elections, mergers, board declassification, say on pay, and dividend increases among others.

General equilibrium theory emphasizes the notion of shareholder unanimity under complete, competitive, financial markets (Grossman and Stiglitz, 1977; Grossman and Hart, 1979). When markets are incomplete Friedman (1970) further argued that shareholders unanimously prefer value maximization because negative externalities are best addressed through

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public policy. Yet, a central finding of Matvos and Ostrovsky (2010) is that shareholders are far from unanimous. In their study of mutual fund voting in director elections they find that voting behavior differs systematically in how supportive mutual funds are of management.

The existing corporate voting literature mostly emphasizes the disparate stance of mutual funds in their management friendliness. In contrast, the political science approach we adopt can elicit other investor differences. Our approach is a priori agnostic as to the nature of the potential differences across investors. Investor ideology is not imposed; it is revealed purely from investors' voting patterns.

Our approach treats each fund family as a single investor, with an ideal point in a latent strategy space.[1] We closely track the ideal point estimation methodology pioneered by Poole and Rosenthal (1985, 2007) and by McCarty, Poole, and Rosenthal (1997) for legislative voting.[2] This method unites the random utility model developed by McFadden (1976), the spatial model of voting, and alternating estimation methods developed in psychometrics (Chang and Carroll, 1969; Carroll and Chang, 1970; Young, de Leeuw, and Takane, 1976; Takane, Young, and de Leeuw, 1977). For each proposal, voters assign utilities to the two outcomes represented by passage and rejection of the proposal, and vote for the outcome closer to the peak of their utility function (ideal point) in some latent space, subject to a random error. Consistent with the random utility model, each fund's utility function consists of a deterministic component that is a function of the distance between the fund's ideal point and the outcome, and a stochastic component that captures idiosyncratic aspects specific to the firm and proposal being voted on, i.e. differing assessments of what constitutes reasonable executive pay in a particular firm, knowledge of the quality of a given director candidate, etc. The parameters are estimated from an alternating method in which two out of three sets of parameters are held constant while the other is estimated, till convergence is reached. These parameter sets are the institutional investors' ideal

[1] Although fund managers have a fiduciary duty to vote, in practice votes are nearly always decided at the fund family level (Morningstar, 2019). Indeed, we find that only 1.11% of fund-proposal observations have at least one fund within a family that votes differently than the other funds. By contrast, some public pension funds delegate voting to their asset managers. When this occurs, we disaggregate to the level of the fund managers retained by the pension fund.

[2] Their method, commonly referred to as NOMINATE, has been widely applied to study legislative voting and similar frameworks have been applied to the study of other binary choice problems such as consumer preferences across products, and the psychometric study of perceptions and educational testing (see Poole, 2005; Armstrong et al., 2014, pages 189-221).

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points, the parameters that specify the Yes and No outcome locations for each proposal, and a parameter capturing the noise to signal ratio. The objective is to maximize the probability the model assigns to the observed choices. The nature and the relevant dimensionality of the latent space are revealed by the estimation of the investor and proposal positions.

Broadly speaking ideology can in principle be captured by a fund fixed effect, but a fixed effects approach requires an ex-ante specification of the motivations behind investors' voting behavior (vote with or against management per se, have a social objective, maximize profits, build a reputation with clients, etc.). The risk with that approach is obviously that some important aspects of investor preferences may have been missed.

Indeed, the main finding of our estimation is that, just as legislators' ideological differences in Congress can be represented along a left-right spectrum (Poole and Rosenthal, 1985, 2007), institutional investors' ideal points map onto a line, where the far-left investors are best described as socially responsible investors (those who vote most consistently in favor of pro-social and pro-environment shareholder proposals), and the far-right investors can be described as "money-conscious" investors (those who oppose proposals that could financially cost shareholders). In other words, the issue that most separates institutional investors is the degree to which they weigh social responsibility. We also find that governance is a second dimension separating investors, with investors differing on how tight a discipline should be imposed on management. Note that the difference in voting behavior could be due to either preferences about the objective of the firm or beliefs about the policies that best implement a given objective.

Also, the ideology of most pension funds is to the left, while that of the largest mutual funds is to the right, and the funds voting in line with the proxy adviser ISS recommendations are squarely in the center. The other main proxy advisor, Glass Lewis, together with the main index-funds Vanguard and BlackRock, is center-right. Along the governance dimension, Glass Lewis and the pension funds tend to be more management-disciplinarians than most mutual funds. The more socially responsible large funds, such as Nuveen, PIMCO, DFA, and Grantham, Mayo, are more management-friendly, while BlackRock, Vanguard and GAMCO are both more profit-oriented and more management-disciplinarian. The addition of director elections to the

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analysis moves investors toward a management-disciplinarian direction, confirming that negative votes on directors are one of the main forms in which institutional shareholders express their dissent with management and board decisions. Whether these ideological differences reflect the ideology of the institutions' client bases we cannot say. It is not even clear that clients are aware that the funds they invest in have systematic ideological biases. Another open question is whether ideological differences are reflected in different portfolio holdings.

Our methodology also generates the predicted investor voting blocs on different categories of proposals, allowing us to study how such blocs are affected by proposal, sponsor, firm, and director characteristics. We find that most proposal votes set the left funds against those that are center and right. The exception are governance proposals, where the center tends to side with the left, and against management, which is located near the right end of the first dimension. Along the second dimension, shareholders are divided in the middle, with the exceptions of the Say on Pay votes, where in a significant fraction of cases the center voted with Glass Lewis and the management-disciplinarians, and also the Social proposals, where on the contrary Glass Lewis and the management-disciplinarians are in the same camp against the center and the management-friendly funds. The characteristics of the firms and directors that the investors are voting on also matter. Higher past returns and governance variables such as board size and the fraction of independent directors result in smaller and more extreme left camps, and all else equal higher management support, whereas poison pills and unequal voting rights have the opposite effect, suggesting that firms with stronger minority shareholder rights tend to be firms with a broader shareholder support of management. On the second dimension, the presence of a golden parachute, a poison pill, a classified board, a higher fraction of independent directors, a smaller board, and higher institutional ownership are associated with a larger support for the management-disciplinarian approach. As for director characteristics, along the first dimension, female directors, directors classified as independent, and employee directors tend to garner broader support (the left camp is smaller), whereas absentee directors, and inside directors with higher controlling voting power are opposed by the center and the left voters. By contrast, age, financial expertise, and the number of outside boards a director sits on are not statistically significantly related to the first dimension voting blocs. On the second dimension,

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higher director age, financial expertise, and lack of independence shift camps, isolating the management disciplinarians from the rest of the funds.

Finally, for each proposal, we measure how investors trade off first and second dimension considerations. We find that most of the proposals are either purely first dimension issues or a mix of the two dimensions, but with a greater weight on the first. Interestingly, the few proposals that give more weight to the second dimension tend to be Governance and Say on Pay proposals, although a good number of director proposals also have a strong second dimension.

The remainder of the paper is organized as follows. Section 2 puts the paper in the context of the corporate governance and voting literatures. Section 3 describes the data and provides summary statistics. Section 4 explains our methodology. Section 5 discusses the results on institutional investors' ideal points. Section 6 describes the proposal characteristics and the predicted camps of investors voting the same way on different categories of proposals. Section 7 contains further analysis on investor camps, and firm and director characteristics. Section 8 provides a preview of whether investor ideology evolves over time. Section 9 concludes.

2. Related Literature

The first study of mutual fund proxy voting is by Gillan and Starks (2000). They find that shareholder proposals sponsored by institutions gain significantly more support than those sponsored by individuals. The subsequent literature takes the perspective that shareholders seek to maximize shareholder value and that their voting is motivated by managerial agency problems. Deviations from shareholder value maximization are explained by conflicts of interest at some institutional investors and by the lack of coordination among institutional investors.

The proxy voting literature was significantly advanced by the change in mutual fund disclosure requirements of proxy votes introduced by the SEC in 2003. One of the first studies to rely on these data is by Davis and Kim (2007); they find that mutual fund family voting in support of management is more likely when the fund family is also a manager of the company's corporate pension plan. (Ashraf, Jayaraman, and Ryan, 2012, and Cvijanovic, Dasgupta, and Zachariadis, 2016, find additional support for this hypothesis). Other explanations that have been

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proposed for the management-friendly voting behavior of mutual funds are governance failures at mutual funds (Chou, Ng and Wang, 2011), and the fact that, although mutual funds tend to vote with management, their support is greater for proposals that increase shareholder wealth (Morgan, Poulsen, Wolf, and Yang, 2011). Cremers and Romano (2011) also find that the SEC rule change, if anything, has increased mutual fund support for management [see Ferri (2012) for a review of this early literature].

More recently, the literature has explored other issues, in particular: i) whether mutual fund voting is driven by proxy advisers' recommendations, and if so why (Bethel and Gillan, 2002; Cai, Garner, and Walkling, 2009; Ertimur, Ferri, and Oesch, 2013; Larcker, McCall, and Ormazabal, 2014; Iliev and Lowry, 2015; Malenko and Shen, 2016; Li, 2018); ii) whether social networks—a common educational background between mutual fund managers and portfolio firms' CEOs—can explain mutual fund voting behavior (Butler and Gurun, 2012); iii) whether index-investors are active in corporate governance (Appel, Gormley, and Keim, 2016; Bebchuk and Hirst, 2019); iv) whether cross-holdings in firms in the same industry affect the management-friendly stance of mutual funds (He, Huang, and Zhao, 2017); and v) whether mutual funds vote in support of activist investor actions (He and Li, 2017; Brav, Jiang, Li, and Pinnington, 2019; Kedia, Starks, and Wang, 2017; Jiang, Li, and Mei, 2018). In a survey of mutual fund managers, McCahery, Sautner, and Starks (2016) find that voting against management is an important channel through which institutional investors exert their influence. They also find that proxy advisors' recommendations are important to guide their voting. Listokin (2008) and Babenko, Choi, and Sen (2019) observe that management can strategically time their proposals and avoid putting up a proposal for a vote if it expects that the proposal could be defeated. This is evidenced by the disproportionately high proportion of close votes that goes in favor of management. All these studies share the common perspective that institutional investor voting is mostly concerned with corporate governance issues and does not reflect a broader ideological premise.

The most closely related paper to ours, written simultaneously and independently of our study, is by Bubb and Catan (2019). They also take a political approach to proxy voting. The main methodological difference is that they undertake a principal components analysis following Heckman and Snyder (1997), where we use W-NOMINATE (McCarty, Poole, and Rosenthal,

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1997),[3] the standard scaling method in political science. Also, they treat mutual funds as the unit of analysis, whereas we take the fund family as the relevant unit. This is more reasonable because the overwhelming fraction of fund families coordinate the votes across their funds (Morningstar, 2019). Using funds as the unit of analysis violates the i.i.d. assumption on errors in both Heckman-Snyder and W-NOMINATE. More importantly, as a result of their focus on individual mutual funds, with little overlap in their portfolios, Bubb and Catan's matrix of fund-vote observations is extremely sparse, with 96% missing entries.[4] In contrast, our fund-family double-centered distance matrix only has 4.31% missing data, as fund-family portfolios significantly overlap. Another significant difference in our approaches is that Bubb and Catan exclude proposals that have less than 8% in minority votes, while we only exclude proposals with less than 3% minority. This is significant because proxy votes unlike roll-call votes in Congress, are highly lop-sided, so that even a small minority can indicate meaningful opposition. Importantly, the votes with small minorities are needed to distinguish between fund families that are simply "right" or "left" from those that are "extreme right" or "extreme left". As we do, Bubb and Catan (2019) rely on mutual fund voting data from ISS and voting recommendations from Glass Lewis, but over a longer time interval (from fiscal years 2010 through 2015), while we only consider data from the fiscal year 2012. Bubb and Catan (2019) emphasize the political party role of proxy advisers ISS and Glass Lewis, whereas we highlight the ideological differences across institutional investors revealed by their voting pattern, with socially oriented investors on the left and more money-conscious investors on the right. Importantly, neither Bubb and Catan nor the literature we cite above consider public pension fund votes.

3. Data and Sample

Our analysis focuses on Russell 3000 companies holding annual and special shareholder meetings during fiscal year 2012. The reason why this year is of special interest is that we were able to add votes of pension funds to the votes of institutional investors. It is also the first year

[3] A later version of the NOMINATE algorithm of Poole and Rosenthal (1985).

[4] Bubb and Catan (2019) do the singular value decomposition (SVD) of their fund-vote matrix after filling in the missing entries via imputation. We follow Poole's (2005) methodology to impute a "mean" distance of 0.25 for each missing entry in our double-centered distance matrix and then do the SVD of this matrix.

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containing a large number of say-on-pay proposals, which became mandatory following the implementation of Dodd-Frank. Below we provide the details of the sample construction and describe the variables used in our analysis.

Proposals and Proxy Voting Rules

Tables 1.A and 1.B show the distribution of the proposals in our sample by topic, by recommendation, and by votes of mutual fund families and pension funds. The rules and voting procedures for shareholders of publicly traded companies are complex, as Kahan and Rock (2008) describe in detail. This is not the place to give a comprehensive treatment of all the steps involved in identifying shareholders, communicating the proxy material, organizing a vote, and tallying the votes. Below we mainly highlight the most relevant aspects for our analysis.

Under Rule 14a-8 of the Securities Exchange Act of 1934, a company's qualifying shareholders can submit a proposal to be included in the proxy statement and put to a vote at the shareholder meeting. To qualify a shareholder must have owned for at least one year $2,000 or 1% of voting shares, and must submit the proposal 120 days before the annual meeting. The proposer must also hold her shares until after the shareholder meeting. Importantly, a proposal cannot exceed 500 words and generally must be in the form of precatory petitions to the board of directors. In addition, proposals cannot touch on ordinary business matters. Once a firm receives a shareholder proposal, it can choose to include the proposal in its proxy materials, work with the proposer toward a mutual agreement (which may include withdrawal of the proposal), or submit a No-Action request to the SEC to exclude the proposal from the company's proxy statement, if the proposal is deemed to fall outside the rules. In effect, the proxy voting rules reflect a general delegation principle whereby shareholders have entrusted the company's management to officers and directors, who consequently should be protected against subsequent interference and second-guessing by shareholders. Shareholder proposals are essentially restricted to be about broader governance and political issues, and exclude business operational issues. It is therefore natural to interpret shareholder proposals as reflecting governance and shareholders' broader social concerns.

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Table 1.A shows that shareholder proposals are concentrated in the governance and social categories. Governance-related proposals cover, among others, declassification of the board of directors, bylaw changes, cumulative voting, establishing/eliminating various committees, and proxy access. There are 314 such proposals in our sample, with 73.25% sponsored by shareholders. Social proposals cover animal rights, environmental protection, diversity, employment and human rights, political contributions, product safety and other social matters. Altogether there are 177 such proposals in our sample, all shareholder-sponsored.

Management sponsors the majority of the proposals in our sample. Table 1.A shows that, if we exclude director elections, management proposals constitute 86% of the proposals in the sample. Over half the non-director proposals are Say on Pay proposals, which became mandatory after passage of Dodd-Frank in 2010.[5] Management also sponsors the majority of capital-related, financial, and routine proposals, which constitute 10% of the non-director sample. Capital-related proposals include dividend payments/increases, share repurchases and stock authorizations, M&A transactions, asset sales, spin-offs, and related topics. Financial proposals are generally about approval of financial reports, and are routine proposals. Other routine or miscellaneous management proposals concern the adjournment of a meeting, or company name changes.

If we include director elections that, except for proxy contests, are sponsored by management, the percentage of management-sponsored proposals jumps to 96.6%.

Even if management proposals are the large majority, Table 1.B shows that the support rate among ISS (column 4), Glass Lewis (column 5), the mutual fund families and the public pension funds in our sample (columns 6 and 7, respectively), and all the shareholders voting on the proposals (column 8) varies significantly across proposal types and does not always favor management. Specifically, both Say on Pay and Financial and Investment Policy proposals receive significantly less than unanimous support on average. Moreover, both Governance and Social proposals, typically shareholder-sponsored and opposed by management, receive significant support from the institutional investors in our sample, especially the public pension funds, but

[5] Since January 2011, all U.S. firms are required by the Dodd-Frank Act to sponsor an advisory vote on executive compensation ("Say-on-Pay" vote) at least once every three years, and an advisory vote on "golden parachutes" associated with a merger.

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much less from shareholders overall. The average Governance proposal receives the support of 65.04% (68.6%) of the mutual (pension) funds, while the average Social proposal receives the support of 29.48% (34.10%) of the mutual (pension) funds.

Mutual Fund Voting Data and Proxy Advisor Recommendations

Our primary data source for mutual fund voting behavior is the Mutual Fund Voting Record database from ISS Voting Analytics, which provides voting records (For, Against, or Abstain) by individual mutual funds based on N-PX filings that mutual fund companies are required to file via the EDGAR website. The ISS database provides the identity of the fund and fund family. For each company proposal voted on by a fund, ISS provides the name and country of incorporation of the company, a description of the proposal, proposal number, shareholder meeting date, management recommendation, and the fund vote. We aggregate fund level voting information at the corresponding family level and supplement the data above with ISS recommendations, and whether the sponsor is management or a shareholder. Our analysis covers Russell 3000 companies that held one or more shareholder meetings during fiscal year 2012. Our sample includes 2,856 Russell 3000 companies.[6]

We merge the Glass Lewis recommendations with the above dataset using company name, ticker, meeting date, and proposal text. In addition to the actual voters, we also treat ISS, Glass Lewis, and management recommendations as three additional voters. These three "voters" are included primarily to illustrate the position of funds who followed either proxy advisor's recommendations in all their votes or who systematically support management. Our results are robust to excluding them.

Public Pension Fund Voting Records

To our knowledge, this is the first study that examines a large number of public pension funds' voting records. (Davis and Kim (2007) study only CalPERS' voting records for a limited number of proposals). In independent work, Duan, Jiao, and Tam (2019) have also analyzed proxy voting of public pension funds, relying on the data provided by Proxy Insight. We have

[6] Some companies are missing either because they were acquired or because there is no shareholder meeting for these companies in our data for this period.

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constructed our data directly by using state public records laws to request public pension funds proxy voting records.[7] Our sample comprises the 37 funds that responded to our request for information.[8] The data we received is similar in format to the ISS Mutual Fund Voting Record database. It provides the identity of the company (name and CUSIP), proposal number, description of proposal, shareholder meeting date, identity of sponsor, and vote cast. We merge this pension fund vote data with ISS Voting Records using company name, meeting date, and proposal number and text. We then manually check whether the unmatched proposals in the pension fund data exist in ISS Mutual Funds Voting Records.

Sample Construction

Our mutual fund data includes 229 fund families and 37 public pension funds. We dropped 2 pension funds and 12 mutual fund families who failed to cast at least 50 votes. Adding in ISS, Glass Lewis, and Management as additional voters, we estimate a total of 255 ideal points. We also drop any proposal that did not secure a minority vote of 3% of the actual voters, and any proposals that had less than 20 voters. We are left with 15,035 proxy proposals. Management makes recommendations on all 15,035, ISS on nearly all with 14,919 recommendations, and Glass Lewis on 14,883.

The proxy voting data is sparse compared to congressional roll calls. We have 2,438,670 possible proposal-institution pairs. Yet, an institution can vote only if it is a shareholder. Consequently, there were only 1,555,586 pairs where our institutions voted. (Abstentions occurred in only 0.1% of pairs. Because abstentions are so rare, we treat them like non-ownership as missing data, parallel to the treatment of congressional abstention and non-membership by McCarty, Poole, and Rosenthal, 1997). Overall, there were 16.1% votes "Against" a proposal and 83.9% votes "For".

[7] All 50 states in the U.S. have public records laws that allow members of the public to obtain public records from state and local government agencies.

[8] Some pension funds employ multiple fund managers and do not give them voting guidance. Some of the fund managers for the same fund vote quite differently. For this reason, the West Virginia and the Indiana public pension funds were disaggregated to the fund manager level. The West Virginia votes were disaggregated into State Street Global Advisors (WV - SSGA), Westfield (WV – Westfield), Intech (WV – Intech), CBRE (WV – CBRE) and AJO (WV – AJO). The Indiana votes were disaggregated into the component managed in-house, the one managed by BNY Mellon (Indiana - BNY) and the one managed by Columbus Circle (Indiana - CC).

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Firm and Director Characteristics

The data on firm characteristics is reported in Table 1.C. The balance sheet and income statement information is from COMPUSTAT; the past-year total return, the dividend yield and the Amihud liquidity measure are constructed based on information from the Center for Research on Security Prices (CRSP); executive compensation information is obtained from ExecuComp and includes base salary, bonus and stock option data for the top five executive officers; while governance characteristics are from RiskMetrics. In our sample, the average (median) firm has assets of $16.4 ($1.67) billion, and a market capitalization of $7.6 ($1.2) billion. The average return on assets is 9.3%, while the previous-year stock return is -2.8% on average. The average firm has a book-to-market ratio of 0.63, pays a 1.7% dividend, and has a leverage ratio of 0.35. The Amihud illiquidity measure for the average firm is 0.07.

We also report information on various governance variables. The median board has 9 directors, 81.8% of which are independent directors. These figures are consistent with the findings in the literature (e.g., Cai, Garner and Walkling, 2009; Li, 2018). On average, in our sample the board is classified in 41% of the firms, a poison pill is in place in 13.8%, the CEO has a golden parachute in 81.3%, a supermajority is required to approve a merger in 58.7%, and unequal voting rights are present in 4.3%. We report two executive compensation metrics as in Hartzell, Ofek and Yermack (2004), the year-to-year percentage change in total compensation, and cash compensation as a percentage of total compensation. At the median company, annual growth in executive compensation is 9.4%, and the cash-to-total compensation ratio is 29.6%.

Finally, we highlight here that the mean institutional ownership is over 70%,[9] indicating that institutional shareholder voting dominates proxy voting.

