The Proxy Advisory Industry:
Influencing and Being Influenced[*]

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Abstract

Using two innovative methods to infer each mutual fund's proxy advisor from previously unnoticed features of its SEC filings, this paper establishes several novel facts about the proxy advisory industry. This industry, although still a duopoly controlled by ISS and Glass Lewis, has become less concentrated over the last decade. Negative recommendations from either ISS or Glass Lewis are followed by reductions in its customers' votes by over 20 percent. The two proxy advisors sell not only proxy advice but also voting platform services; the use of a proxy advisor's voting system can further sway investors' votes in addition to proxy advice, raising the concern about investors' automatic vote execution practice. Specifically, over 40 percent of the small funds that use ISS's voting platform blindly follow its advice. Finally, proxy advisors adjust their recommendations to align with investors' votes, and such alignment results from both information acquisition and preference catering.

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Introduction

The problem with corporate governance is that most shareholders are rationally apathetic, unwilling to invest in information that allows them to effectively monitor and vote (Berle and Means, 1932). Proxy advisory firms hold the promise of solving this issue by exploiting economies of scale in information collection, allowing investors to vote their interests at low cost. These economies of scale, however, have led the industry to consolidate into effectively two firms – Institutional Shareholder Services (ISS) and Glass Lewis – resulting in little diversity of advice, and the recommendations of proxy advisors are often criticized for containing factual errors and imposing one-size-fits-all governance structures.

Given their growing importance for corporate governance, proxy advisors have attracted considerable recent research attention. Much of this research, however, has been hindered by a basic data limitation: the lack of information that links investors to their proxy advisors. Without knowing which investors receive which recommendations, our picture of the impact of the proxy advisory industry remains necessarily incomplete. For example, previous papers have estimated the influence of proxy advisors by comparing their recommendations with votes pooled across all investors. The typical finding in vote-advice regressions of larger coefficients for ISS's recommendations than Glass Lewis's could be attributed to Glass Lewis having fewer customers or not influencing its customers' votes. Without information that links advisors to voters, it is difficult to reach definitive conclusions on many questions about the industry, ranging from basic issues such as the industry's concentration to more textured inquiries that relate to the determinants of impact.

A key innovation of this paper is that it uses previously unnoticed features of regulatory filings to infer each mutual fund's subscription to proxy advice, thereby providing a concrete link between fund votes and proxy advisors. Since 2003, mutual funds have been required to report their votes to the SEC by filing Form N-PX. Filers have discretion in how they format the form and describe their votes. Mutual funds rarely perform this potentially time-consuming task themselves, which may involve reporting on tens of thousands of votes each year. Instead, they outsource it to their proxy advisors. I show that, based on the way the form is formatted and how issues are described, one can determine which proxy advisor files the form. The inference of proxy advisors from N-PX can be further corroborated by mutual funds' statutory prospectuses, which at times specify funds' contractual relationships with proxy advisors.

With the information on proxy advisors' mutual fund customers, I am able to provide a sharper characterization of the proxy service market than previously possible, and to con-

duct new tests that speak to several controversies in the literature. The two largest proxy service firms ISS and Glass Lewis provide both proxy advice services and vote execution services through their voting platforms. Critics of the industry claim that the industry's concentration empowers ISS and Glass Lewis to significantly sway corporate elections. However, we currently have no rigorous evidence on the proxy advisory industry's competitive landscape.[1] With the information on each mutual fund's subscriptions to proxy services, I find that, as of 2017, ISS controls 63 percent of the proxy service market for mutual funds in the U.S. ($13.4 trillion in assets from 132 fund families), and that Glass Lewis controls 28 percent ($6.0 trillion in assets from 26 fund families). Contrary to popular belief, I find that the proxy advice industry, although still a duopoly, has become less concentrated over the last decade. From 2007 to 2017, ISS's market share declined from 74 percent to 63 percent, while Glass Lewis's increased from 22 percent to 28 percent and Egan-Jones's increased from virtually non-existent to 3 percent.

To study the impact of proxy advice on their clients' votes, previous studies tend to underestimate the influence because votes are pooled across all investors rather than a particular proxy advisor's subscribers. On the other hand, most of them also overestimate the influence because they cannot tease out the possibility that investors and proxy advisors may independently agree on proposal fundamentals so that they vote in the same direction.[2] With the information that links investors to proxy advisors, I examine the votes from a particular proxy advisor's subscribers, and then control for any proposal-specific factors by comparing those votes with other investors' votes on the same proposals. I find that negative recommendations from either ISS or Glass Lewis are followed by significant reductions in their customers' support for the proposal. For example, when ISS recommends voting against a director's election, its customers are 21 percent more likely than other investors who do not subscribe to ISS to vote against this director. Similarly, when Glass Lewis recommends voting against a director, its customers are 29 percent more likely than other investors to vote against the director. I observe the same pattern for say-on-pay proposals, wherein both ISS and Glass Lewis sway around 20 percent of their respective customers'

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[1] A widely circulated conjecture claims that ISS and Glass Lewis jointly controlled 97 percent of the entire proxy advice market. However, the 97 percent figure is from a decade-old survey and is refuted by ISS. See "ISS Letter to Senate Banking Committee", 2018.

[2] One notable exception is Malenko and Shen (2016), who control proposal fundamentals by utilizing a cutoff in ISS's voting guideline, showing that ISS can sway 25 percent of votes on say-on-pay proposals during 2010-2011. My estimate of ISS's influences on say-on-pay proposals is consistent with theirs. Nevertheless, there appear to be no causal studies on either ISS or Glass Lewis's influence on investors' votes for other proposals, such as director elections, which count for over 70% of all votes.

votes. Those patterns can also be observed among shareholder-sponsored environmental, social, and governance proposals.

To control for investors' self-selection into different proxy advisors, I explore quasi-exogenous changes to funds' proxy advisors by examining votes of the funds that have been acquired and have subsequently adopted the acquirers' proxy advisors. This test relies on the identification assumption that funds' consolidation decisions are not driven by or correlated with how they intend to vote in upcoming corporate elections. Using diff-in-diff specifications, I find that the change of proxy advisors driven by consolidation significantly changes the acquired fund's subsequent votes, comparable to the baseline results. Furthermore, I show that such an effect is not driven by fund managers' turnover or the fund's delegation of its voting authority to the new fund family.

A special feature about proxy advisory firms is that both ISS and Glass Lewis sell not only proxy voting advice but also vote execution services. In theory, the use of different voting platforms should not affect how investors vote conditioning on their source of proxy advice. However, I find that among the investors that subscribe to both ISS and Glass Lewis for proxy advice, if an investor uses ISS's voting system, it will be 13 percent more likely to vote with ISS's recommendations when ISS and Glass Lewis disagree. Similarly, an investor will be 21 percent more likely to side with Glass Lewis if it uses Glass Lewis's voting platform. This finding suggests that the pre-population of recommendations from proxy advisors' voting platforms plays a crucial role in investors' over-reliance on proxy advisors' recommendations. Such over-reliance can potentially lead investors to mechanically vote with the pre-populated proxy advisor recommendations.

Indeed, many observers have raised concern about the possibility of investors blindly following their proxy advisors' recommendations, the so-called practice of robo-voting (Iliev and Lowry, 2015; Doyle, 2018; Placenti, 2018). Unfortunately, without knowledge about proxy advisors' customer bases, it's difficult to gauge the severity of robo-voting. Accurately measuring the extent to which investors robo-vote is particularly crucial in light of the current debate on whether proxy advisors should allow issuers an opportunity to respond to proxy advice before recommendations are sent to investors. The debate climaxed in a now-scrapped SEC rule that grants issuers such an opportunity. However, the rule will not be much effective if investors blindly follow their proxy advisors rather than review companies' responses.[3] Indeed, I find that the fraction of ISS customers who almost entirely follow

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[3]As the SEC solicited comments in its rule-making, "In instances where proxy voting advice businesses provide voting execution services (pre-population and automatic submission) to clients, are clients likely to review a registrant's response to voting advice?" See SEC Proposed Rule, Release No. 34-87457.

its recommendations grew from 4 percent in 2007 to 21 percent in 2017, at which time over 40 percent of small funds (and over 50 percent of small index funds) robo-voted. The finding suggests that without discouraging investors' over-reliance on their voting platforms' automatic vote execution feature, the rule will not be much effective: many investors (especially the small ones) are not likely to review companies' responses to proxy advisors' reports, even if they are given a chance to do so. Instead, they simply submit the pre-populated vote recommendations.

Knowing that proxy advisors significantly influence their customers' votes and that many investors simply robo-vote, an important question is how much proxy advice aligns with what investors desire. I find that both ISS and Glass Lewis adjust their recommendations to align with investors' past votes. Specifically, a 10 percent disagreement between investors' votes and an ISS recommendation is associated with a 5.8 percent chance that the proxy advisor subsequently changes its recommendation when the same proposal reappears on the same firm's ballot. Similarly, for Glass Lewis, a 10 percent vote disagreement can result in a 4.4 percent chance that it changes its recommendation. Furthermore, I find that both ISS and Glass Lewis respond more to their existing customers, suggesting that one of their objectives is to appease their clients, thus maximizing profits.

There are two non-mutually exclusive explanations that proxy advisors respond to investors' disagreement. On the one hand, shareholders may possess specialized information about the company, and proxy advisors listen to investors' votes because it is part of their information-acquisition process. On the other hand, profit-maximizing proxy advisors cater to investor preferences because doing so can retain and attract customers. I find evidence that supports both explanations. Specifically, proxy advisors respond more to disagreement from informed investors, supporting the information-acquisition channel. Furthermore, ISS listens more to investors with strong voting preferences, suggesting that it also caters to investors.[4] Finally, I find that proxy advisors listen more to larger investors, consistent with both the information and the catering explanations.

This paper makes several contributions to our understanding of the proxy advisory industry. First, it introduces two methods to infer ISS's and Glass Lewis's mutual fund customers from investors' regulatory filings. From this new information, the paper discovers several novel facts about the industry. I show that, while the industry has become less concentrated during the last decade, a growing number of ISS customers, especially the ones

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[4]Matsusaka and Shu (2021a) argue that proxy advisors have incentives to cater to the investors with strong voting preferences even in the presence of competition. Intuitively, if some investors place little value on how their votes are cast, the advisor designs its recommendation policy to satisfy the funds that do care.

with smaller assets or that sell index funds, have robo-voted. I further show that the pre-population of recommendations from proxy advisors' voting platforms plays a crucial role in investors' over-reliance on proxy advisors' recommendations. Finally, whereas most of the literature focuses on the impact of proxy advice on votes, this paper provides the first empirical exploration of the feedback loop from investors to proxy advisor recommendations, showing that proxy advisors cater to investors' preferences, and that such catering may not be consistent with value-maximization.

Related Literature This paper connects to a growing literature on proxy advisors and institutional investors. Dasgupta, Fos, and Sautner (2020) provide a survey of this literature; here, I will summarize several papers especially related to mine. The research on the influence of proxy advisors' recommendations has produced inconclusive results. Cai et al. (2009), Iliev and Lowry (2015), Larcker et al. (2015), and Malenko and Shen (2016) show that ISS has significant influence over investors' votes, ranging from 19% to 25% of votes. In contrast, Choi et al. (2009) show a much-dampened effect of 6%–10%. Among these papers, Malenko and Shen (2016) provide causal interpretations for ISS's influence on say-on-pay proposals in 2010-2011 by using a cutoff in ISS's voting guideline. There appear to be no causal studies on either ISS's or Glass Lewis's influence on investors' votes for other types of proposals. Matsusaka and Shu (2021b) utilize the same methodology as the present paper to show that proxy advisors do not make their customers' votes more informative.

Theoretical works on proxy advisors are growing. Malenko and Malenko (2019) develop a model to study the provision of information by proxy advisors. Levit and Tsoy (2021) show that proxy advisors can conceal their conflicts of interest by offering one-size-fits-all recommendations. Buechel, Mechtenberg, and Wagner (2021) analyze the conditions under which proxy advisors improve corporate decisions. Recent works, such as Ma and Xiong (2021), Malenko, Malenko, and Spatt (2021), and Matsusaka and Shu (2021a), study proxy advisors' distorted incentives for providing accurate advice. Ma and Xiong (2021) analyze proxy advisors' conflicts of interest. Malenko et al. (2021) show that proxy advisors have incentives to create controversy by biasing their recommendations. Matsusaka and Shu (2021a) show that proxy advisors cater to biased shareholders such as SRI funds and study the industry's equilibrium that emerges.

1 Method to Link Mutual Funds to Proxy Advisors

1.1 Data Sources

Data are compiled across several sources. The initial sample contains the entire mutual fund voting records between 2006 and 2017. Since 2003, mutual funds have been required to report their entire voting record on Form N-PX to the SEC each August. I collect those forms directly from the SEC's EDGAR website. I then link each N-PX form to the ISS Voting Analytics database using the form's accession number, a unique identifier to EDGAR submissions. The ISS Voting Analytics dataset tabulates mutual funds' votes on those N-PX forms. It also provides each proposal's final vote outcome and ISS's recommendation. Because accession numbers only appear in the Voting Analytics dataset after 2006, I restrict the sample of votes to 2006–2017. The final sample contains 82 million votes on 15,886 N-PX forms and covers 20,654 mutual funds' voting records on 438,793 proposals. I also collect each fund's statutory prospectus from EDGAR to investigate whether it mentions contract relationships with proxy advisors. Section 1.2 provides more details.

While the Voting Analytics database provides ISS's recommendations, Glass Lewis's recommendations are not publicly available. I obtained Glass Lewis's recommendations for 2008–2017 through a Freedom of Information Act (FOIA) request to a large public pension. I asked for the name of the pension fund's proxy advisor and the recommendations it received from this advisor. I match those recommendations with the main dataset using company names, meeting dates, and item numbers. I can find Glass Lewis's recommendations for 2590 companies, covering over 80% of the total assets for companies in my main dataset. The Online Appendix I provides a screenshot for the FOIA response and a detailed description of the matching process.

I collect mutual funds' characteristics from the CRSP Mutual Fund Database. I merge fund characteristics with the ISS voting dataset using CIK numbers, which are unique ten-digit numbers that the SEC assigns to filers.[5] Following the literature, I conduct my analysis at the fund-family level (Bolton et al., 2020; Iliev et al., 2020). I first aggregate fund-level observations (82 million votes from 20,654 funds) to the CIK level (39 million votes from

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[5]As noted by Matvos and Ostrovsky (2010), there is no unique fund identifier common to both ISS Voting Analytics and CRSP. Some researchers proceed by matching the two datasets using fuzzy matching techniques based on fund names (Iliev and Lowry, 2015; Boone et al., 2020; Heath et al., 2021). I match the two datasets using CIK numbers. My method generates more precision in matching, except that different mutual funds within the same fund family sometimes have an identical CIK. This is not a concern for my analysis because I aggregate votes to the fund-family level. The ISS Voting Analytics does not provide mutual funds' CIK numbers. I collect CIK numbers from N-PX forms' header files.

