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Robo-Voting: Does Delegated Proxy Voting Pose a Challenge for Shareholder Democracy?

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ABSTRACT

Robo-voting is the practice by an investment fund of mechanically voting according to the advice of its proxy advisor in corporate elections, in effect fully delegating its voting decision to its advisor. We examine over 65 million votes cast during the period 2008-2021 by 14,582 mutual funds to describe and quantify the prevalence of robo-voting. Overall, 33 percent of mutual funds robo-voted in 2021; 22 percent with ISS, 4 percent with Glass Lewis, and 6 percent with management. The fraction of funds that robo-voted increased until around 2013 and then stabilized at the current level. Despite the sizeable number of funds that robo-voted, robo-voters controlled only about 1.5 percent of shares on average in recent corporate elections because robo-voters tend to be smaller than other funds. Overall the evidence suggests that robo-voting is more prevalent than its defenders suggest, but may exert less influence on corporate governance than its critics suspect.

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I. INTRODUCTION

Robo-voting is the practice by an investment fund of mechanically following the voting advice of its proxy advisor in corporate elections. Robo-voting has become a source of concern in the policy community:[1] an SEC commissioner expressed concern about "rote reliance" on proxy advice: "[t]he last thing we should want is for investment advisers to adopt a mindset that leads them to blindly cast their clients' votes in line with a proxy advisor's recommendation, especially given that such recommendations are often not tailored to a fund's unique strategy or investment goals,"[2] while a report from a corporate-funded think tank worried that "[r]obo-voting enhances the influence of proxy advisory firms, undermines the fiduciary duty owed to investors, and poses significant threats to both the day-to-day management and long-term strategic planning of public companies."[3] On the other hand, at an SEC Roundtable in 2018, the leaders of Institutional Shareholder Services (ISS) and Glass Lewis, the two proxy advisory companies that control more than 90 percent of the advice market, stated that the vast majority of their clients' votes were cast following customized policies, and an investment adviser pushed back by arguing that "the term `robo-voting' is a red herring. It doesn't exist."[4]

Despite the diverse views that are held about robo-voting, its prevalence and implications for corporate governance at this point are largely speculative due to very limited empirical evidence.[5] Robo-voting could be a means by which informationally

[1] Notably, the SEC's 2019 preliminary report *Amendments to Exemptions from the Proxy Rules for Proxy Voting Advice* (Release No. 34-87457) considered and ultimately dismissed the idea of rule to counteract robo-voting by requiring that pre-populated and automatic voting mechanisms be disabled (Section III.E.5).

[2] Gallagher (2013)

[3] Doyle (2018).

[4] U. S. Securities Exchange Commission (2018): Gary Retelny, CEO of ISS, "[t]he majority of ISS's institutional shareholders – actually 87 percent of the shares that we execute votes for – vote as per their own custom policies" (p. 192); Katherine Rabin, CEO of Glass Lewis: "[a]t least 80 percent of the voting that's getting done is getting done in some customized way that isn't actually similar to ours" (p. 193). Quote on robo-voting not existing from Scott Draeger, Vice President and General Counsel at R. M. Davis Inc. (p. 195).

[5] Most of what we know comes from three studies: Iliev and Lowry (2015), Doyle (2018), and Rose (2021).

constrained funds are able to register their preferences at low cost in corporate elections, but it could also represent a dereliction of fiduciary responsibility that potentially gives kingmaking power to a small number of proxy advisory firms. The purpose of this paper is to provide a more comprehensive quantitative description of robo-voting than has been available previously as a reference for future discussion, and to outline what the evidence suggests about robo-voting's effect on corporate governance. Our analysis is based on examination of more than 65 million votes cast by more than 14,582 mutual funds over the period 2008-2021.

Robo-voting involves a set of issues that pose a challenge to democratic elections in general. At the core is what political scientists Arthur Lupia and Mathew McCubbins called the democratic dilemma: self-government requires informed voting by those empowered to vote, but "the people who are called upon to make reasoned choices may not be capable of doing so."[6] In corporate elections the voters are shareholders, and most of the votes are cast by institutional investors – mutual and pension funds that invest on behalf of individuals. Because of collective action problems in voting, those funds have weak incentives to acquire information about and monitor the companies they hold. Mutual funds with diversified holdings reap only a tiny percentage of the gains they might create from monitoring, creating a textbook free-rider problem. The problem is compounded for so-called passive investors, such as funds that replicate a market index like the S&P 500. Such funds receive revenue based on assets under management, not on their ability to generate abnormal returns; even if they were to improve the performance of a portfolio company so as to increase the return on the index, the gain would be shared equally by every other index fund, providing no competitive advantage to the fund that bears the cost of monitoring and engagement. Moreover, the cost of becoming informed is substantial given the number of votes that must be case by a diversified fund; Vanguard, for example, voted on nearly 169,000 separate election items in 2018.[7]

[6] Lupia and McCubbins (1998). Quote on p. 1.

[7] For development of these arguments, see Bebchuk et al. (2017), Lund (2018), and Bebchuk and Hirst (2019), Sharfman (2020). Sharfman reports the number of items voted by Vanguard.

It follows that acquiring information for the purposes of proxy voting may not pass a benefit-cost test for many funds. Proxy advice offers a potential way out of this quandary: a fund can purchase voting recommendations from a proxy advisor that specializes in collecting and transmitting information about corporate elections.[8] Proxy advisors sell their expertise in researching and analyzing proxy issues, exploiting economies of scale in information transmission to provide advice at a low cost. From this perspective, robo-voting could be a solution to the democratic dilemma, allowing funds to cast informed votes without having to bear the direct costs of information acquisition. Following the advice of a proxy advisor also has legal benefits, as SEC rules suggest that by following proxy advice a fund creates a presumption that its votes were free from conflict of interest.[9]

But there may also be less benign consequences of robo-voting. One concern is that the ability of a fund to register its preferences by robo-voting relies on its proxy advisor's recommendations actually reflecting the fund's preferences, yet observers have noted that proxy advisors employ a modest staff for the number of companies they are supposed to be monitoring, do not have direct stakes in the performance of the companies about which they make recommendations, and the bases for their recommendations are opaque, raising concerns that they might be applying one-size-fits-all solutions to complex problems.[10] A second concern is that because the proxy advisory industry in the United States is essentially a duopoly between ISS and Glass Lewis, if robo-voting is extensive it would give these two companies enormous influence over corporate elections. If their recommendations were the result of neutral value-maximization principles, then they would enhance corporate value, but there is evidence that proxy advice has an ideological component, especially when it comes to ISS;[11] that ISS recommendations shift fund votes

[8] There are five main proxy advisory firms in the United States: Institutional Shareholder Services (ISS), Glass Lewis, Egan-Jones, Segal Marco, and ProxyVotePlus. ISS and Glass Lewis service about 90 percent of the market (Shu 2022).

[9] See discussion in Section VI below.

[10] Larcker et al. (2013); Doyle (2018).