The data on the characteristics of directors up for election is drawn from the ISS director database, covering the S&P 1500 firms. Table 1.D reports their main characteristics. Just over 11% of directors are female, and over 92% are Caucasian. About 37% of directors are classified as financial experts, and over 78% of directors as independent. They sit on average on 0.89

[9] Note that our data does not cover all institutions, as some pension funds are not included. Moreover, ISS does not provide a complete coverage of all mutual funds.

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outside boards, and own on average 1% of the common stock of the firms on whose board they sit on.

4. Methodology

Revealed Preference Theory is a standard theory in economics establishing, under some weak rationality assumptions, that a consumer's preferences, or utility function, can be "revealed" from her past consumption choices. Similarly, in the Basic-Space Theory of Ideology of Poole and Rosenthal (1985, 1987, 1991, 1997), voters' ideologies can be revealed based on their past votes. The meaning of ideology here is in the sense of Converse (1964): voting behavior is ideological when voting across a wide set of issues is predictable, presumably because an underlying belief system binds voting preferences over these issues together. However, ideology is a relative concept and cannot be determined from an individual voter's past votes in isolation. It can only be inferred by comparing the past votes of multiple voters on the same issues against each other.

Suppose that there are $i = 1, \ldots, p$ voters, and $j = 1, \ldots, q$ proposals. If all p voters always vote the same way, if there is completely unanimous agreement on all issues, then the voters' ideology cannot be determined. All one can say is that voters are always in full agreement. But if voters do not always vote the same way it is possible to determine which other voter(s) voter i is closest to, or which other voters voter i agrees with most, by computing agreement scores between any two voters, which are simply the proportion of issues on which the two voters vote the same way.

Consider, for example, the votes of three large investors in our sample, CalPERS, Fidelity, and GAMCO. In total they have voted unanimously on 5,315 out of the 6,359 proposals on which all three voted in fiscal year 2012 (see Exhibit A below). Based on their 1,044 non-unanimous votes, it is possible to determine whether CalPERS agrees more with Fidelity than with GAMCO. The agreement score of CalPERS and Fidelity is 0.891, the score between CalPERS and GAMCO is 0.863, and that between Fidelity and GAMCO is 0.918. From these scores we can infer that Fidelity and GAMCO are the closest to each other, and that CalPERS is

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closer to Fidelity than GAMCO. These simple observations suggest that, in some relevant space to be determined, Fidelity's ideological position lies between CalPERS and GAMCO.

Exhibit A:

Number of Proposals	CalPERS	Fidelity	GAMCO
331	**Against**	**For**	**For**
190	**For**	**Against**	**Against**
218	**Against**	**Against**	**For**
130	**For**	**For**	**Against**
13	Against	For	Against
162	For	Against	For
58	Against	Against	Against
5,257	For	For	For
Total Proposals= 6,359			

Another observation from Exhibit A is that it is rare for CalPERS and GAMCO to vote against a proposal when Fidelity votes in favor (this occurs only 13 times). It is also rare for CalPERS and GAMCO to vote for a proposal when Fidelity votes against (this occurs only 162 times). Either CalPERS or Fidelity vote opposite to GAMCO much more frequently (348 times), or GAMCO and Fidelity vote opposite to CalPERS (521 times). This is another way of seeing that among the three voters, CalPERS and GAMCO are the extremists and Fidelity the centrist voter. To summarize, the four cases in bold are consistent with a unidimensional ordering CalPERS-Fidelity-GAMCO. The two non-unanimous cases not in bold are not consistent with this ordering. The two unanimous cases are not informative.

How can we determine ideologies from votes more generally? What Poole and Rosenthal have shown is that it is possible to represent voters' relative ideological positions in a low-dimensional Euclidean space (typically one or two dimensions). We use their W-NOMINATE

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procedure in this paper. The key to this representation is a basic assumption, with a long tradition in political science: That voters have symmetric single-peaked preferences, with the ideal point at the peak (Black, 1948). A second assumption is that voters have random utility shocks, which has a long pedigree in economics (McFadden, 1976). Under these assumptions, voters vote for the outcome on a particular proposal whose position is closest to their ideal point, with errors.

The geometry of voting: Under the assumptions above, the location of each voter's ideal point can be represented by a point in an N-dimensional Euclidean space, and the location of each issue to be voted on by two points, each representing respectively the outcomes if the issue is defeated and if it is passed.

In a one-dimensional space, each voter i can then be located by a point on a line, x_i. The two voting outcomes for a given proposal j can also be represented by two points, respectively o_{jy} and o_{jn}, where y stands for Yea, corresponding to a "For" vote on a proxy ballot, and n for Nay, corresponding to an "Against" (or "Withheld" for directors) vote. The midpoint of the two outcomes is $z_j = (o_{jy} + o_{jn})/2$. A voter whose ideal point is at the midpoint of a proposal is indifferent between the two outcomes in terms of spatial preferences.

In two dimensions, analogous to the midpoint, there is a cutting line, which is the perpendicular bisector of the line joining the two outcomes. For a proposal, any voter whose ideal point is on the cutting line is indifferent in terms of spatial preferences. Exhibit B provides an illustration of the cutting line, while examples from our sample are reported in Fig. 7 and discussed in Section 7 of the paper.

If error is present, the problem of estimating a cutting line is equivalent to a logit or a probit, depending on the assumptions about the error distribution. Each fund's utility U for an outcome has two components: a deterministic one, u, that depends on the distance between the fund's ideal point and the points representing the Yea and Nay outcomes, and a stochastic component.

$$U_{ijy} = u_{ijy} + \varepsilon_{ijy}$$

$$U_{ijn} = u_{ijn} + \varepsilon_{ijn}$$

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The deterministic component for the Yea outcome in one dimension is given by:

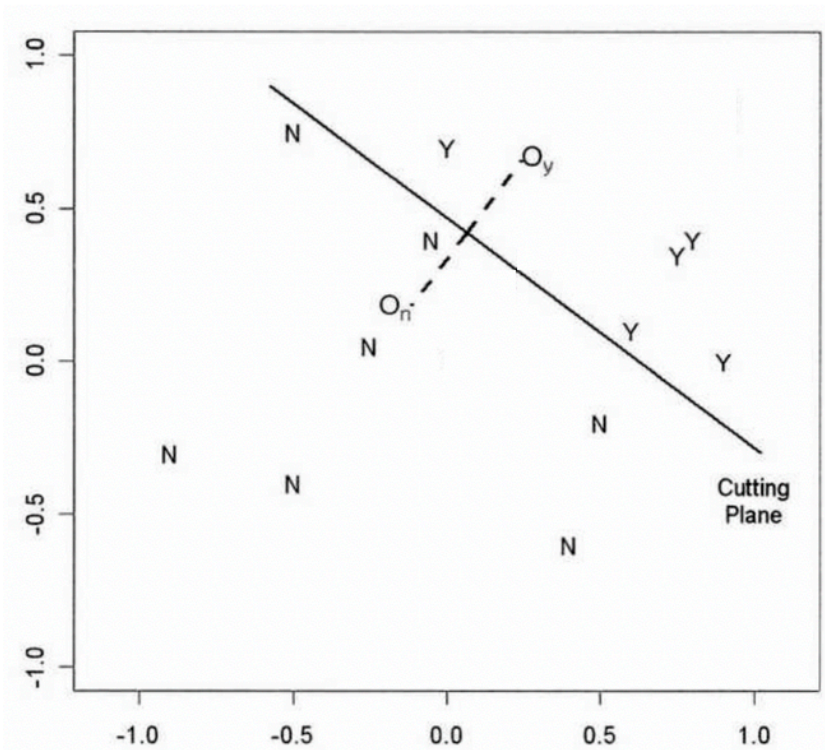
$$u_{ijy} = \beta \exp\left[-\frac{d_{ijy}^2}{2}\right],$$

where β is a scaling parameter that captures the strength of the deterministic component of voting relative to the random shocks, which have a fixed variance, and d_{ijy} is the distance between the investor ideal point and the Yea outcome for that proposal:

$$d_{ijy}^2 = (x_i - o_y)^2.$$

The expression for the Nay outcome is similar. For multiple dimensions, see Poole and Rosenthal (1997, p. 249).

Exhibit B



The probabilities of voting Yea (For) and Nay (Against) can therefore be expressed as

$$P(Fund\ votes\ Yea) = P(U_{ijy} > U_{ijn}) = P(\varepsilon_{ijn} - \varepsilon_{ijy} < u_{ijy} - u_{ijn})$$

$$P(Fund\ votes\ Nay) = P(U_{ijy} < U_{ijn}) = P(\varepsilon_{ijn} - \varepsilon_{ijy} > u_{ijy} - u_{ijn})$$

If we assume that the error difference is logit distributed, we get that the probability of voting yea is given by:

$$P\left(\varepsilon_{ijn} - \varepsilon_{ijy} < u_{ijy} - u_{ijn}\right) = \frac{e^{u_{ijy}}}{e^{u_{ijy}} + e^{u_{ijn}}}$$

Given the matrix of observed votes for each of the funds, W-NOMINATE estimates the combination of parameters for fund ideal points, x_i, $i = 1,\ldots.p$, and proposal outcomes o_{jy}, o_{jn}, $j = 1, \ldots q$ that maximizes the joint probability of the observed choices:

$$L = \prod_{i=1}^{p} \prod_{j=1}^{q} \prod_{l=1}^{2} P_{ijl}^{C_{ijl}}$$

where, P_{ijl} is the probability of voting for the choice l (y/n) and C_{ijl}=1 if the fund's actual choice is l.

Estimation is started by computing the agreement scores of all voters, like we did for the three funds in Exhibit A. The next step consists in introducing a distance function by subtracting the agreement scores from 1 and squaring the difference. One then obtains a matrix of squared distances. The third step is a normalization: Double-center the matrix of squared distances by subtracting the row and column means of the matrix of squared distances, adding the matrix mean and dividing by -2. Through this normalization one obtains a cross product matrix of voter coordinates (see Poole, 2005). Finally, a further normalization is to take the square root of the diagonal elements of the double-centered matrix and divide through the corresponding column of the double-centered matrix by this square root. One then obtains voter coordinates lying between -1 and +1. These coordinates are the starting values for the W-NOMINATE estimation.[10]

In terms of interpreting the distances between investors, the ideology positions are scales, and should be interpreted similarly to temperature scales. The crucial features are the

[10] In practice, the estimation is not strictly maximum likelihood for reasons similar to non-identification of simple logit models when classification is perfect. Also, the likelihood does not include terms when a fund does not vote on a proposal. For details, see Poole and Rosenthal (1997, pp. 249-250).

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investors' ordering along the relevant dimension, as well as their relative distance. Both the ordering and the difference between two ideal points have a specific meaning, up to a transformation: similarly, we can take the ordering and the distances in the Fahrenheit scale and map them into a new scale, say the Celsius scale.

The coordinates that best "fit" the underlying spatial model are then estimated iteratively by constrained maximum likelihood. The constraint is that ideal points of each voter, x_i are in the interval [-1, +1] in one dimension, and in the unit circle in two. Each global iteration alternates between estimating the proposal outcomes conditional on the voter ideal points, then the ideal points conditional on the proposal outcomes, and finally the signal to noise parameter β.

There are other approaches to spatial scaling, in particular the Bayesian estimation approach of Clinton, Jackman and Rivers (2004) (besides the difference in estimation method, Clinton et al. also assume that voters' utility functions are quadratic), the A-NOMINATE MCMC-based approach of Carroll, Lewis, Lo, Poole and Rosenthal (2013), which nests both the quadratic and Gaussian utility models, and the non-parametric Optimal Classification (OC) approach of Poole (2000). None of these methods/models have clear advantages over the others. To check the robustness of our results based on the W-NOMINATE approach, we have also run OC. We find that the ideal point estimates and the classification accuracy of the different models are very similar. The correlation between the W-NOMINATE and the OC estimates is 0.769.

These scaling and estimation methods powerfully organize the voting data; they reflect the common force of ideology in determining how institutional investors vote, by revealing their relative ideological positions along one or two dimensions.[11] They go further than the findings of Matvos and Ostrovsky (2010) that there are systematic differences in how institutional investors vote and reveal the pattern of differences across institutional investors.

[11] These scaling methods have been widely applied in many contexts other than voting. For example, they have been used in educational testing to estimate ability (Rasch, 1961), in marketing to analyze consumer choices (Bechtel and O'Connor, 1979) and in psychology and health science (see e.g. Bond and Fox, 2007).

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As much as the NOMINATE scaling approach reveals voters' ideological positions, it remains silent on where ideology comes from. It identifies how voters' ideal points are located relative to each other based on their past votes, but it does not per se make any substantive interpretation of their ideology. The choice of polarity, who lies more on the left and who more on the right, is arbitrary, just as the color red for Republicans and blue for Democrats is arbitrary. We could have flipped the polarity so that an ideal point on the left would appear on the right, as one could easily flip the colors red and blue for Republicans and Democrats. Still, the broader socio-economic context, the content of the proposals, and the nature of the disagreements between shareholders suggest that one choice of polarity is more natural than another. As Keith Poole (2005) succinctly put it in the introduction to *Spatial Models of Parliamentary Voting*: "It is the researcher's understanding of the theory about the picture that gives the picture meaning. Without this understanding a person viewing the picture would see just a bunch of dots."

Matvos and Ostrovsky (2010) find that there are not only systematic differences in how mutual funds vote in director elections, but also that voting behavior is strategic. They argue that funds are generally reluctant to oppose management and therefore tend to vote with management unless they expect other funds to vote against. They find peer effects in mutual fund voting behavior, which they interpret as evidence of strategic voting taking the form of "safety in numbers" in opposing management. Their findings raise the natural question of how estimated ideal points should be interpreted if there is strategic voting. Under systematic strategic voting of the form described by Matvos and Ostrovsky (2010) the estimated ideal points will no longer reflect the true underlying ideal point. To the extent that mutual funds vote more often with management for strategic reasons, their ideal points will be closer to management's position, but the relative position of ideal points should not be affected unless some funds are more strategic than others. Another possibility is that mutual funds may vote strategically with the intent of signaling their ideology to asset owners. There could be mutual funds that go out of their way to oppose management as a way of communicating their investment philosophy to asset owners. The estimated ideal points of these funds would then be further away from management than their true ideal point. In sum, W-NOMINATE infers voters' ideal points based on how they vote, whether the votes are sincere or strategic. To the extent that there is strategic voting the

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estimated ideal points do not necessarily reflect intrinsic preferences but may also reflect the ideology voters intend to communicate. This is true for roll-call voting in Congress as well as for proxy voting by institutional investors.

Our estimation uses the publicly available R version of McCarty, Poole, and Rosenthal's (1997) W-NOMINATE. This and the closely related DW-NOMINATE (Poole and Rosenthal, 2007) have been widely used in the political science literature to determine legislators' ideal points and the dimensions of their ideological disagreements. Note that each institution is treated as having a single vote. Votes are not weighted by the number of shares owned.

5. Institutional Investors Ideal Points in One- and Two-Dimensional Spaces

We begin our discussion of the substantive results by describing institutional investors' positions in one- and two-dimensional spaces. For both the one- and two-dimensional estimation, we check that our results are not unduly driven by director elections, which represent 77.7% of our sample. First, we run W-NOMINATE in one dimension on shareholder and management proposals, excluding director elections. Second, we estimate the two-dimensional model on the same sample. Third and fourth, we augment the sample with director elections and run W-NOMINATE in one and two dimensions. We find that although the one-dimensional model overall provides a good fit to the data, the second dimension allows us to improve classification for some voters and to highlight a second substantive dimension of disagreement among institutional investors related to governance issues.

One-dimensional model excluding director elections. Consider first results for the one-dimensional model, excluding director elections. This model is estimated from all the votes on shareholder and management non-director proposals in our sample. The top-left Panel of Fig. 1 describes the distribution of proposals with at least 20 voters. As can be seen, the modal proposal has more than 60 voters, and a significant number of proposals have more than one hundred voters. The top-right panel of Fig. 1 describes how the distribution of the number of voters per proposal varies with the subject matter of the proposal. The proposals with the largest number of voters are social proposals, which include proposals on the environment, diversity, employment and human rights, political contributions, and product safety. This could be due to the fact that such

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proposals are more common at large firms, which have a higher number of institutional shareholders and thus voters. Either social issues might be most concerning at large firms, or, more likely, targeting large firms is the most efficient way to achieve social concerns with limited resources.[12] Governance proposals are next with a median number of voters above 100, followed by Say on Pay proposals which have a median of around 60 voters, and financial and investment policy proposals, which have a median of around 50 voters.

What is the ideology of institutional investors? A first set of answers to this fundamental question is provided in Fig. 2.A, which shows the distribution of ideal points along one dimension for both mutual fund families and public pension funds. The top-left panel displays the ideal points of all institutions, and the other three panels separately plot the ideal points of mutual funds (white bars) and the public pension funds (blue bars). The one-dimensional W-NOMINATE model constrains ideal points to the interval [-1, +1]. The arbitrary (and inconsequential) polarity of the dimension was chosen such that socially oriented investors appear on the left.

The first immediate observation from the top-left panel is that institutional investor votes are far from reflecting shareholder unanimity. Institutional investors differ markedly in their ideologies, with funds like Domini Social Investments and Calvert on the left of our one-dimensional spectrum and Needham Investment Management on the far right. Consistent with its voting, Domini describes its investment philosophy as follows: "We apply social, environmental and governance standards to all of our investments, believing they help identify opportunities to provide strong financial rewards to our fund shareholders while also helping to create a more just and sustainable economic system."[13] Calvert states on its website "We encourage companies to improve corporate behaviors and contribute to a more sustainable and equitable society."[14] By contrast, Needham Investment Management, LLC, describes its investment philosophy as focusing on investments with "an emphasis on tax-efficient capital appreciation and preservation."[15] Another far-right fund, Leuthold Weeden Capital Management,

[12] We thank the referee for pointing this out.
[13] https://www.domini.com/about-domini, accessed on May 7, 2019.
[14] https://www.calvert.com/engagment-pillar.php, accessed on May 7, 2019.
[15] https://www.needhamfunds.com/about-us/, accessed on May 7, 2019.

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describes its investment philosophy as "We believe the most important decision is proper asset class selection and a highly disciplined, unemotional method of evaluating risk/reward potential across investment choices."[16] Panel A of Table 3 contains a more detailed list of extremists both on the right and left end of the ideology spectrum. Neither Needham Investment Management nor any of the other far right funds listed in Table 3 mention anything about ethical, environmental, or social concerns.

The second main observation is that the distribution of ideal points is close to unimodal, quite distinct from the bimodal distribution in Congress where political party polarizes members.[17] There is a caveat to unimodality. Fifty-one funds have nearly the same ideal point as ISS, while forty investors have ideal points similar to that of Glass Lewis. These similarities correspond to the distinct peaks in the panels of Fig. 2A. On the one hand, the proxy advisors might be actively coordinating the votes of investors. On the other, some institutional investors may make their voting choices in a cursory fashion and use the recommendations of the advisors to fulfill their fiduciary responsibilities. Interestingly, ISS's ideology is left of Glass Lewis. A significant fraction of both mutual funds and public pension funds are in between ISS and Glass Lewis, an indication that they sometimes side with one or the other proxy adviser when the two advisers' recommendations differ.

The third observation is that the two largest passive asset managers, BlackRock and Vanguard, have different ideal points than the two proxy advisers. Both asset managers have communicated that while they rely on the recommendations of ISS and Glass Lewis to guide their votes, they do not slavishly follow these recommendations.[18] This voting policy is reflected in their different ideal points. Interestingly, their ideal points are to the right of the proxy advisers, which suggests that they were less concerned about environmental and social issues.

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[16] https://funds.leutholdgroup.com/#history, accessed on May 7, 2019.

[17] The peaks on the left and right ends arise partly through the [-1, +1] constraint in W-NOMINATE.

[18] In its Proxy Voting and Shareholder Engagement FAQ document BlackRock states "We subscribe to a number of different research products which we take into consideration when deciding how to vote at U.S. company meetings. We do not follow the recommendations of any one provider but make our voting decision based on what we consider to be in the best long-term economic interests of fund investors."

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Finally, a fund that almost always voted with management would be located on the far-right. The peak at the far right distribution of the panels shows the extent to which there are pro-management investors. Note from the remaining three panels of Fig. 2A that none of these investors are pension funds.

Indeed, it is to be expected that public pension funds have different ideologies from mutual funds because they may have a duty to vote in line with their members' preferences. This difference in ideologies is reflected in the last three panels of Fig. 2.A. As the top- and bottom-right panels show, public pension funds (blue bars) are more to the left than mutual funds (white bars). In particular, all public pension funds, with the exception of Indiana Teachers, are to the left of BlackRock. CalPERS is between ISS and Glass Lewis, and the most far left public pension funds are the AFSCME Employee Pension Plan, the Colorado Police & Fire Pension Fund, labeled in the panel, and the State Universities Retirement System of Illinois (SURS), which is listed in Table 3. This pattern is more accentuated if we exclude those pension funds that let their investment managers decide how to vote. The bottom-right panel in Fig. 2.A includes the breakdown of the West Virginia pension funds based on their investment managers and indicates that the ideal points vary from the far left for the votes cast by Intech to the far right for the votes cast by State Street Global Advisors (SSGA). Indeed, while Intech is not among the funds in our sample, the ideal points of the West Virginia SSGA fund and SSGA are very close to each other, at 0.34 and 0.38, respectively.[19]

In sum, the ideal-point results show a clear spatial structure. The left represents relatively socially-oriented investors, while the right represents more money-oriented investors.

The bottom two panels of Fig. 2.A provide further information on the ideal points of the largest and most prominent mutual fund families and public pension funds. It is worth noting that the pension fund of AFSCME, the largest public services employee union, is far to the left of CalSTRS or CalPERS, two of the largest public pension plans, whose ideal points are center

[19] The two-dimension estimates are also close: 0.31 and 0.33 for the first dimension, and -0.04 and -0.08 for the second dimension, respectively.