2,250 CIKs), and I then aggregate CIK-level observations to the fund-family level using CRSP's identifier for fund management.[6] After this process, the aggregated dataset contains 15 million votes from 501 fund families. It covers 420,391 proposals from 7,897 companies from 2006 to 2017. To avoid verbosity, I occasionally refer to a fund family as simply a fund throughout the rest of the paper. Information on mutual funds' ideology preferences is provided by Bolton et al. (2020). I collect mutual funds' portfolio holding from the Thomson Reuters s12 database. I use the MFLINKS tables from WRDS to match the portfolio holding data with my main data. Table 1 displays summary statistics at the fund-family and the proposal level.

1.2 Voting Platforms and Identities of Proxy Advisors

For each vote on an N-PX form, a mutual fund must disclose (a) the information about the annual meeting (company name, meeting date, etc.), (b) a brief description of the proposal, and (c) how the fund voted. Until a newly proposed rule to enhance proxy voting disclosure, there were no requirements for funds to use a common machine-readable N-PX format or a standardized description of each proposal.[7] Historically, the fillers have had the discretion on how to tabulate, format, and characterize their votes and the issues on which they vote.[8] Mutual funds rarely prepare or file N-PX forms themselves. Instead, they outsource those tasks to their voting platform providers. This is not surprising; most mutual funds have to cast, manage, or report thousands of votes each year, a complicated and time-consuming process that, for some, is just a distraction from their core business. It is hence also unsurprising that the fee to use a proxy voting system is as much as twice the price of the proxy advice itself.[9]

There are three dominant voting platforms: ProxyExchange, Viewpoint, and ProxyEdge. All three provide vote reporting services that tabulate their customers' votes and prepare

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[6]One benefit of using CRSP's fund management identifier instead of ISS's identifier is that ISS lacks consistency in fund identifier from year to year and have sometimes mischaracterized a fund family. This observation is also noted by Boone et al. (2020).

[7]See SEC Proposed Rule, Release No. 34-93169. The proposed rule asks N-PX filers to (a) tie the description of the voting matter to what appears on proxy statements, (b) report the information in a structured data language via an SEC-supplied form, and (c) report the number of shares voted.

[8]For example, BlackRock's N-PX form described the fifth proposal of Apple Inc's 2019 annual meeting as "Disclose Board Diversity and Qualification." JP Morgan Funds described it as "A shareholder proposal entitled True Diversity Board Policy," and TIAA Funds described it as "Shareholder Proposal regarding Disclosure and Board Qualifications." The three N-PX forms also exhibit different formats.

[9]The fees charged by proxy advisors are typically confidential. I collected price information from 11 public pension funds through Freedom of Information Act requests. In the Online Appendix III, I show that the average payment for proxy advice was $69,080, with an additional charge of $161,290 to use the proxy voting system.

the required N-PX forms. They also offer optional add-on vote disclosure services that interactively display their customers' votes on their websites. Owners of two voting platforms are proxy advisors: ISS owns ProxyExchange, and Glass Lewis owns Viewpoint. The third platform, ProxyEdge, is owned by Broadridge, a fintech firm that does not provide proxy advice. Users of ISS's or Glass Lewis's voting platform also have access to the firm's proxy advice.[10]

Identifying each mutual fund's use of a voting platform consists of three steps. In the first step, I identify common formats among all N-PX filings. I find that there are four most commonly used N-PX formats, denoted A.1, A.2, B, and C. Figure 1 displays one example for each of the four common formats. In the second step, I compare proposal descriptions on those four N-PX forms with those on the three voting platforms' vote disclosure services websites (VDS) to link formats to voting platforms. I find that proposal descriptions on type A.1 and type A.2 N-PX forms are identical to those on ISS's VDS websites, that proposal descriptions on type B N-PX forms are identical to those on Glass Lewis's VDS websites, and that type C corresponds to Broadridge's VDS. In the Online Appendix IA.2, I describe in greater detail how I link the four N-PX forms to their respective voting platforms. In the final step, I use each N-PX form's column names to detect its format type (A.1, A,2, B, C, or none of them) and then use the type to identify each fund's use of a voting platform.

To supplement the identification of proxy advisors through the N-PX format, I also scrape each mutual fund's statutory prospectus (Form 485APOS and Form 485BPOS) from the SEC Edgar website. Through keyword searches on those forms, I investigate whether each fund has a contractual relationship with ISS, Glass Lewis, or Egan-Jones.[11] Table 2 provides some examples of statutory prospectus. The table also shows that there is a very high correlation between funds' use of proxy voting systems – identified through N-PX format – and mentioning of this proxy advisor in the prospectus. Table 3 Panel A displays the number of votes and fund families that use each of the three voting systems; Panel B displays the number of fund families that mention different proxy advisors.

Both the N-PX and the prospectus method to identify funds' subscriptions of proxy advisors may suffer from (different) measurement errors. For the N-PX method, while accurately

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[10] In ProxyExchange's marketing document, ISS states that "[ProxyExchange is] one integrated platform for proxy research, voting, and reporting." Regarding Viewpoint, Glass Lewis states that "in-depth Proxy Paper reports are accessible for every meeting you vote."

[11] As a result of two now-withdrawn SEC no-action letters, investment advisers can effectively demonstrate their fiduciary duties if they vote in accordance with an independent proxy advisor. As a result, mutual funds have incentives to disclose their relationships with proxy advisors in their prospectuses. See SEC Staff Letter to ISS and SEC Staff Letter to Egan-Jones. Those two letters have since been withdrawn in 2018.

revealing each mutual fund's voting platform, it cannot identify the funds that subscribe to both ISS and Glass Lewis for proxy advice but use only one platform for vote execution. As for the prospectus method, the identification relies on investors' self-reporting, and sometimes a fund does not specify the names of its proxy advisors (see Table 2.C). Nevertheless, the high degree of correlation between the outcomes of the two methods assuages our concerns about measurement errors. Furthermore, the combination of the two methods can reveal some interesting findings of the industry. For example, Section 2.3 will discuss the use of a proxy advisor's voting system and show that the voting system can affect investors' votes in addition to proxy advice.

1.3 Concentration in the Proxy Service Industry

Some observers are concerned that the concentration of the proxy advisory industry empowers the two firms – ISS and Glass Lewis – with too much significant influence in corporate elections. It is often claimed that the two firms jointly control 97 percent of the entire proxy advice market. However, this widely cited number is inferred from a decade-old survey, which thus does little to inform us about the industry's current and changing competitive landscape.[12]

   To infer each proxy advisor's market share from the information on mutual funds' uses of voting platforms and their disclosure on prospectuses, I aggregate proxy advisor mutual fund customers' total net assets (TNA) and calculate the relative market share of each proxy advisor based on those TNAs. Figure 2 displays the evolution of concentration in the proxy advisory industry from 2007 to 2017. In Panel A, I use the format of each mutual fund's N-PX filings to identify its proxy advisor. The gray area represents mutual funds that use voting systems other than ISS and Glass Lewis. The figure shows, in contrast to popular belief, that the proxy service industry has become less concentrated: as of 2017, ISS and Glass Lewis jointly control 91 percent of the market, compared with 96.5 percent in 2007. ISS is gradually losing its market share – from 74 percent in 2007 to 63 percent in 2017 – to Glass Lewis and other boutique proxy advisors. Glass Lewis's market share increased from 22 to 28 percent.

   One concern with the measurement from N-PX formats is that some large funds subscribe to both ISS and Glass Lewis for proxy advice but use only one firm's voting platform.

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[12]Perhaps more concerning is that the estimation relied on survey participants' self-reporting, and ISS itself rejects the figure, claiming that "while we have seen the widely circulated conjecture that two firms control 97% of the proxy advisory industry, this is not a statistic we have verified or can confirm." Prior to this paper, scholars struggled to identify each proxy advisor's market share based on publicly available information.

In Panel B, I use each mutual fund's statutory prospectus to identify whether it has contractual relationships with ISS, Glass Lewis, or Egan-Jones. We again observe that the proxy advisory industry has become less concentrated during my sample years: ISS's market share decreased from 73 percent to 62 percent from 2007 to 2017, while Glass Lewis's increased from 26 to 34 and Egan-Jones's increased from virtually non-existent to 3 percent. In Internet Appendix VIII, I show that the finding of ISS gradually losing market share to Glass Lewis and Egan-Jones is not driven only by the decisions of the largest investors.

2 How do Proxy Advisors Influence Votes?

2.1 Votes from Proxy Advisor Customers

Proxy advisors give voting recommendations on a large number of corporate policies while maintaining a tiny workforce.[13] Their advice has been criticized for exerting undue influence on the governance of corporations. However, research on the role of proxy advice on investors' votes has produced inconclusive results.[14] One difficulty in estimating proxy advisors' influence arises from the unobserved firm and proposal characteristics that affect both investors' votes and proxy advisors' recommendations. Specifically, relying on correlations between votes and recommendations can result in an upward bias in the interpretation of proxy advisors' influence. Furthermore, researchers can underestimate proxy advisors' influence because votes are pooled across all investors rather than a particular proxy advisor's customers.

Figure 3 displays some basic statistics for investors' votes under different proxy advisor recommendations. Panel A's sample includes votes from all mutual fund families. We observe that when ISS opposes a company's management, investors' support for management declines by 44 percent. On the contrary, Glass Lewis's opposition to management is followed by only a 12 percent reduction in investors' support. The smaller reduction of investors' support from Glass Lewis' opposition than from ISS's opposition can potentially result from two explanations. First, as Section 1.3 has shown, Glass Lewis has fewer subscribers so its recommendations reach fewer investors. Second, it is possible that Glass Lewis' recommendations are less impactful than ISS's recommendations on their respective customers. To investigate those two explanations, Panel B to D separate investors' votes depending on the investors'

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[13]For example, Sharfman (2020) notes that, in 2017, ISS produced recommendations for 250,000 elections across 40,000 shareholder meetings with a research and data staff of 460 persons.

[14]For example, Cai et al. (2009), Iliev and Lowry (2015), Larcker et al. (2015), and Malenko and Shen (2016) show that ISS can influence a large amount of votes, ranging from 19% to 25% of votes. On the contrary, Choi et al. (2009) show a much-dampened effect, 6%–10%.

use of different voting systems or whether they mention different proxy advisors in their prospectus. We observe that negative recommendations from either ISS or Glass Lewis are followed by an equally large withhold in support by the customers of this particular proxy advisor compared with other investors. This result suggests that the difference in reduction we observe in Panel A results primarily from the fact that ISS has more subscribers than Glass Lewis and that their recommendations are similarly impactful on their respective customers.

As mentioned in the introduction, investors and proxy advisors face the same proposal fundamentals, so it may be unsurprising that they reach the same conclusion. To control for unobserved proposal fundamentals, I compare a particular proxy advisor customers' votes with the votes of other investors on the same proposals. This method controls for any proposal-specific factors because both groups face the same proposal fundamentals; the only difference is that one has access to the proxy advisor's recommendations, and the other does not.[15] Specifically, I use the following equation to estimate the difference between the votes of a particular proxy advisor's customers and the votes of other investors. Each observation represents a fund-vote in a proposal: i denotes the fund family, and p denotes the proposal. The dependent variable "Agree with PA$_{ip}$" is a dummy that equals one if the vote is in the same direction as the recommendation of a proxy advisor (ISS or Glass Lewis). The regression controls for fund characteristics, and, more importantly, it includes the proposal fixed effect, which controls for the unobserved proposal-specific factors.

$$\text{Agree with PA}_{ip} = \beta_1 \cdot \text{PA Customer}_{it} + \boldsymbol{\gamma}' \cdot \boldsymbol{Z} + a_p + \varepsilon_{ipt} \tag{1}$$

Table 4 reports the results of OLS regressions. When either ISS or Glass Lewis supports management, its customers are two percent more likely than other investors to support the management. For those uncontentious proposals – many of which are routine issues such as ratifying auditors – the baseline agreement between votes and recommendations is already high (over 90 percent). A two percent increase in support can be thus interpreted as a meaningful effect of a proxy advisor's certification. Among contentious proposals, ISS's opposition to management is followed by a 20 or 21 percent reduction in support for the management from its customers, depending on whether we use the N-PX method or prospectus method to define customers. Similarly, Glass Lewis's opposition to management is followed by a 12 or 21 percent reduction in support for the management from its customers. It is interesting that coefficients from the N-PX method are slightly larger than the

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[15]To the extent that some investors subscribe to proxy advice but do not disclose it in the prospectus or do not use its voting system – i.e., the Type I measurement error – these estimations are lower bounds for proxy advisors' influence.

ones from the prospectus method. This suggests that the use of a proxy advisor's voting system can affect investors' votes in addition to proxy advice. Section 2.3 will discuss it more.

To relate my inference about proxy advisors' influence to the estimate of Malenko and Shen (2016) – who study the effect of ISS recommendations on total votes, I repeat the analyses in Table 4 Panel A's columns 1 and 2 by restricting the sample to say-on-pay proposals while controlling Glass Lewis' recommendations. The regression coefficients, shown in the Online Appendix V, suggest that exogenously changing ISS's recommendations from "For" to "Against" while keeping Glass Lewis recommendations unchanged will reduce the total support of the proposal by $(0.01 + 0.38) * 63\% = 24.6\%$, consistent with Malenko and Shen (2016). Moreover, exogenously changing Glass Lewis's recommendations from "For" to "Against" while keeping ISS recommendations unchanged will reduce the total support of the proposal by $(0.00 + 0.38) * 28\% = 10.6\%$.

In addition to say-on-pay proposals, my approach also enables us to study proxy advisors' influences on other proposal topics, for example, director elections, which, according to Cai et al. (2009) and Fos et al. (2018), have far-reaching implications for corporate governance. In my sample, around 70 percent of all votes are about electing directors. In Table 5, we observe that there is a 21 to 29 percentage withhold in support if the investor's proxy advisor opposes an election of a director. Ertimur et al. (2018) show that part of the reasons that investors respond to proxy advisors' opposition is the rationale behind such negative recommendations. Table 5 also studies investors' votes on governance and environmental and social (E&S) proposals, and Figure 4 further breaks down proposals into the top 20 most common proposal types. We again observe that there are large reductions in investors' support across different issues if their proxy advisor opposes the proposal.

2.2   Change of Proxy Advisors & Quasi-Exogenous Change Due to Acquisition

Another way to gauge proxy advisors' influence is to examine the voting patterns of investors that switched proxy advisors. Throughout my sample, 22 fund families switched from using ISS's voting platform to using Glass Lewis's platform, and 10 fund families switched from Glass Lewis to ISS.