[11] Bolton et al. (2020) find that ISS recommendations take more "liberal" positions than the preferences of most funds.

toward outcomes favored by socially responsible investment (SRI) funds;[12] and that ISS-recommended changes in executive compensation policies reduce firm value.[13] Moreover, given that advice customers have heterogeneous preferences over value creation and social goals, theory suggests that competition between proxy advisors for customers will not necessarily result in recommendations that maximize value.[14]

Sorting out these theoretical possibilities in the data is challenging because of the difficulty of observing robo-voting directly. A fund typically could robo-vote in one of two ways – its proxy advisor could pre-populate its voting software with its recommendations and the fund could then simply press the "send" button, or the fund could explicitly delegate to its proxy advisor the authority to execute votes on its behalf – neither of which can be observed by outsiders. Therefore, the conventional approach, which we follow, is to infer robo-voting from the frequency that a fund votes according to its advisor's recommendations. For example, in this study we classify a fund as a robo-voter if it followed its advisor's recommendations more than 99 percent of the time, or more than 99.9 percent of the time. The assumption is that while fund votes are likely to be correlated with proxy advisor recommendations for a variety of reasons, it is highly unlikely that they would overlap almost always unless the fund was following recommendations in a mechanical way.

Using this definition, we establish several facts about robo-voting by mutual funds over the period 2008-2021. First, in 2021, we find that 22 percent of mutual funds robo-voted with ISS, 4 percent robo-voted with Glass Lewis, and 6 percent robo-voted with management, using the 99 percent classification, for a total prevalence of 33 percent among funds. Using a 99.9 percent definition, 20 percent of funds were robo-voters. Second, we find a modest growth in robo-voting from 2008 to 2013, and then stable levels thereafter. Third, we find that funds that robo-voted compared to non-robo-voters were on average smaller in terms of assets, more likely to be indexers, and less likely to be ESG funds.

[12] Matsusaka and Shu (2022).

[13] Larcker et al. (2015).

[14] Matsusaka and Shu (2021).

We then seek to assess how important robo-voters were for the outcomes of corporate elections. One measure is the fraction of shares controlled by robo-voters. Despite comprising about one-third of all funds, robo-voters only cast about 1.5 percent of the votes in a typical election, reflecting their smaller size. Most corporate elections are one-sided, but we identify 138 elections in which ISS robo-voters were pivotal to the outcome in the sense that without their votes the outcome would have been the reverse. For these elections, we find a small and statistically insignificant abnormal stock price return of 0.2 percent in the days following the election, suggesting that robo-voters on average neither helped nor hurt firm value.

II. Theoretical Framework: Voting by Funds

This paper focuses on statistical evidence, but it is useful to have a theoretical framework from which to approach the data. We first sketch a theory of information acquisition to highlight the factors influencing why some funds choose to acquire information while others defer to their advisors and robo-vote. Then we discuss implications of robo-voting for information aggregation and election efficiency.

A. The Decision to Acquire Information vs. Robo-Vote

We employ a simple theoretical structure based on the calculus of voting. [15] A fund can choose to acquire information and decide how to vote on its own, or follow its advisor's recommendation without collecting any information, in which case it is a robo-voter. The decision is made by comparing expected benefits and costs.

1. Instrumental Voting

Suppose a fund acquires information for the purpose of potentially shifting the outcome of the election in a direction that it prefers. Formally, imagine that a fund can pay a cost C to acquire a "piece" of information about an election at hand. There is some chance that the piece of information will change the fund's voting from what its advisor recommends, a

[15] The calculus of voting and information acquisition was developed by Downs (1957) and Riker and Ordeshook (1968). Bebchuk et al. (2017) provides a theoretical framework that is similar in many respects.

probability we denote as Pr ($INFO$). If the information causes the fund to change its vote, there is some chance it will change the outcome of the election, a probability we denote as Pr ($PIVOTAL$). And if the election outcome changes, it may cause a shift in the issuing company's policy that changes the value of the company, denoted Pr ($VALUE\ CHANGE$). Then the fund's benefit-cost decision is to acquire the information if and only if:

$$(1) \qquad \Pr(INFO) \cdot \Pr(PIVOTAL) \cdot \Pr(VALUE\ CHANGE) \cdot S > C,$$

where S is the fraction of the company's shares that the fund holds. The benefit term is weighted by S because the fund only captures a share of the company's value change.

One observation is that the expected benefit is a conjoint product of four terms, two of which are likely to be near zero, S and Pr ($PIVOTAL$), for all but the largest funds. Having a small S implies that a fund's return from a change in corporate policy is likely to be small; and a small S also implies that a fund's chance of changing the election outcome is small (this is especially so in the corporate context where most elections are one-sided). The implication is that the expected benefit is approximately zero, giving funds little incentive to acquire information for instrumental voting reasons. The likelihood that information acquisition fails a benefit-cost test is known as the problem of "rational ignorance" in the democracy literature. Following this logic, funds with larger holdings should be more likely to acquire information, and therefore less likely to robo-vote. We show below that this is in fact the case.[16]

2. Expressive Voting

While a useful baseline model, instrumental voting may not be the best model to understand the decisions of some funds. An alternative framework assumes that funds vote

[16] Similarly, the act of voting itself would fail a benefit-cost test for most funds, and they would prefer to abstain ("rational abstention.") Most funds nevertheless vote because they believe they have a fiduciary duty to do so, as discussed below.

for "expressive" reasons.[17] Intuitively, they vote not because they expect to swing the election but because they benefit from the act of voting itself. This may be the case for funds that market their engagement and voting strategies; for them, casting a vote aligned with their stated principles may attract fund flow. This may be a good description of many SRI funds. To formalize this case, we assume as before that a fund can pay a cost C to acquire a "piece" of information and that there is some chance Pr $(INFO)$ that the information will change its vote from its proxy advisor's recommendation. The new assumption is that changing to a more informed vote produces a change in revenue of REV. Then the fund will acquire information if

$$(2) \qquad \Pr(INFO) \cdot REV < C.$$

In this model, by decoupling the incentive to acquire information from instrumental payoffs, the benefit can exceed the cost even for funds that hold a small fraction of a company's stock. An implication is that funds that vote for expressive reasons are more likely to acquire information, and therefore less likely to be robo-voters. A specific prediction is SRI funds are less likely to robo-vote and index funds are more likely to robo-vote than other funds. This prediction also finds support in the evidence below.

B. Information Aggregation and Election Efficiency

The purpose of an election is to select the outcome that produces the highest return for investors. We use "return" in a general sense here: it could represent financial earnings, or – for investors that care about nonfinancial returns such as social policies – it could represent shareholder "utility" that compounds financial and social returns.

It requires information to determine which election outcome would produce the highest return (the "efficient" outcome), and therefore voters must be informed for elections to be effective. A key result from public choice theory, known as the Condorcet Jury Theorem, is that election outcomes can be highly efficient even if individual voters are

[17] This rationale for voting was developed in the political science, with Fiorina (1976) and Brennan and Lomasky (1993) notable contributions.

only slightly informed.[18] The intuition can be seen by considering an election with two outcomes, and supposing that each voter has only a tiny amount of information, just enough to make that voter's chance of voting for the efficient outcome 51 percent. In an electorate with thousands of such voters, even though each voter is about equally likely to cast a right or a wrong vote, their idiosyncratic errors cancel out when we add up votes, and the probability that the efficient outcome receives more votes than the inefficient outcome approaches certainty as the number of voters increases by the law of large numbers. With enough voters, then, an election produces the efficient outcome even if individual voters are mostly uninformed. This proposition is sometimes characterized as the "wisdom of crowds."