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right.[20] Most of the large institutions, such as J.P. Morgan, Goldman Sachs, Fidelity, Prudential (not reported) tend to be center-right, with the exception of PIMCO and Nuveen, which are center-left and follow ISS recommendations in most of their votes. Consistent with the reputations of their CEOs, Grantham, Mayo and Van Otterloo, LLC is on the left, while GAMCO is furthest to the right of all the prominent fund families, as can be seen in the bottom-left panel.[21] Among the smaller funds, Wisdomtree Asset Management and Pax World Management appear to be on the far-left as well, further confirming our interpretation of the dimension as socially- vs. money-oriented investment philosophies.

Results of the two-dimensional model without director elections. Consider next the estimation results of the two-dimensional model, excluding director elections. Note first that a second dimension appears to be relevant from the way in which the ideal points spread out along the vertical axis in the three panels of Fig. 2.B. While the location of the investor ideal points along the first dimension is similar to their locations in the one-dimensional model, the second dimension makes further distinctions.

What does this second dimension reflect? It seems to capture differences about corporate governance, with the funds at the bottom taking a more management-friendly stance and those at the top being more management-disciplinarians. Note in particular that the second dimension pits Glass Lewis and its followers against ISS' more management friendly stance on non-director proposals.

Results of the one-dimensional model when director elections are added. Consider next the estimation results of the one-dimensional model when director elections are included. Most proposals represent director elections.

How is the estimated ideal point of institutional investors changed by the addition of director elections? A comparison of the top-right panels of Fig. 2.A and Fig. 2.C reveals that for

[20] The more moderate position of CalPERS could reflect the more moderate political preferences and a higher focus on financial returns of public employees in California (see John Myers "CalPERS board president is ousted in election, losing to Corona police officer" *LA Times* October 4, 2018).
[21] See https://en.wikipedia.org/wiki/Jeremy_Grantham, accessed May 7, 2019. and https://en.wikipedia.org/wiki/Mario_Gabelli, accessed May 7, 2019.

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a large fraction of the institutions the ideal points changed to some extent, and for some of them they do so substantially. The main change is the shift of the ideal point of Glass Lewis to the far right and an associated increase in classification error, suggesting that the one-dimensional model performs less well when director elections are added.

Results of the two-dimensional model with director elections. Consider next the estimation results of the two-dimensional model depicted in Fig. 2.D. The fact that the position of Glass Lewis shifts from the center right to the far right in the one-dimensional model when we add director elections is a hint that Glass Lewis voting recommendations, and maybe the ideal points of some other investors, may be better represented with a two-dimensional model. This is indeed what we find when we estimate the two-dimensional W-NOMINATE model.

It is interesting to see that pension funds tend to be both the more socially minded and more management disciplinarians. Indeed, the top-left panel shows that the blue dots (pension fund positions) are nearly all bunched in the upper-left corner. In contrast, the more socially responsible among the large funds, like Nuveen, PIMCO, DFA, and Grantham, Mayo, are more management-friendly, while BlackRock, Vanguard and GAMCO are more profit-oriented and more management-disciplinarian, although, with the exclusion of BlackRock and Capital Research, not by a large extent. Among the smaller mutual funds on the far-left, Calvert, Domini and Pax World Management, appear, like the pension funds, to be socially-oriented and management-disciplinarian, while Wisdom Tree Investments and a few others reported in Panel B of Table 3, while socially-oriented, appear to be very management-friendly.

The addition of director elections reduces investor differences along the second dimension, as can be seen by comparing Fig. 2.B and 2.D. In effect, Glass Lewis' ideology is extremely management-disciplinarian on governance issues, as its voting recommendations on directors indicate. As for pension funds, the addition of director elections moves them further in a management-disciplinarian direction. Interestingly, the position of ISS and the funds following it also moves toward a more management-disciplinarian direction once we add director elections, confirming that negative votes on directors are one of the main forms in which institutional shareholders express their dissent with management and board decisions.

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The differences in ideal points between the four models we estimate can be summarized more succinctly by looking at the correlations in the ideal points across the four models reported in Panel A of Table 2. Note first that the correlation between the institutional investors' first dimension positions in the one and two-dimension model with no director elections is extremely high, at 0.993, confirming that while adding a second dimension highlights another important driver of institutional investor voting it does not change the positions with respect to the first such driver. Second, the addition of director elections substantially modifies the ideal points estimated with the one-dimensional model. The correlation coefficient of ideal points estimated without director elections and with director elections in the one-dimensional model is only 0.629. However, when we add a second dimension in the data that includes director elections, the correlation between the ideal points in the one-dimensional model excluding director elections and the ideal points in the two-dimensional model including director elections is 0.879! This confirms both the robustness of the one-dimensional model, excluding director elections, and the importance of a second dimension that reflects corporate governance differences when we add the most important governance decision shareholders face in practice, the election of directors.

Finally, measures of fit for the models above are reported in Panel B of Table 2. The overall fit of the W-NOMINATE estimation is given by four measures, the percentage of correctly classified votes, the aggregate proportional reduction in error (APRE), the geometric mean probability (GMP), and the signal-to-noise ratio β. An observed vote is a classification error if its predicted probability is less than 0.5. The classification percentage is calculated as 100×(Correct Votes)/(All Votes). Panel B of Table 2 shows that the percentage of correctly classified votes is quite high. Across all four models, we correctly classify over 88% of the votes. The highest classification, 92.28% is from the two-dimensional model with director elections. The APRE is defined as: 1 – (Total Classification Errors)/(Total Votes on Minority Side). This measure allows us to see how much W-NOMINATE improves on minority voting as a benchmark. The intuition is the following: suppose the actual vote on a given proposal was 80% Yea and 20% Nay. Without any further information we can classify every voter as a Yea and be right 80% of the time. If there is useful information in the spatial model, we expect it to classify

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with less than 20% errors on this specific proposal. The APRE aggregates the proportional reduction in error (PRE) against the minority benchmark across proposals, or group of proposals. For each vote, this measure is 1 if there are no classification errors, it is 0 if the number of spatial model errors equals the minority vote, and it is less than 0 if the model does worse than assigning everyone the majority choice. In our estimation, the APREs of 0.339 and 0.262 (for the one-dimensional model) are less than those for congressional roll calls, largely because votes are more one-sided. That is, minorities are smaller, particularly on director votes. The APREs increase to 0.463 and 0.406, respectively, when we add a second dimension. The geometric mean probability (GMP) is the exponential of the average log-likelihood, i.e. GMP=exp[log-likelihood of all observed choices/N]. Since the likelihood of an observed choice is the probability the model assigns to that choice and all choices are assumed to be independent, the likelihood of all the choices is the product of all the individual choice likelihoods. The GMP penalizes models that assign low probabilities to observed choices. Thus, the model doesn't simply minimize the number of funds incorrectly classified, but rather, roughly speaking, it minimizes the errors weighted by the distance to the midpoint for any given proposal, since a classification error for an extremist is more serious than one for a fund that is close to the midpoint and thus close to indifferent. The GMPs for our four models are reported in the fifth column of Panel B of Table 2. While all the values are relatively high, the best fit according to this measure is the two-dimensional model with director elections for which the GMP is 0.819. Finally, the signal to noise ratio, β, measures the relative importance of the spatial component and is proportional to the variance of the error distribution. In contrast to the APREs, the βs range from 18.1 to 19 and are larger than those found for Congress. The large βs show that the ideological component of voting is large relative to the random error components.

In the remainder of this section we further validate our interpretation of the first and second spatial dimensions by looking at the identities of the extremist funds.

Extremist Investors. The identity of the extremists shown in Table 3 provides a check for face validity. Do the voting records, summarized by the estimated ideal points of the funds, correspond to their advertised investment philosophies? As noted above, this is by and large the case. Table 3 reports the identity of left and right extremists, from one-dimensional estimates,

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and also the identity of extremists along each dimension from two-dimensional estimates. There are then four groups of extremists, with the second dimension capturing those investors that are extremely management friendly at one end and those that are extreme management disciplinarians at the other. The left-positioned funds on the first dimension are pension funds and many mutual fund families with ESG (economic, social, governance) objectives in their investment philosophies, with the exception of WisdomTree Asset Management, which focuses on ETFs. The right-positioned ones tend to be funds focusing on tax management and capital appreciation. The management-disciplinarians are Glass Lewis followed by some of the large pension funds and some small mutual fund families, while the management-friendly funds are WisdomTree and other small fund families.

Besides the ideal points, Table 3 also reports standard errors and correct classifications for the selected extremist investors. Standard errors come from running 100 parametric bootstraps in W-NOMINATE.[22] Those in Table 3 range from 0.02 to 0.15, showing that the ideal points are estimated relatively precisely. More generally, standard errors decrease with extremism and with the number of votes cast by the institution. Note the difference in classification between the left and right extremists. One possible reason for this difference could be the fact that right extremists are small funds that vote less often and are therefore less precisely estimated. An alternative, albeit more speculative, explanation is that while the funds on the left invest with purpose and there is less debate on what that means, the funds on the right are exclusively focused on return maximization, and there is more disagreement on what that entails.

The Influence of Proxy Adviser Recommendations. Which funds tend to mostly follow the recommendations of one of the two proxy advisers? We report the identity of these investors in Table 4. In the one-dimensional model, ISS and the investors close to it all classify nearly perfectly. In contrast, Glass Lewis itself and investors close to it classify less well. However, in the two-dimensional model, Glass Lewis and its followers classify nearly as well as ISS and its followers. It is worth noting that in the two-dimensional model all the ISS followers are mutual funds, while three of the ten closest followers of Glass Lewis are pension funds. This is not

[22] Robustness analysis with 50, 100, 500 and 1,000 bootstrap iterations indicated that there were only very marginal gains in increasing the number of iterations beyond 100.

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surprising given that Glass Lewis is owned by two Canadian pension funds. One owner, Alberta, is in our sample and, in two dimensions, closely follows Glass Lewis.

6. Proposal Midpoints and Substantive Issues Dividing Institutional Investors

In this section, we turn to the analysis of the substance of proposals that divide investors, and the locations of the midpoints separating those that are predicted to vote "For" and "Against" on any given proposal. We begin by reporting the midpoints along the first dimension and then turn to the midpoints on the second dimension and the angles of the cutting lines, which indicate whether a proposal separates voters mainly along the first or second dimension, and the extent to which shareholders trade off issues along the two dimensions.

Fig. 3 reports the distribution of proposal midpoints along the first dimension, for all proposals and by proposal type. Recall that at the midpoint, the probabilities of voting "For" and "Against" are both 0.5. The midpoint is the position on the line that separates the predicted "For" from the predicted "Against".

Unlike Congress, where the midpoints are frequently in the center, many midpoints here are at the extremes, especially on the left, indicating that for those proposals, the investors on the left are predicted to vote against the center and the right (and vice-versa for proposal midpoints at the right end).[23] For management proposals, and other proposals where management recommends a vote "For", a midpoint close to -1 means that nearly all institutions support the proposal, while a midpoint close to +1 means that nearly all oppose it. The opposite holds for proposals opposed by management. The top-left graph in Fig. 3 indeed shows that the fraction of proposals close to -1 is much higher than that close to +1, and that the overwhelming majority of proposals have midpoints on the left. As the top-right graph in Fig. 3 reveals, there is however substantial opposition to management on governance proposals. The opposition to Say on Pay and other compensation proposals on the other hand is concentrated in a few proposals, as the bottom-left and right graphs highlight. Fig. 3 also shows that there is considerable institutional support "For" the election of directors. Of course, even a small fraction of votes "Withheld"

[23] Some proposals bump up against the constraint of having an ideal point at the edges of the space, and they are not informative, as they only tell us that all funds are predicted to vote identically on the given proposal.

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from a director can be interpreted as a rebuke. The midpoints for social proposals have a bi-modal distribution, indicating that some social proposals face strong opposition. The midpoints for Financial and Investment Policy proposals are also bimodal with nearly half the proposals being essentially unopposed.[24]

Fig. 4 shows the distribution of midpoints broken down by sponsor type. Not surprisingly, management proposals have midpoints mostly to the left reflecting the fact that on average management proposals are supported by lop-sided majorities. Still, there are a few management proposals that garner substantial opposition. As for shareholder proposals, it is noteworthy the midpoint distribution is bi-modal, indicating that a significant fraction of shareholder proposals garner substantial support.

We turn next to the distribution of midpoints along the second dimension displayed in Figs. 5 and 6. Note first that +1 refers to an extreme management disciplinarian and -1 to the opposite, a management-friendly stance. Interestingly, along the second-dimension midpoints are all in the interior with a mode in the middle, reflecting that shareholders are more evenly divided along the second dimension. In other words, the midpoint distribution along the second dimension resembles more the distributions seen in Congress for roll call votes. Notable exceptions are the Say on Pay votes, where in a significant fraction of cases the midpoints are below zero, meaning that for those proposals the center voted with Glass Lewis and the management-disciplinarians, and the Social proposals where on the contrary Glass Lewis and the management-disciplinarians are isolated against the center and the management-friendly funds.

Finally, we examine the distribution of cutting line angles in two dimensions. Recall that the cutting line is the two-dimensional generalization of the midpoint in one dimension. The angle the line makes with the first dimension reflects how voters trade off the two dimensions on each proposal. The angles vary from -90 degrees to +90 degrees. Angles of 0 or close to 0 are entirely second-dimension issues, and angles of -90 or +90 degrees are entirely first-dimension issues. Fig. 7 provides a few examples of proposal cutting lines. Panel A pertains to the Citigroup Say on Pay vote held on April 17th 2012. This vote received widespread attention at the time.

[24] The unopposed proposals in this category mostly comprise the proposals on routine matters, such as adjourning the meeting.

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Both Glass Lewis and ISS recommended to vote against the $15 million pay package for CEO Vikram Pandit. Indeed, 55% of the shareholders voted against the package. Pandit's pay was reduced, and he resigned in October 2012.[25] The left-hand graph shows investors' ideal points based on all their votes in the sample and the cutting line for this specific proposal, separating those that based on their ideology are predicted to vote for from those predicted to vote against. The slope of the cutting line is 76 degrees, indicating that on this issue funds separated mainly along the first dimension. The graph on the right of Panel A of Fig. 7 shows those investors that voted differently than predicted by the model. Most of them are close to the cutting line, and thus close to indifferent between voting for and against. Among them are Vanguard, BlackRock and the West Virginia-SSGA fund, which are predicted to lean toward voting against, but actually voted in favor of the package. A notable exception is the Massachusetts pension fund. Although the fund is quite distant from the cutting line, it voted in support of the proposal when an against vote was predicted by the model.

Panel B of Fig. 7 illustrates another mainly first-dimensional vote, Amazon's "Shareholder proposal regarding report on climate change", held on May 24th 2012. In this case Glass Lewis recommended against while ISS recommended for. Among the misclassified investors are Vanguard and CalPERS, which voted for the proposal despite their ideal points predicting they wouldn't, and CalSTRS for which the opposite is true. With few exceptions, also in this case the incorrectly classified funds are close to the cutting line.

Finally, Panel C of Fig. 7 illustrates a mainly second-dimension vote, the election of J. Michael Losch to the board of AON, held on May 18th 2012, for which Glass Lewis recommended against and ISS recommended for. In this case, the cutting line angle is 7 degrees, and, unlike the previous two votes, the funds separate along the second dimension with the management disciplinarian funds both on the left and the right voting against the management friendly ones. One notable exception is BlackRock, which voted in a more management disciplinarian way than predicted by the model.

[25] See Jessica Silver-Greenberg and Nelson. D. Schwartz, "Citigroup's Chief Rebuffed on Pay by Shareholders", *New York Times,* April 19, 2012, p. A1, and Jessica Silver-Greenberg and Susan Craig, "Citigroup's Chief Resigns in Surprise Step", *New York Times,* Oct. 17, 2012, p. A1.

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Fig. 8 reports the distribution of the cutting line angles for all proposals. The graphs show that most of the proposals are either purely first dimension issues or a mix of the two dimensions, but with a greater weight on the first dimension, which confirms our findings that the first dimension is primal for investor ideology. Interestingly, the few proposals that give more weight to the second dimension tend to be in the Governance and Say on Pay categories, although a good number of director proposals also have a strong second dimension.

7. Proposal Midpoints, Cutting Line Angles, and Firm and Director Characteristics

In this section we explore how the midpoints and the cutting line angles vary with firm, director, and sponsor characteristics. This provides additional insights on the substantive issues that divide shareholders, which characteristics of the proposals lead to an extreme left versus other voters split, and which characteristics split shareholders in the middle.

Midpoints and Firm Characteristics

Consider first firm characteristics. In Table 5 we report OLS regressions of midpoints along the first and second dimensions respectively as a function of the following main firm characteristics: size, market capitalization, book-to-market ratio, leverage, ROA, past year total return, dividend yield, Amihud illiquidity measure, institutional ownership, various corporate governance characteristics, sponsor characteristics, and proposal characteristics. As for the midpoint distributions shown in Figs. 3 to 6, a negative coefficient means that all else equal the midpoint shifts to the left, reflecting a broader center right coalition versus a smaller left coalition of voters. For example, in column (1) the coefficient on past year total returns is -0.032 and statistically significant at the 5% level, reflecting the fact that higher past returns result in only the extreme left voting against management. Alternatively, if returns are lower this may increase shareholder dissatisfaction and opposition to management.

Other variables with similar robust qualitative effect are governance variables such as board size and the fraction of independent directors, whereas poison pills and unequal voting rights have the opposite effect, suggesting that firms with stronger minority shareholder rights tend to be firms with a broader shareholder support of management.

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Consistent with Figs. 4 and 6, the coefficient on shareholder-sponsored proposals is positive and highly significant, meaning that voting on shareholder proposals is less lop-sided and less favorable to management. Similarly, the coefficients on director election, governance, social, and compensation proposals in column (5) are positive. However, in contrast to the result for all shareholder proposals, shareholder sponsored governance proposals have a negative coefficient.

Columns (6) to (10) report regressions of the second-dimension midpoints on firm, sponsor and proposal characteristics. Here the most striking new observation is the effect of ROA, with higher ROA associated with greater support for the management-disciplinarian bloc. Similarly, the presence of a golden parachute, a poison pill, a classified board, a higher fraction of independent directors, a smaller board, and higher institutional ownership are associated with more negative midpoints, and a larger support for the management-disciplinarian approach.

Midpoints and Director Characteristics

How do midpoints on director elections vary with director characteristics? Table 6 reports OLS regressions of respectively first and second dimension midpoints as a function of the following main director characteristics: gender, age, independent director, number of meetings attended, financial expertise, number of outside public boards, and percent of controlling voting power. Remarkably, along the first dimension, female directors tend to garner broader support (the left coalition is smaller), whereas absentee directors and inside directors, with a higher controlling voting power, are opposed by the center and left voters. Further, directors classified as independent or employee directors have midpoints shifted to the left and garner more support than other directors with otherwise similar characteristics. By contrast, age, financial expertise, and the director's outside board memberships are not statistically significantly related to first-dimension midpoint positions.

Finally, the results of second-dimension midpoint OLS regressions on director characteristics, reported in the last two columns of Table 6, show that, all else equal, higher age, financial expertise, and lack of independence shift the midpoint up isolating the management disciplinarians from the other funds. The number of outside boards the director sits on also

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seems to shift the midpoint up, although the effect vanishes once firm characteristics are included in the regression.

Cutting Line Angles and Firm and Director Characteristics

Table 7 links the cutting line angles more systematically to company, sponsor, and proposal characteristics. The regressions in Table 7 take the cutting line angle as the dependent variable. Recall that a -45 degree angle separates the voter coalition on the North-East (management disciplinarians and more profit-oriented investors) against the South-West (governance-lax and more socially-oriented investors), and a +45 degree angle, separates a North-West coalition (management disciplinarians with socially oriented investors) against a South-East coalition (governance-lax and profit-oriented investors). The constant coefficient is large and positive, indicating that the North-West vs. South-East splits are the most common ones. It is interesting to note, however, that shareholder-sponsored proposals tend to pit management disciplinarians and socially oriented investors against governance-lax and profit-oriented ones. In contrast, shareholder coalitions in companies with a high fraction of independent directors tend to put management disciplinarians on the same side as profit-oriented investors. The same is true for Say on Pay proposals, director elections, and social proposals.

Columns (6) to (10) take the absolute value of the cutting line angle as the dependent variable, to determine which of the two dimensions is most important. Again, the constant coefficient is positive and large, indicating that the first dimension is dominant.

8. Investor Ideology over Time

We have estimated investors' ideology based on the votes they cast over just one fiscal year. A natural question is whether ideologies are stable over time. This is, of course, a central question in political science and is the focus of the study by Poole and Rosenthal (2007) on the history of roll call voting in Congress. A systematic analysis of investor ideology over time is beyond the scope of this paper, but we are able to report one preliminary finding from ongoing research on this question. Fig. 9 reports results based on mutual fund votes only, and compares the estimated ideal points in fiscal year 2016 with the ideal points in 2012. The 2012 ideal points are in orange, while those for 2016 are in blue. The main finding is that for a large fraction of

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institutions ideal points have not moved much from 2012 to 2016, providing a preliminary indication that ideology is stable over time.

Another analysis we conducted looks at ideal points over all years from fiscal year 2004 to 2016. We have data on 219 mutual fund families for these years.[26] We found a high degree of stability along the first dimension, with a correlation coefficient between the estimates for the fiscal year 2012 and those for all years pooled of 0.8996, but more instability along the second dimension, as reflected in the lower correlation coefficient of 0.6265. We also performed a Procrustean analysis, which is reported in Panel B of Fig. 9.[27] As the figure reveals, the ideal points for 2012 are in the middle of the distribution of ideal points for all years, and are highly correlated with them.