Let's consider the following regression,

$$\text{Agree with PA}_{i,t+1} - \text{Agree with PA}_{i,t} = \beta_0 + \beta_1 \cdot \text{Switch}_{it} + \boldsymbol{\gamma'} \cdot \boldsymbol{Z} + \varepsilon_{it} \qquad (2)$$

where "Agree with PA$_{i,t}$" is the fraction of fund i's votes that are cast in the same direction as a proxy advisor's recommendations in year t. As in Equation 1, this fraction can be

calculated by using proposals on which the proxy advisor supports or opposes management. The independent variable "Switch$_{it}$" is a dummy variable that represents whether the fund changes its proxy advisor between the year t and the year $t+1$.

Table 6 reports the results of the estimation. In Panel A, we observe that, after a fund family switches from using ISS's voting system to using Glass Lewis's voting system, its votes become 4 to 23 percent less likely to be cast in the same direction as ISS recommendations depending on whether ISS supports or opposes management. On the other hand, its votes become 4 to 38 percent more likely to be aligned with Glass Lewis recommendations depending on whether Glass Lewis supports or opposes management. In Panel B, we observe similar results for investors that change their proxy advisors from Glass Lewis to ISS.

One may be concerned that the above findings can be driven by investors' endogenous decisions to adopt a different proxy advisor. In other words, they have already disagreed with their current proxy advisor and that the switch is driven by its changing voting preferences. To mitigate this self-selection concern, I also examine votes of individual funds that have changed proxy advisors because they were acquired by another fund family. By utilizing this quasi-exogenous change of proxy advisors, I rely on an identifying assumption that funds' decisions to consolidate are not driven by how they intend to vote in upcoming corporate meetings.

To identify funds that have been acquired, I search CRSP mutual fund database for funds that have changed management during my sample years. I then confirm the acquisition by conducting searches on Nexis-Lexis, SDC Platinum, and the internet. As a result, I can find that 348 funds (from 90 families) have changed management between 2007 and 2017. Among them, 19 funds (from 6 families) have adopted their acquirers' proxy advisors. Internet Appendix VII lists the acquired funds. I notice that none of the press releases or news of the acquisitions have mentioned the acquired funds' disagreement with the old management's proxy voting policies; Instead, most of them are related to the expansion of the acquirer's wealth management business, which validates my identifying assumptions.

Table 7 reports regression results of Equation 1 using the sample of acquired funds that have subsequently adopted their new managements' proxy advisors. The estimation includes both the fund and the year fixed effects for a diff-in-diff specification.[16] The table shows that recommendations from either ISS or Glass Lewis can strongly affect its customers' votes, comparable to the results of Table 6. Furthermore, to eliminate the cases where the acquired funds underwent fundamental changes, I restrict the sample in Panel

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[16]The results are qualitatively similar if I include the fund and the proposal fixed effect.

B to the acquired funds that (i) do not experience fund manager turnovers and (ii) do not completely delegate voting authority to the new management. There is little change in the estimates.

2.3 The Effect of Voting System

Both ISS and Glass Lewis sell not only proxy advice but also vote execution services through the use of their voting platforms. As discussed in Section 1.2, ISS's and Glass Lewis's vote execution services help investors execute votes, manage voting results, and file the required N-PX forms. In Online Appendix III, I provide a rough estimate that the use of a proxy advisor's voting system is as much as twice the price of the proxy advice itself for pension fund investors.

With the information on each mutual fund's voting platform and the information on whether it has contractual relationships with each proxy advisor, I can examine the effect of using one proxy advisor's voting platform while subscribing to both ISS and Glass Lewis for proxy advice on an investor's votes. This information is important because many observers are concerned about investors' over-reliance on their voting platforms' automatic voting execution feature. Such over-reliance can potentially lead investors to mechanically vote with the pre-populated proxy advisor recommendations.

Table 8 shows that among the investors that subscribe to both ISS and Glass Lewis for proxy advice, if an investor uses ISS's voting system, it will be 13 percent more likely to vote with ISS's recommendations when ISS and Glass Lewis disagree. Similarly, an investor will be 21 percent more likely to side with Glass Lewis if it uses Glass Lewis's voting platform. This finding is striking in the sense that the use of which voting platform, in theory, should not affect how investors vote conditioning on the source of proxy advice. In contrast, the findings in Table 8 show that the use of a proxy advisor's voting system can further sway investors' votes in addition to proxy advice. One explanation for such a phenomenon is that the pre-population of recommendations from proxy advisors' voting platforms has played a crucial role in investors' over-reliance on proxy advisors' recommendations. In the extreme, investors may robo-vote with their proxy advisor recommendations through the voting system's automatic vote submission feature.

2.4 Robo-Voting: Investors Blindly Following Proxy Advisors

The problem with investors blindly following proxy advisors, potentially through automatic vote execution, has concerned many industry participants and regulators. A survey given to

one hundred issuers shows that around 20 percent of votes are executed within three business days after ISS issues its recommendations (Placenti, 2018). Accurately measuring the extent to which investors automatically execute votes is crucial to the debate on regulations in the proxy advisory industry. The debate climaxed in a now-scrapped SEC rule in 2020 that gives companies a chance to respond to a proxy advisor's analysis and is intended to reduce proxy advisors' factual errors. The rule will be effective only if investors review companies' responses rather than robo-vote with their proxy advisors. As the SEC solicited comments in its preliminary proposed rule, "In instances where proxy voting advice businesses provide voting execution services (pre-population and automatic submission) to clients, are clients likely to review a registrant's response to voting advice?[17]"

With the information on ISS's and Glass Lewis's customer bases, I can estimate the prevalence of robo-voting among investors who use their voting systems.[18] I define an investor as an ISS robo-voter if (i) the fund is an ISS customer, identified through the format of its N-PX form, (ii) more than 99.9 percent of its votes are aligned with ISS recommendations, and (iii) more than 99.9 percent of its votes on proposals where ISS opposes management are aligned with ISS recommendations. This definition is very strict in the sense that the third condition means that a robo-voter sides with management in less than 0.1 percent of contentious votes. It is hence unlikely that the flag for robo-voting results from the coincidental agreement between the investors and ISS.[19] I define Glass Lewis robo-voters analogously.

Table 9 Panel A displays the number and the fraction of ISS robo-voters. We can see that the practice of robo-voting among investors who use the ISS voting system has been rising in popularity. From 2007 to 2017, the fraction of robo-voting ISS customers grew from

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[17]See SEC Proposed Rule, Release No. 34-87457.

[18]Previous studies have measured the extent to which investors robo-vote (Iliev and Lowry, 2015; Doyle, 2018). For example, Iliev and Lowry (2015) show that around 25% of all mutual funds rely almost entirely on ISS recommendations. Nevertheless, Iliev and Lowry (2015) also remarked that they tend to underestimate the severity of robo-voting because they do not know proxy advisors' customer bases: "to the extent that some funds rely on a proxy advisory service other than ISS, we actually underestimate the frequency of passive voting." Using their definition, I find that 45% of investors that use the ISS voting system robo-vote during their sample years. It makes sense to use the N-PX method to define proxy advisor customers for the purpose of robo-voting analyses. This is because investors that use ISS's voting system have never robo-voted with Glass Lewis, and investors that use Glass Lewis' voting system have never robo-voted with ISS. Regardless, the results below are similar if I use either the N-PX method or the prospectus method to define proxy advisors' customer bases.

[19]My definition is more strict than those of Iliev and Lowry (2015) and Doyle (2018), who require only the second condition but not the third (and they cannot require the first condition). Given that most proposals are not contentious, using the 99.9 percent threshold on all proposals may be too loose for a robo-vote flag. For example, Doyle (2018) flags the mutual fund AQR as a robo-voter because the fund family followed ISS's recommendations on more than 99.9% of all proposals in 2017. However, if we restrict the sample to contentious proposals, AQR agreed with ISS only 97.5% of the time; there were 36 contentious proposals for which AQR's votes deviated from ISS's recommendations.

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4 to 21 percent (the fraction of votes that robo-voted grew from 2 to 14 percent). On the contrary, it is uncommon for Glass Lewis customers to robo-vote. Furthermore, investors can blindly rely on management's recommendations, especially those who do not subscribe to any proxy advice. Indeed, the table indicates that robo-voting with management is also widespread: in 2017, 17 investors, none of which use either the ISS or Glass Lewis voting system, blindly followed management's recommendations.

One immediate question is, who are those robo-voters? Are they index funds that have less incentive to pay due diligence in voting, as suggested by Lund (2017) and Heath et al. (2021)? To answer this question, Table 9 Panel B reports the results of OLS regressions on whether a fund is a robo-voter as a function of its characteristics. It shows that ISS customers who provide index products are 6 percent more likely to robo-vote than non-indexers. This finding comports with the argument of Lund (2017) that index funds lack incentives to ensure well-run companies because they do not seek to outperform the index. Nevertheless, the result is not inconsistent with Appel et al. (2016), who argue that passive investors exert influence on corporate governance through their large voting blocs. Specifically, the table shows that doubling a fund family's asset size can decrease the probability of it being an ISS robo-voter by 3 percent and of being a management robo-voter by 2 percent. Another interesting finding is that investors that use the ISS's platform to vote but have contract relationships with both ISS and Glass Lewis are 6 percent less likely to robo-vote with ISS compared to investors that contract with ISS only. This finding holds even after controlling for asset size, suggesting that investors that subscribe to both ISS and Glass Lewis tend to be the ones that are more engaged in corporate governance.

Figure 5 illustrates the prevalence of robo-voting among investors with different asset sizes. In Part A, we see that around half of the smallest ISS customers have robo-voted in 2017. The figure also suggests that larger investors and non-indexer investors are less likely to robo-vote. In Part B, we observe that the rise of popularity of robo-voting is particularly pronounced among smaller investors, rising from less than 5 percent to more than 40 percent.

3 How Can Proxy Advice Be Influenced?

Previous study by Malenko and Shen (2016) shows that ISS recommendations have significant causal effects on investors' votes on say-on-pay proposals. My evidence on those proposals is consistent with theirs, and I further show that proxy advisors' influence extends to director elections and environmental, social, and governance proposals. Additionally, the

use of one proxy advisor's voting platform can further sway investors' votes, potentially through vote pre-population and automatic vote execution. From a normative perspective, it is not clear whether proxy advisor recommendations and investors' reliance on them create or destroy value. On the one hand, proxy advisors provide an independent source of information, and they also aggregate investor preferences.[20] On the other hand, they are for-profit companies, and as a result, their advice potentially suffers from conflicts of interest. For example, Matsusaka and Shu (2021a) argue that proxy advisors cater to investors' preferences – especially the ones with polarized ideologies and that the equilibrium recommendations do not necessarily reflect the preference of a median voter.[21] In this section, I will study whether proxy advisors cater to investor preferences and to which investors' preferences.

3.1 Proxy Advisors' Response to Investors' Disagreement

To study whether proxy advisor recommendations can be influenced by investors, I examine the relationship between recommendations and investors' past votes. Specifically, I use the following equation to estimate whether a proxy advisor changes its recommendation on a proposal in response to investors' past disagreement with it. The dependent variable is a dummy that equals one if the proxy advisor supports/opposes the proposal in the current year (year t) but has opposed/supported the same company's same proposal when it last appeared (year $t - s$). The independent variable is the fraction of investors' votes that are cast in the different directions as the proxy advisor's recommendation in year $t - s$.

$$|\text{Advice}_{p,t} - \text{Advice}_{p,t-s}| = \beta_1 \cdot \text{Investor Disagreement}_{p,t-s} + a_p + \varepsilon_{p,t} \tag{3}$$

To link proposals within the same company, I use directors' names for director elections and hand-coded proposal types for other issues.[22] Table 10 displays the frequency with which ISS or Glass Lewis changes its recommendations on different issues. We observe that both proxy advisors have regularly changed their standpoint on many issues.

It is worth noting that the β_1 coefficient does not capture the effect of new information in year t, for example, deteriorating firm performance or more entrenched executive pay.

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[20]For example, Aggarwal et al. (2014) present evidence that proxy advisors respond to changing public opinions. Larcker et al. (2013) show that proxy advisors regularly hold roundtables with industry groups, although the authors also argue that ISS's data collection process relies on a very small number of participants.

[21]Other works also highlighted proxy advisors' conflict of interest. For examples, see Li (2018), Levit and Tsoy (2021), Ma and Xiong (2021), and Malenko et al. (2021).

[22]The ISS Voting Analytics dataset lacks consistency in defining proposal types. The results are robust to using ISS Voting Analytics' proposal definitions, shown in Online Appendix IX.

This is because, as the following figure illustrates, the dependent variable is the change of recommendations between year t and $t - s$. Information about the change of fundamentals that can potentially affect the dependent variable (for example, the more entrenched pay package in year t) only occurs after the votes in year $t - s$ have already been determined. In other words, the new information about deteriorating fundamentals or a more entrenched pay package (omitted variable) is uncorrelated to investors' votes in year $t - s$ (independent variable). For the same reason, we can rule out the effect of contemporaneous drift in investors' and proxy advisors' preferences. Instead, the β_1 coefficient measures the tendency of a proxy advisor to change its recommendation after seeing investors' disagreement with its view of the existing fundamentals.[23]
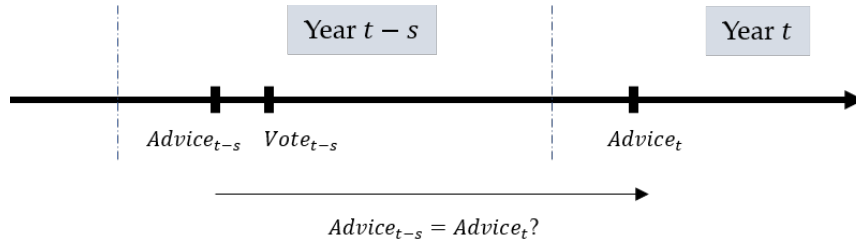
Table 11 reports the regression results of Equation 3. Columns 3 and 7 include the Firm×Proposal effect to control for the firm- and proposal-specific characteristics. The result indicates that a 10 percent additional disagreement between investors' votes and ISS recommendation can result in a 5.8 percent additional chance that the proxy advisor subsequently changes its recommendation when the same proposal reappears in the same company's ballot. Glass Lewis also listens to investors: a 10 percent additional disagreement between investors' votes and its recommendations will result in a 4.4 percent additional chance that it changes its recommendation. Panel A's Columns 4 and 8 include the proposal type × proposal age fixed effect, where the proposal age is the number of years since the same proposal first appeared on the firm's ballot. The purpose of this analysis is to alleviate the possibility that there exists initial uncertainty about certain types of proposals among both investors and proxy advisors due to unfamiliarity. The results continue to hold. In Panel B, we observe that the feedback from investors' votes to proxy advisors' recommendations appears in director elections, say-on-pay proposals, and other proposal types.