This insight suggests that voting by atomistic shareholders can be effective in aggregate even if individual shareholders are poorly informed. Informed elections may not require very informed voters. Nevertheless, it might seem that robo-voting has the potential to make elections more informative by creating more informed voters. But there is a potential danger. The Condorcet Jury Theorem works under the assumption that the information driving individual votes is independent across voters – the law of large numbers works because idiosyncratic errors across votes cancel in the aggregate. If all voters receive identical information from a proxy advisor that is (say) 55 percent likely to recommend the efficient outcome, then the election is exactly 55 percent likely to select the efficient outcome, without any gain due to aggregation. Somewhat paradoxically, an election with a large number of independent but poorly informed voters may be more likely to select the efficient outcome than an election in which voters are better informed but their information is correlated.

Testing for the efficiency of information aggregation in elections is difficult, and we do not attempt it in this paper. However, the more we observe funds following the advice of a single or small number of proxy advisors, the more we should be concerned that it will undermine information aggregation.

[18] Nitzan and Paroush (2017) surveys the theoretical literature.

III. Data Sources and Details

Our analysis is based on 65,581,746 votes by 14,582 mutual funds on 475,541 election items over the period 2008-2021. We do not examine voting by pension funds or other investors. Our analysis encompasses essentially all election items, including proposals sponsored by shareholders, proposals sponsored by managers, advisory votes on executive compensation (say-on-pay), and director elections.

Fund votes were drawn from the ISS Voting Analytics database, which collects its information from each fund's Form N-PX filing with the SEC. Our unit of observation is the vote choice of a particular fund on a particular voting item (each fund has one "fund-vote" in each election, regardless of the number of shares it holds). We exclude a fund in a given year if it cast fewer than 100 votes.[19] In some parts of the analysis, we aggregate votes to the fund-family level.[20] One reason for examining fund families is that voting policy for many funds appears to be set at the family level. Table 1 shows how often funds within a family cast identical votes in a year. At the extreme, in two-thirds of families, every fund cast identical votes on every item in a given year. The average number of funds per family is 15.

ISS's recommendations are accessible in the ISS Voting Analytics database. Glass Lewis's recommendations are not publicly accessible; we obtained them by submitting a Freedom of Information Act request to a large public pension fund. Both ISS and Glass Lewis offer customized recommendations, such as ISS's National Association of Pension

[19] There are some minor omissions in the data: elections that are not in the ISS Voting Analytics database (which excludes elections at some foreign issuers and votes on mutual fund trustees); elections to establish the frequency of say-on-pay elections; contested elections with a "do not vote" option; N-PX forms that are not downloadable from the SEC (which excludes some foreign funds); and fund families that cannot be matched to CRSP.

[20] Specifically: Fund-level observations were aggregated to the level of CIK identifier; then using CIK × year as the identifier, CIK-level voting data were merged with the CRSP Mutual Fund dataset to recover each CIK's fund family and characteristics; finally, CIK-level observations were aggregated to the fund-family level using the CRSP identifier for fund families (mgmt_cd). We use CRSP identifiers instead of the fund identifiers in ISS Voting Analytics because the ISS identifiers appear to contain errors.

Table 1. Families with Funds that Vote Identically	% Families
Funds in family voted identically on 99%+ items	83.4
Funds in family voted identically on 99.9%+ items	72.2
Funds in family voted identically on 100% of items	67.1

Funds Policy or Socially Responsible Policy. We focus only on whether a fund voted with a proxy advisor's benchmark policy.

To identify each fund's proxy advisor, we used the method developed in Shu (2022), which is based on the format of a fund's Form N-PX filed with the SEC. Funds have discretion in how they format their Form N-PX. Shu (2022) observed that certain details of the formatting reveal the proxy advisor that helped to file the form, and verified that the format can be used to identify customers of ISS and Glass Lewis.[21] The method would misclassify advisors if (i) a fund used a proxy advisor's voting platform without subscribing to its advice, or (ii) a fund subscribed to advice but did not use the voting platform.

Funds' portfolio holdings and characteristics such as total net assets, or flags for index funds are from CRSP survivor-bias-free mutual fund database. We use the beginning of the calendar year portfolio data to merge with the voting data. To identify the percent of a fund-family's assets that were in ESG products, we classified its individual funds as ESG-related if their names contained the words "carbon", "climate", "environment", "fossil", "impact", "responsible", "social", or "ESG".

IV. Prevalence and Evolution of Robo-Voting

A. *Prevalence of Mutual Fund Robo-Voting in 2021*

Table 2 quantifies the number of robo-voters in 2021. Panel A describes robo-voting at the individual fund level. Among the 4,032 funds, 22 percent robo-voted with ISS and 4 percent robo-voted with Glass Lewis using the 99 cutoff. Since ISS had about twice as many customers as Glass Lewis in 2021, we expect to see more ISS robo-voters than Glass Lewis

[21] This method assigns a fund to at most one proxy advisor; it does not detect if a fund received advice from multiple proxy advisors. A small fraction of funds filed two N-PX forms for a given year using different proxy advisors. We deleted these observations.

Table 2. Percent of Mutual Funds that Robo-Voted in 2021

Panel A. Individual Funds	99% aligned	99.9% aligned
ISS robo-voters	22	16
Glass Lewis robo-voters	4	2
Management robo-voters	6	3
ALL ROBO-VOTERS	33	20
Panel B. Fund Families	99% aligned	99.9% aligned
ISS robo-voters	21	13
Glass Lewis robo-voters	4	1
Management robo-voters	10	4
ALL ROBO-VOTERS	36	19

Note. Panel A includes 4,032 mutual funds; Panel B includes 292 fund families. Funds and fund families are classified as robo-voters if at least 99 percent (or 99.9 percent) of their votes were aligned with recommendations of a proxy advisor or management, as indicated in the first column.

robo-voters. The table also shows the fraction of funds that voted in lockstep with management's recommendations since some critics fear that funds may blindly follow management's recommendations, or excessively defer to management in order not to endanger their other business relations with a company. "Management robo-voters" comprised 6 percent of funds using the 99 percent cutoff. Overall, one-third of funds were robo-voters of either ISS, Glass Lewis, or management using the 99 percent cutoff, and one-fifth were robo-voters using the 99.9 percent cutoff.

Panel B describes robo-voting at the fund-family level.[22] The reason we look at fund families, as discussed above, is that for many funds voting decisions appear to have been made at the fund-family level, not the individual fund level. Panel B shows that among the 292 fund families, 21 percent robo-voted with ISS, 4 percent robo-voted with Glass Lewis, and 10 percent robo-voted with management, using the 99 percent cutoff. Overall, 36

[22] Specifically, for a given fund family, if votes on an election item were not unanimous (which was the case for 0.5 percent of votes), we dropped that election item; a fund family's vote was then the unanimous vote of its individual funds on the remaining election items.

percent of fund-families were robo-voters using the 99 percent cutoff, and 19 percent were robo-voters using the 99.9 percent cutoff.