9. Conclusion

What is the ideology of institutional investors? In this paper we have applied the standard spatial model in political science to analyze institutional shareholder voting. We found that institutional investors' ideologies can be represented along a left-right spectrum just like legislators' ideologies. The left is distinguished not just by its votes on Social proposals but also by opposing many Say-to-Pay proposals on executive compensation.

A second dimension of disagreement, which captures the different corporate governance stances of investors, is also relevant. It sees Glass Lewis and a few public pension funds taking a tough stand on management on one side, and most of the large mutual fund families displaying a friendlier attitude. Our results differ somewhat from the proxy voting literature in that we do not find that large institutions follow the proxy advisers closely.

There are important differences between the corporate governance settings and legislatures, the main domain of analysis of the scaling methods we have applied here. The way proposals come to a vote is different, the effect of passing a shareholder proposal is different, the composition of institutional investors varies from firm to firm and over time. Yet, we have

[26] The ISS dataset has important gaps in coverage of some fund families.

[27] A Procrustean rotation transforms a source variable X to be as close as possible to a target Y. The permitted transformations are any combination of dilation (uniform scaling), rotation and reflection (that is, orthogonal or oblique transformations), and translation.

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found that the W-NOMINATE scaling method and the spatial representation of investor ideal points provides an equally compelling description of investor preferences as for legislator preferences.

The interpretation of the dimensions we found is, of course, open to discussion, much as is the meaning of liberal and conservative in politics. The sorting on "Say-to-Pay" may reflect different beliefs about how much executive compensation contributes to shareholder returns. Alternatively, there could be agreement about what compensation maximizes shareholder returns, but the left may be more open to lowering shareholder returns in ways that promote environmental and other social objectives.

As encouraging as our results are, the analysis we have conducted here is in many ways exploratory, and many open questions remain. We have presented a detailed analysis of proxy votes just for fiscal year 2012. We are extending the analysis to multiple years in a separate paper. In future work we plan to further analyze how voting is related to company characteristics. This will allow us, in particular, to better understand how stable the ideological differences of institutional investors are.

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Figure 1: Distribution of Number of Voters on Proposals, Fiscal Year 2012

This figure shows the distribution of the number of institutions voting on a given proposal. The top-left panel covers all proposals, except for director elections, while the top-right panel plots Governance proposals, Say on Pay proposals, Social proposals, and Financial and Investment Policy proposals, separately. The bottom-left panel covers all proposals, including director elections, while the bottom-right panel plots the distribution of the number of voters on director elections alone. These samples comprise proposals voted on in fiscal year 2012 for the Russell 3000 companies in our sample, and have been filtered to exclude institutions voting on less than 50 proposals, proposals with less than 20 voters, and lop-sided proposals with the minority comprising less than 3% of the voters.

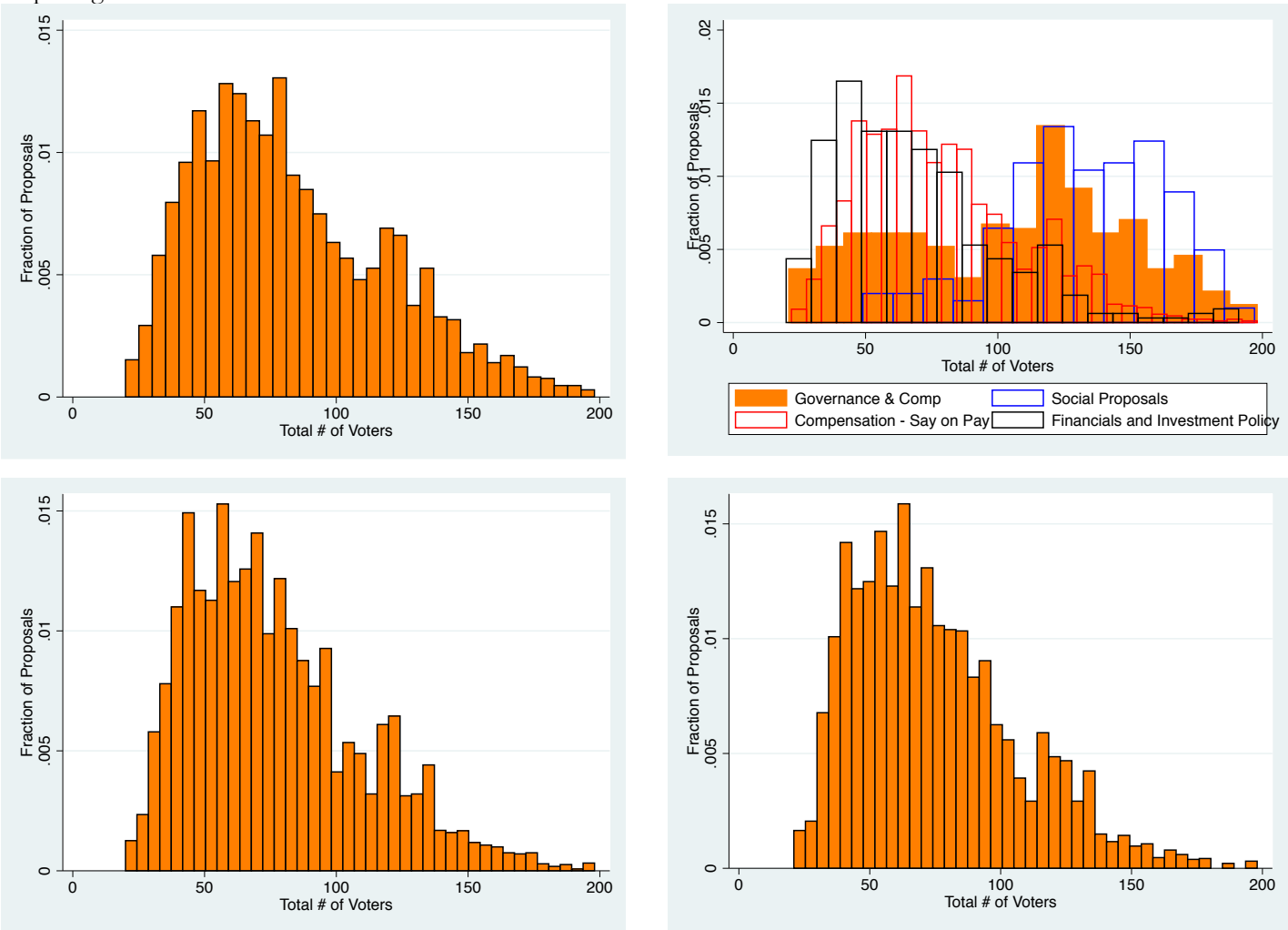


Figure 2.A: Ideal Points, One Dimensional W-NOMINATE, excluding Director Elections

This figure plots the distribution of institutions' ideal points estimated with the W-NOMINATE scaling method. The top-left panel reports the distribution of ideal points for all voters. The other three panels separate the distribution of mutual fund families' ideal points, depicted by white bars, and that of public pension funds, depicted in blue. They are identical except for labelling. The one-dimensional W-NOMINATE model constrains ideal points to the interval [-1, +1]. The arbitrary (and inconsequential) polarity of the estimation is chosen such that socially oriented investors appear on the left. The estimation sample covers all proposals in fiscal year 2012, except for director elections. The sample excludes institutions voting on less than 50 proposals, proposals with less than 20 voters, and lop-sided proposals with the minority comprising less than 3% of the voters.

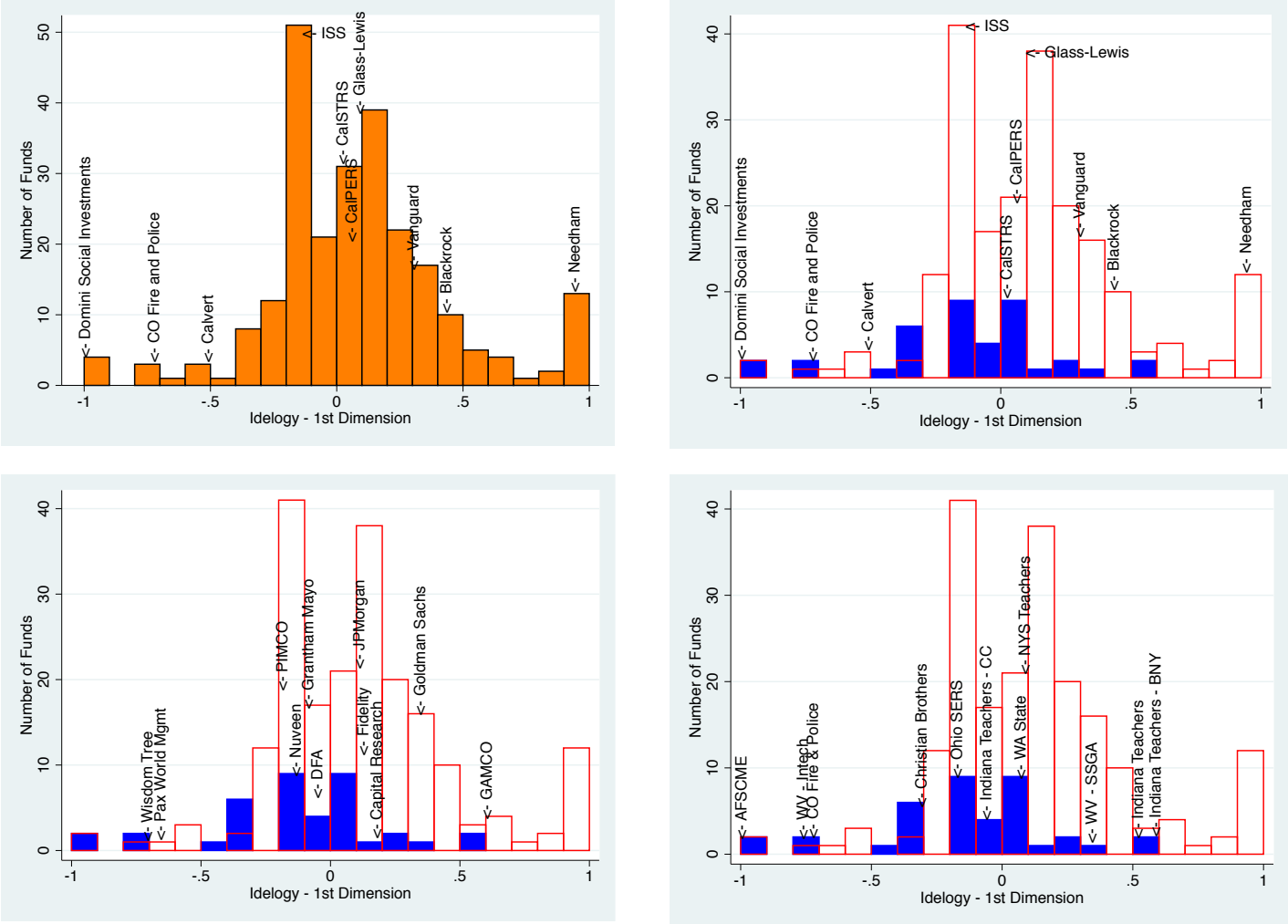


Figure 2.B: Ideal Points, Two Dimensional W-NOMINATE, excluding Director Elections

This figure plots the distribution of institutions' ideal points estimated with the W-NOMINATE scaling method. All three Panels report the distribution of ideal points for all voters, although they each highlight distinct institutions. Mutual fund families' ideal points are depicted in orange, while the public pension fund ones are in blue. The two-dimensional W-NOMINATE model constrains ideal points to the unit circle. The arbitrary (and inconsequential) polarity of the estimation is chosen such that socially oriented investors appear on the left, and the tough-on-governance investors appear on top part of the graph. The estimation sample covers all proposals in fiscal year 2012, excluding director elections. The sample excludes institutions voting on less than 50 proposals, proposals with less than 20 voters, and lop-sided proposals with the minority comprising less than 3% of the voters.

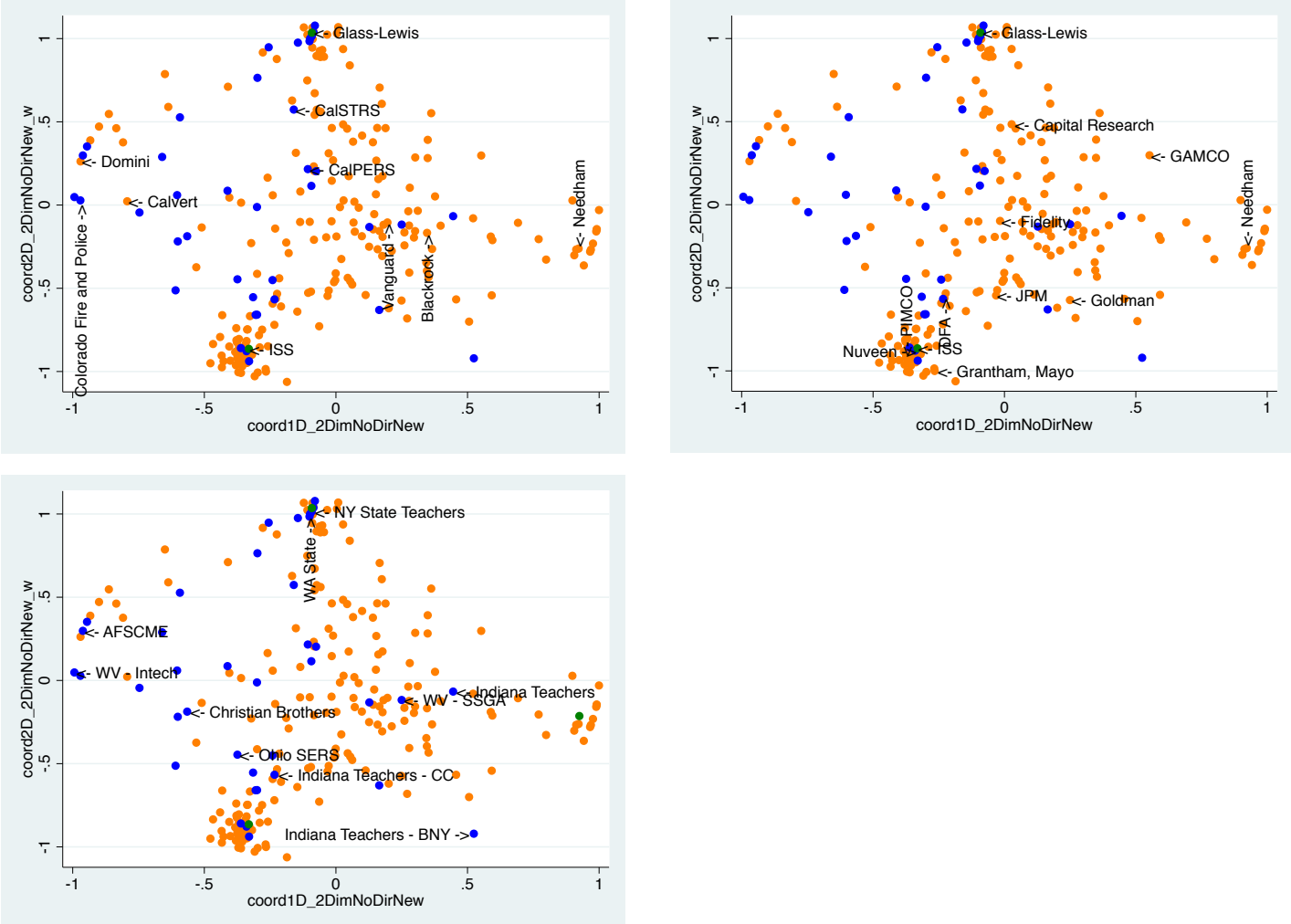


Figure 2.C: Ideal Points, One Dimensional W-NOMINATE, including Director Elections

This figure plots the distribution of institutions' ideal points estimated with the W-NOMINATE scaling method. The top-left panel reports the distribution of ideal points for all voters. The other three panels separate the distribution of mutual fund families' ideal points, depicted by white bars, and that of public pension funds, depicted in blue. They are identical except for labelling. The one-dimensional W-NOMINATE model constrains ideal points to the interval [-1, +1]. The arbitrary (and inconsequential) polarity of the estimation is chosen such that socially oriented investors appear on the left. The estimation sample covers all proposals in fiscal year 2012, including director elections. The sample excludes institutions voting on less than 50 proposals, proposals with less than 20 voters, and lop-sided proposals with the minority comprising less than 3% of the voters.

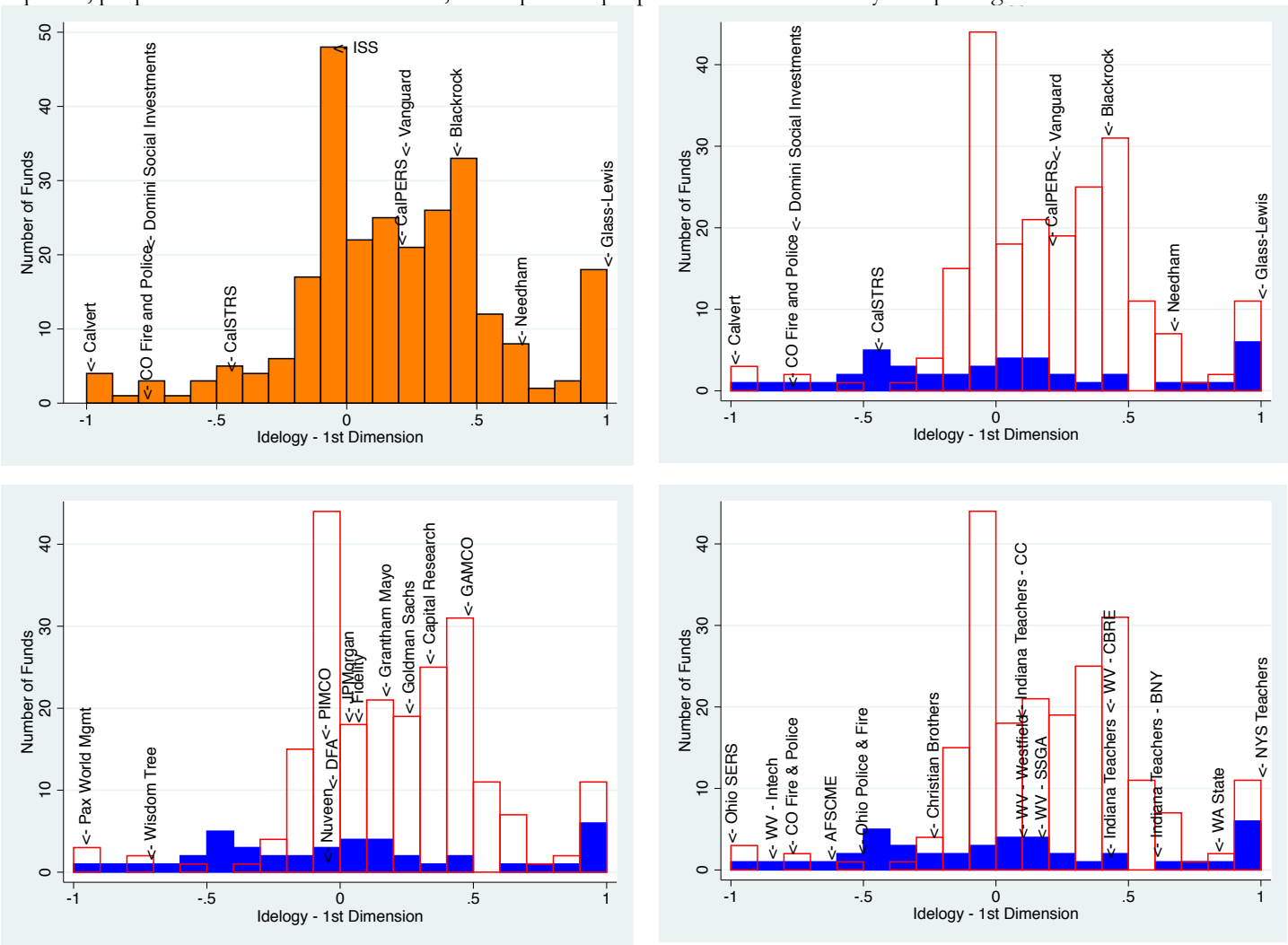


Figure 2.D: Ideal Points, Two Dimensional W-NOMINATE, including Director Elections

This figure plots the distribution of institutions' ideal points estimated with the W-NOMINATE scaling method. All three Panels report the distribution of ideal points for all voters, although they each highlight distinct institutions. Mutual fund families' ideal points are depicted in orange, while the public pension fund ones are in blue. The two-dimensional W-NOMINATE model constrains ideal points to the unit circle. The arbitrary (and inconsequential) polarity of the estimation is chosen such that socially oriented investors appear on the left, and the tough-on-governance investors appear on top part of the graph. The estimation sample covers all proposals in fiscal year 2012, including director elections. The sample excludes institutions voting on less than 50 proposals, proposals with less than 20 voters, and lop-sided proposals with the minority comprising less than 3% of the voters.