Another interesting finding, shown in Table 12, is that both ISS and Glass Lewis are more

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[23]At least one of the following two conditions must hold for β_1 to be significantly different from zero: (i) investors have information about the proposal or the company that the proxy advisor did not yet have when it issued the recommendation in year $t - s$; (ii) the proxy advisor does not fully know investors' preferences about the proposal. If neither condition holds, then there is nothing that the proxy advisor can learn from investors. Section 3.2 teases out the two possibilities.

responsive to their existing customers than to other investors. This finding resonates with the idea that they have profit incentives to appease their customers. Moreover, both advisors also listen to investors who do not subscribe to either ISS or Glass Lewis, perhaps aiming to expand their market shares. It's worth noting that the difference of coefficients in Table 12 can result from the different sample sizes of ISS and Glass Lewis customers or their different asset sizes (as Section 3.2 will show, proxy advisors respond more to larger investors). In Online Appendix X, I match the votes of a proxy advisor's customers with the votes of other investors with similar asset sizes. The result continues to hold.

3.2   Which Investors Do Proxy Advisors Listen To?

There are two non-mutually exclusive explanations for the observation that proxy advisors change their recommendations after investors' disagreement. On the one hand, investors may possess better information, and proxy advisors thus may learn from their disagreement. In other words, proxy advisors may realize they have made an error if they find that many investors deviate from their recommendations. On the other hand, proxy advisors may align their recommendations to investor preferences because doing so can retain and attract customers and hence increases profits. To examine those two explanations, I study the characteristics of investors to whom proxy advisors listen more. If the change of recommendations is part of proxy advisors' information-acquisition process, we expect that they listen more to investors with a greater amount of information on the proposal. On the other hand, suppose the change is due to proxy advisors' catering to investor preferences. In that case, we expect that they respond more to investors with stronger voting preferences because those are the investors that actively select different proxy advisors. For both explanations, we would also expect proxy advisors to listen more to larger investors because they have more resources to be informed while also meaning greater revenues to proxy advisors. Table 13 Panel A indicates that proxy advisors indeed respond more to investors with greater amounts of assets. Specifically, an additional 10 percent disagreement from larger investors induces a 3.7 to 4.6 additional chance that a proxy advisor subsequently changes its recommendations; in contrast, a 10 percent disagreement from smaller ones leads to only a 0.7 to 1.2 percent additional chance.

Panels B and C of Table 13 suggest that part of the reason that proxy advisors listen to investors is that they gather information from investors' votes. In Panel B, we observe that proxy advisors listen more to investors who have larger portfolio weights in the company. Specifically, I find that proxy advisors respond more to the disagreement from investors that put more than 1% of their assets in the firms. Iliev et al. (2020) provide evidence that

investors are more likely to conduct governance research in firms where their investment is larger. To control for the effect of fund family size, I match each vote from one group with a vote from the other with the closest total net assets. Similarly, in Panel C, we observe that both ISS and Glass Lewis listen more to investors that are blockholders of the firm, again suggesting that proxy advisors respond more to investors with greater amounts of information.

As regards whether proxy advisors listen to investors because they cater to their preferences, Table 12 has shown that proxy advisors are more responsive to their existing customers than to other investors, suggesting that they have profit incentives to appease their customers. Furthermore, in Table 13's Panel D, we observe that both ISS and Glass Lewis appear to listen more to investors with strong voting preferences, measured by whether the investor's W-NOMINATE score is in the two extremes. This finding comports with the theoretical argument of Matsusaka and Shu (2021a) that proxy advisors cater to investors with polarized preferences. Intuitively, those are the investors who put a higher weight on proxy advisors' ideologies and are the marginal investors that determine a proxy advisor's demand.

4 Conclusion

The value of the proxy advisory industry remains a matter of continual debate. Many questions remain unanswered due to the lack of information that links investors to their proxy advisors. A key innovation of this paper is that it uses previously unnoticed features of regulatory filings to identify each mutual fund's subscription to proxy advice. From this new information, I discover several novel facts about the industry.

The two largest proxy service firms ISS and Glass Lewis provide both proxy advice services and vote execution services through their voting platforms. The industry, although still a duopoly, became less concentrated from 2007 to 2017. Nevertheless, proxy advisor recommendations have significant effects on their customers' votes, and the use of a proxy advisors' voting platform can further sway investors' votes in addition to proxy advice. I highlight the fact that proxy advisors' voting platforms play a crucial role in investors' over-reliance on proxy advisors' recommendations. In the extreme, investors may robo-vote with their proxy advisor recommendations through the voting system's automatic vote submission feature. In fact, robo-voting has become increasingly prevalent among ISS customers, especially the ones with smaller assets and that sell index funds.

There exists a feedback loop from investors' votes to proxy advisors' recommendations.

This feedback loop results from both proxy advisors' information acquisition process and their incentives to cater. Because proxy advisors are for-profit companies and their objectives may differ from those of their clients, it is an open question whether recommendations create or destroy value. Another interesting question for future research is to empirically examine whether proxy advice allows investors to cast informed votes.

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Table 1: Summary Statistics

(A) Mutual Funds

This table displays the summary statistics at the fund-family level. A fund family is defined as unique fund management in the CRSP Mutual Fund Dataset. One observation is a fund family-year. An individual fund is an "ESG" fund if its name contains any of the following words: esg, social, climate, environment, impact, responsible, carbon, and fossil. A fund is an "institutional" fund if it's flagged by CRSP as an institutional fund. A fund is an "index" fund if either it's flagged by CRSP as an index fund or its name contains any of the following phrases: index, idx, indx, inds, russell, s & p, s and p, s&p, sandp, sp, dow, dj, msci, bloomberg, kbw, nasdaq, nyse, stoxx, ftse, wilshire, morningstar, 100, 400, 500, 600, 900, 1000, 1500, 2000, 5000 (Iliev and Lowry, 2015). Management fee and expense ratio for the family are the TNA-weighted averages among all funds in the family. The age of the management is defined as the difference between the current year and the fund's earliest offer year. Fund families' uses of voting platforms are inferred from their N-PX filings. I keyword search each fund family's prospectuses on variations of ISS, Glass Lewis, and Egan-Jones. Many fund families have multiple prospectuses in a year; I flag the dummy to one if there is at least one mention of the advisor. "% Agree With ISS/GL/Management" represents the fraction of proposals that the fund votes in the same direction as ISS/GL/management's recommendations. I define a family as an ISS robo-voter if (i) the fund is an ISS customer, identified through the format of its N-PX form, (ii) more than 99.9 percent of its votes are aligned with ISS recommendations, and (iii) more than 99.9 percent of its votes on proposals where ISS opposes management are aligned with ISS recommendations. Glass Lewis and management robo-voters are defined analogously.

	Obs	Mean	Std	5%	25%	Median	75%	95%
Characteristics								
Age of the Management	2,491	29.20	22.76	3.00	14.00	23.00	35.00	80.00
Total Net Assets (in 10^6)	2,491	60.41	243.81	0.03	0.56	4.42	26.83	236.43
Number of Votes (in 1000)	2,491	5.40	6.85	0.06	0.69	2.37	7.43	22.22
Provide Any ESG Funds	2,491	0.07	0.26	0.00	0.00	0.00	0.00	1.00
Provide Any Institutional Funds	2,491	0.76	0.43	0.00	1.00	1.00	1.00	1.00
Provide Any Index Funds	2,491	0.31	0.46	0.00	0.00	0.00	1.00	1.00
Management Fee	2,474	0.64	0.43	0.13	0.44	0.63	0.86	1.16
Expense Ratio	2,474	0.01	0.00	0.00	0.01	0.01	0.01	0.02
Voting Platform (N-PX Format)								
Use ISS ProxyExchange	2,491	0.51	0.50	0.00	0.00	1.00	1.00	1.00
Use GL Viewpoint	2,491	0.07	0.26	0.00	0.00	0.00	0.00	1.00
Use Broadridge ProxyEdge	2,491	0.24	0.43	0.00	0.00	0.00	0.00	1.00
Use Others	2,491	0.18	0.39	0.00	0.00	0.00	0.00	1.00
Proxy Advisors in Prospectus								
Mention ISS in Prospectus	2,367	0.54	0.50	0.00	0.00	1.00	1.00	1.00
Mention GL in Prospectus	2,367	0.29	0.45	0.00	0.00	0.00	1.00	1.00
Mention EJ in Prospectus	2,367	0.04	0.20	0.00	0.00	0.00	0.00	0.00
Votes								
% Agree With ISS	2,491	0.91	0.12	0.72	0.89	0.93	0.97	1.00
% Agree With GL	2,156	0.87	0.10	0.71	0.85	0.89	0.92	0.98
% Agree With Management	2,491	0.90	0.12	0.72	0.89	0.92	0.96	1.00
Robo Vote With ISS	2,491	0.10	0.30	0.00	0.00	0.00	0.00	1.00
Robo Vote With GL	2,491	0.01	0.09	0.00	0.00	0.00	0.00	0.00
Robo Vote With Mgmt	2,491	0.06	0.24	0.00	0.00	0.00	0.00	1.00

Table 1: Summary Statistics (Continued)

(B) Proposals

This table reports summary statistics for proposals. The sample covers 7489 firms from 2006-to 2017. I hand-code proposal types by examining each proposal's general description and issue description. "# of Items" represents the number of proposals that are being voted on. "Mgmt Sponsor" represents the fraction of the proposals sponsored by management. "Mgmt For", "ISS For", or "GL For" represents the fraction that management, ISS, or GL recommends voting for the proposal. "% Vote (ISS)" or "% Vote (GL)" represents the fraction of ISS or GL's customers that voted for the proposal. The definitions of proxy advisor customers from the N-PX method and the prospectus method are explained in Section 1.2. "Prop Passed" represents the fraction of proposals that are passed.

	# of Items	Mgmt Sponsor	Mgmt For	ISS For	GL For	N-PX % Vote (ISS)	N-PX % Vote (GL)	Prospectus % Vote (ISS)	Prospectus % Vote (GL)	Prop Passed
Routine Proposals										
Director Election	264261	100%	100%	89%	90%	90%	91%	90%	90%	93%
Say-on-pay	20695	99%	98%	88%	84%	89%	86%	89%	87%	96%
Compensation (others)	3447	85%	85%	88%	86%	85%	84%	85%	86%	84%
Ratify auditors	40164	100%	100%	99%	98%	99%	98%	98%	98%	97%
Governance Proposals										
Declassify board	1346	61%	61%	99%	100%	95%	96%	95%	93%	79%
Golden parachutes	810	100%	100%	74%	83%	78%	80%	75%	77%	89%
Majority vote	696	32%	33%	99%	100%	84%	86%	83%	88%	62%
Independent chair	623	0%	0%	65%	93%	43%	44%	45%	50%	5%
Proxy access	330	16%	18%	90%	75%	76%	61%	72%	67%	50%
Written consent	252	23%	23%	88%	98%	69%	66%	69%	70%	34%
Special meeting	475	38%	41%	93%	78%	79%	56%	78%	73%	55%
Supermajority (adopt)	51	100%	100%	10%	0%	20%	17%	20%	16%	69%
Supermajority (eliminate)	680	76%	77%	97%	97%	95%	95%	94%	94%	76%
Poison pill (adopt)	511	80%	79%	80%	82%	73%	79%	72%	75%	81%
Poison pill (eliminate)	35	100%	100%	86%	100%	85%	88%	85%	85%	83%
Cumulative voting (adopt)	205	0%	0%	91%	54%	56%	31%	54%	43%	2%
Cumulative voting (eliminate)	73	100%	100%	64%	90%	76%	78%	76%	79%	77%
Board size (increase)	86	100%	100%	97%	100%	96%	95%	96%	95%	88%
Board size (decrease)	32	100%	100%	100%	100%	99%	93%	98%	97%	88%
Classify board	53	100%	98%	11%	0%	21%	27%	20%	19%	58%
Social Proposals										
Sustainability (climate change)	69	0%	0%	65%	15%	38%	18%	34%	25%	1%
Sustainability (GHG)	186	0%	0%	72%	17%	39%	21%	36%	26%	2%
Sustainability (Renewable)	40	0%	0%	45%	3%	25%	10%	23%	13%	0%
Sustainability (report)	203	0%	0%	76%	30%	43%	30%	40%	33%	2%
Board diversity	49	0%	0%	71%	45%	43%	41%	42%	37%	6%
Gender pay gap	78	0%	0%	8%	29%	9%	16%	8%	11%	0%
Equal employment opportunity	142	0%	0%	75%	22%	45%	24%	43%	37%	4%
Animal rights	131	0%	2%	8%	5%	9%	7%	7%	7%	2%
Human rights	53	0%	0%	40%	35%	23%	13%	20%	15%	0%

Table 2: Mentioning of Proxy Advisors in Statutory Prospectus Filings

Panel A provides an example of a mutual fund's statutory prospectus (Form 485APOS or Form 485BPOS) that mentions the name of a proxy advisor – ISS in this case. I search for different name variations for ISS, Glass Lewis, and Egan-Jones in each prospectus. Panel B provides an example that mentions both ISS and Glass Lewis in the prospectus. Mutual funds sometimes do not mention in their prospectus the names of their proxy advisors. Panel C provides such an example. Panel D displays OLS regressions of funds' use of proxy voting systems (identified from vote disclosure format) as a function of whether it has mentioned such proxy advisors (identified from prospectus). Each observation represents a fund family-year. *,**, and *** denote statistical significance at the 10%, 5%, and 1% levels.

(A) Example I – John Hancock Funds

MAM has contracted with Institutional Shareholder Services Inc. ("ISS) an independent third party service provider, to vote clients' proxies. The Firm has adopted ISS proxy voting recommendations and established corresponding Firm Proxy Voting guidelines. Proxies will be voted in accordance with the voting recommendations contained in the applicable domestic or global ISS Proxy Voting Manual, as in effect from time to time. Except in instances where a MAM's client retains voting authority, MAM will instruct custodians of client accounts to forward all proxy statements and materials received in respect of client accounts to ISS

(B) Example II – Morgan Stanley Funds

Proxy Research Services — RiskMetrics Group ISS Governance Services ("ISS") and Glass Lewis (together with other proxy research providers as we may retain from time to time, the "Research Providers") are independent advisers that specialize in providing a variety of fiduciary-level proxy-related services to institutional investment managers, plan sponsors, custodians, consultants, and other institutional investors. The services provided include in-depth research, global issuer analysis, and voting recommendations. While we may review and utilize the recommendations of the Research Providers in making proxy voting decisions, we are in no way obligated to follow such recommendations. In addition to research, ISS provides vote execution, reporting, and recordkeeping.

(C) Example III – Variant Investments

The Investment Manager may delegate our responsibilities under the Proxy Policy to a third party proxy voting service, however, no such delegation will relieve the Investment Manager of its responsibilities. The Investment Manager will retain final authority and fiduciary responsibility for such proxy voting.