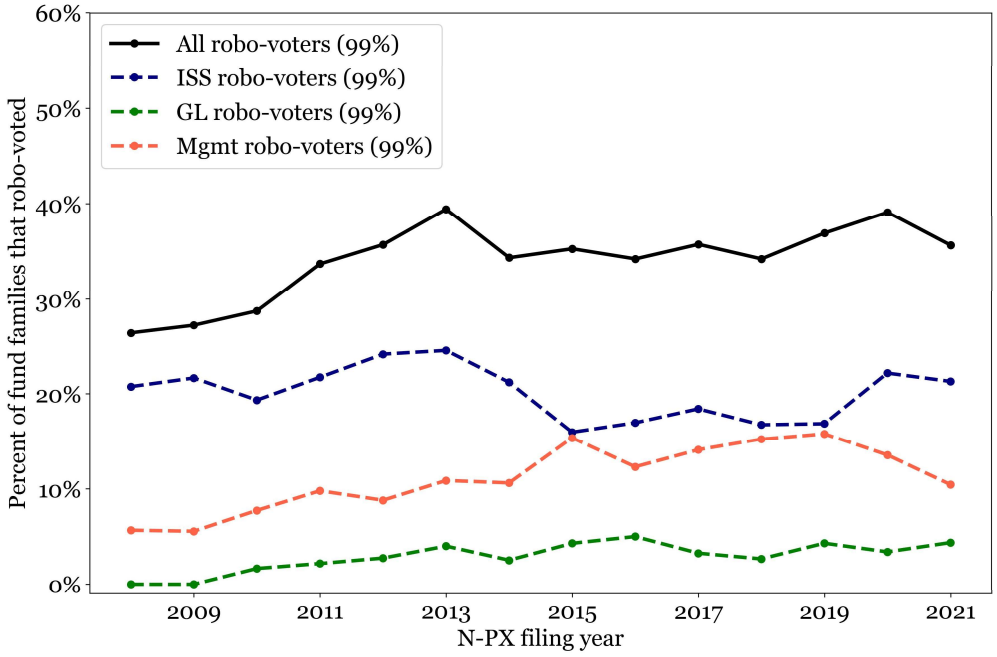
One takeaway from Table 2 is that a substantial fraction of funds were in fact robo-voters in 2021. The evidence does not support the claim that robo-voting does not occur, or only happens in a tiny fraction of funds.

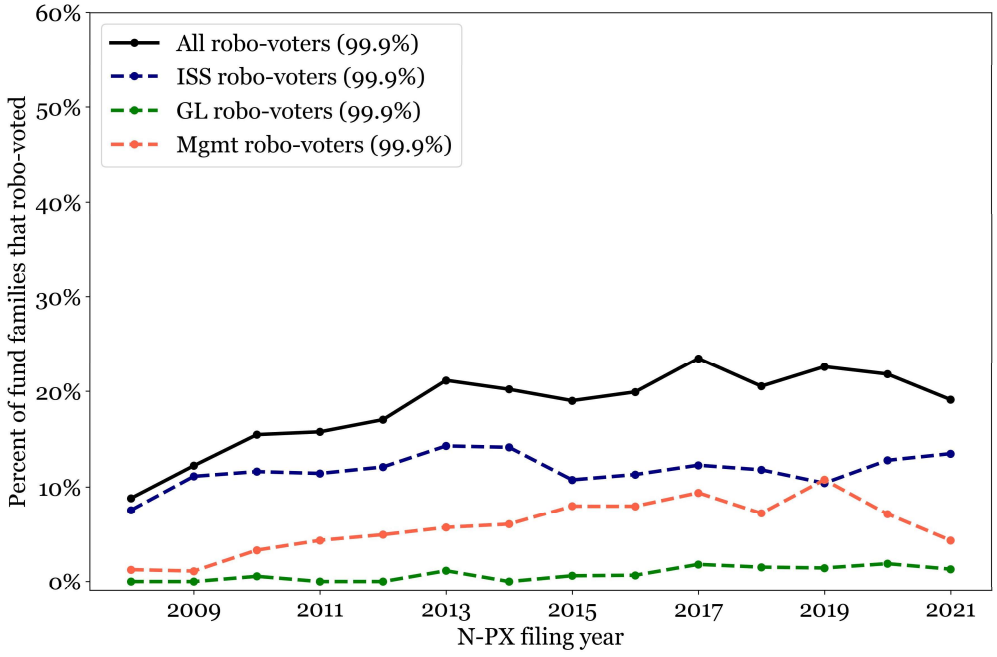
Figure 1 shows the evolution of robo-voting among fund families since 2008, with the top panel using the 99 percent classification and the bottom panel using 99.9 percent. An upward trend in robo-voting is apparent until 2013, when the prevalence appears to have stabilized. The pattern varies by advisors: there was a gradual growth in Glass Lewis robo-voting throughout the period, albeit at a low base level, and a decline in ISS robo-voting beginning in 2014. Overall, robo-voting grew from about one-quarter of funds in 2008 to about one-third in 2021, using the 99 percent classification. The pattern is broadly similar using the 99.9 percent classification in the bottom panel.

It is possible that some funds robo-vote on a subset of issues but utilize discretion on other issues. For example, a fund might robo-vote on director elections but independently examine elections on executive compensation. To get a sense of whether this happens, and on what issues, Table 3 shows the fraction of fund families that robo-voted on each of five broad topics: compensation, corporate governance, environmental and social issues, other proposals, and director elections. Because there are too few votes on ESG issues in any given year to reliably measure alignment, we combine 2019, 2020, 2021 and define a fund to have been a robo-voter if its votes during all three years followed advice more than 99 percent of the time. ISS robo-voting was most common on corporate governance issues (24 percent of fund families) while Glass Lewis robo-voting was most common on compensation issues (10 percent of fund families). Despite these minor distinctions, what stands out most in Table 3 is the similarity in robo-voting across all issues. The most pronounced difference was for management robo-voting, which 25 percent of fund families did when it came to director elections.

In the unusual circumstance that robo-voters deviated from their advisor's recommendations, we might wonder what the election was about. Table 4 lists the subject matter of elections in which robo-voters cast at least 10 (fund-family) votes contrary to the recommendation of their advisor, focusing on 2021. The most common type of deviation

Figure 1. Fund Family Robo-Voting Over Time





was for director elections; this is partly mechanical since direct elections constitute the vast majority of election items. Looking at proposals, ISS robo-voters most often deviated on executive compensation and labor issues. Management robo-voters most often departed from management recommendations on proposals concerning the right to act by written consent.

Table 3. Robo-Voting by Topic in 2019-2021

Topic	ISS Robo-Voters	GL Robo-Voters	Management Robo-Voters	#Items
Compensation	22	10	16	9,333
Corporate governance	24	8	11	1,492
Environment and social	23	9	19	263
Other proposals	21	7	12	23,196
Director elections	22	6	25	73,390
ALL	19	4	12	107,674

Note. The data include 545 fund families during 2019-2021. A fund is classified as a robo-voter if at least 99 percent of its votes on a particular proposal type in the three years were aligned with the recommendations of a proxy advisor.