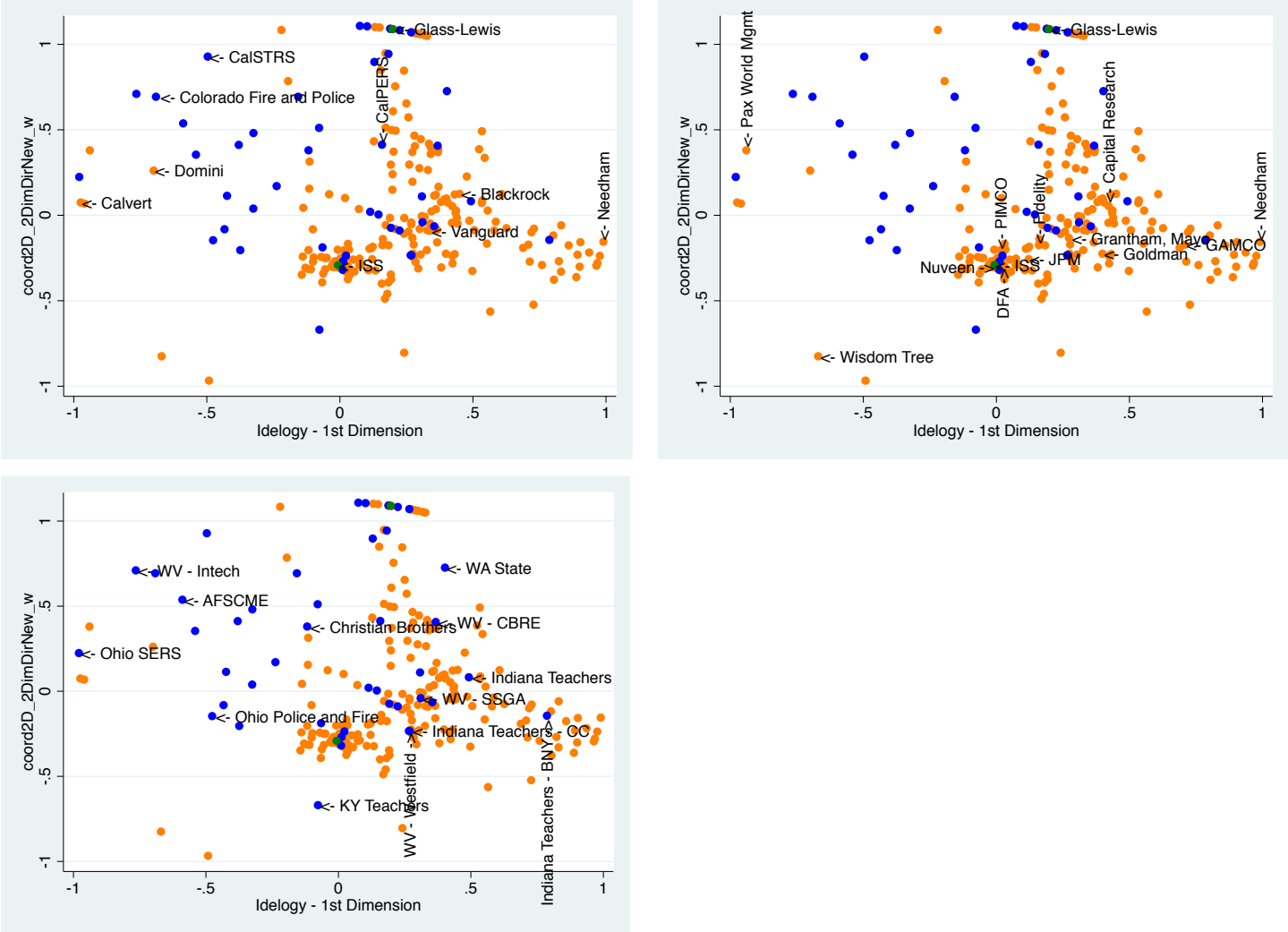


Figure 3: Distribution of Midpoints by Proposal Type, Two Dimensional W-NOMINATE, 1st Dimension

This figure plots the distribution of proposal midpoints along the first dimension, estimated with the W-NOMINATE scaling method. A midpoint is the position on the line that separates the predicted "For" from the predicted "Against" vote on a proposal. The top-left panel reports the distribution of midpoints for all proposals, while the other Panels report the distribution of governance proposals, Say on Pay, other compensation proposals, director elections, social proposals, and financial and investment policy proposals, respectively. The estimation sample covers all proposals in fiscal year 2012, including director elections. The sample excludes institutions voting on less than 50 proposals, proposals with less than 20 voters, and lop-sided proposals with the minority comprising less than 3% of the voters.

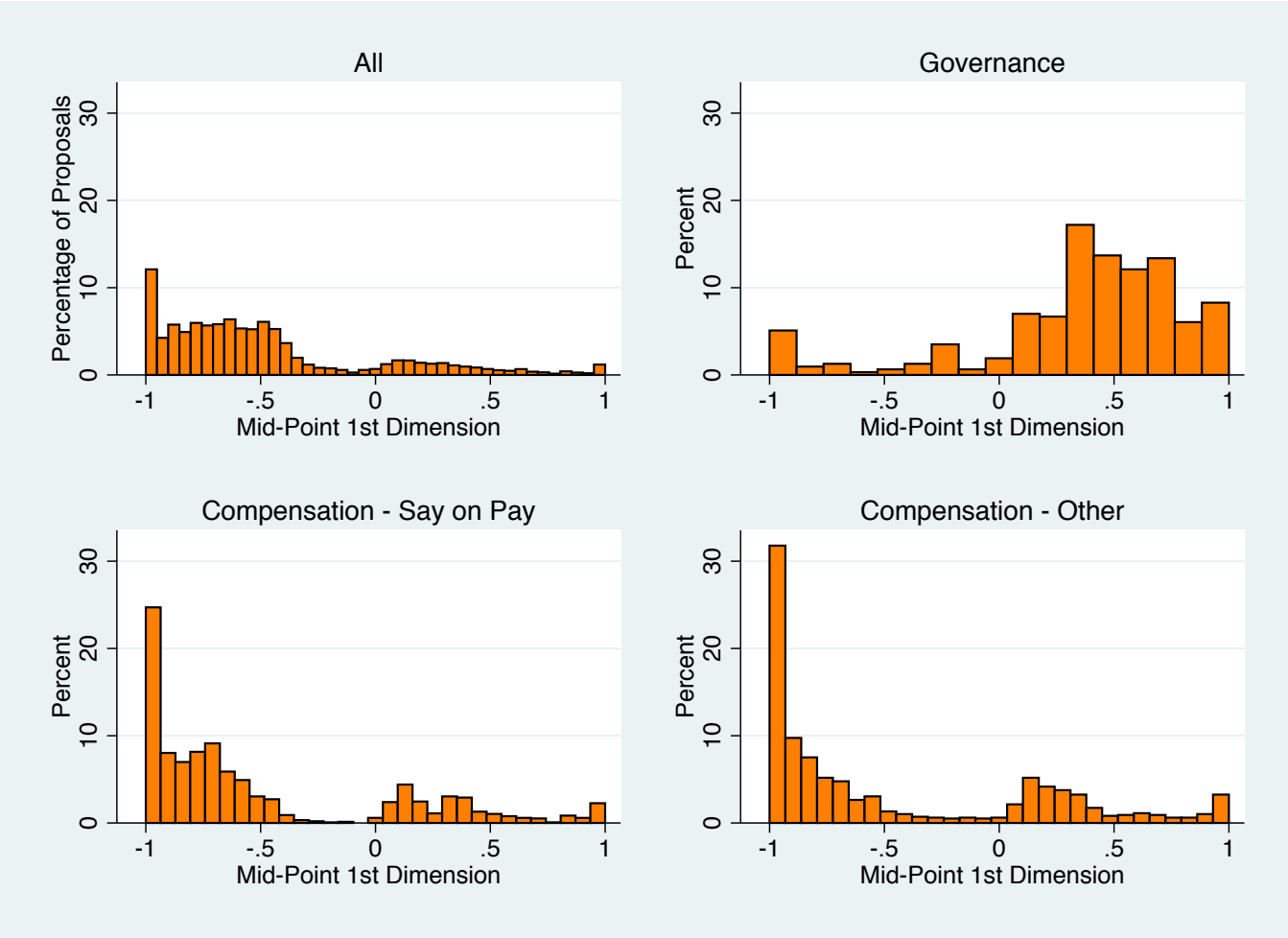


Figure 3: Continued

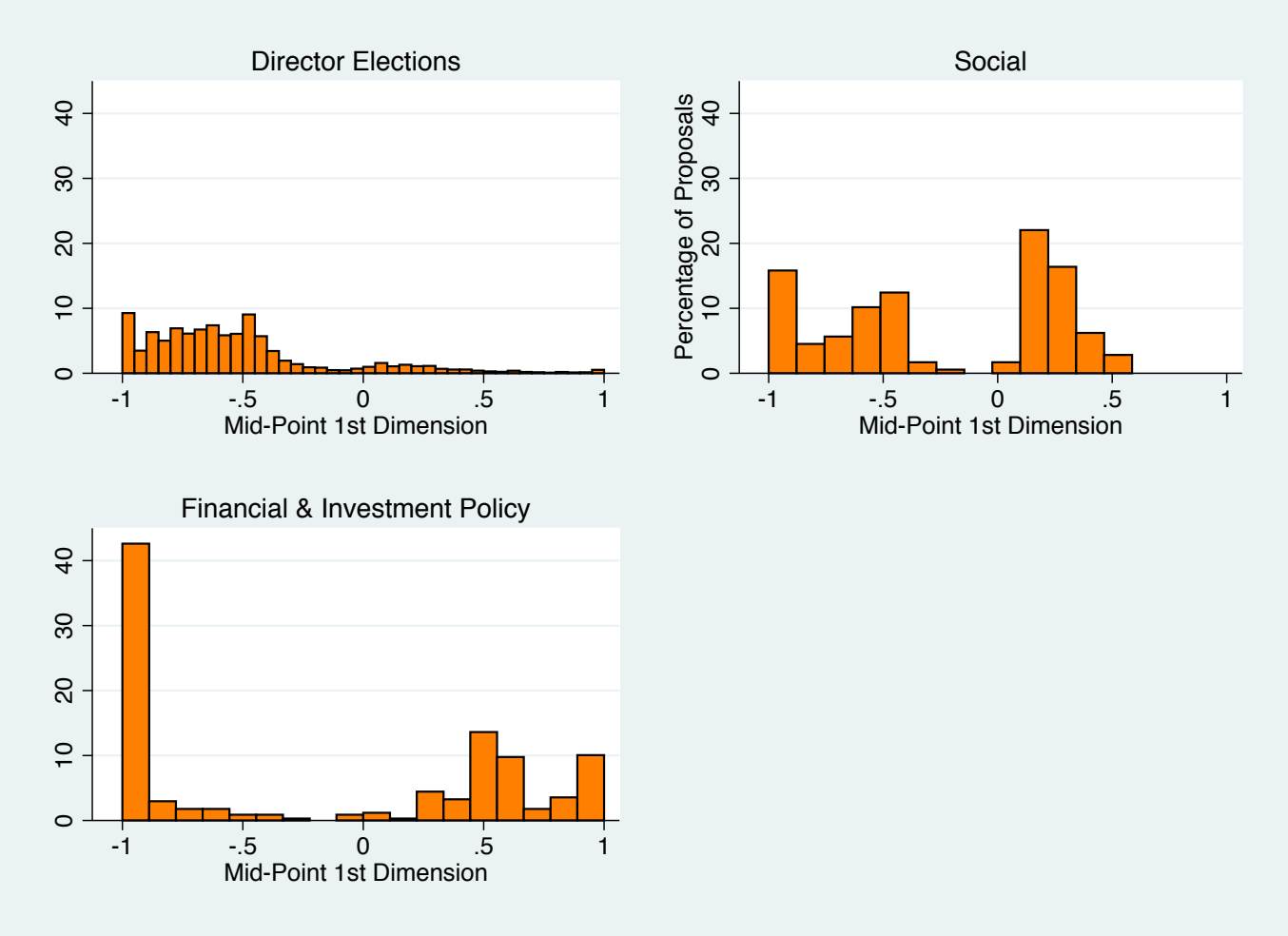


Figure 4: Distribution of Midpoints by Sponsor Type, Two Dimensional W-NOMINATE, 1st Dimension

This figure plots the distribution of proposal midpoints along the first dimension, estimated with the W-NOMINATE scaling method. A midpoint is the position on the line that separates the predicted "For" from the predicted "Against" vote on a proposal. The top-left panel reports the distribution of midpoints for all proposals, while the other two panels report the distribution of shareholder- and management-sponsored proposals, respectively. The estimation sample covers all proposals in fiscal year 2012, including director elections. The sample excludes institutions voting on less than 50 proposals, proposals with less than 20 voters, and lop-sided proposals with the minority comprising less than 3% of the voters.

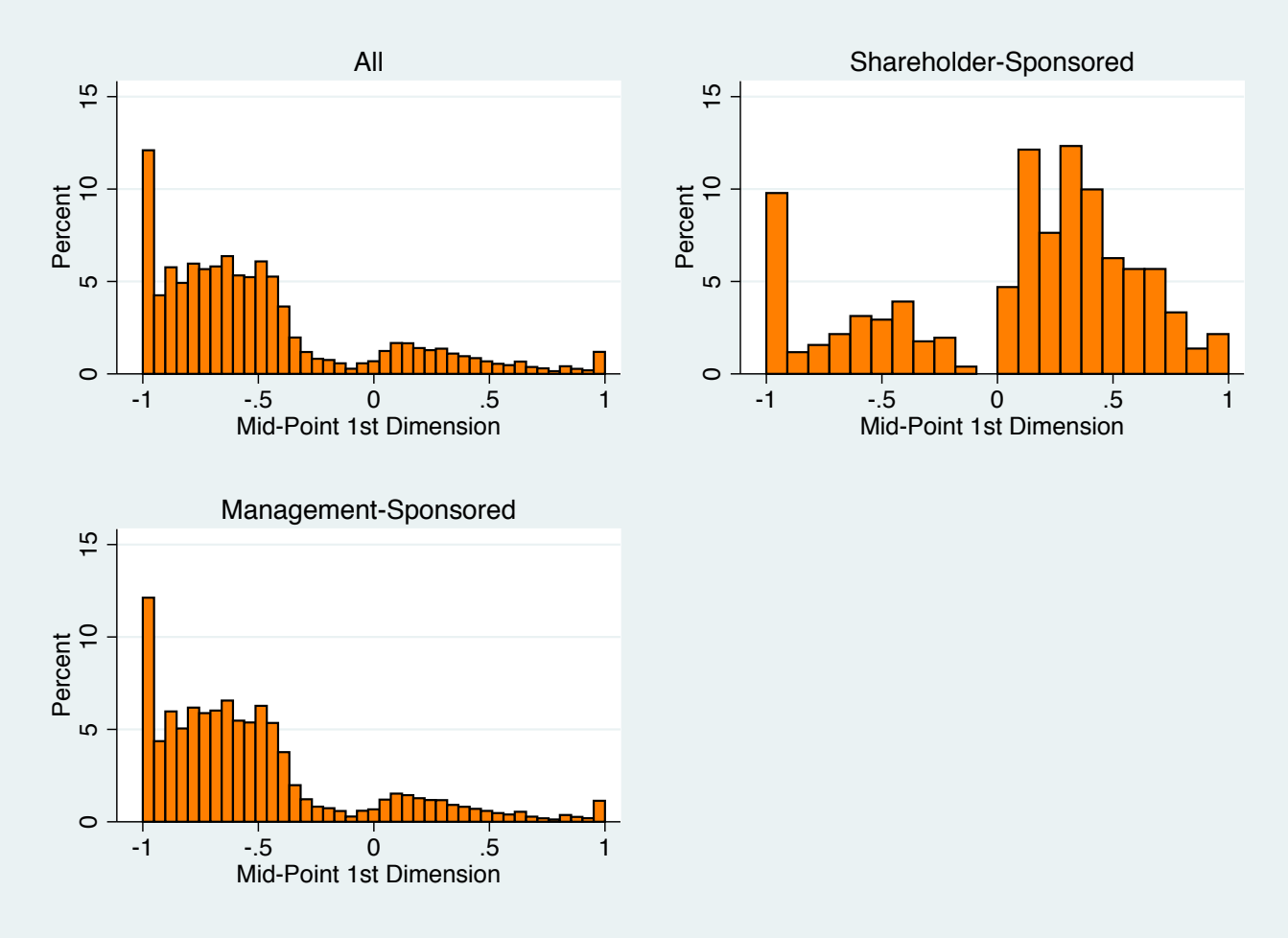


Figure 5: Distribution of Midpoints by Proposal Type, Two Dimensional W-NOMINATE, 2nd Dimension

This figure plots the distribution of proposal midpoints along the second dimension, estimated with the W-NOMINATE scaling method. A midpoint is the position on the line that separates the predicted "For" from the predicted "Against" vote on a proposal. The top-left panel reports the distribution of midpoints for all proposals, while the other panels report the distribution of the governance proposals, Say on Pay, other compensation proposals, director elections, social proposals, and financial and investment policy proposals, respectively. The estimation sample covers all proposals in fiscal year 2012, including director elections. The sample excludes institutions voting on less than 50 proposals, proposals with less than 20 voters, and lop-sided proposals with the minority comprising less than 3% of the voters.

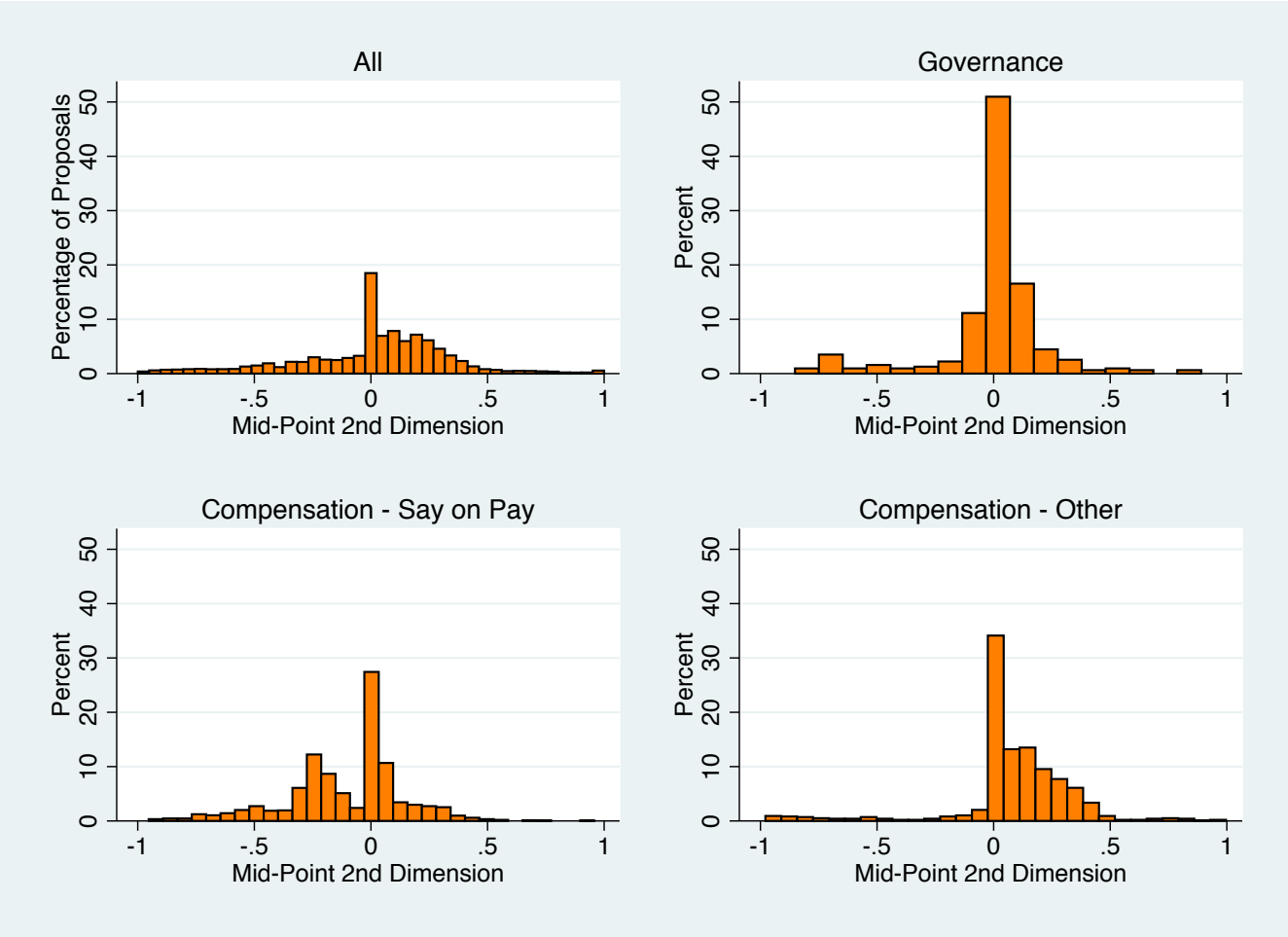


Figure 5: Continued

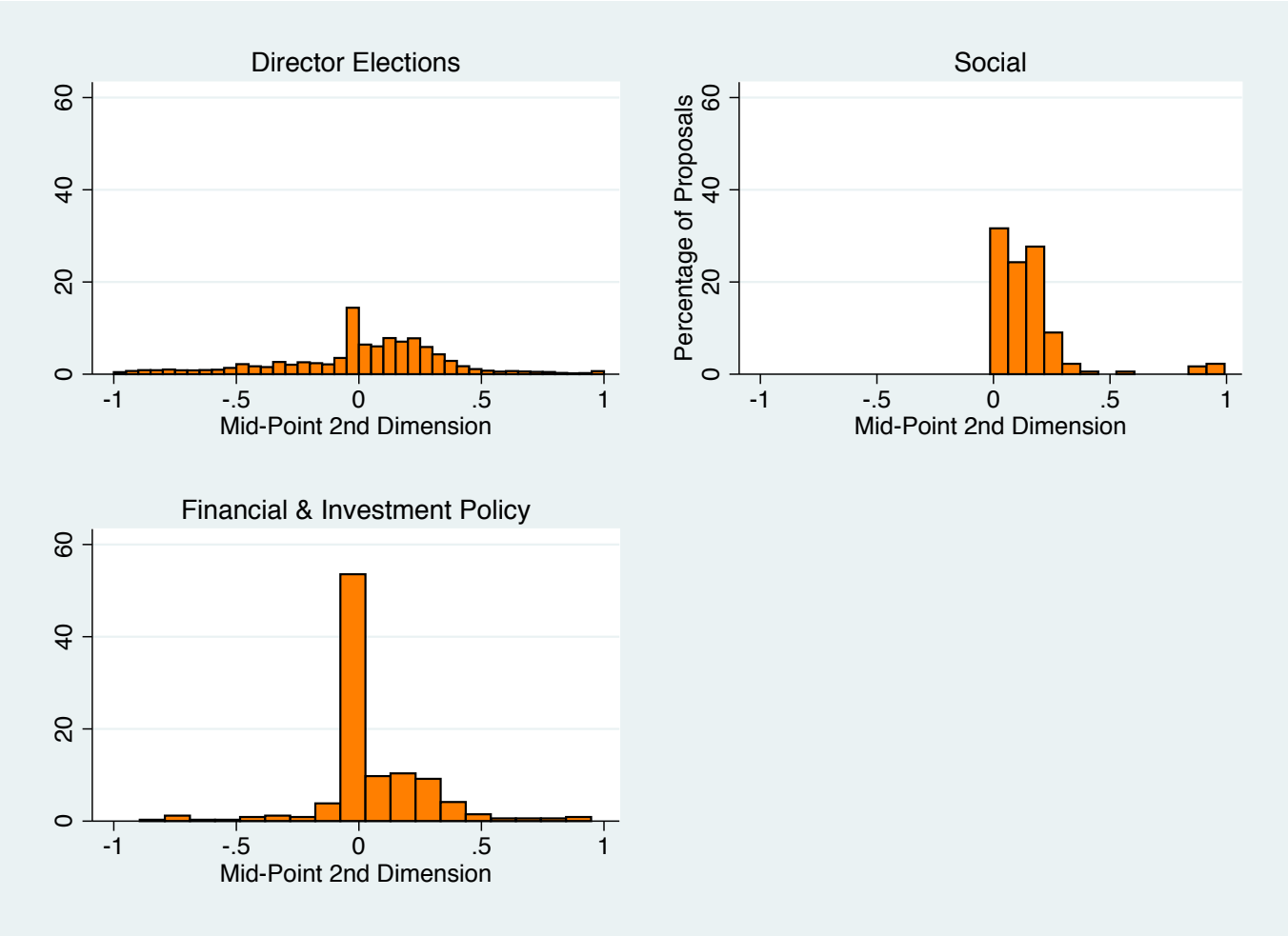


Figure 6: Distribution of Midpoints by Sponsor Type, Two Dimensional W-NOMINATE, 2nd Dimension

This figure plots the distribution of proposal midpoints along the second dimension, estimated with the W-NOMINATE scaling method. A midpoint is the position on the line that separates the predicted "For" from the predicted "Against" vote on a proposal. The top-left panel reports the distribution of midpoints for all proposals, while the other two panels report the distribution of shareholder- and management-sponsored proposals, respectively. The estimation sample covers all proposals in fiscal year 2012, including director elections. The sample excludes institutions voting on less than 50 proposals, proposals with less than 20 voters, and lop-sided proposals with the minority comprising less than 3% of the voters.