(D) Correlation With the Use of Proxy Voting System

	(1)	(2)	(3)
	Use ISS ProxyExchange	Use Glass Lewis Viewpoint	Use Others
Prospectus Mentioning ISS	0.46***	-0.11***	-0.35***
	(0.02)	(0.01)	(0.02)
Prospectus Mentioning Glass Lewis	-0.15***	0.22***	-0.06***
	(0.02)	(0.01)	(0.02)
Prospectus Mentioning Egan-Jones	0.07	-0.03	-0.03
	(0.04)	(0.02)	(0.04)
Constant	0.31***	0.07***	0.62***
	(0.01)	(0.01)	(0.01)
Adjusted R^2	0.21	0.16	0.13
Observations	2,609	2,609	2,609

Table 3: Proxy Voting Systems & Proxy Advisors

Panel A displays the number of votes and fund families that use each of the following three voting systems: ISS ProxyExchange, Glass Lewis Viewpoint, and Broadridge ProxyEdge. Funds' voting systems are identified from their N-PX filings. Panel A displays the number of votes and fund families that mention variations of ISS, Glass Lewis, and Egan-Jones in their prospectus filings. In both panels, votes are aggregated at the fund family level.

(A) Proxy Voting Systems

	Number of Votes				Number of Fund Families			
	ISS	Glass Lewis	Broad-ridge	Others	ISS	Glass Lewis	Broad-ridge	Others
2007	512,691	18,023	64,663	28,455	94	3	32	11
2008	557,023	18,554	71,664	43,439	98	3	34	11
2009	661,117	16,365	103,927	80,786	109	4	34	20
2010	623,240	106,479	107,846	113,940	103	15	36	16
2011	637,149	153,347	148,595	121,122	97	18	50	18
2012	712,439	170,096	182,225	105,054	96	18	53	17
2013	649,202	197,240	193,790	99,430	89	20	56	15
2014	845,453	190,483	211,721	101,597	109	20	63	11
2015	1,025,536	247,572	213,040	299,934	124	28	73	127
2016	1,040,756	208,280	231,220	213,333	124	26	75	116
2017	1,100,786	212,593	253,972	154,821	132	26	75	83
All years	9,891,568	1,715,367	2,013,859	1,551,121	231	48	121	198

(B) Mentioning of ISS, Glass Lewis, and Egan-Jones in Prospectus Filings

	Number of Votes				Number of Fund Families			
	ISS	Glass Lewis	Egan-Jones	None	ISS	Glass Lewis	Egan-Jones	None
2007	429,222	142,895	4,723	128,158	78	26	2	48
2008	462,198	151,840	14,158	143,740	86	28	4	44
2009	551,081	234,097	17,361	230,214	88	33	4	60
2010	575,276	371,225	23,151	242,796	86	48	5	60
2011	696,617	439,533	29,523	221,116	102	57	6	61
2012	834,655	479,230	36,370	171,454	105	55	6	58
2013	784,903	448,136	65,997	153,937	94	52	9	59
2014	961,360	546,879	76,532	167,502	120	68	10	54
2015	1,257,691	902,410	186,301	220,021	152	106	19	140
2016	1,233,226	846,365	182,814	218,648	152	102	18	132
2017	1,236,615	848,818	154,848	237,366	143	98	13	115
All years	10,513,440	6,244,981	905,273	2,468,240	247	169	38	263

Table 4: Proxy Advisors' Recommendations & Votes of Their Customers

This table reports OLS regressions for whether a fund vote is aligned with a proxy advisor's recommendation as a function of whether the fund is a customer of this proxy advisor. Each observation represents a fund vote. In both panels, columns 1 and 2 (columns 3 and 4)'s dependent variable is a dummy variable that equals one if the fund vote is cast in the same direction as ISS's (Glass Lewis's) recommendation. The independent variables are dummy variables that equal one if the fund family is an ISS customer or a GL customer in the current year. Each observation represents a fund-vote. Panel A uses the N-PX method to identify each fund as a ISS or GL customer; Panel B uses the prospectus method. All columns include proposal fixed effect and controls for fund-family characteristics appeared in Table 1A. Standard errors are clustered at the fund family-year level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels.

(A) Using The N-PX Format Method

	Dependent Variable = 1 if the Vote Is Aligned With ISS Recommendation		Dependent Variable = 1 if the Vote Is Aligned With GL Recommendation	
	ISS Supports Management	ISS Opposes Management	GL Supports Management	GL Opposes Management
	(1)	(2)	(3)	(4)
Use ISS Voting System	0.02***	0.21***		
	(0.00)	(0.02)		
Use GL Voting System			0.02***	0.21***
			(0.00)	(0.03)
Controls	Yes	Yes	Yes	Yes
Proposal Effect	Yes	Yes	Yes	Yes
Adjusted R^2	0.07	0.13	0.23	0.35
Observations	13,487,169	1,404,348	7,172,887	804,659
Clusters	2,710	2,653	2,375	2,348

(B) Using The Prospectus Method

	Dependent Variable = 1 if the Vote Is Aligned With ISS Recommendation		Dependent Variable = 1 if the Vote Is Aligned With GL Recommendation	
	ISS Supports Management	ISS Opposes Management	GL Supports Management	GL Opposes Management
	(1)	(2)	(3)	(4)
Prospectus Mentioning ISS	0.02***	0.20***		
	(0.00)	(0.02)		
Prospectus Mentioning GL			0.01***	0.12***
			(0.00)	(0.01)
Controls	Yes	Yes	Yes	Yes
Proposal Effect	Yes	Yes	Yes	Yes
Adjusted R^2	0.07	0.12	0.23	0.35
Observations	12,862,721	1,343,412	6,834,997	764,834
Clusters	2,568	2,512	2,250	2,224

Table 5: Investors' Votes in Director Elections, Say-on-pay Proposals, and Environmental, Social, and Governance Proposals

This table reports OLS regressions for whether a fund vote, in different proposal types, sides with a proxy advisor's recommendation as a function of whether the fund is a customer of this proxy advisor. Each observation represents a fund vote. Dependent variables in Panel A (Panel B) are dummy variables that equal one if the vote is in the same direction as ISS's (Glass Lewis's) recommendation. Independent variables in columns 1-4 of Panel A (Panel B) are dummy variables that equal one if the fund uses ISS's (Glass Lewis's) voting system. Independent variables in columns 5-8 of Panel A (Panel B) are dummy variables that equal one if the fund mentions ISS (Glass Lewis) in its statutory prospectus. Panel A's sample includes votes in proposals where ISS opposes management; Panel B's sample includes votes in proposals where Glass Lewis opposes management. All columns include proposal fixed effect and controls for fund-family characteristics appeared in Table 1A. Standard errors are clustered at the fund family-year level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

(A) Vote Cast in the Same Direction as ISS Recommendations

	Dependent Variable = 1 If the Vote Is Aligned With ISS Recommendation							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Director Elections	Say-on-Pay Proposals	Governance Proposals	E&S Proposals	Director Elections	Say-on-Pay Proposals	Governance Proposals	E&S Proposals
Use ISS Voting System	0.21***	0.21***	0.18***	0.27***				
	(0.02)	(0.02)	(0.01)	(0.02)				
Prospectus Has ISS					0.21***	0.21***	0.14***	0.23***
					(0.02)	(0.02)	(0.02)	(0.02)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Proposal Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.09	0.12	0.14	0.14	0.09	0.11	0.13	0.12
Observations	747,247	127,362	182,487	49,164	716,588	122,430	173,288	46,708
Cluster	2,582	2,484	2,571	2,433	2,444	2,347	2,432	2,299

(B) Vote Cast in the Same Direction as Glass Lewis Recommendations

	Dependent Variable = 1 If the Vote Is Aligned With Glass Lewis Recommendation							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Director Elections	Say-on-Pay Proposals	Governance Proposals	E&S Proposals	Director Elections	Say-on-Pay Proposals	Governance Proposals	E&S Proposals
Use GL Voting System	0.29***	0.22***	-0.00	0.13***				
	(0.04)	(0.03)	(0.02)	(0.03)				
Prospectus Has GL					0.14***	0.18***	0.04***	0.04**
					(0.02)	(0.02)	(0.02)	(0.02)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Proposal Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.30	0.28	0.20	0.29	0.28	0.29	0.21	0.28
Observations	449,161	94,076	124,366	16,161	426,519	89,860	118,097	15,340
Clusters	2,332	2,257	2,273	2,008	2,208	2,135	2,152	1,895

Table 6: Votes After Changing Proxy Advisors

This table reports OLS regressions for Equation 2. It estimates the effect of a fund changing its proxy advisors between two years on its vote agreement with its previous proxy advisor's recommendations. Each observation represents a fund family-year. The dependent variable is the difference of "Agree with PA" between year $t+1$ and t, where "Agree with PA$_t$" is the percentage of the fund's votes in year t that are in the same direction as the proxy advisor's recommendations. In both panels, columns 1 and 2 calculate "Agree with PA" using proposals where the proxy advisor supports management, and columns 3 and 4 use proposals where the proxy advisor opposes management. Panel A's (Panel B's) samples include the fund families that use ISS's (Glass Lewis's) voting system in year t. In other words, the baseline is the votes from non-switchers. The independent variable "ISS $\rightarrow$ GL" is a dummy variable that equals one if the fund uses ISS's voting system in year t and uses Glass Lewis's voting system in year $t+1$. "GL $\rightarrow$ ISS" is defined analogously. All columns include year fixed effect and controls for fund-family characteristics appeared in Table 1A. Standard errors are clustered at the fund-family level. *,**, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

(A) Votes of Funds That Switch Proxy Advisor From ISS to Glass Lewis

	Sample: All ISS Customers in Year t			
	Proposals Where PA Supports Management		Proposals Where PA Opposes Management	
	(1)	(2)	(3)	(4)
	ΔAgree With ISS	ΔAgree With GL	ΔAgree With ISS	ΔAgree With GL
ISS $\rightarrow$ GL	-0.04***	0.04***	-0.23***	0.38***
	(0.01)	(0.01)	(0.07)	(0.09)
Controls	Yes	Yes	Yes	Yes
Year Effect	Yes	Yes	Yes	Yes
Adjusted R^2	0.01	0.08	0.03	0.23
Observations	993	827	980	820

(B) Votes of Funds That Switch Proxy Advisor From Glass Lewis to ISS

	Sample: All Glass Lewis Customers in Year t			
	Proposals Where PA Supports Management		Proposals Where PA Opposes Management	
	(1)	(2)	(3)	(4)
	ΔAgree With ISS	ΔAgree With GL	ΔAgree With ISS	ΔAgree With GL
GL $\rightarrow$ ISS	0.01	-0.03**	0.24**	-0.21**
	(0.01)	(0.01)	(0.09)	(0.09)
Controls	Yes	Yes	Yes	Yes
Year Effect	Yes	Yes	Yes	Yes
Adjusted R^2	0.01	0.03	0.14	0.07
Observations	131	128	131	128

Table 7: Quasi-Exogenous Change of Proxy Advisors: Acquired Funds

This table reports OLS regressions for votes of the funds that have been acquired and subsequently changed proxy advisors. Panel (A) includes votes of acquired funds that have adopted their acquirers' proxy advisors. Funds' proxy advisors are identified through the formats of their N-PX filings. Internet Appendix VII provides a list of the acquired funds. Panel (B) restricts the sample to the ones that do not undergo fund manager turnovers and that do not completely delegate their voting authority to the new families, that is, the funds whose votes do not completely agree with the acquirers' other funds after the acquisition. In both panels, the dependent variable in columns 1 and 2 (columns 3 and 4) is a dummy variable that equals one if the vote is cast in the same direction as ISS's (Glass Lewis's) recommendation. The independent variables are dummy variables that equal one if the fund family is an ISS customer or a GL customer in the current year. Each observation represents a fund-vote. All columns include year and fund fixed effect. Standard errors are clustered at the fund level. *,**, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

(A) Full Sample of Acquired Funds That Have Adopted the Acquirers' Proxy Advisors

	Dependent Variable = 1 if the Vote Is Aligned With ISS Recommendation		Dependent Variable = 1 if the Vote Is Aligned With Glass Lewis Recommendation	
	ISS Supports Management	ISS Opposes Management	GL Supports Management	GL Opposes Management
	(1)	(2)	(3)	(4)
ISS Customer	0.04***	0.26***		
	(0.01)	(0.04)		
GL Customer			0.08***	0.45***
			(0.01)	(0.09)
Year Effect	Yes	Yes	Yes	Yes
Proposal Effect	Yes	Yes	Yes	Yes
Adjusted R^2	0.04	0.32	0.04	0.34
Observations	124,976	13,875	10,044	1,137
Clusters	19	19	8	8

(B) Sample Restriction: (i) No Manager Turnovers; (ii) Not Delegate Voting Authority

	Dependent Variable = 1 if the Vote Is Aligned With ISS Recommendation		Dependent Variable = 1 if the Vote Is Aligned With Glass Lewis Recommendation	
	ISS Supports Management	ISS Opposes Management	GL Supports Management	GL Opposes Management
	(1)	(2)	(3)	(4)
ISS Customer	0.06***	0.27***		
	(0.01)	(0.03)		
GL Customer			0.07***	0.43***
			(0.01)	(0.10)
Year Effect	Yes	Yes	Yes	Yes
Proposal Effect	Yes	Yes	Yes	Yes
Adjusted R^2	0.03	0.32	0.04	0.35
Observations	55,386	8,522	9,463	1,098
Clusters	8	8	7	7

Table 8: Using Proxy Advisor's Voting Platform While Subscribing to Both ISS and Glass Lewis

This table estimates the effects of using one proxy advisor's voting platform on a fund's votes while the fund subscribes to both ISS and Glass Lewis. Each observation represents a fund vote where the fund has mentioned both ISS and Glass Lewis in its prospectus. The independent variables are dummy variables that equal one if the fund family uses ISS or Glass Lewis as its voting system, identified through its N-PX form's format. Columns 1's sample includes proposals where ISS and Glass Lewis give different recommendations; the dependent variable is a dummy that equals one if the vote is cast in the same direction as ISS's recommendation. Columns 2 to 4 split the sample into proposals where ISS or Glass Lewis supports the proposal; the dependent variable is a dummy that equals one if the vote is cast supporting the proposal. All columns include proposal fixed effect and controls for fund-family characteristics appeared in Table 1A. Standard errors are clustered at the fund family-year level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels.