We also might wonder if robo-voting varied by proxy advisors. It is possible that one of the proxy advisors is more attractive than the other to robo-voters. For example, one proxy advisor's recommendations may be seen as better by potential robo-voters or one advisor's voting platform may be particularly convenient. Table 5 reports robo-voting by fund-family customers of ISS and Glass Lewis separately. We see that 35 percent of ISS customers were ISS robo-voters using the 99 percent classification and 21 percent using the 99.9 percent classification. Not surprisingly, no ISS customers were Glass Lewis robo-voters, however, 3 percent of them were management robo-voters using the 99 percent cutoff. We also see that 33 percent of Glass Lewis customers were Glass Lewis robo-voters using the 99 percent cutoff and 7 percent using the 99.9 percent cutoff; the large dropoff between the two cutoffs suggests that Glass Lewis customers were more likely to engage in small amounts of customization in their voting. No Glass Lewis customers were ISS robo-voters or management robo-voters.

Our algorithm that identifies a fund's proxy advisor based on N-PX forms leaves some funds unassigned. We might guess that those funds do not subscribe to proxy advice, but we see that 8 percent of them were ISS robo-voters and 5 percent were Glass Lewis robo-voters, indicating that they were in fact ISS and Glass Lewis customers, respectively.[23]

[23] If we classify unassigned robo-voters to ISS and Glass Lewis as indicated by their votes, we find that ISS had 124 fund families as customers and Glass Lewis had 16 in 2021. This implies market shares (after excluding the biggest five – BlackRock, Capital Group, Fidelity, State Street, Vanguard – which were customers of both ISS and Glass Lewis) of 73 percent for ISS and 15 percent for Glass Lewis. These are conservative estimates

Table 4. Common Topics for which Robo-Voters Deviated from Advice in 2021

	# Fund Votes that Did Not Follow Advice
ISS Robo-Voters	
Director election	371
Ratify executive compensation	41
Labor issues: discrimination and miscellaneous	36
Require independent board chair	31
Adjourn meeting	27
Call special Meeting	21
Amend omnibus stock plan	19
Political lobbying disclosure	15
Product safety	15
Linking executive pay to social criteria	14
Gender pay gap	10
Glass Lewis Robo-Voters	
Director election	34
Federal forum selection provision	14
Management Robo-Voters	
Right to act by written consent	46
Director election	31
Ratify executive compensation	14

Note. The table lists topics for which at least 10 votes were cast by robo-voting funds contrary to recommendation of their advisor. A fund family was classified as a robo-voter if it followed advice at least 99 percent of the time.

Among the unassigned funds, 21 percent were management robo-voters using the 99 percent classification and 10 percent using the 99.9 percent classification. Funds without a proxy advisor were roughly two-thirds as likely to robo-vote as those with an advisor, except that they robo-voted with management.

B. *What Type of Funds Robo-Vote?*

We next investigate which type of funds robo-voted. Appendix A reports the largest robo-voters by assets under management in 2021. The largest ISS robo-voters were

since some of the unassigned funds were probably ISS or Glass Lewis customers; we also note that those are market shares for proxy voting systems which may differ from proxy advice.

Table 5. Percent of ISS and Glass Lewis Customers that Robo-Voted in 2021

	99% aligned	99.9% aligned
ISS customers		
ISS robo-voters	35	21
GL robo-voters	0	0
Management robo-voters	3	0
GL customers		
ISS robo-voters	0	0
GL robo-voters	33	7
Management robo-voters	0	0
Funds not assigned to ISS or GL		
ISS robo-voters	8	6
GL robo-voters	5	2
Management robo-voters	21	10

Note. The table shows the percentage of ISS and Glass Lewis fund-family customers that robo-voted in 2021, as well as robo-voting by unassigned funds. A fund family is classified as a robo-voter if at least 99 percent (or 99.9 percent) of its votes were aligned with the recommendations of a proxy advisor.

Allsprings Funds (formerly Wells Fargo) and Principal Funds. The largest Glass Lewis robo-voters were SEI Institutional Managed Trust and VanEck Funds.[24]

To characterize which funds robo-voted, Table 6 reports the average characteristics of ISS robo-voters, Glass Lewis robo-voters, management robo-voters, and all other funds across several dimensions. The first row shows that robo-voters of all types managed fewer assets than non-robo-voters, and management robo-voters were the smallest of all. This echoes the finding of Iliev and Lowry (2015), which attributes the differences to economies of scale in information acquisition that make it easier for large funds to self-inform. The second row shows that robo-voters were more likely to be index funds than non-robo-voters, with Glass Lewis robo-voters averaging 29 percent of assets in index funds. This conforms with the idea that index funds have especially weak incentives to monitor the companies in their portfolio.[25] In contrast, robo-voters were rather unlikely to be ESG funds, which conforms to the idea that customized voting is part of the marketing strategy

[24] See Doyle (2018) and Rose (2021) for a list of large robo-voters in earlier years.

[25] Bebchuk and Hirst (2019).

Table 6. Average Characteristics of Mutual Fund Family Robo-Voters

	Type of Robo-Voter			
	ISS	Glass Lewis	Management	Not Robo-Voter
Assets ($billions)	24.5	13.1	3.2	106.0
%Assets in index products	16	29	12	12
%Assets in ESG products	0.1	0.2	0.0	1.5
Turnover ratio	0.7	0.6	1.1	0.6
Management fee/assets (%)	0.6	0.7	0.8	0.6

Note. A mutual fund family is classified as a robo-voter in a given year if it voted according to the recommendation of ISS, Glass Lewis, or management more than 99 percent of the time in that year. The data include 629 (annual) ISS robo-voters, 100 Glass Lewis robo-voters, 377 management robo-voters, and 2,093 non-robo-voters during 2008-2021.

for ESG funds.[26] Funds that robo-voted had a higher turnover ratio, defined as the smaller of aggregate purchases or sales divided by total assets during the year, compared to non-robo-voting funds. This again echoes Iliev and Lowry (2015), which argues that funds with high turnover have less incentive to acquire their own information about the stocks they hold because they are more likely to sell the stock. The final row shows that robo-voters charged slightly higher management fees on average than non-robo-voters.

Many of these characteristics are correlated, for example, index funds tend to charge lower management fees. To isolate the predictive power of the different characteristics, Table 7 reports a linear probability regression that links the likelihood of being a robo-voter with fund characteristics. It appears that all of the characteristics have independent predictive power and none of them are simple proxies for another, with the possible exception of management fee and turnover ratio, which lose explanatory power (in the second column) when the other characteristics are included. To interpret the magnitudes, the coefficient of 0.12 on index products implies that a 1 percentage point increase in index products was associated with a 0.12 percentage point greater chance of being a robo-voter. The coefficient on assets implies that a 1 percent increase in assets was associated with a 5 percent reduction in the probability of robo-voting.

Based on this evidence we can describe the typical robo-voting fund as follows: It was a (much) smaller fund, more likely to be an indexer, and much less likely to be an ESG

[26] Matsusaka and Shu (2021).