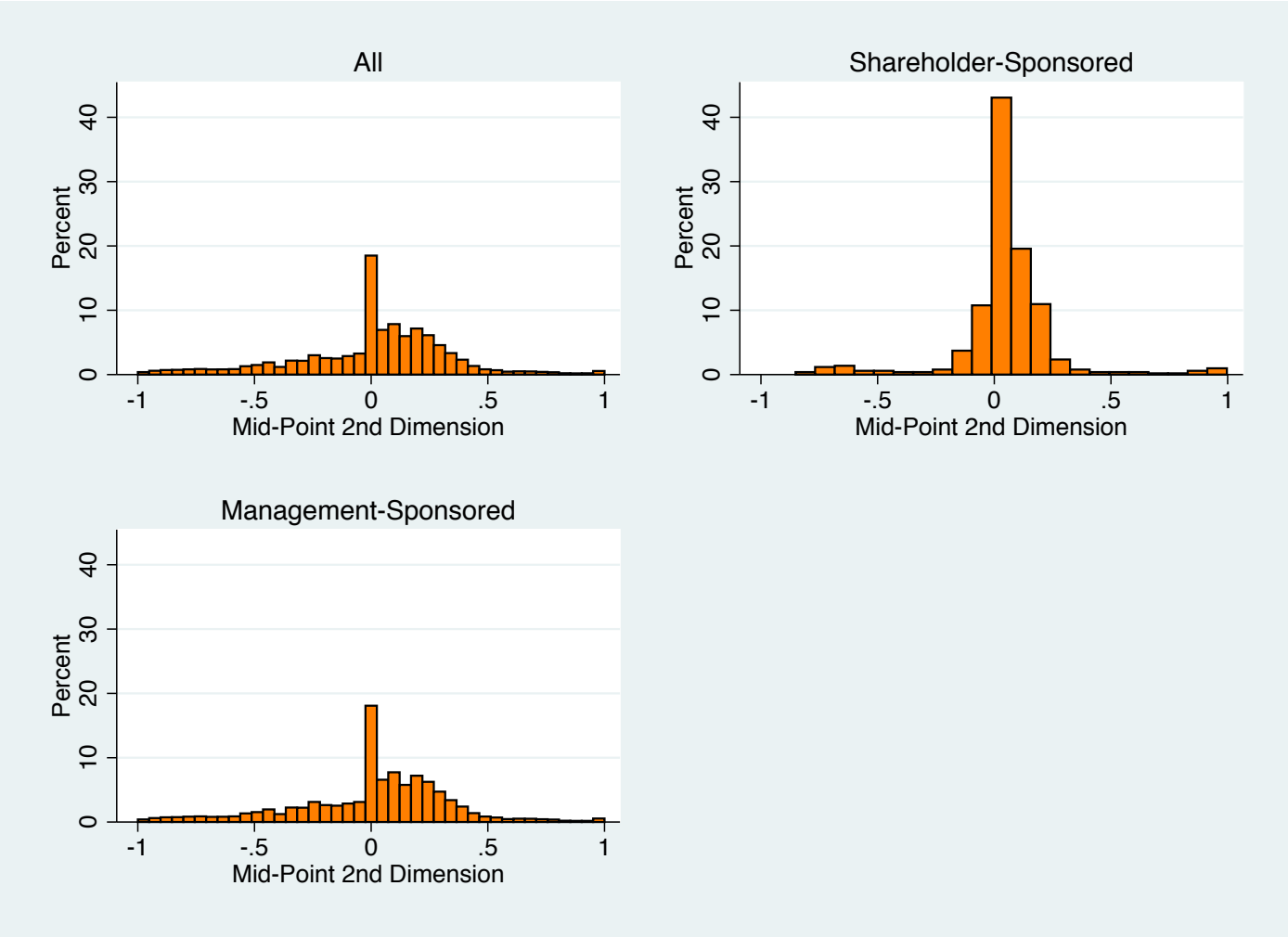
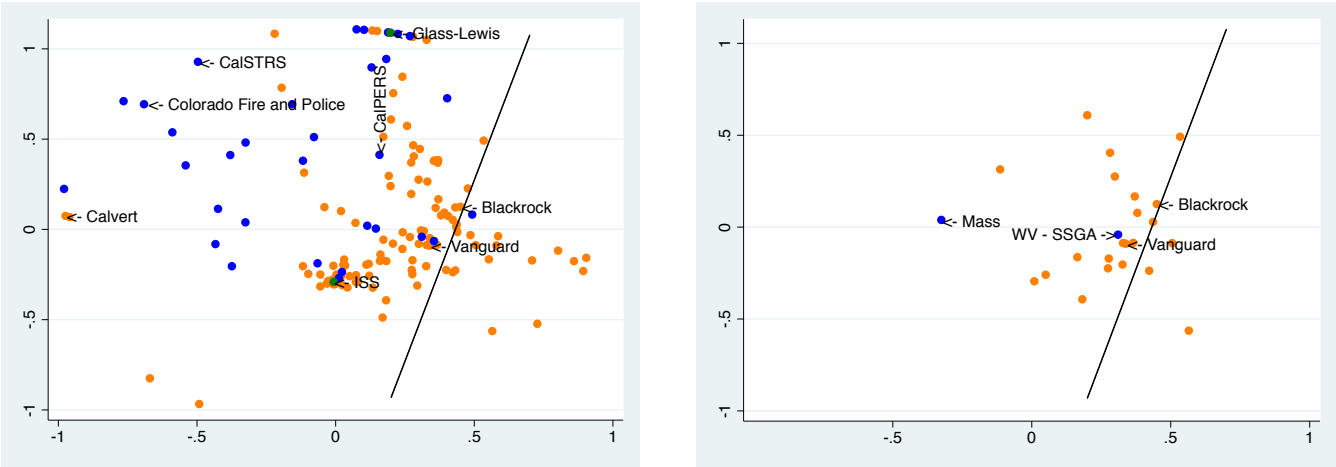


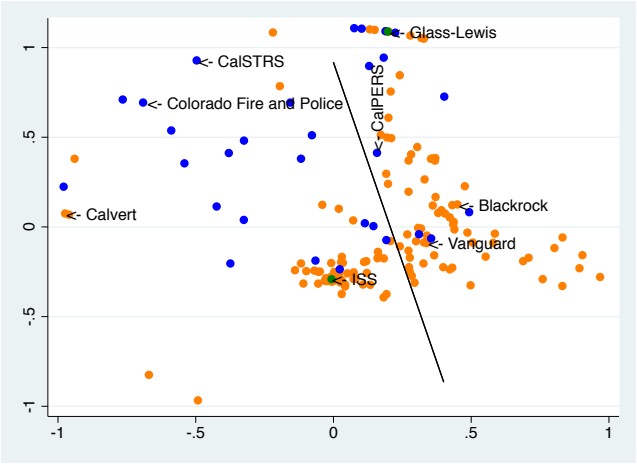
Figure 7: Cutting Lines for Specific Proposals, Two Dimensional W-NOMINATE

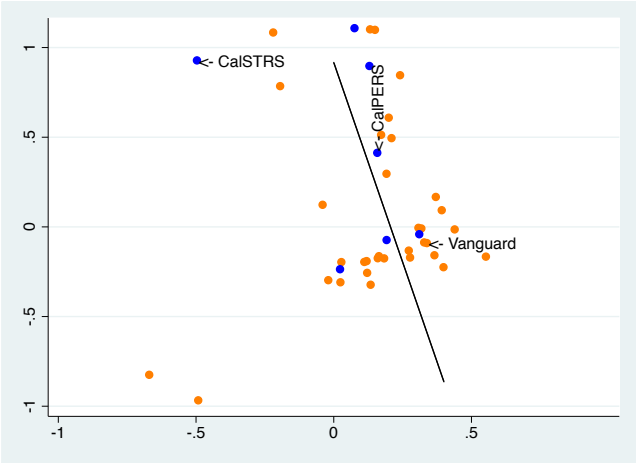
This figure plots the cutting line for three proxy votes in our data: the Citigroup Say on Pay proposal of April 17th 2012, a proposal on environmental issues at Amazon, and the election of Michael Losch to the board of AON. A cutting line is the line that separates the predicted "For" from the predicted "Against" vote on a proposal in the two-dimensional space. For each proposal, the left panel shows all voters and the right one displays voters that represent model errors. Mutual fund families' ideal points are depicted in orange, while the public pension fund ones are in blue. The angle the line makes with the first dimension reflects how voters trade off the two dimensions on each proposal. The angles vary between -90 degrees to +90 degrees. An angle of 0 or close to 0 is entirely a second-dimension issue, and angles of -90 or +90 degrees are entirely first dimension issues.

Panel A: Say on Pay Vote at Citigroup – April 17th 2012.

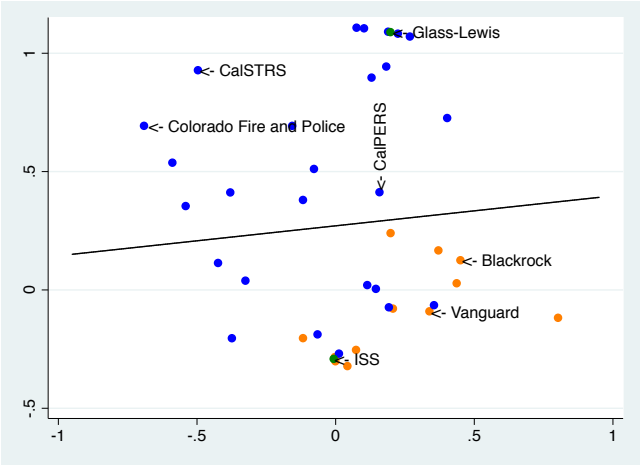


Panel B: Climate Change Vote at Amazon – May 24th 2012.





Panel C: Election of J. Michael Losch to the Board of AON – May 18th 2012.



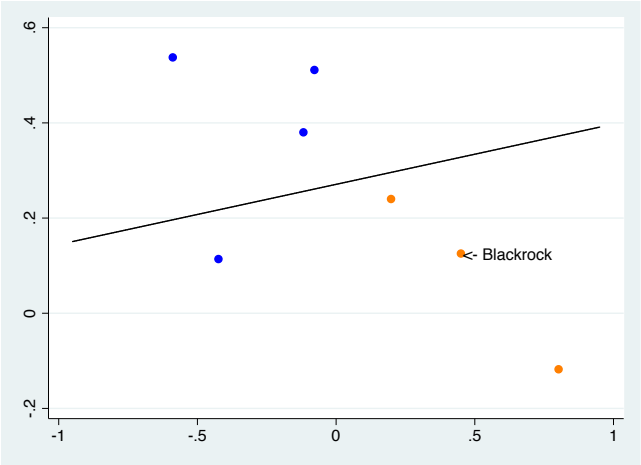
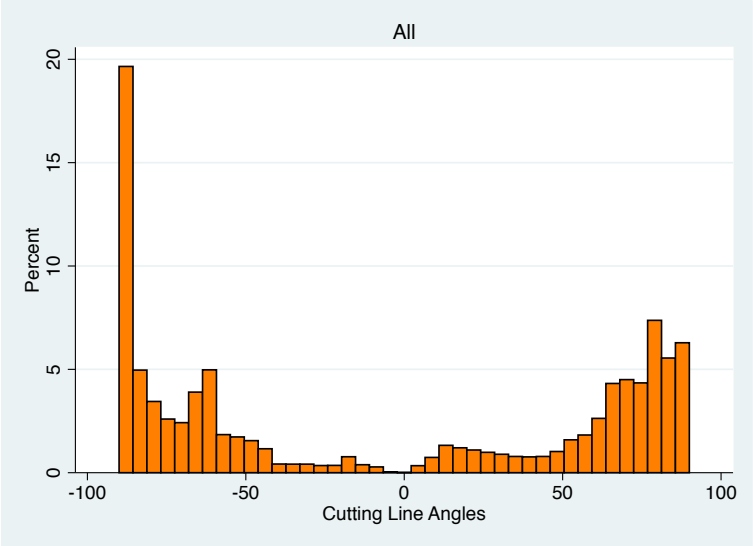


Figure 8: Distribution of Cutting Line Angles, Two Dimensional W-NOMINATE

This figure plots the distribution of the cutting line angles for each proposal, estimated with the W-NOMINATE scaling method. A cutting line is the line that separates the predicted "For" from the predicted "Against" vote on a proposal in the two-dimensional space. The left panel reports the distribution of the cutting line angles for all proposals, while the right panel reports the distribution of the cutting line angles for Say on Pay proposals, director elections, governance proposals, and social proposals, respectively. The estimation sample covers all proposals in fiscal year 2012, including director elections. The sample excludes institutions voting on less than 50 proposals, proposals with less than 20 voters, and lop-sided proposals with the minority comprising less than 3% of the voters.



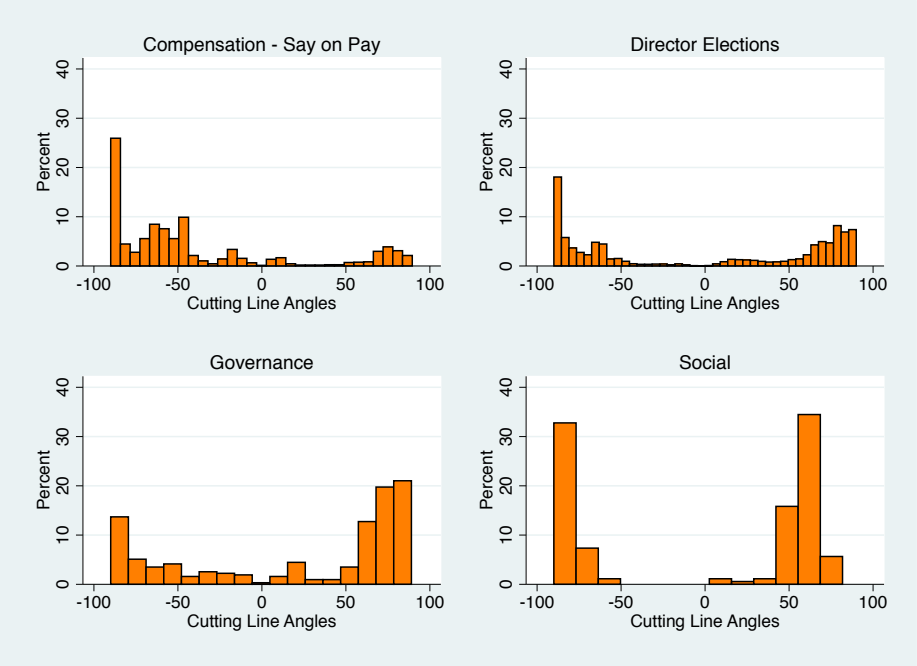


Figure 9: Evolution of the Ideal Points Over Time

In the left panel, we compare the estimated ideal points in fiscal year 2016 (blue ideal points) with those in fiscal year 2012 (orange ideal points). In both 2012 and 2016, 166 out of 397 institutions are present in the data. There were 53 institutions in 2012 that had disappeared by 2016, while 178 new institutions are now in the data. In the right panel, we perform a Procrustean rotation analysis for ideal points in 2012 and all years between 2004 and 2016. Due to some institutions disappearing over the years and some other being added, there are 219 extra mutual fund families in the sample covering 2014-2016. A Procrustean rotation transforms a source variable X to be as close as possible to a target Y. The permitted transformations are any combination of dilation (uniform scaling), rotation and reflection (that is, orthogonal or oblique transformations), and translation.

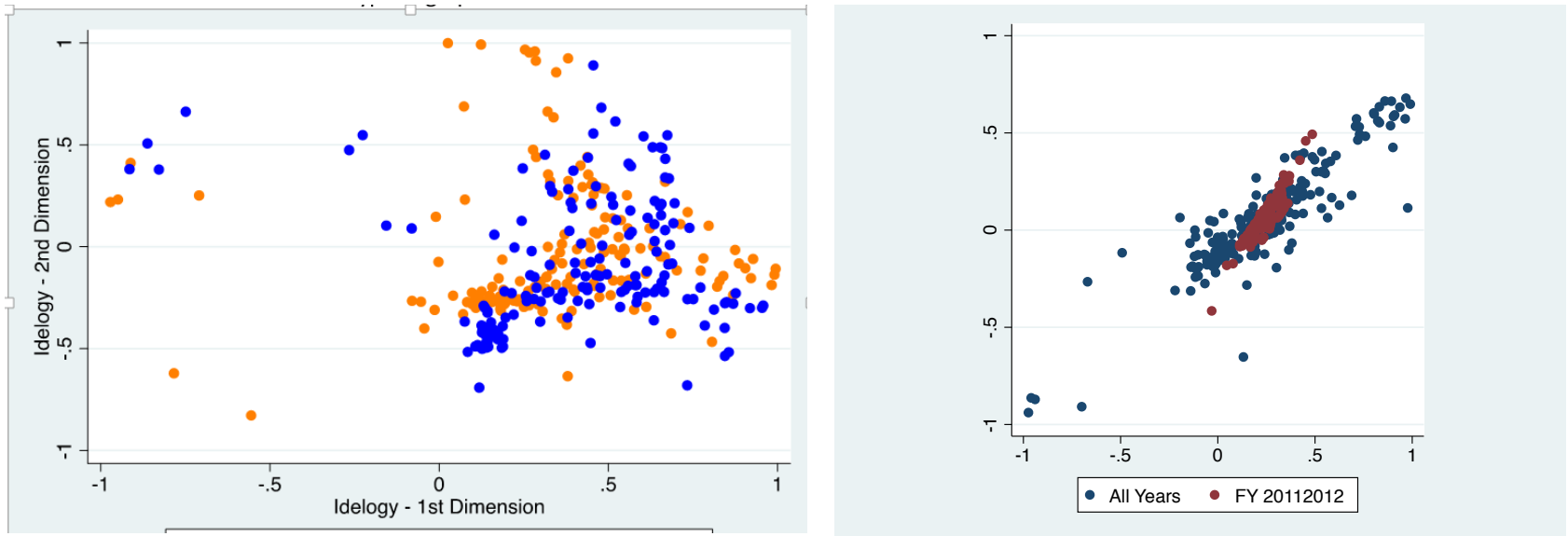


Table 1.A: Frequency of Proposals by Proposal Type

This table reports the number of proposals and percentage of shareholder-sponsored proposals by type and category. The sample covers all proposals from fiscal year 2012, including director elections, and excludes institutions voting on less than 50 proposals, proposals with less than 20 voters, and lop-sided proposals with the minority comprising less than 3% of the voters.