	Votes of Fund Families That Mention Both ISS and Glass Lewis in Their Statutory Prospectus				
	Dependent Variable = 1 if the Vote Is in the Same Direction as ISS Recommendation	Dependent Variable = 1 if the Vote Is Cast Supporting the Proposal			
	ISS and GL Gives Different Recommendations	Both ISS and GL Supports the Proposal	ISS Supports & GL Opposes the Proposal	ISS Opposes & GL Supports the Proposal	Both ISS and GL Opposes the Proposal
	(1)	(2)	(3)	(4)	(5)
Use ISS Voting Platform	0.13***	0.01*	0.14***	-0.09**	0.01
	(0.03)	(0.00)	(0.03)	(0.04)	(0.03)
Use GL Voting Platform	-0.21***	-0.01	-0.19***	0.25***	0.04
	(0.04)	(0.01)	(0.05)	(0.04)	(0.03)
Controls	Yes	Yes	Yes	Yes	Yes
Proposal Effect	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.23	0.11	0.23	0.12	0.15
Observations	259,973	2,360,487	175,324	84,649	75,151
Clusters	499	500	498	496	496

Table 9: Robo Voters and Their Characteristics

Panel A displays the number and the fraction of robo-voters. I define a fund-family as an ISS robo-voter if (i) it uses the ISS voting system, (ii) more than 99.9 percent of its votes are aligned with ISS recommendations, and (iii) more than 99.9 percent of its votes on proposals where ISS opposes management are aligned with ISS. Glass Lewis and management robo-voters are defined analogously. Panel B reports OLS regression of whether a fund family is a robo-voter as a function of its characteristics. Each observation represents a fund family-year. Dependent variables are dummies that equal one if the fund family is an ISS, Glass Lewis, or management robo-voter. The sample in the first (the second) column includes investors that use the ISS (Glass Lewis) voting system; the third column includes other investors. "Both ISS and GL in Prospectus" is a dummy variable that equals one if the investor mentions both ISS and Glass Lewis in its statutory prospectus; The definitions of other independent variables are in Table 1.A. All regressions include the year fixed effect. *,**, and *** denote statistical significance at the 10%, 5%, and 1% levels.

(A) Prevalence of Robo Voting

	# of ISS Robo Voters	# of GL Robo Voters	# of Mgmt Robo Voters	% of ISS Customers Are Robo Voters	% of GL Customers Are Robo Voters	% of Other Investors Are Robo Voters	% Votes From ISS Robo Voters	% Votes From GL Robo Voters	% Votes From Mgmt Robo Voters
2007	4	0	1	4%	0%	2%	2%	0%	0%
2008	3	0	2	3%	0%	5%	0%	0%	0%
2009	10	0	1	9%	0%	2%	7%	0%	0%
2010	11	1	1	11%	7%	2%	6%	0%	0%
2011	9	0	1	9%	0%	2%	10%	0%	0%
2012	9	0	1	10%	0%	2%	3%	0%	0%
2013	9	1	4	10%	5%	6%	2%	0%	4%
2014	19	0	6	18%	0%	9%	13%	0%	4%
2015	18	0	13	15%	0%	8%	10%	0%	2%
2016	20	0	17	17%	0%	11%	8%	0%	2%
2017	27	1	17	21%	4%	13%	14%	0%	3%

(B) Robo-Voting and Fund Characteristics

	Dependent Variable = 1 if Robo Vote With ISS	Dependent Variable = 1 if Robo Vote With GL	Dependent Variable = 1 if Robo Vote With Mgmt
log(# votes)	-0.04***	-0.06**	-0.04***
	(0.01)	(0.03)	(0.01)
log(asset)	-0.03***	0.00	-0.02***
	(0.01)	(0.00)	(0.00)
Both ISS and GL in Prospectus	-0.06***	-0.00	-0.01
	(0.02)	(0.02)	(0.01)
Provide Index Fund	0.06***	0.01	0.05*
	(0.02)	(0.02)	(0.02)
Provide Institutional Fund	-0.01	0.00	-0.01
	(0.03)	(0.09)	(0.02)
Provide ESG Fund	0.03	-0.01	-0.02
	(0.03)	(0.02)	(0.03)
Fund Family Age	-0.00	-0.00	0.00
	(0.00)	(0.00)	(0.00)
Adjusted R^2	0.16	0.14	0.10
Observations	1,265	172	1,045

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Table 10: Change of Recommendations By Proxy Advisors

This table illustrates the frequency of issues on which ISS or Glass Lewis changes its recommendations. It displays (i) the total number of proposals, (ii) the number of proposals that re-appear in the same firm, and (iii) the fraction of the re-appeared proposals that ISS or Glass Lewis changes its recommendations. I define a proposal on which ISS (or GL) changes its recommendations if the proxy advisor supports (opposes) the proposal in a year and opposed (supported) the same company's same proposal when it was last appeared. I use director names to link director elections within the same company. I hand-code other proposal types by examining each proposal's general description and issue description.

	Total Number of Proposals	Number of Proposals that Re-appear	% That ISS Changes Recomm.	% That GL Changes Recomm.
Routine Proposals				
Director Election	264,261	199,377	9%	8%
Say-on-pay	20,695	18,488	15%	15%
Compensation (others)	3,447	1,493	10%	16%
Auditors (EY)	2,471	2,159	0%	1%
Auditors (PwC)	1,778	1,526	1%	1%
Auditors (KPMG)	1,708	1,452	1%	1%
Auditors (Deloitte)	1,619	1,404	0%	1%
Auditors (others)	32,588	27,696	0%	2%
Governance Proposals				
Declassify board	1,346	463	0%	0%
Golden parachutes	810	20	40%	0%
Majority vote	696	207	1%	0%
Independent chair	623	392	27%	8%
Proxy access	330	113	12%	26%
Written consent	252	149	5%	4%
Special meeting	475	240	4%	21%
Supermajority (adopt)	51	0	N/A	N/A
Supermajority (eliminate)	680	141	1%	5%
Poison pill (adopt)	511	131	13%	14%
Poison pill (eliminate)	35	16	12%	0%
Cumulative voting (adopt)	205	137	10%	29%
Cumulative voting (eliminate)	73	5	0%	25%
Board size (increase)	86	4	0%	0%
Board size (decrease)	32	3	0%	0%
Classify board	53	4	0%	0%
Environmental and Social Proposals				
Sustainability (climate change)	69	27	11%	17%
Sustainability (GHG)	186	87	15%	16%
Sustainability (Renewable)	40	15	13%	7%
Sustainability (report)	203	86	13%	14%
Board diversity	49	18	0%	20%
Gender pay gap	78	36	6%	31%
Equal employment opportunity	142	80	11%	8%
Animal rights	131	57	7%	6%
Human rights	53	19	5%	44%
Others	39,272	9,441	17%	20%

Table 11: Change of Proxy Advisor Recommendations In Response to Investors' Past Disagreement

This table reports OLS regressions of whether ISS or Glass Lewis changes its recommendation as a function of investors' disagreement with the proxy advisor's past recommendations. Each observation represents a proposal. The dependent variables are dummy variables that equal one if the proxy advisor supports (opposes) the proposal in the current year and opposed (supported) the same company's same proposal when it last appeared. The independent variables are the percentage of investors' votes that disagreed with the proxy advisor when the proposal last appeared. Panel A includes the sample of all proposals; Panel B divides the sample into different proposal types. I use director names to link director elections within the same company and hand-coded proposal types to link non-election proposals within the same company. Online Appendix IX provides robustness tests for using ISS Voting Analytics' definitions of proposal types. All columns include year fixed effect. Standard errors are clustered at the company level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

(A) Full Sample

	Dependent Variable = 1 If ISS Changes Recommendation				Dependent Variable = 1 If Glass Lewis Changes Recommendation			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
% Votes Disagreed with ISS	0.61***	0.61***	0.58***	0.60***				
	(0.01)	(0.01)	(0.01)	(0.01)				
% Votes Disagreed with GL					0.49***	0.47***	0.44***	0.49***
					(0.01)	(0.01)	(0.01)	(0.02)
Firm Effect		Yes				Yes		
Firm×Proposal Effect			Yes				Yes	
Proposal×Age Effect				Yes				Yes
Adjusted R^2	0.13	0.19	0.30	0.17	0.17	0.21	0.29	0.19
Observations	266,549	266,246	244,362	154,021	73,413	73,266	65,050	33,366
Clusters	6,385	6,082	5,343	6,344	2,105	1,958	1,571	2,073

(B) Proposal Types

	Dependent Variable = 1 If ISS Changes Recommendation				Dependent Variable = 1 If Glass Lewis Changes Recommendation			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Director Elections	Say-on-Pay Proposals	Ratifying Auditors	Other Proposals	Director Elections	Say-on-Pay Proposals	Ratifying Auditors	Other Proposals
% Votes Disagreed with ISS	0.62***	0.78***	0.36***	0.10***				
	(0.02)	(0.03)	(0.05)	(0.03)				
% Votes Disagreed with GL					0.46***	0.38***	0.26***	0.39***
					(0.02)	(0.03)	(0.09)	(0.05)
Firm×Proposal Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.30	0.27	0.27	0.19	0.31	0.21	0.24	0.28
Observations	182,343	17,842	33,202	10,974	49,590	5,553	7,258	2,649
Clusters	4,362	3,405	4,882	2,289	1,261	1,146	1,453	551

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Table 12: Change of Proxy Advisor Recommendations & Past Votes of Different Proxy Advisors' Customers

This table reports OLS regressions of whether a proxy advisor changes its recommendation as a function of investors' disagreement with its past recommendations, separated by whether the investors are ISS or Glass Lewis customers. Each observation represents a proposal. The dependent variable in Panel A (Panel B) are dummy variables that equal one if ISS (Glass Lewis) changed its recommendations. The independent variables are the percentage of different proxy advisor customers' votes that disagreed with the proxy advisor when the proposal last appeared in the same firm. I define a mutual fund family as an ISS (Glass Lewis) customer if either the N-PX method or the prospectus method flags it as an ISS (Glass Lewis) customer. All columns include firm×proposal fixed effect. Standard errors are clustered at the company level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. Online Appendix X provides robustness tests after matching a vote of a proxy advisor customer with a vote of a non-customer that has the closest asset size.

(A) ISS's Response to Investors that Subscribe to Different Proxy Advisors

	Dependent Variable = 1 if ISS Changes Recommendation			
	(1)	(2)	(3)	(4)
% Votes Disagreed with ISS	0.59***			0.60***
by ISS Customers	(0.01)			(0.03)
% Votes Disagreed with ISS		0.46***		0.10***
by Glass Lewis Customers		(0.01)		(0.02)
% Votes Disagreed with ISS			0.34***	0.14***
by Other Investors			(0.01)	(0.01)
$\hat{\beta_1} - \hat{\beta_2}$				0.50***
F-statistics				114.18
Adjusted R^2	0.23	0.23	0.24	0.28
Observations	260,465	239,158	189,455	186,854
Clusters	5,939	5,601	4,380	4,296

(B) Glass Lewis's Response to Investors that Subscribe to Different Proxy Advisors

	Dependent Variable = 1 if Glass Lewis Changes Recommendation			
	(1)	(2)	(3)	(4)
% Votes Disagreed with GL	0.42***			0.04
by ISS Customers	(0.01)			(0.04)
% Votes Disagreed with GL		0.50***		0.24***
by Glass Lewis Customers		(0.01)		(0.05)
% Votes Disagreed with GL			0.40***	0.20***
by Other Investors			(0.01)	(0.02)
$\hat{\beta_1} - \hat{\beta_2}$				-0.19**
F-statistics				4.16
Adjusted R^2	0.25	0.25	0.25	0.25
Observations	70,815	70,768	69,609	69,584
Clusters	1,870	1,869	1,818	1,817

Table 13: Proxy Advisors' Response to Different Investors

This table reports OLS regressions of whether ISS or Glass Lewis changes its recommendation as a function of different investors' disagreement with its past recommendations. Each observation represents a proposal. The dependent variables are dummy variables that equal 1 if the proxy advisor supports (opposes) the proposal in the current year and opposed (supported) the same company's same proposal when it was last appeared. The independent variables are the percentage of investors' votes that disagreed with the proxy advisor when the proposal was last appeared. In Panel A, fund votes are separated by whether the fund family's total net assets are above or below median among votes in the same proposal. In Panel B, fund votes are separated by whether the fund family puts more than 1% of its assets in the firm. In Panel C, fund votes are separated by whether the fund family holds more than 1% of the company's outstanding shares. In Panel D, fund votes are separated by whether the fund family has a strong or weak voting preference. I denote a fund to have a strong voting preference if its W-NOMINATE score is either below the 25% quantile or above the 75% quantile among fund families in my sample. In Panels B to D, each vote from the one group is matched with a vote of the other group with the closest TNA. All columns include firm×proposal fixed effect. Standard errors are clustered at the company level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

(A) Fund Family Sizes: Above or Below Median

	Dependent Variable = 1 if ISS Changes Recommendation			Dependent Variable = 1 if Glass Lewis Changes Recommendation		
	(1)	(2)	(3)	(4)	(5)	(6)
% Disagree With PA by Investors	0.55***		0.46***	0.44***		0.37***
With Above Median TNA	(0.01)		(0.01)	(0.01)		(0.04)
% Disagree With PA by Investors		0.46***	0.12***		0.45***	0.07*
With Below Median TNA		(0.01)	(0.01)		(0.01)	(0.04)
$\hat{\beta}_1 - \hat{\beta}_2$			0.33***			0.30***
F-statistics			223.1			14.5
Adjusted R^2	0.24	0.22	0.24	0.25	0.25	0.25
Observations	261,220	261,220	261,220	70,826	70,826	70,826
Clusters	5,981	5,981	5,981	1,870	1,870	1,870

(B) Portfolio Weight: Whether the Investor Puts ≥ 1% of Its Assets in the Firm

	Dependent Variable = 1 if ISS Changes Recommendation			Dependent Variable = 1 if Glass Lewis Changes Recommendation		
	(1)	(2)	(3)	(4)	(5)	(6)
% Disagree With PA by Investors	0.31***		0.28***	0.34***		0.22***
That Put ≥ 1% of Assets in the Firm	(0.02)		(0.02)	(0.01)		(0.02)
% Disagree With PA by Investors		0.20***	0.13***		0.32***	0.17***
That Put < 1% of Assets in the Firm		(0.02)	(0.01)		(0.01)	(0.02)
$\hat{\beta}_1 - \hat{\beta}_2$			0.15***			0.05*
F-statistics			39.3			2.8
Adjusted R^2	0.26	0.23	0.27	0.21	0.20	0.22
Observations	55,628	55,628	55,628	35,520	35,520	35,520
Clusters	1,589	1,589	1,589	949	949	949

Table 13: Proxy Advisors' Response to Different Investors (Continued)

(C) Blockholder: Whether the Investor Holds $\geq$ 1% of Outstanding Shares of the Firm

	Dependent Variable = 1 if ISS Changes Recommendation			Dependent Variable = 1 if Glass Lewis Changes Recommendation		
	(1)	(2)	(3)	(4)	(5)	(6)
% Disagree With PA by Investors	0.31***		0.27***	0.37***		0.25***
That Are Blockhoders of the Firm	(0.01)		(0.01)	(0.01)		(0.02)
% Disagree With PA by Investors		0.26***	0.18***		0.34***	0.17***
That Are Not the Firm's Blockhoders		(0.01)	(0.01)		(0.01)	(0.02)
$\hat{\beta}_1 - \hat{\beta}_2$			0.09***			0.08***
F-statistics			22.6			6.7
Adjusted R^2	0.27	0.24	0.28	0.25	0.23	0.26
Observations	90,568	90,568	90,568	34,144	34,144	34,144
Clusters	2,851	2,851	2,851	1,316	1,316	1,316

(D) Voting Preferences: Whether the Investor's W-Nominate Score Is in the Extreme

	Dependent Variable = 1 if ISS Changes Recommendation			Dependent Variable = 1 if Glass Lewis Changes Recommendation		
	(1)	(2)	(3)	(4)	(5)	(6)
% Disagree With PA by Investors	0.51***		0.38***	0.41***		0.31***
With Strong Voting Preferences	(0.01)		(0.01)	(0.01)		(0.02)
% Disagree With PA by Investors		0.41***	0.26***		0.44***	0.12***
With Weak Voting Preferences		(0.01)	(0.01)		(0.01)	(0.03)
$\hat{\beta}_1 - \hat{\beta}_2$			0.13***			0.18***
F-statistics			48.4			14.2
Adjusted R^2	0.23	0.22	0.25	0.25	0.24	0.25
Observations	214,349	214,349	214,349	71,015	71,015	71,015
Clusters	4,593	4,593	4,593	1,859	1,859	1,859

Figure 1: N-PX Types

This figure shows one example for each of the four most-used N-PX table formats (denoted A.1, A.2, B, C). All tables display Apple Inc's Annual meeting in 2019. They are filed by BlackRock, Fidelity, Putnam Investments, and John Hancock Financial, respectively. Types A.1 and A.2 correspond to the reporting style of ISS's ProxyExchange, type B corresponds to Glass Lewis's Viewpoint, and type C corresponds to Broadridge's ProxyEdge. The online Appendix explains the link between the four N-PX styles to their respective voting platforms through the comparison between the four N-PXs' proposal descriptions with those of platforms' vote disclosure service (VDS) websites.