Table 7. Linear Regressions of Robo-Voting on Fund-Family Characteristics

	99% aligned	99.9% aligned
Assets (log)	-0.05***	-0.04***
	(0.00)	(0.00)
%Assets in index products	0.12***	0.12***
	(0.03)	(0.02)
%Assets in ESG products	-0.51***	-0.29***
	(0.10)	(0.08)
Management fee	0.06**	0.02
	(0.02)	(0.02)
Turnover ratio	0.02***	0.01*
	(0.01)	(0.01)
Constant	0.67***	0.49***
	(0.03)	(0.03)
Observations	3,185	3,185

Note. Each column is a linear regression in which the dependent variable is one if a mutual fund family robo-voted in a given year, and zero otherwise. A mutual fund family is classified as a robo-voter if it voted according to the recommendation of ISS, Glass Lewis, or management more than 99 or 99.9 percent, as indicated in the column heading, of the time in a given year. Standard errors are in parentheses beneath the coefficient estimates. Significance levels: * = 10 percent, ** = 5 percent, *** = 1 percent.

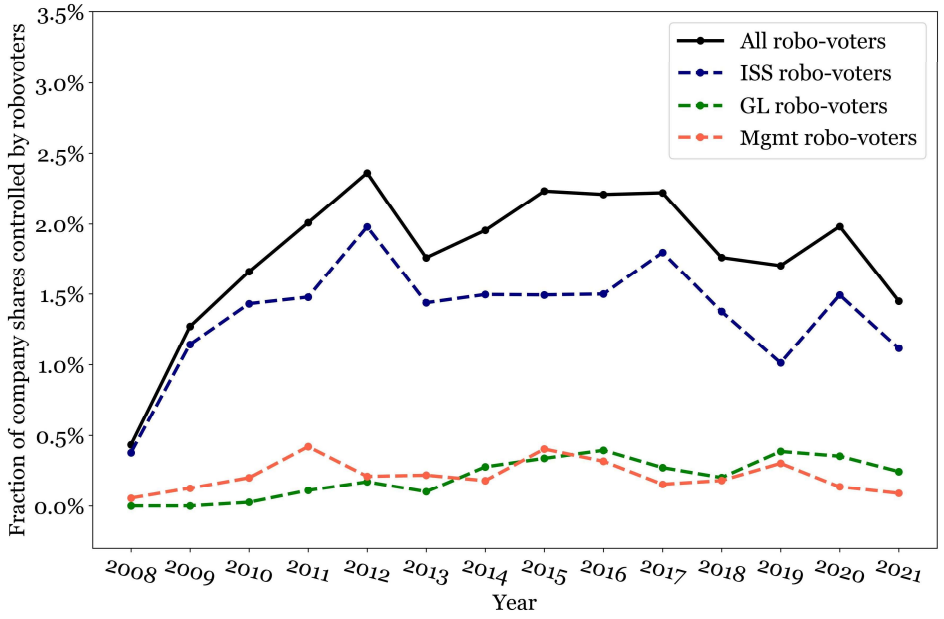
fund, compared to non-robo-voters. Of course, these are central tendencies and there are exceptions to the typical case.

V. The Impact of Mutual Fund Robo-Voting on Corporate Elections

This section provides evidence designed to assess how important robo-voting is for corporate governance elections. The preceding evidence shows that there are many robo-voting funds, but not how many votes those funds control in elections. Because those funds are relatively small, the fraction of shares they control is also relatively small – which implies that their impact on elections will be less than their numbers suggest. The numbers in this section describe fund families, not individual funds.

To put the voting power of robo-voters on a quantitative footing, Figure 2 reports the average fraction of shares that were robo-voted by fund families in annual meetings across the entire period we examine. Fund families were classified as robo-voters or not in

Figure 2. Mean Percentage of Votes Cast by Robo-Voters



each year.[27] The figure provides two interesting results. First, the fraction of shares that were robo-voted in recent years has hovered around 2 percent. In 2021, the share of votes cast by ISS robo-voters was 1.1 percent, Glass Lewis robo-voters 0.2 percent, and management robo-voters 0.1 percent. These are not trivial in aggregate, but at the same time imply that robo-voters were not pivotal for most elections; they mattered only when the winning margin was rather small. Only ISS robo-voters cast more than 0.5 percent of the votes with regularity, suggesting that any concerns that may exist about proxy advisor influence on elections should be directed mostly toward ISS.

Second, the figure shows a sharp rise in the share of votes cast by ISS robo-voters between 2008 and 2012. The share of Glass Lewis and management robo-voters was less than 0.5 percent throughout the period, with a modest growth in the Glass Lewis share.

[27] In this figure, we omit holdings by one fund family, Dimensional Fund Advisors, which robo-voted with ISS in 2010, 2011, and 2012; its outsized holdings dramatically shift the figure in those years, making it difficult to see trends. We think of it as an outlier, but the reader who would like to include that fund can simply imagine shifting the ISS curve up by 1.3 percentage points in 2010-2012.

While the data show a growth in the fraction of robo-votes cast since 2008, the trend is not steep enough that to predict that robo-voters are on track to becoming pivotal in most corporate elections.

Nevertheless, some elections *were* determined by the votes of robo-voters. In the period we study, there were 289 elections in which the margin of victory/defeat was less than the number of votes cast by ISS robo-voters using the 99 percent definition. Table 8 summarizes the most common issues in those elections. To some extent the topics mirror those that have been common in recent years, with the ratification of executive compensation the most common. Elections on certain corporate governance issues – written consent, board declassification, supermajority rules, special meetings, and majority voting for directors – were much more likely than their overall prevalence to have more robo-voters than the margin of victory.

We can gain insight into the effect of robo-voters on corporate value by examining elections in which robo-voters were pivotal.[28] When the winning margin was small enough for robo-voters to swing the outcome, it is safe to conclude that the outcome was unpredictable, and one could argue that it was near random from the market's perspective. By examining the market's price reaction following the election outcome, then, we can infer how investors assessed the value consequences of the election. If the company's market value increased after seeing the election outcome, we can conclude that robo-voters

Table 8. Elections in Which ISS Robo-Voters Exceeded Victory Margin

Topic	# with ISS Robo-Voters > Margin	# with GL Robo-Voters > Margin	# Elections Total
Approve executive compensation	115	15	17,286
Act by written consent	33	4	320
Approve omnibus stock plan	30	2	4,480
Elect director	26	15	150,092
Declassify board	25	3	642
Reduce supermajority requirement	23	5	580
Special meeting	23	5	285
Majority vote for director elections	14	1	223

Note. The table lists all issues for which the number of ISS robo-voters exceeded the victory margin.

[28] On the general question of how shareholder proposals affect firm value, Cuñat et al (2012) and Matsusaka et al. (2021).

contributed to a value increase; conversely, if the market value fell after the election, we can conclude that robo-voters pushed a company in a value-reducing direction.