Proposal Type	Proposal Category	# Proposals	% Shareholder-Sponsored
Compensation	Compensation - Other	985	6.60%
	Compensation - Say on Pay	1,546	0%
	Total	***2,531***	***2.57%***
Director Elections	Director elections	***11,675***	***0.25%***
Financials and Investment Policy	Capital, Investment Policy and Restructuring	144	6.94%
	Other	194	0%
	Total	***338***	***2.96%***
Governance	Governance	***314***	***73.25%***
Social	Animal rights	14	100%
	Diversity	13	100%
	Employment and human rights	14	100%
	Environment	47	100%
	Political	78	100%
	Product safety	3	100%
	Social - other	8	100%
	Total	***177***	***100%***
Total - Excluding Director Elections		***3,360***	***14.35%***
TOTAL		***15,035***	***3.40%***

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Table 1.B: Frequency of Proposals by Proposal Type

This table reports the number of proposals in our sample by type and category, and support rates by management, ISS, Glass Lewis, the mutual fund families and public pension funds in our sample, and all shareholders, respectively. The sample covers all proposals from fiscal year 2012, including director elections, and excludes institutions voting on less than 50 proposals, proposals with less than 20 voters, and lop-sided proposals with the minority comprising less than 3% of the voters.

Proposal Type	Proposal Category	Management Recommends For	ISS Recommends For	Glass Lewis Recommends For	Fraction of Mutual Fund Families Voting For	Fraction of Pension Funds Voting For	Support Rate
Compensation	Compensation - Other	89.29%	84.39%	68.05%	79.49%	76.62%	80.17%
	Compensation - Say on Pay	99.82%	80.71%	69.71%	83.06%	80.86%	86.06%
	Total	***95.66%***	***82.16%***	***69.08%***	***81.65%***	***79.19%***	***83.74%***
Director Elections	Director elections	***100%***	***90.98%***	***79.85%***	***89.72%***	***87.27%***	***93.40%***
Financials and Investment Policy	Capital, Investment Policy and Restructuring	86.12%	64.82%	63.28%	69.00%	67.15%	67.92%
	Other	100%	63.21%	83.02%	66.66%	60.72%	77.38%
	Total	***93.75%***	***63.94%***	***77.46%***	***67.71%***	***63.60%***	***69.32%***
Governance	Governance	***15.58%***	***82.82%***	***71.68%***	***65.04%***	***68.60%***	***48.70%***
Social	Animal rights	0%	0%	29.26%	12.89%	16.40%	4.01%
	Diversity	0%	72.69%		44.04%	48.15%	25.27%
	Employment and human rights	0%	40.07%		25.95%	29.49%	14.79%
	Environment	0%	55.22%	0%	32.37%	36.77%	18.46%
	Political	0%	51.02%	25.82%	31.09%	36.30%	17.82%
	Product safety	0%	0%		6.74%	12.08%	3.75%
	Social - other	0%	15.20%	100%	16.59%	19.53%	10.96%
	Total	***0%***	***46.47%***	***24.06%***	***29.48%***	***34.10%***	***16.67%***
TOTAL		**94.67%**	**87.84%**	**77.24%**	**85.89%**	**83.77%**	**88.62%**

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Table 1.C: Firm Characteristics

This table reports the characteristics of our sample firms. The sample comprises the Russell 3000 firms covered in ISS's Mutual Fund Voting Records database in the period between July 1st 2011 and June 30th 2012. Our data sources are Compustat, CRSP, Thomson Reuters, ExecuComp, and RiskMetrics (ISS). *ROA* is return on assets, defined as EBITDA/assets. *Dividend Yield* equals (common dividend + preferred dividend)/(market value of common stock + book value of preferred). *Leverage* is defined as the ratio of debt to the sum of debt and equity, all in book values. *Prior-year Total Return* is the buy-and-hold stock return during the 12 months prior to the meeting. *Amihud Liquidity Measure* is the yearly average (using daily data ending quarter *t*-1 from CRSP) of $1000\sqrt{|\text{ret}|/\text{dollar trading volume}}$. *Size* represents assets in billions of dollars. *Market Capitalization* is in billions of dollars. *Book-to-Market Ratio* is defined as (book value of equity)/(market value of equity). *Institutional ownership*, is the fraction of shares held by institutional investors, as reported by the Thomson Reuters Ownership Database. *Exec. Cash/Total Pay* is the ratio of salary and cash bonus to total compensation. *Increase in Average Exec. Pay* is the percentage change in total executive compensation year-on-year. *Board Size* is the number of board members. *Ratio of Independent Directors* is the number of independent directors divided by the total number of directors at the firm. *Classified Board* and *Poison Pill* are dummy variables equal to 1 if the company has a classified board and a poison pill, respectively, and 0 otherwise. A classified board (or "staggered" board) is one in which the directors are placed into different classes and serve overlapping terms. A poison pill provides shareholders with special rights in the case of a triggering event such as a hostile takeover bid. *Unequal Voting Rights* is an indicator equal to 1 if certain share classes of the stock have more voting power than the rest, and 0 otherwise. *Vote % Required to Amend Bylaws* is the percentage of consent votes required to amend company bylaws. *Supermajority mergers* is the percentage vote threshold for mergers requiring approval from more than 50% of the outstanding stock.

	Mean	Std Dev	10th pctile	25th pctile	Median	75th pctile	90th pctile	Obs
ROA	0.093	0.237	0	0.049	0.111	0.165	0.229	3,004
Dividend Yield	0.017	0.033	0	0	0.004	0.025	0.043	3,131
Leverage	0.346	0.744	0	0.022	0.272	0.499	0.731	2,791
Past-year Total Return	-0.028	0.349	-0.414	-0.218	-0.032	0.135	0.345	3,119
Amihud Liquidity Measure	0.074	0.084	0.009	0.018	0.042	0.099	0.185	3,136
Size	16.375	107.628	0.181	0.473	1.671	5.979	22.839	3,138
Market Capitalization	7.599	26.529	0.171	0.358	1.176	3.973	15.188	3,135
Book-to-Market Ratio	0.627	0.693	0.128	0.285	0.529	0.856	1.216	3,133
Institutional Ownership	0.709	0.223	0.387	0.575	0.752	0.872	0.949	2,635
Exec. Cash/Total Pay	0.339	0.190	0.154	0.203	0.296	0.422	0.606	2,061
Increase in Average Exec. Pay	0.213	0.675	-0.246	-0.067	0.094	0.318	0.659	2,056
Golden Parachute	0.813	0.390	0	1.000	1.000	1.000	1.000	1,671
Board Size	9.503	2.416	7.000	8.000	9.000	11.000	12.000	1,607
Ratio of Independent Directors	0.795	0.108	0.625	0.714	0.818	0.889	0.909	1,607
Classified Board	0.410	0.492	0	0	0	1.000	1.000	1,671
Poison Pill	0.138	0.345	0	0	0	0	1.000	1,671
Unequal Voting Rights	0.043	0.203	0	0	0	0	0	1,671
Vote % Required to Amend Bylaws	46.756	29.408	0	0	51.000	66.670	80.000	1,491
Supermajority Mergers (%)	58.710	11.150	51.000	51.000	51.000	66.670	80.000	1,571

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Table 1.D: Director Characteristics

This Table reports the characteristics of directors up for election in our sample. The sample comprises the Russell 3000 firms covered in ISS's Mutual Fund Voting Records database in the period between July 1st 2011 and June 30th 2012. Our data source is RiskMetrics (ISS). *Female* is a dummy variable equal to 1 if a director nominee is female, and 0 otherwise. *Age* is the director's age in years. *Employee Director* are dummy variables equal to 1 if the director is an employee of the company or one of its affiliates, and 0 otherwise. *Independent Director* is a dummy variable equal to 1 if the director has no material connection to the company other than a board seat, and 0 otherwise. *Linked Director* equals 1 for affiliated outside directors, including former executives and their family members, individuals providing transactional, professional, financial, and charitable services, and individuals with other material relationships with the firm, and 0 otherwise. *Attended <75% of Meetings* equals 1 if the director attends fewer than 75% of the board meetings in a year. *African-American, Asian, Caucasian,* and *Hispanic* are dummy variables equal to 1 if the director is African-American, Asian, Caucasian, and Hispanic, respectively, and 0 otherwise. *Financial Expert* equals 1 if the director has financial expertise, and 0 otherwise. # *Outside Public Boards* is the number of other U.S. boards that the director serves on at the time of the meeting. # *Shares* is the number of company shares the director holds. *% Controlling Voting Power* is the percent of the company's voting power controlled by the director.

	Mean	Std Dev	10th pctile	25th pctile	Median	75th pctile	90th pctile	Obs
Female	0.118	0.322	0	0	0	0	1.000	5,972
Age	63.538	8.473	53.000	58.000	64.000	69.000	73.000	5,937
Employee Director	0.154	0.361	0	0	0	0	1.000	5,900
Independent Director	0.785	0.411	0	1.000	1.000	1.000	1.000	5,900
Linked Director	0.061	0.239	0	0	0	0	0	5,900
Attended <75% of meetings	0.007	0.086	0	0	0	0	0	5,972
African-American	0.035	0.183	0	0	0	0	0	5,884
Asian	0.028	0.164	0	0	0	0	0	5,884
Caucasian	0.924	0.265	1.000	1.000	1.000	1.000	1.000	5,884
Hispanic	0.014	0.117	0	0	0	0	0	5,884
Financial Expert	0.374	0.484	0	0	0	1.000	1.000	5,972
# Outside Public Boards	0.889	1.100	0	0	1.000	2.000	2.000	5,968
# Shares	1,658,505	32,332,522	5,000	17,298	45,201	153,295	1,057,488	5,900
% Controlling Voting Power	1.008	5.560	0	0	0	0	1.100	5,972

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Table 2: Results of W-NOMINATE Estimation

Panel A reports the correlations between first dimension ideal points across the four models. Panel B reports the number of institutions and proposals in the first two columns, followed by some diagnostics from the four versions of the W-NOMINATE model we estimate in the paper. The third column reports the percent of votes correctly classified. This statistics is calculated as (CorrectYea+CorrectNay)/(CorrectYea+Wrong Yea +CorrectNay + WrongNay). The fourth column reports the Aggregate Proportion Reduction in Error (APRE) for the first and second dimensions, respectively. The APRE is equal to the sum over all votes of the minority vote minus the number of the W-NOMINATE classification errors, divided by the sum of the minority vote over all votes. For each vote, this measure is 1 if there are no classification errors and 0 if the number of spatial model errors equals the minority vote. The fifth column shows the geometric mean probability (GMP), which is the exponential of the average log-likelihood, i.e. GMP=exp[loglikelihood of all observed choices/N]. The sixth column reports the signal to noise ratio, Beta. The first two rows report the results from the one-dimensional model estimated on the sample without and with director elections, respectively. The last two rows report the results from the two-dimensional model estimated on the sample without and with director elections, respectively.

Panel A: Correlations between 1st Dimension Ideal Points

	Ideology 1st Dim, 1 Dim No Dir	**Ideology 1st Dim, 1 Dim w. Dir**	**Ideology 1st Dim, 2 Dim No Dir**	**Ideology 1st Dim, 2 Dim w. Dir**
Ideology 1st Dim, 1 Dim No Dir	1			
Ideology 1st Dim, 1 Dim w. Dir	0.629	1		
Ideology 1st Dim, 2 Dim No Dir	0.993	0.611	1	
Ideology 1st Dim, 2 Dim w. Dir	0.879	0.752	0.887	1

Panel B: W-NOMINATE Diagnostics and Measures of Goodness of Fit

	Number of Institutions	**Number of Proposals**	**% Correctly Classified**	**APRE**	**GMP**	**Beta**
1 Dim No Director Elections	248	3,360	88.24%	0.339	0.734	18.1
1 Dim w. Director Elections	262	15,035	90.41%	0.262	0.784	19
2 Dim No Director Elections	248	3,360	90.44%	0.463	0.776	18.2
2 Dim w. Director Elections	262	15,035	92.28%	0.406	0.819	18.8

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Table 3: Extremist Investors

Panel A reports the identity, ideal point, standard errors, and fraction of votes correctly classified of the 12 leftmost and rightmost institutions, based on the one-dimensional W-NOMINATE model estimated on the sample of all proposals in fiscal year 2012, excluding director elections. Panel B reports the identity, ideal points and standard errors of the eight leftmost and rightmost institutions, based on the two-dimensional W-NOMINATE model estimated on the sample of all proposals in fiscal year 2012, including director elections. In both cases, the sample excludes institutions voting on less than 50 proposals, proposals with less than 20 voters, and lop-sided proposals with the minority comprising less than 3% of the voters.

Panel A: One-Dimensional W-NOMINATE Scaling, excluding Director Elections

Institution Name	Ideology	Std. Error	Fraction Correctly Classified
Socially and Environmentally oriented			
State Universities Retirement System of Illinois (SURS)	-1	0.0247	0.8707
AFSCME Employee Pension Plan	-1	0.0466	0.9033
Domini Social Investments, LLC	-1	0.0569	0.8786
Empiric Advisors, Inc.	-0.9028	0.0711	0.7625
West Virginia Retirement System (Intech)	-0.7650	0.1171	0.8904
Colorado Fire & Police	-0.7271	0.1173	0.8658
WisdomTree Asset Management	-0.7101	0.1169	0.7612
Pax World Management Corp	-0.6604	0.1167	0.6667
Jackson National Asset Management, LLC	-0.5723	0.1164	0.7369
UTC Fund Services, Inc.	-0.5340	0.1333	0.7476
Calvert Group, Ltd.	-0.5136	0.1175	0.7890
Connecticut Retirement Plans and Trust Funds	-0.4855	0.1159	0.8359
Profit Oriented			
Calamos Asset Management, Inc.	1	0.0983	0.9936
Bridges Investment Management, Inc.	1	0.1029	1
Reynolds Capital Management	1	0.1073	0.9939
Leuthold Weeden Capital Management	1	0.1164	0.9767
Jensen Investment Management, Inc.	1	0.1198	1
Cooke & Bieler, L.P.	1	0.1215	1
Volumetric Advisers, Inc.	1	0.1246	1
Trustmark Investment Advisors, Inc.,	0.9694	0.1164	0.9873
Rydex Investments	0.9628	0.1512	0.9931
Friess Associates, LLC	0.9499	0.1153	1
Needham Investment Management, LLC	0.9386	0.1412	0.9904
Marsico Capital Management LLC	0.9004	0.1118	0.9742

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Panel B: Two-Dimensional W-NOMINATE Scaling, including Director Elections

Institution Name	Ideology 1st Dim	Ideology 2nd Dim	Std. Error 1st Dim	Std. Error 2nd Dim	Fraction Correctly Classified
Extremists on the 1st Dimension					
Socially and Environmentally oriented					
Ohio School Employees Retirement System (SERS)	-0.9794	0.2018	0.0060	0.1548	0.8058
Calvert Group, Ltd.	-0.9741	0.0673	0.0098	0.0362	0.8446
Bridgeway Capital Management	-0.9599	0.0616	0.0103	0.0463	0.8912
Pax World Management	-0.9397	0.3420	0.0144	0.2599	0.7132
West Virginia Retirement System (Intech)	-0.7648	0.6391	0.0238	0.4224	0.7831
Domini Social Investments, LLC	-0.6999	0.2352	0.0350	0.1574	0.6726
Colorado Fire & Police	-0.6911	0.6240	0.0263	0.4537	0.7584
WisdomTree Asset Management	-0.6699	-0.7424	0.0241	0.5263	0.8167
Profit Oriented					
Reynolds Capital Management	0.8931	-0.2077	0.1106	0.1034	0.9975
RiverPark Advisors, LLC	0.9010	-0.2710	0.1200	0.1599	0.9977
Rydex Investments	0.9039	-0.1419	0.1161	0.0469	0.9958
Friess Associates, LLC	0.9367	-0.1960	0.1121	0.1357	1
Jensen Investment Management, Inc.	0.9641	-0.2656	0.0856	0.2081	1
Bridges Investment Management, Inc.	0.9679	-0.2515	0.0660	0.2144	1
Cooke & Bieler, L.P.	0.9769	-0.2135	0.0891	0.2132	1
Needham Investment Management, LLC	0.9902	-0.1396	0.1043	0.1140	0.9972
Extremist on the 2nd Dimension					
Pro-Management's Director Proposals					
Jackson National Asset Management, LLC	-0.4919	-0.8706	0.0359	0.6294	0.8288
WisdomTree Asset Management	-0.6699	-0.7424	0.0241	0.5263	0.8167
Duff & Phelps Investment	0.2416	-0.7238	0.0917	0.5219	0.9227
Kentucky Teachers' Retirement System	-0.0771	-0.6025	0.1247	0.4860	0.9833
Northeast Investors Trust	0.5650	-0.5070	0.1157	0.3804	0.9257
Hotchkis & Wiley Capital Management, LLC	0.7275	-0.4706	0.1091	0.2699	0.9714
Prospector Partners Asset Management, LLC	0.1694	-0.4396	0.0865	0.3405	0.9602
Curian Capital, LLC	0.1785	-0.4136	0.0852	0.3873	0.8293
Tough on Management's Director Proposals					
Van Eck Associates Corp.	0.2005	0.9797	0.0868	0.6506	0.9406
Glass Lewis	0.1976	0.9803	0.0865	0.6541	0.9385
Oregon PERS	0.1892	0.9819	0.0863	0.6401	0.9372
Claymore Advisors, LLC	0.1892	0.9819	0.0874	0.6572	0.9416
MMA Capital Management	0.1497	0.9887	0.0856	0.6625	0.9238
New Covenant Funds	0.1319	0.9913	0.0850	0.6664	0.9079
NYS Teachers	0.1025	0.9947	0.0836	0.6565	0.8996
Maine Public Employees Retirement System	0.0754	0.9972	0.0812	0.6715	0.9131

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Table 4: Investors Almost Always Following ISS or Glass Lewis

This table reports the identity, ideal point, standard errors, and the fraction of votes correctly classified of the ten institutions voting most similarly to ISS and Glass Lewis, respectively. Panel A is based on the one-dimensional W-NOMINATE model estimated on the sample of all proposals in fiscal year 2012, excluding director elections. Panel B is based on the two-dimensional W-NOMINATE model estimated on the sample of all proposals in fiscal year 2012, including director elections. The models estimate the distance from ISS and Glass Lewis using the Euclidean distance measure. In both cases, the sample excludes institutions voting on less than 50 proposals, proposals with less than 20 voters, and lop-sided proposals with the minority comprising less than 3% of the voters.

Panel A: One-Dimensional W-NOMINATE Scaling, excluding Director Elections

Institution Name	Ideology	Std. Error	Fraction Correctly Classified
Funds closest to ISS			
Touchstone Funds	-0.1451	0.1033	0.8179
West Virginia Retirement System (AJO)	-0.1444	0.1225	1
Nicholas Company, Inc.	-0.1422	0.1121	0.9920
SEI Investments Management Corp.	-0.1415	0.1066	0.9966
Driehaus Capital Management	-0.1409	0.1192	1
ISS	-0.1386	0.1087	0.9945
Denver Investment Advisors, LLC	-0.1385	0.1133	1
ProFund Advisors, LLC	-0.1374	0.1051	0.9949
Nuveen Asset Management	-0.1374	0.1080	0.9951
Scout Investment Advisors, Inc.	-0.1273	0.1040	0.9713
Norges Bank	-0.1266	0.1055	0.9776
Funds closest to Glass Lewis			
BB&T Asset Management, Inc.	0.0768	0.0979	0.8377
Oregon PERS	0.0772	0.0947	0.8289
Claymore Advisors, LLC	0.0789	0.0943	0.8146
NYS Teachers	0.0837	0.0927	0.7709
Russell Investment Group	0.0838	0.0944	0.8181
Glass Lewis	0.0869	0.0957	0.8157
BAMCO, Inc.	0.0876	0.1078	0.7303
Loomis, Sayles & Co., L.P.	0.0903	0.0936	0.8460
Payden & Rygel	0.0917	0.0990	0.8040
Van Eck Associates Corp.	0.0919	0.0884	0.8333
OrbiMed Advisors, LLC	0.0934	0.1060	0.8525

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Panel B: Two-Dimensional W-NOMINATE Scaling, including Director Elections

Institution Name	Ideology 1st Dim	Ideology 2nd Dim	Std. Error 1st Dim	Std. Error 2nd Dim	Fraction Correctly Classified	Distance from ISS	Distance from Glass Lewis
Funds closest to ISS							
ISS	-0.0070	-0.2622	0.0719	0.2336	0.9954	0	1.2593
Rafferty Asset Management, LLC	-0.0077	-0.2572	0.0719	0.2231	0.9974	0.0051	1.2544
First Trust Advisors, L.P.	-0.0028	-0.2555	0.0698	0.2213	0.9976	0.0079	1.2519
Nuveen Asset Management	-0.0019	-0.2716	0.0733	0.2373	0.9960	0.0107	1.2677
SEI Investments Management Corp.	-0.0007	-0.2714	0.0716	0.2352	0.9967	0.0111	1.2673
Optique Capital Management, Inc.	-0.0095	-0.2509	0.0747	0.2229	0.9967	0.0116	1.2485
Boyar Asset Management, Inc.	-0.0114	-0.2510	0.0858	0.2291	0.9933	0.0121	1.2489
ProFund Advisors, LLC	-0.0068	-0.2746	0.0725	0.2418	0.9962	0.0123	1.2714
William Blair Capital Management, LLC	-0.0194	-0.2634	0.0723	0.2249	0.9967	0.0125	1.2625
Auxier Asset Management, LLC	-0.0186	-0.2669	0.0724	0.2311	0.9928	0.0125	1.2658
Oak Associates, Ltd.	-0.0198	-0.2676	0.0781	0.2216	0.9945	0.0138	1.2667
Funds closest to Glass Lewis							
Glass Lewis	0.1976	0.9803	0.0865	0.6541	0.9385	1.2593	0
Van Eck Associates Corp.	0.2005	0.9797	0.0868	0.6506	0.9406	1.2592	0.0029
Oregon PERS	0.1892	0.9819	0.0863	0.6401	0.9372	1.2596	0.0085
Claymore Advisors, LLC	0.1892	0.9819	0.0874	0.6572	0.9416	1.2596	0.0085
Penn PSERS	0.2243	0.9745	0.0909	0.6379	0.9346	1.2582	0.0274
MMA Capital Management	0.1497	0.9887	0.0856	0.6625	0.9238	1.2608	0.0487
New Covenant Funds	0.1319	0.9913	0.0850	0.6664	0.9079	1.2612	0.0666
Alberta	0.2677	0.9635	0.0925	0.6085	0.9501	1.2562	0.0721
ICON Advisers, Inc	0.2719	0.9623	0.0934	0.6347	0.9353	1.2559	0.0764
Charles Schwab Investment M	0.2792	0.9602	0.0908	0.6353	0.9289	1.2555	0.0841
Destra Capital Advisors LLC	0.2894	0.9572	0.0865	0.6462	0.9545	1.2550	0.0947