Type A.1: ISS ProxyExchange®

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--------------------------------------------------------------

APPLE, INC.

Ticker:       AAPL          Security ID:  037833100
Meeting Date: MAR 01, 2019  Meeting Type: Annual
Record Date:  JAN 02, 2019

#    Proposal                         Mgt Rec   Vote Cast   Sponsor
1a   Elect Director James Bell        For       For         Management
1b   Elect Director Tim Cook          For       For         Management
1c   Elect Director Al Gore           For       For         Management
1d   Elect Director Bob Iger          For       For         Management
1e   Elect Director Andrea Jung       For       For         Management
1f   Elect Director Art Levinson      For       For         Management
1g   Elect Director Ron Sugar         For       For         Management
1h   Elect Director Sue Wagner        For       For         Management
2    Ratify Ernst &amp; Young LLP as Auditors   For    For      Management
3    Advisory Vote to Ratify Named    For       For         Management
     Executive Officers' Compensation
4    Proxy Access Amendments          Against   Against     Shareholder
5    Disclose Board Diversity and     Against   Against     Shareholder
     Qualifications

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Type A.2: ISS ProxyExchange®

APPLE, INC.
MEETING DATE: MAR 01, 2019

TICKER: AAPL   SECURITY ID: 037833100

Proposal No	Proposal	Proposed By	Management Recommendation	Vote Cast
1a	Elect Director James Bell	Management	For	For
1b	Elect Director Tim Cook	Management	For	For
1c	Elect Director Al Gore	Management	For	For
1d	Elect Director Bob Iger	Management	For	For
1e	Elect Director Andrea Jung	Management	For	For
1f	Elect Director Art Levinson	Management	For	For
1g	Elect Director Ron Sugar	Management	For	For
1h	Elect Director Sue Wagner	Management	For	For
2	Ratify Ernst & Young LLP as Auditors	Management	For	For
3	Advisory Vote to Ratify Named Executive Officers' Compensation	Management	For	For
4	Proxy Access Amendments	Shareholder	Against	Against
5	Disclose Board Diversity and Qualifications	Shareholder	Against	Against

Type B: Glass Lewis Viewpoint®

Ticker	Security ID:	Meeting Date	Meeting Status
AAPL	CUSIP 037833100	03/01/2019	Voted
Meeting Type	Country of Trade		
Annual	United States		

| Issue No.	Description	Proponent	Mgmt Rec	Vote Cast	For/Agnst Mgmt
1	Elect James A. Bell	Mgmt	For	For	For
2	Elect Timothy D. Cook	Mgmt	For	For	For
3	Elect Albert A. Gore	Mgmt	For	For	For
4	Elect Robert A. Iger	Mgmt	For	For	For
5	Elect Andrea Jung	Mgmt	For	For	For
6	Elect Arthur D. Levinson	Mgmt	For	For	For
7	Elect Ronald D. Sugar	Mgmt	For	For	For
8	Elect Susan L. Wagner	Mgmt	For	For	For
9	Ratification of Auditor	Mgmt	For	For	For
10	Advisory Vote on Executive Compensation	Mgmt	For	For	For
11	Shareholder Proposal Regarding Proxy Access Bylaw Amendment	ShrHoldr	Against	Against	For
12	Shareholder Proposal Regarding Disclosure of Board Qualifications	ShrHoldr	Against	Against	For

Type C: Broadridge ProxyEdge®

```
APPLE INC.                                              Agenda Number: 934919359
--------------------------------------------------------------
       Security:  037833100
   Meeting Type:  Annual
   Meeting Date:  01-Mar-2019
         Ticker:  AAPL
           ISIN:  US0378331005
--------------------------------------------------------------
```

Prop.#	Proposal	Proposal Type	Proposal Vote	For/Against Management
1a.	Election of director: James Bell	Mgmt	For	For
1b.	Election of director: Tim Cook	Mgmt	For	For
1c.	Election of director: Al Gore	Mgmt	For	For
1d.	Election of director: Bob Iger	Mgmt	For	For
1e.	Election of director: Andrea Jung	Mgmt	Against	Against
1f.	Election of director: Art Levinson	Mgmt	For	For
1g.	Election of director: Ron Sugar	Mgmt	For	For
1h.	Election of director: Sue Wagner	Mgmt	For	For
2.	Ratification of the appointment of Ernst & Young LLP as Apple's independent registered public accounting firm for 2019	Mgmt	For	For
3.	Advisory vote to approve executive compensation	Mgmt	For	For
4.	A shareholder proposal entitled "Shareholder Proxy Access Amendments"	Shr	Against	For
5.	A shareholder proposal entitled "True Diversity Board Policy"	Shr	Against	For

Figure 2: Concentration of the Proxy Advisory Industry

This figure illustrates concentration in the proxy advisory industry. Panel A uses the format of each mutual fund's N-PX filings to identify its voting platform. Panel B uses each mutual fund's statutory prospectus to identify whether it mentions the names of proxy advisors. In both panels, the figures on the left display the aggregate total net assets (TNA) of proxy advisor customers. The figures on the right display the relative market share of each proxy advisor, calculated from its mutual fund customers' aggregate TNA. Both panels cover the entire 501 mutual fund families in my sample; the total TNA in Panel B is larger than the one in Panel A because funds can mention multiple proxy advisors in their prospectus. Internet Appendix VIII repeats the analyses after excluding the Big Four fund families (i.e., BlackRock, Vanguard, Fidelity, and State Street).

(A) Using the N-PX Method to Identify Voting Platform
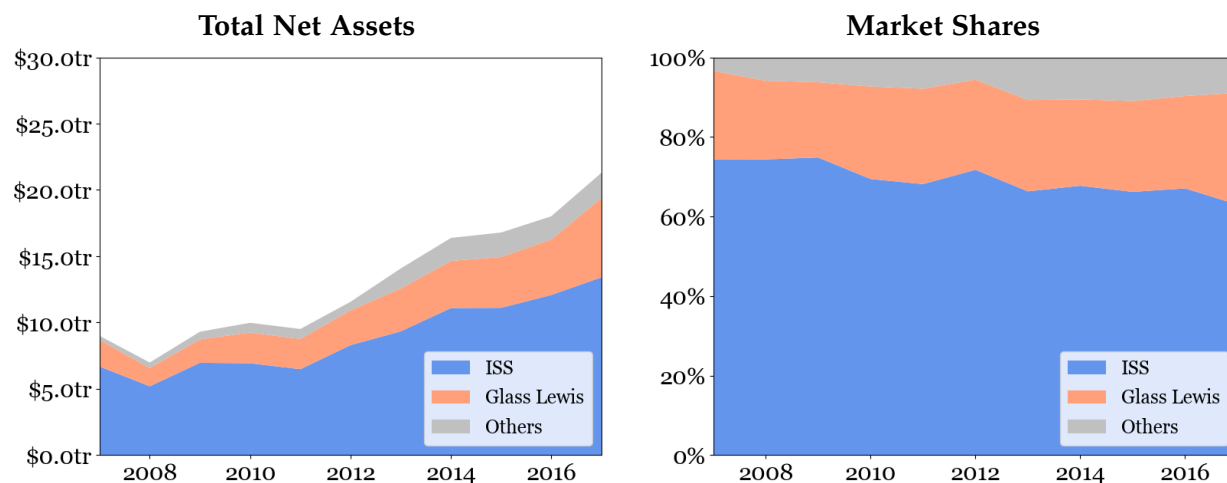
## (B) Using the Prospectus Method to Identify Proxy Advisors
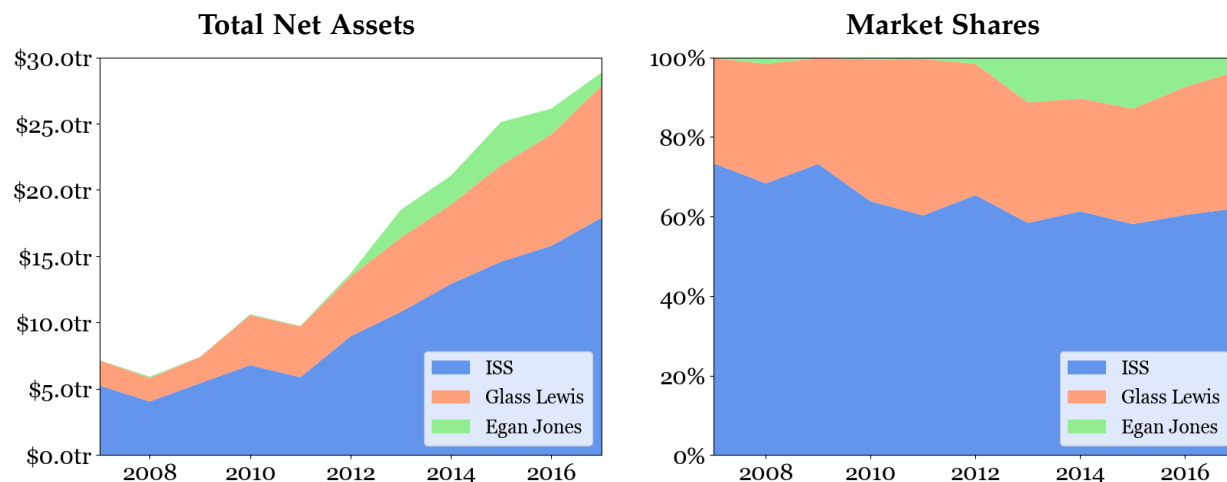
Figure 3: Fund Votes Under Different Proxy Advisor Recommendations

This figure displays the percentage of investors' votes cast in support of management when different proxy advisors recommend voting against the management. Panel A includes the sample of votes from all mutual fund families between 2007 and 2017. Panel B divides investors by their use of ISS's or Glass Lewis's voting systems, identified from the format of their N-PX filings. Panel C divides investors by whether they mention ISS or Glass Lewis in their statutory prospectus. Panel D divides investors by whether they mention only one proxy advisor (ISS or Glass Lewis) in their statutory prospectus. In all panels, the horizontal axis displays the names(s) of the proxy advisor(s) that recommend against management. The vertical axis shows the fraction of investors' votes that support management. The vertical bar represents the 95% confidence interval with standard errors clustered at the fund family-year level.
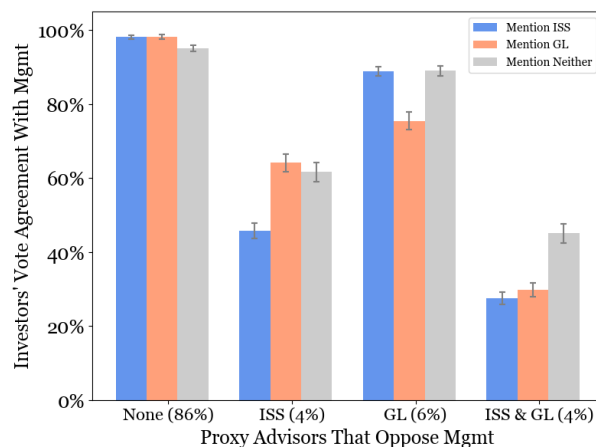
(A) All Mutual Funds
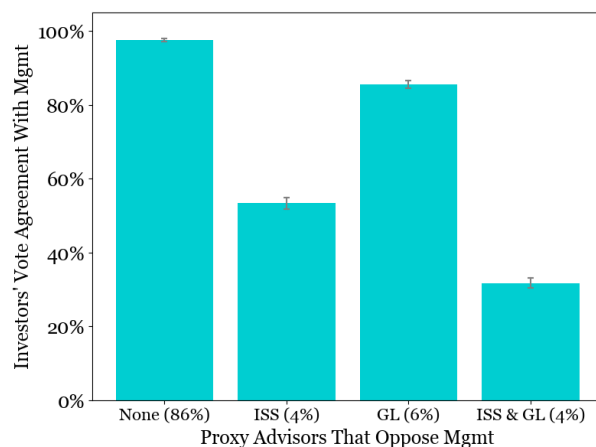
(B) Use of ISS's or GL's Voting System
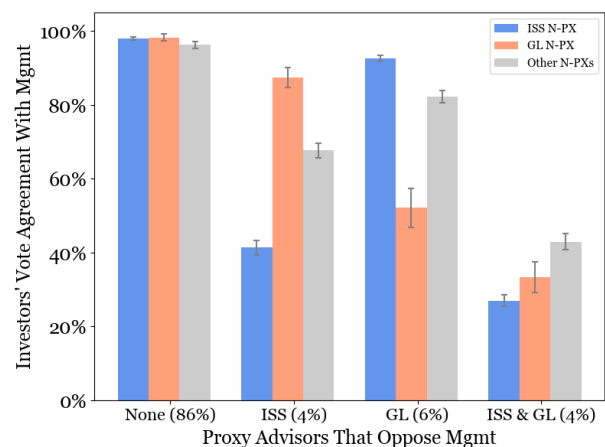
(C) Mention Proxy Advisors in Prospectus
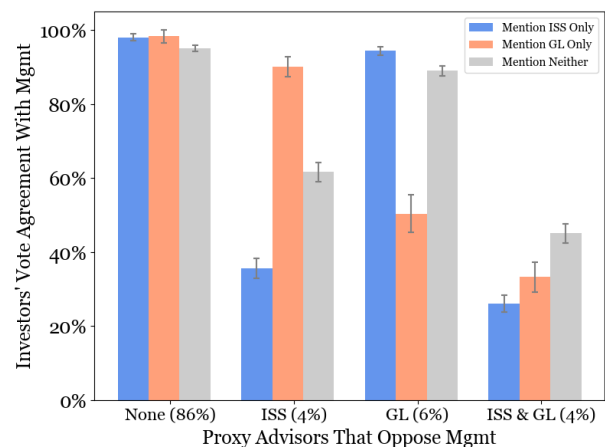
(D) Mention Only One Advisor in Prospectus

Figure 4: Investors' Votes on Different Proposals

This figure displays the percentage of investors' votes that support different proposals when ISS recommends voting against the proposal (Panel A) or Glass Lewis recommends voting against the proposal (Panel B). I include the top 20 most common proposal types except for auditor ratification, board declassification, and majority vote adoption, which both ISS and Glass Lewis almost always support. In both panels, the figures on the left separate mutual fund families by whether they are a proxy advisor's customers identified through the formats of their N-PX filings. The figures on the right separate mutual fund families by whether they are a proxy advisor's customers identified through whether they mention the name of the proxy advisor in their statutory prospectuses.