Our sample only includes 138 elections in which ISS robo-voters were pivotal (the winning margin was less than the number of robo-votes, and robo-voters were on the winning side), not enough to draw confident conclusions, but as an exploratory exercise, it may be interesting to look at these elections. For each election, we calculated the cumulative abnormal return (CAR) of the firm's stock price from one day before the election to three days afterward, defined as the return net of the expected return from a Fama-French 4-factor model. If robo-voters increased firm value, then the CAR should have been positive while if robo-voters reduced value, then the CAR should have been negative.[29]

Table 9 reports the mean CARs by type of issue.[30] Keeping in mind the limited sample size, the data at hand suggest that ISS robo-voters neither enhanced nor hurt firm value. Across all elections where ISS robo-voters were pivotal, the mean CAR was a small and statistically insignificant 0.2 percent. We might expect that the effect of robo-voters to vary by issue type, perhaps because proxy advisors are more skilled at evaluating some issues than others. However, when we look specifically at elections about corporate governance topics or specifically about executive compensation, we continue to find small and statistically insignificant CARs. As mentioned before, the number of observations is insufficient to support strong conclusions, but the tentative message is that robo-voting was something of a wash – it did not improve governance by allowing funds to cast votes that increased firm value, and it did not undermine governance by allowing biased proxy advisors to swing elections.

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[29] Formally: an election has two possible outcomes, A or B (say, pass or fail). Suppose the market expects the firm to be worth V_A if outcome A prevails, and V_B if outcome B prevails. If the probability of A prevailing is p, then the pre-election firm value is $pV_A + (1-p)V_B$. If outcome A wins, the firm value will change to V_A. The change in value post-election is then $\Delta = V_A - pV_A - (1-p)V_B = (1-p)(V_A - V_B) \approx CAR$. Then the sign of the CAR reveals the sign of $V_A - V_B$, the market's valuation of the winning option compared to the losing option.

[30] Outliers can exert significant influence with so few observations, so we winsorized the tails at the 2.5 percent level; although nothing of substance changes if we winsorize at somewhat higher or lower levels.

Table 9. Cumulative Abnormal Return (CAR) After Elections Decided by Robo-Voters

	CAR (%)	Number
All topics	0.2 (0.4)	138
Corporate governance	0.3 (0.6)	70
Executive Compensation	-0.3 (1.1)	29
Other	0.4 (0.8)	39

Note. The table reports the cumulative abnormal returns over a [-1,3] window associated with election days in which ISS robo-voters were pivotal. Expected returns were calculated using a Fama-French 4-factor model. The main entries are the CARs in percentages; standard errors are in parentheses beneath. None of the means are statistically different from zero.

VI. Recent Legal Developments

As discussed above, for many funds, voting – and especially informed voting – seems to fail a benefit-cost test. Yet most funds vote and pay for proxy advice – an important reason is that it provides a regulatory benefit. In 2003, the SEC issued a rule on proxy voting by investment advisers that requires funds that vote to adopt proxy voting policies that are reasonably designed to ensure that their votes are in the best interests of their clients.[31] One purpose of the rule was to counteract potential conflicts of interest that funds might have stemming from other business they do with issuing companies (such as managing the company's pension fund, administering its employee benefit plans, or providing brokerage, underwriting, or banking services) or from personal relationships (such as a spouse or relative of the fund manager who works for the company). In adopting the rule, the Commission noted that "an adviser could demonstrate that the vote was not a product of a conflict of interest if it voted client securities in accordance with a pre-determined policy, based upon the recommendations of an independent third party." This

[31] Securities and Exchange Commission, Final Rule: Proxy Voting by Investment Advisers, 17 CFR Part 275, available at: https://www.sec.gov/rules/final/ia-2106.htm. The Commission also observed that "[t]he duty of care requires an adviser with proxy voting authority to monitor corporate events and to vote the proxies."

was broadly understood to imply that following the recommendations of a proxy advisor based on general principles would provide funds with a safe harbor from claims of conflict of interest in voting. Shortly after the rule was issued, the SEC staff issued two no-action letters that essentially confirmed this understanding.[32] This legal context may have encouraged funds to robo-vote – if a fund were to deviate from the advice of its advisor it could have to defend the vote from conflict-of-interest claims.

As the role of proxy advisory firms grew over subsequent years, concerns over the quality of poxy advice and the power of proxy advisors, began to emerge, while concerns over conflicts of interest receded. A new SEC rule in 2020 took some initial steps toward regulating proxy advisory firms, including defining proxy advice to be a "solicitation", thereby requiring proxy advisors to comply with burdensome disclosure requirements;[33] but it was substantially amended and reversed in 2022.[34] Those rules, in any case, had only indirect implications for robo-voting.

More important for robo-voting, in 2018 the Commission revoked the two no-action letters that had been understood to provide funds a safe harbor that they were voting in their clients' best interest by following the recommendations of a proxy advisor. While the no-action letters were sometimes criticized as leading to overreliance on proxy advice, the Commission did not alter the original 2003 rule or staff legal bulletin[35] that essentially memorialized the two no-action letters, nor did it explain why the letters were withdrawn. The Commission subsequently began to consider changes to proxy advisor regulations, apparently looking for a different path forward, but the 2020 rule that resulted did not reach the robo-voting issue.

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[32] Institutional Shareholder Services, Inc., SEC letter to Mari Anne Pisarri, September 15, 2004; Egan-Jones Proxy Services, SEC letter to Kent S. Hughes, May 27, 2004 ("In essence, the recommendations of a third party that is in fact independent of an investment adviser may cleanse the vote of the adviser's conflict.").

[33] Securities and Exchange Commission, 2020 Final Rule.

[34] Securities and Exchange Commission, 2022 Final Rule: Enhanced Reporting of Proxy Votes by Registered Management Investment Companies; Reporting of Executive Compensation Votes by Institutional Investment Managers, 17 CFR Parts 200, 232, 240, 249, 270, and 274.

[35] Securities and Exchange Commission, Staff Legal Bulletin No. 20, "Proxy Voting: Voting Responsibilities of Investment Advisers and Availability of Exemptions from the Proxy Rules for Proxy Advisory Firms," 2014.

Some insight into the Commission's thinking may be revealed by charges that it announced in September 2022 against Toews Corporation, a small asset manager with $1.5 billion in assets under management.[36] From 2017 to 2022 Toews had employed a proxy advisor to cast its votes, and instructed the advisor to vote in favor of all management proposals and against all shareholder proposals. This would be close to what we classify as management robo-voting. According to the Commission, by doing this Toews violated the 2003 rule because it did not take any steps "to determine whether the procedures [were] reasonably designed to ensure that Toews voted proxies in its clients' best interests." Toews' procedures were not designed to ensure it voted in its clients' best interest, in the Commission's eyes, because the company "never deviated from the standing instruction and did not review the proxy materials." Such behavior characterizes almost all robo-voters. According to the logic of the Toews action, about one-third of mutual funds may not be taking reasonable steps to ensure their clients' best interests. Toews agreed to pay a $150,000 civil fine and to cease its current voting practices.

Two commissioners issued a statement dissenting from the Toews action.[37] They noted that previous SEC rules allowed funds to establish standing instructions for voting with their proxy advisor, "such as by voting in accordance with the voting recommendations of management of the issuer" and that "[a] client and its advisor may agree that the investment advisor should exercise voting authority pursuant to specific parameters." No previous guidance suggested that funds were required to examine and decide their votes on a case-by-case basis, and it is difficult to imagine how they could do this in practice. The dissenters argued that fully delegating voting authority to a proxy advisor could in fact be in the best interest of a fund's clients by reducing the cost of satisfying its fiduciary duties. All of this suggests that the regulatory status of robo-voting remains somewhat up in the air.