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Table 5: Proposal Midpoints and Firm Characteristics

This table reports OLS regressions of midpoints along the first and second dimensions respectively as a function of firm, governance, sponsor, and proposal characteristics. Firm and governance characteristics are as defined in Table 1.C. The *t*-statistics are reported in square brackets. *, ** and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Ideal Point 1st Dim	Ideal Point 1st Dim	Ideal Point 1st Dim	Ideal Point 1st Dim	Ideal Point 1st Dim	Ideal Point 2nd Dim	Ideal Point 2nd Dim	Ideal Point 2nd Dim	Ideal Point 2nd Dim	Ideal Point 2nd Dim
Shareholder-Sponsored Proposal	0.701***	0.782***	0.788***	0.515***	0.474***	-0.013	-0.014	-0.014	0.008	0.042
	[29.54]	[31.77]	[30.95]	[16.26]	[12.22]	[-0.76]	[-0.762]	[-0.759]	[0.345]	[1.505]
ROA	-0.018	0.046	-0.009	-0.032	-0.012	-0.089***	-0.204***	-0.204***	-0.214***	-0.209***
	[-0.636]	[0.653]	[-0.119]	[-0.416]	[-0.157]	[-4.243]	[-3.943]	[-3.671]	[-3.860]	[-3.779]
Dividend Yield	0.117	-0.184	0.115	0.168	0.162	0.460***	0.079	0.119	0.126	0.126
	[0.823]	[-0.883]	[0.536]	[0.801]	[0.780]	[4.413]	[0.517]	[0.783]	[0.835]	[0.834]
Leverage	0.014**	-0.015	0.012	0.008	0.007	0.007	0.021	0.021	0.021	0.022
	[2.235]	[-0.641]	[0.475]	[0.304]	[0.293]	[1.498]	[1.224]	[1.146]	[1.180]	[1.241]
Past-year Total Return	-0.032**	-0.032	-0.058**	-0.058**	-0.064***	0.008	0.016	0.021	0.019	0.017
	[-2.368]	[-1.453]	[-2.405]	[-2.437]	[-2.712]	[0.796]	[1.008]	[1.226]	[1.103]	[0.994]
Amihud Liquidity Measure	0.456***	0.847***	0.583***	0.485***	0.426**	-0.226***	-1.031***	-0.603***	-0.593***	-0.617***
	[7.483]	[5.011]	[3.051]	[2.613]	[2.306]	[-5.046]	[-8.347]	[-4.497]	[-4.437]	[-4.613]
Size	-0.00012**	-5.62e-05	-6.96e-05	-7.53e-05	-7.72e-05	-2.18e-06	-5.59e-05	4.91e-06	3.88e-06	3.70e-06
	[-2.296]	[-1.081]	[-1.305]	[-1.452]	[-1.494]	[-0.057]	[-1.471]	[0.131]	[0.104]	[0.099]
Market Capitalization	-0.0012***	-0.0009***	-0.0006***	-0.0005***	-0.0005***	0.0005***	0.0003**	0.0002*	0.0002**	0.0002*
	[-7.208]	[-5.627]	[-3.310]	[-3.059]	[-3.158]	[4.195]	[2.094]	[1.902]	[2.012]	[1.859]
Book-to-Market	0.0009	-0.0209	-0.0186	-0.0168	-0.0164	0.0001	0.0022	-0.0121	-0.0128	-0.0129
	[0.118]	[-1.602]	[-1.359]	[-1.265]	[-1.241]	[0.025]	[0.226]	[-1.266]	[-1.343]	[-1.352]
Institutional Ownership	-0.227***	0.011	-0.018	-0.040	-0.042	-0.127***	-0.120***	-0.028	-0.023	-0.022
	[-10.03]	[0.271]	[-0.365]	[-0.856]	[-0.904]	[-7.649]	[-4.078]	[-0.841]	[-0.685]	[-0.642]
Exec. Cash Pay/Total		0.121***	-0.007	-0.005	0.004		0.024	-0.019	-0.021	-0.018
		[3.458]	[-0.176]	[-0.131]	[0.101]		[0.944]	[-0.636]	[-0.732]	[-0.631]
Increase in Average Exec. Pay		0.023*	0.012	0.013	0.014		0.013	0.018**	0.018**	0.019**
		[1.933]	[0.914]	[1.032]	[1.157]		[1.492]	[1.977]	[2.045]	[2.088]
Golden Parachute		-0.055***	-0.024	-0.025	-0.029*		-0.047***	-0.005	-0.001	-0.002

		[-3.897]	[-1.517]	[-1.615]	[-1.892]		[-4.531]	[-0.400]	[-0.126]	[-0.188]
Board Size			-0.014***	-0.014***	-0.014***			0.012***	0.012***	0.012***
			[-4.664]	[-4.933]	[-4.910]			[5.752]	[5.660]	[5.631]
Fraction of Independent Directors			-0.394***	-0.397***	-0.404***			-0.269***	-0.259***	-0.263***
			[-6.430]	[-6.657]	[-6.819]			[-6.246]	[-6.038]	[-6.132]
Classified Board			0.034**	0.012	0.012			-0.025**	-0.018*	-0.019*
			[2.387]	[0.860]	[0.837]			[-2.557]	[-1.809]	[-1.871]
Poison Pill			0.065***	0.068***	0.073***			-0.112***	-0.114***	-0.112***
			[4.070]	[4.324]	[4.680]			[-9.906]	[-10.15]	[-10.02]
Unequal Voting Rights			0.140***	0.137***	0.141***			-0.002	-0.005	-0.003
			[5.224]	[5.267]	[5.456]			[-0.099]	[-0.250]	[-0.176]
Vote % Required to Amend Bylaws			-8.93e-05	-8.70e-05	-3.95e-05			0.0003*	0.0003*	0.0003**
			[-0.424]	[-0.425]	[-0.194]			[1.806]	[1.943]	[1.990]
Supermajority Mergers (%)			-0.002***	-0.002***	-0.002***			-0.001	-0.001	-0.001*
			[-3.423]	[-3.983]	[-4.292]			[-1.461]	[-1.566]	[-1.679]
Director Election Proposal				0.085***	0.088***				-0.083***	-0.082***
				[4.647]	[4.867]				[-6.333]	[-6.246]
Governance Proposal				0.590***	0.648***				0.106**	0.119**
				[9.055]	[9.345]				[2.267]	[2.375]
Social Proposal				0.578***	1.099***				-0.069**	0.131*
				[14.03]	[11.37]				[-2.313]	[1.875]
Compensation Proposal Sh Sponsored					0.399***					-0.032
					[5.682]					[-0.633]
Financial Policy Proposal Sh Sponsored					-0.381*					-0.126
					[-1.957]					[-0.891]
Governance Proposal Sh Sponsored					-0.537***					-0.255***
					[-4.943]					[-3.245]
Constant	-0.396***	-0.620***	-0.046	-0.013	-0.004	0.117***	0.190***	0.233***	0.232***	0.236***
	[-19.26]	[-15.07]	[-0.586]	[-0.162]	[-0.056]	[7.760]	[6.320]	[4.196]	[4.199]	[4.266]
Observations	10,331	5,610	4,857	4,857	4,857	10,331	5,610	4,857	4,857	4,857
Adjusted R-squared	0.102	0.157	0.185	0.230	0.241	0.014	0.030	0.065	0.075	0.076

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Table 6: Director Elections Proposal Midpoints and Director Characteristics

This table reports OLS regressions of midpoints along the first and second dimensions respectively as a function of director characteristics for director elections. Firm and director characteristics are as defined in Tables 1.C and 1.D. The *t*-statistics are reported in square brackets. *, ** and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

	(1) Midpoint 1st Dim	(2) Midpoint 1st Dim	(3) Midpoint 2nd Dim	(4) Midpoint 2nd Dim
Female	-0.043***	-0.034**	0.025*	0.019
	[-2.954]	[-2.086]	[1.921]	[1.197]
Age	0.0001	0.0004	0.0024***	0.0023***
	[0.205]	[0.517]	[4.744]	[3.783]
Employee Director	-0.133***	-0.109***	-0.004	0.019
	[-5.991]	[-3.773]	[-0.182]	[0.743]
Independent Director	-0.099***	-0.064**	-0.177***	-0.117***
	[-5.055]	[-2.414]	[-10.02]	[-5.039]
Attended <75% of meetings	0.638***	0.624***	0.119**	0.115**
	[11.87]	[9.554]	[2.460]	[2.002]
Financial Expert	-0.001	0.006	0.023**	0.030***
	[-0.080]	[0.502]	[2.570]	[2.794]
# Outside Public Boards	-0.007	0.010*	0.013***	-0.002
	[-1.549]	[1.729]	[3.251]	[-0.469]
% Controlling Voting Power	0.0045***	0.0020*	0.0002	0.0001
	[5.256]	[1.892]	[0.236]	[0.155]
ROA		-0.0280		-0.180***
		[-0.368]		[-2.697]
Dividend Yield		0.587		0.182
		[1.514]		[0.535]
Leverage		-0.039		0.0229
		[-1.564]		[1.040]
Past-year Total Return		-0.018		0.020
		[-0.784]		[0.956]
Amihud Liquidity Measure		0.688***		-0.683***
		[3.761]		[-4.263]
Size		-2.28e-05		-1.48e-05
		[-0.406]		[-0.301]
Market Capitalization		-0.0005**		0.0004**
		[-2.555]		[2.178]
Book-to-Market		-0.019		0.001
		[-1.448]		[0.055]
Institutional Ownership		-0.033		-0.016
		[-0.688]		[-0.382]
Exec. Cash Pay/Total		0.0141		0.0169
		[0.357]		[0.488]
Increase in Average Exec. Pay		0.010		0.030***
		[0.793]		[2.798]
Golden Parachute		-0.015		-0.003

		[-0.981]		[-0.211]
Board Size		-0.011***		0.013***
		[-3.816]		[5.095]
Fraction of Independent Directors		-0.341***		-0.195***
		[-5.532]		[-3.611]
Classified Board		0.014		-0.023*
		[0.953]		[-1.838]
Poison Pill		0.089***		-0.136***
		[5.880]		[-10.24]
Unequal Voting Rights		0.109***		0.005
		[4.354]		[0.234]
Vote % Required to Amend By-laws		-9.63e-05		0.000326*
		[-0.474]		[1.829]
Supermajority Mergers (%)		-0.0022***		-0.0015***
		[-3.875]		[-2.912]
Constant	-0.518***	-0.076	-0.027	0.110
	[-12.69]	[-0.831]	[-0.721]	[1.363]
Observations	5,871	3,590	5,871	3,590
Adjusted R-squared	0.037	0.093	0.045	0.106

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Table 7: Cutting Line Angles and Firm Characteristics

This table reports OLS regressions of the cutting line angle as a function of firm, governance, sponsor, and proposal characteristics. Firm and governance characteristics are as defined in Table 1.C. In columns (1)-(5), we use the cutting line angle as the dependent variable, while in columns (6)-(10), we replace it with the absolute value of the cutting line angle. The *t*-statistics are reported in square brackets. *, ** and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Angle	Angle	Angle	Angle	Angle	|Angle|	|Angle|	|Angle|	|Angle|	|Angle|
Shareholder-Sponsored Proposal	23.95***	29.83***	30.83***	11.28	48.16	-1.896*	-1.506	-1.625	7.333***	-6.445
	[6.046]	[6.858]	[7.046]	[1.223]	[1.436]	[-1.661]	[-1.185]	[-1.242]	[2.637]	[-0.637]
ROA	0.350	-2.804	-6.627	-11.33	-12.75	-0.809	7.762**	8.901**	8.774**	8.424**
	[0.0734]	[-0.224]	[-0.486]	[-0.843]	[-0.949]	[-0.589]	[2.120]	[2.186]	[2.164]	[2.077]
Dividend Yield	-27.19	-87.31**	-59.81	-50.53	-51.03	9.116	-13.83	-13.46	-12.32	-12.51
	[-1.146]	[-2.373]	[-1.615]	[-1.382]	[-1.397]	[1.334]	[-1.287]	[-1.216]	[-1.117]	[-1.135]
Leverage	-0.871	0.183	4.137	3.811	3.794	-0.654**	2.482**	2.914**	2.792**	2.808**
	[-0.834]	[0.0443]	[0.946]	[0.883]	[0.880]	[-2.175]	[2.055]	[2.229]	[2.144]	[2.158]
Past-year Total Return	1.768	4.728	4.847	3.868	4.330	0.535	-1.893	-1.477	-1.532	-1.462
	[0.787]	[1.200]	[1.162]	[0.940]	[1.053]	[0.827]	[-1.645]	[-1.185]	[-1.235]	[-1.178]
Amihud Liquidity Measure	8.162	-0.761	24.46	20.91	25.83	-5.025*	-28.12***	-48.87***	-46.85***	-45.62***
	[0.803]	[-0.0255]	[0.745]	[0.645]	[0.797]	[-1.716]	[-3.221]	[-4.981]	[-4.793]	[-4.664]
Size	-0.0290***	-0.0297***	-0.0140	-0.0127	-0.0128	0.0013	0.0007	0.0004	0.0007	0.0011
	[-3.302]	[-3.229]	[-1.524]	[-1.398]	[-1.413]	[0.518]	[0.276]	[0.132]	[0.264]	[0.398]
Market Capitalization	-0.048*	-0.063**	-0.051*	-0.043	-0.041	0.005	-0.002	-3.22e-05	0.001	0.001
	[-1.760]	[-2.128]	[-1.678]	[-1.451]	[-1.365]	[0.598]	[-0.186]	[-0.004]	[0.090]	[0.096]
Book-to-Market	5.962***	4.022*	0.835	0.634	0.607	-0.821**	-0.340	0.298	0.262	0.264
	[4.641]	[1.743]	[0.356]	[0.274]	[0.263]	[-2.220]	[-0.504]	[0.425]	[0.375]	[0.378]
Institutional Ownership	-21.97***	-27.66***	-16.89**	-16.09**	-16.20**	3.979***	7.266***	2.047	2.486	2.446
	[-5.813]	[-3.873]	[-2.047]	[-1.976]	[-1.992]	[3.657]	[3.482]	[0.830]	[1.012]	[0.996]
Exec. Cash Pay/Total		12.30**	-2.647	-3.568	-4.197		-3.723**	-0.979	-1.287	-1.424
		[1.983]	[-0.372]	[-0.509]	[-0.599]		[-2.055]	[-0.461]	[-0.608]	[-0.673]
Increase in Average Exec. Pay		1.456	0.863	1.106	0.999		-0.815	-1.161*	-1.174*	-1.177*
		[0.696]	[0.397]	[0.516]	[0.466]		[-1.334]	[-1.786]	[-1.815]	[-1.820]
Golden Parachute		-5.024**	6.679**	7.787***	8.090***		-0.388	-1.257	-1.144	-1.112
		[-2.008]	[2.421]	[2.860]	[2.973]		[-0.531]	[-1.525]	[-1.393]	[-1.354]

Board Size			0.322	0.138	0.134			-0.650***	-0.664***	-0.658***
			[0.626]	[0.272]	[0.264]			[-4.225]	[-4.329]	[-4.296]
Fraction of Independent Directors			-91.90***	-86.32***	-85.92***			6.675**	7.871**	8.007**
			[-8.717]	[-8.288]	[-8.257]			[2.119]	[2.505]	[2.549]
Classified Board			-4.151*	-1.850	-1.951			1.093	1.955***	1.932***
			[-1.707]	[-0.760]	[-0.802]			[1.503]	[2.663]	[2.632]
Poison Pill			-28.91***	-29.97***	-30.26***			1.252	0.931	0.916
			[-10.48]	[-10.99]	[-11.10]			[1.519]	[1.131]	[1.113]
Unequal Voting Rights			-4.337	-5.374	-5.763			-2.775**	-2.881**	-2.844**
			[-0.941]	[-1.182]	[-1.268]			[-2.016]	[-2.101]	[-2.074]
Vote % Required to Amend Bylaws			-0.008	-0.002	-0.005			0.001	0.002	0.001
			[-0.223]	[-0.050]	[-0.132]			[0.111]	[0.141]	[0.115]
Supermajority Mergers (%)			-0.243**	-0.278***	-0.265***			0.079***	0.080***	0.082***
			[-2.395]	[-2.779]	[-2.652]			[2.596]	[2.651]	[2.720]
Other Compensation Proposal				-51.46***	-43.99***				4.627	3.202
				[-4.336]	[-3.463]				[1.292]	[0.835]
Say on Pay Proposal				-77.76***	-73.01***				2.804	0.997
				[-6.623]	[-5.860]				[0.792]	[0.265]
Director Election Proposal				-44.96***	-40.19***				8.336**	6.527*
				[-3.933]	[-3.302]				[2.417]	[1.777]
Governance Proposal				-13.63	-51.53**				-3.209	-15.84**
				[-0.950]	[-2.478]				[-0.742]	[-2.525]
Social Proposal				-43.47***	-75.69**				-2.185	9.753
				[-2.847]	[-2.372]				[-0.474]	[1.013]
Other Compensation Proposal*Sh. Sp.					-59.60*					10.56
					[-1.688]					[0.991]
Governance Proposal* Sh. Sp.					10.65					25.84**
					[0.281]					[2.257]
Constant	4.704	10.31	86.29***	133.4***	128.0***	67.94***	65.79***	65.73***	56.97***	58.57***
	[1.370]	[1.418]	[6.352]	[7.518]	[7.031]	[68.71]	[30.96]	[16.19]	[10.64]	[10.66]
Observations	10,331	5,610	4,857	4,857	4,857	10,331	5,610	4,857	4,857	4,857
Adjusted R-squared	0.011	0.014	0.056	0.082	0.084	0.004	0.011	0.017	0.026	0.028

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Table 8: Director Election Proposals Cutting Line Angles and Director Characteristics

This table reports OLS regressions of midpoints along the first and second dimensions respectively as a function of director characteristics for director elections. In columns (1) and (2), we use the cutting line angle as the dependent variable, while in columns (3) and (4), we replace it with the absolute value of the cutting line angle. Firm and director characteristics are as defined in Tables 1.C and 1.D. The *t*-statistics are reported in square brackets. *, ** and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

	(1)	(2)	(3)	(4)
	Angle	Angle	|Angle|	|Angle|
Female	-4.629	-1.943	-1.519*	-0.521
	[-1.544]	[-0.517]	[-1.763]	[-0.480]
Age	0.205*	0.128	-0.044	-0.019
	[1.771]	[0.883]	[-1.314]	[-0.453]
Employee Director	13.93***	16.67***	10.85***	8.280***
	[3.028]	[2.786]	[8.210]	[4.783]
Independent Director	-16.88***	-4.228	8.839***	5.662***
	[-4.176]	[-0.776]	[7.610]	[3.594]
Attended <75% of meetings	48.85***	40.04***	-8.126**	-14.68***
	[4.394]	[2.969]	[-2.544]	[-3.762]
Financial Expert	4.230**	5.822**	-0.679	-1.351*
	[2.056]	[2.276]	[-1.149]	[-1.825]
# Outside Public Boards	1.226	3.175***	-0.139	-0.319
	[1.365]	[2.767]	[-0.539]	[-0.961]
% Controlling Voting Power	-0.125	-0.386*	-0.009	-0.041
	[-0.705]	[-1.755]	[-0.174]	[-0.645]
ROA		-8.063		7.803*
		[-0.514]		[1.718]
Dividend Yield		-95.02		-55.48**
		[-1.187]		[-2.396]
Leverage		5.263		3.686**
		[1.016]		[2.459]
Past-year Total Return		8.950*		-1.236
		[1.854]		[-0.885]
Amihud Liquidity Measure		18.53		-30.80***
		[0.491]		[-2.822]

Size		-0.017		0.003
		[-1.474]		[0.977]
Market Capitalization		-0.025		0.003
		[-0.613]		[0.241]
Book-to-Market		3.241		-0.424
		[1.220]		[-0.551]
Institutional Ownership		-15.07		3.534
		[-1.540]		[1.248]
Exec. Cash Pay/Total		6.919		-1.371
		[0.847]		[-0.580]
Increase in Average Exec. Pay		2.400		-1.238*
		[0.966]		[-1.723]
Golden Parachute		7.641**		-0.921
		[2.376]		[-0.989]
Board Size		0.265		-0.695***
		[0.432]		[-3.914]
Fraction of Independent Directors		-96.31***		6.541*
		[-7.559]		[1.774]
Classified Board		-4.705		2.125**
		[-1.594]		[2.488]
Poison Pill		-37.47***		0.629
		[-11.94]		[0.693]
Unequal Voting Rights		-9.383*		-3.857**
		[-1.810]		[-2.572]
Vote % Required to Amend By-laws		-0.012		-0.010
		[-0.277]		[-0.860]
Supermajority Mergers (%)		-0.214*		0.088**
		[-1.785]		[2.539]
Constant	-10.96	75.91***	65.37***	62.52***
	[-1.297]	[4.006]	[26.92]	[11.40]
Observations	5,871	3,590	5,871	3,590
Adjusted R-squared	0.024	0.083	0.014	0.032

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