[36] Securities and Exchange Commission, In the Matter of Toews Corporation, Administrative Proceeding File No. 3-21113, September 20, 2022.

[37] Pierce, Hester M. and Mark T. Uyeda, Statement Regarding In the Matter of Toews Corporation, September 20, 2022.

VI. DISCUSSION

This paper attempts to provide a somewhat comprehensive statistical overview of robo-voting. We cover a longer time period than any previous study, and include consideration of not only ISS robo-voters, but also Glass Lewis and management robo-voters. We provide a quantitative description of the prevalence of robo-voting, and its development over time, and offer some evidence of how much influence it has had on corporate elections, and how that affects the value of issuing companies.

The facts suggest several tentative lessons about the role of robo-voters in corporate governance. First, since robo-voters are rarely pivotal in corporate elections, the influence of robo-voters on corporate governance is likely to be modest. At the same time, it would seem premature to dismiss all concerns about robo-voting. For one thing, the estimates of robo-voting we present are almost certainly underestimates. We do not include robo-voting by pension funds, which could be of similar magnitude to robo-voting by mutual funds. Also, some funds may adopt a quasi-robo-voting strategy in which they monitor individual issues of particular that interest them, such as place of incorporation that could have tax implications, and then fully delegate their voting decisions on other issues. In addition, although robo-voting is not often pivotal, it is more likely to matter in close elections (by definition), and those are the cases of substantive interest when it comes to corporate governance. There is also the possibility that quasi-robo-voting may grow as automation becomes easier.

Our evidence is mixed on the question of whether robo-voting reflects efficient delegation to experts or inefficient abdication. In principle, relying on advice from an informed proxy advisor is an efficient way to overcome free rider problems in information collection and to take advantages of economies of scale in information collection and provision. Whether this works in practice depends on the quality of the proxy advice itself, and the existing evidence on this is a bit discouraging.[38] Our modest contribution to this debate is evidence on the market reaction following elections that were decided by robo-voters. While we can study only 138 such elections at present, our exploratory estimates suggest that robo-voters neither increased nor decreased firm value on average. With the

[38] Larcker et al. (2015), Matsusaka and Shu (2022).

passage of time and availability of more data, it should be possible to put these preliminary findings on firmer empirical ground and draw stronger normative conclusions.

Appendix. Robo-Voters in 2021

Fund Family	Total Net Assets ($billions)	Advisor	Agreement
Allspring Funds (Wells Fargo Asset Management)	283.7	ISS	99.2%
Principal Funds, Inc	210.9	ISS	99.6%
First Trust	149.7	ISS	99.9%
SEI Institutional Managed Trust	114.7	GL	99.9%
Baird Funds, Inc	102.9	ISS	100.0%
DWS	101.4	ISS	99.5%
MainStay Funds Trust	79.2	ISS	99.2%
ProShares	71.0	ISS	100.0%
VanEck	66.4	GL	99.7%
Harris Associates Investment Trust	63.9	Management	99.2%
Rydex Series Funds	54.6	ISS	100.0%
Victory Portfolios	51.8	ISS	99.1%
Thrivent Mutual Funds	36.5	ISS	99.6%
Direxion	29.9	ISS	100.0%
Calamos Investment Trust	27.7	Management	99.8%
Matthews Asia Funds	21.5	ISS	100.0%
AQR Funds	15.2	ISS	99.4%
Financial Investors Trust	13.2	ISS	100.0%
Wilmington Funds	13.1	ISS	100.0%
Jensen Investment Management	11.4	Management	100.0%
Northern Lights Fund Trust	9.0	ISS	100.0%
Causeway Capital Management Trust	9.0	ISS	99.8%
Gateway Trust	8.3	ISS	100.0%
Glenmede Funds	7.3	ISS	100.0%
Sterling Capital Funds	6.6	GL	99.9%
Credit Suisse Opportunity Funds	6.5	ISS	100.0%
Manning & Napier Fund, Inc	6.4	GL	99.1%
Nicholas Funds	6.3	ISS	100.0%
Blackstone Alternative Investment Funds	5.3	ISS	100.0%
Sequoia Funds	4.9	Management	99.5%
Hennessy Funds Trust	4.1	Management	99.1%
Meridian Fund, Inc	4.1	GL	99.8%
Driehaus Capital Management	4.0	ISS	99.5%

Cavanal Hill Funds	4.0	Management	99.1%
ProFunds	3.3	ISS	100.0%
Shelton Capital Management	3.2	ISS	100.0%
Horizon Funds	3.2	ISS	100.0%
Aquila Municipal Trust	3.2	ISS	100.0%
Sit Mutual Funds, Inc	2.7	ISS	99.7%
LoCorr Investment Trust	2.7	Management	99.3%
Cabana	2.4	ISS	100.0%
AdvisorShares	2.4	ISS	99.9%
Brookfield Investment Funds	2.2	ISS	99.8%
RoboGlobal	2.2	ISS	100.0%
Marsico Investment Fund	2.1	Management	100.0%
Oberweis Funds	1.7	ISS	100.0%
ARIS	1.6	Management	99.9%
Wilshire Mutual Funds, Inc	1.5	GL	99.7%
Forward Funds	1.4	Management	99.6%
Forward Funds	1.4	GL	100.0%
GraniteShares Advisors	1.4	GL	99.9%
Luther King Capital Mgmt Corporation	1.3	ISS	99.4%
RMB Investors Trust	1.2	ISS	99.0%
Alpha Architect	1.1	Management	99.3%
WesMark	1.0	ISS	100.0%
Leuthold Funds, Inc	0.7	Management	100.0%
James Advantage Funds	0.7	ISS	100.0%
Needham Funds, Inc	0.6	Management	99.3%
World Funds Trust	0.6	Management	99.3%
YCG Funds	0.6	Management	100.0%
Torray Funds	0.4	Management	99.7%
Evercore Wealth Management	0.4	GL	99.8%
Prospector Partners	0.3	ISS	99.9%
Bridges Investment Management	0.3	Management	99.7%
Ancora Trust	0.3	ISS	99.4%
Series Portfolios Trust	0.3	ISS	99.6%
North Country	0.3	ISS	99.9%
Wisconsin Capital Funds, Inc	0.2	Management	99.7%
PPM Funds	0.1	ISS	100.0%

AGF Investments Trust	0.1	ISS	99.2%
Goehring & Rozencwajg Investment Funds	0.1	ISS	100.0%
GoodHaven	0.1	Management	100.0%
Lord Asset Management Trust	0.1	Management	100.0%
Barrett Asset Management	0.1	Management	100.0%
Copley Funds	0.1	GL	100.0%
Archer Funds	0.1	Management	100.0%
Meeder Funds	0.1	ISS	100.0%
Reynolds Funds	0.1	Management	99.9%
Kirr Marbach Partners Funds	0.1	ISS	100.0%
Matrix Asset Advisors Funds	0.1	ISS	100.0%
Boyar Value Fund, Inc	< 0.1	ISS	100.0%
MSS Series Trust	< 0.1	ISS	99.2%
Frank Funds	< 0.1	Management	100.0%

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