(A) When ISS Recommends Voting Against the Proposal
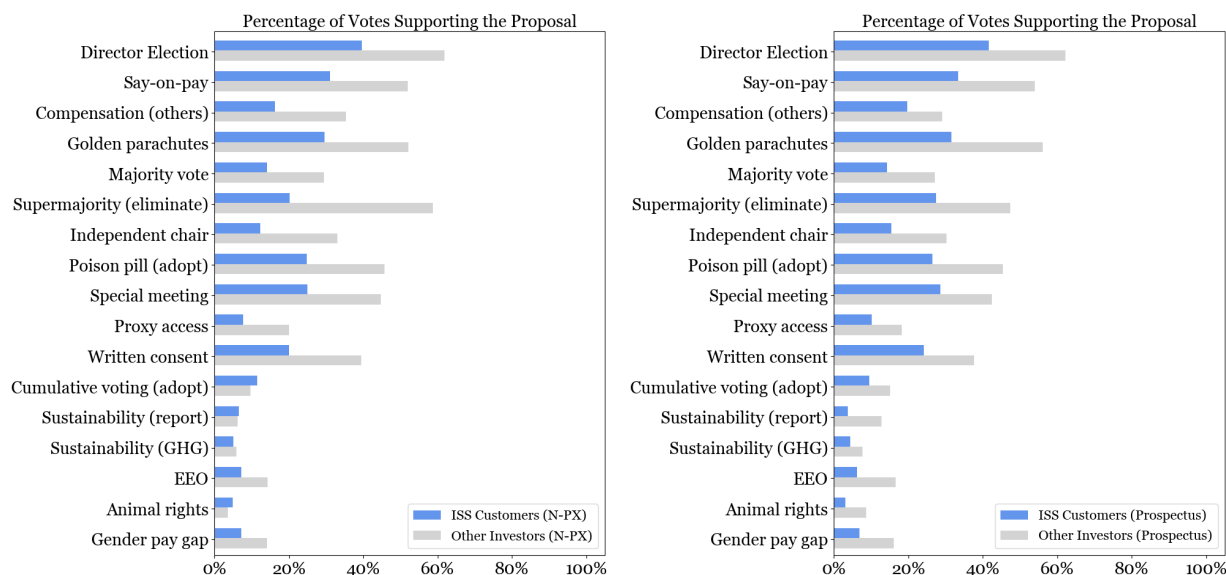
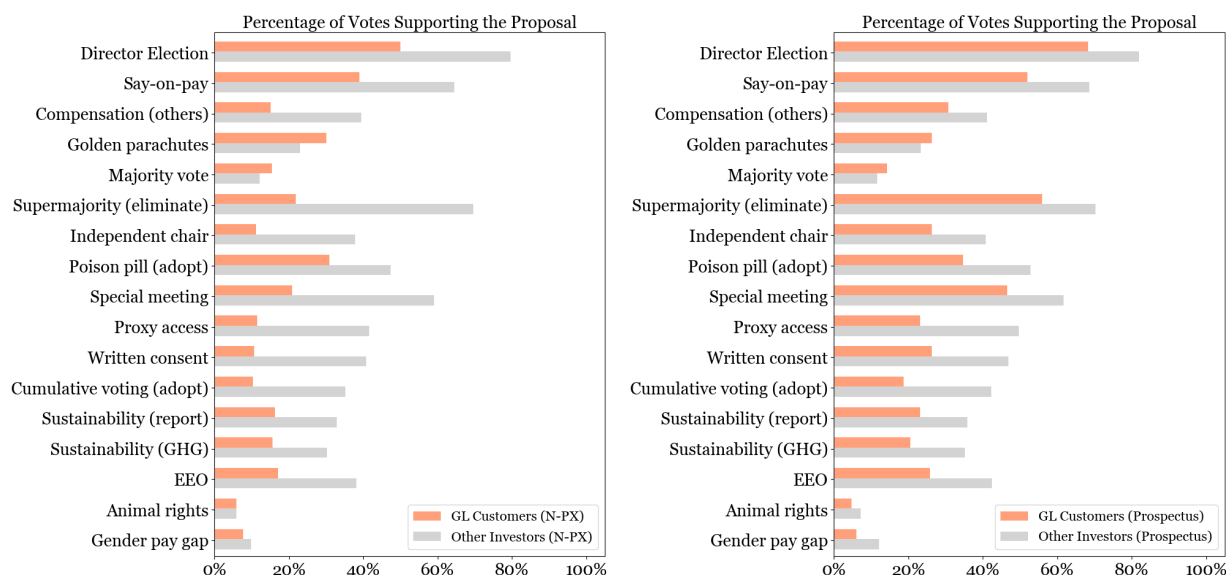## (B) When Glass Lewis Recommends Voting Against the Proposal

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Figure 5: Robo-voting: Size and Indexer

Figure 5.A shows the percentage of ISS customers that robo-vote with ISS, separately for different quantiles of total net assets and for whether the fund family is an indexer. I define a fund family as an indexer if it provides any index funds. Figure 5.B displays the trend of robo-voting popularity among ISS customers with small (first 1/3 quantile), middle (second 1/3 quantile), and large (third 1/3 quantile) total net assets.

(A) Robo-voting Popularity by Quantiles in Total Net Assets

% Robo-vote with ISS
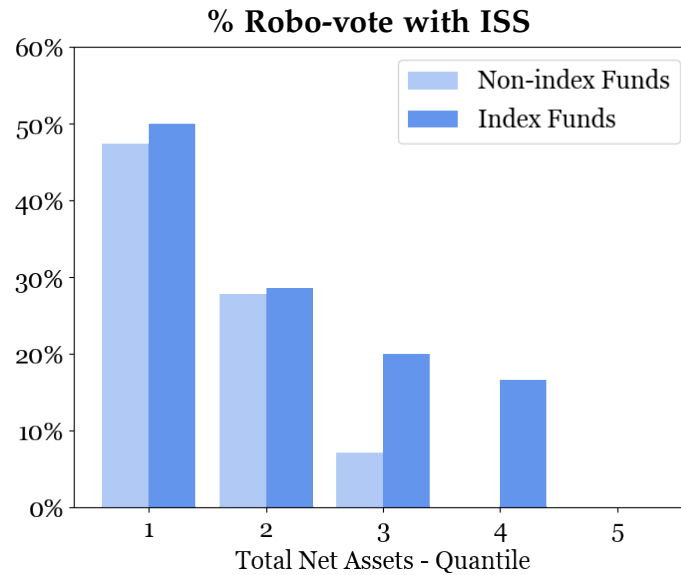
(B) Trend of Robo-voting Popularity by Small, Middle, and Large Fund Families

% Robo-vote with ISS
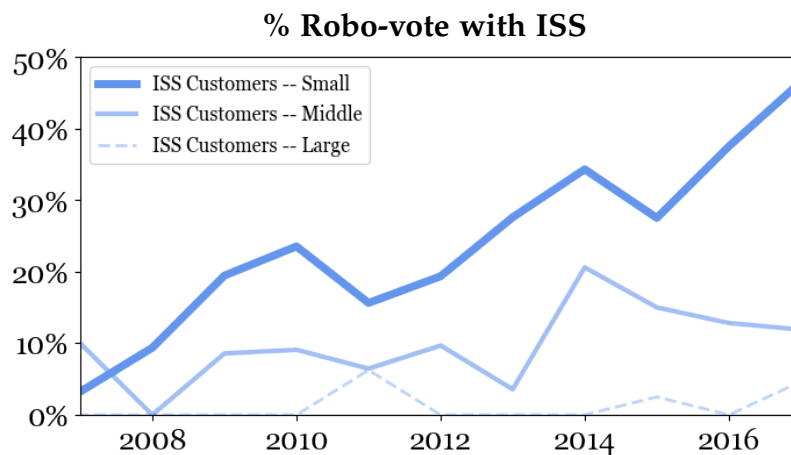
Internet Appendix for

"The Proxy Advisory Industry:
Influencing and Being Influenced"

Chong Shu

I.   Glass Lewis's Recommendations

I obtained Glass Lewis (GL)'s recommendations to a large public pension fund for 2008-2017 through a Freedom of Information Act (FOIA) request. Part (A) provides a screenshot of the response, which contains the name of issuers, meeting dates, item numbers, proposal descriptions, GL's general recommendations, GL's customized recommendations to this particular investor, and the vote cast. Part (B) shows the details of the matching process between this data and ISS Voting Analytics. Part (C) shows the coverage of companies (measured by total assets) in the main sample (i.e., ISS Voting Analytics) that can be found with Glass Lewis's recommendations from the FOIA sample.

(A) Sample of the FOIA Response

General Motors Company			Voted		
Annual Meeting Agenda (06/06/2017)			**GL Rec**	**NCRS-DC Policy**	**Vote Cast**
1	Election of Directors				
	1.1	Elect Joseph J. Ashton	For	For	For
	1.2	Elect Mary T. Barra	For	For	For
	1.3	Elect Linda R. Gooden	For	For	For
	1.4	Elect Joseph Jimenez	For	For	For
	1.5	Elect Jane L. Mendillo	For	For	For
	1.6	Elect Michael G. Mullen	For	For	For
	1.7	Elect James J. Mulva	For	For	For
	1.8	Elect Patricia F. Russo	For	For	For
	1.9	Elect Thomas M. Schoewe	For	For	For
	1.10	Elect Theodore M. Solso	For	For	For
	1.11	Elect Carol M. Stephenson	For	For	For
2	Advisory Vote on Executive Compensation		For	For	For
3	Approval of the 2017 Short-Term Incentive Plan		For	For	For
4	Approval of the 2017 Long-Term incentive Plan		For	For	For
5	Ratification of Auditor		For	For	For
(SHP) 6	Shareholder Proposal Regarding Independent Board Chair		For	For	For
(SHP) 7	Shareholder Proposal Regarding Creation of Dual Class Equity Structure		Against	Against	Against

(B) Matching Steps

Step one: match companies

The GL recommendations provided by the FOIA request do not contain company identifiers but only company names. ISS and GL may use different company names for the same company. For example, the ISS Voting Analytics dataset uses "Apple Inc." throughout sample years, but GL uses "Apple Computer Inc." in the early years. To match companies between GL's recommendations and ISS Voting Analytics, I first match each company name in GL's recommendations exactly with names that appeared in Type

B N-PX forms to get the company's ticker. The assumption of this step is that company names in Glass Lewis's voting system do not differ for different customers. I then use tickers to match companies between the FOIA data and ISS Voting Analytics.

Step two: match annual meetings

Matching annual meetings between GL's recommendations and ISS Voting Analytics is a straightforward one-to-one match of (ticker, meeting date) between the two datasets.

Step three: match proposals

One difficulty comes from the fact that ISS and Glass Lewis sometimes use different styles of sub-item numbers for director elections. For example, Glass Lewis uses item number "1" to denote the election of Howard Schultz in Starbucks's 2013 annual meeting, but ISS uses item number "1a" for the same election. As a result, using item number alone will result in a large number of missing matches. To ensure better matches, I perform the following steps.

- When both ISS and Glass Lewis use the same style (either digit or letter) for annual meetings, I use the item number to match.

- When ISS and Glass use different styles, I use the sequence number to match each proposal if the annual meeting's total number of proposals is the same between the two datasets.

- When ISS and Glass use different styles and if the annual meeting's total number of proposals is not the same between the two datasets, I treat those cases as errors and drop them.[24]

(C) Coverage of Glass Lewis Recommendations

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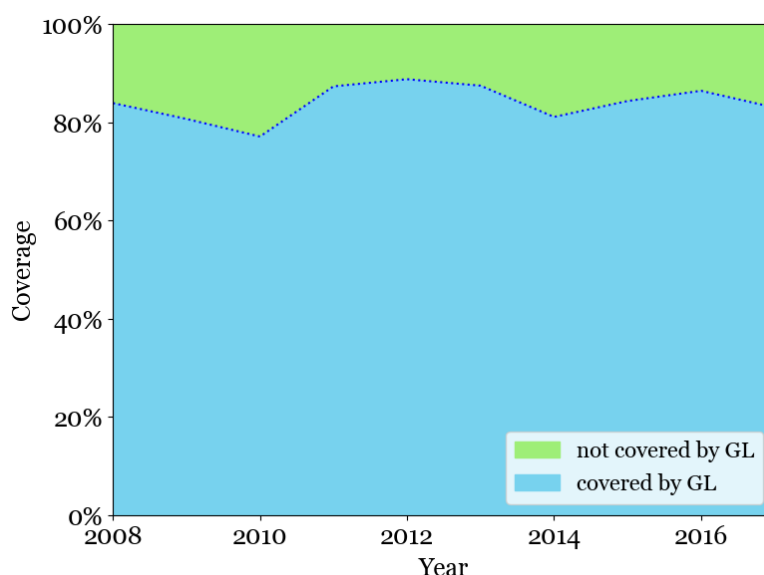
[24]There are 89 (out of 13,246) annual meetings where the total number of proposals is different between the two datasets. It mainly arises from the fact that the FOIA response is in the pdf format and non-English characters cannot be converted and hence become lost (e.g., Elect Øivind Lorentzen).

II. Linking N-PX Forms to Proxy Voting Platforms

Identifying each mutual fund's use of a voting platform consists of three steps.

1. I identify common formats among all N-PX filings. I find that there are four most commonly used N-PX formats, denoted A.1, A.2, B, and C. The figures on the left display N-PX forms filed by BlackRock (Type A.1), Fidelity (Type A.2), John Hancock (Type B), and TIAA (Type C).[25]

2. I compare proposal descriptions on those four N-PX forms with those on the three voting platforms' vote disclosure services websites (VDS). The figures on the right display the VDS interfaces from BlackRock (hosted on ISS' website), Dimensional Fund Advisors (hosted on ISS' website), Nuveen funds (hosted on Glass Lewis' website), and JP Morgan funds (hosted on Broadridge's website). For comparison, all of them display Apple Inc's 2019 annual meeting.[26] I then link each N-PX form with the voting platform by comparing the proposal descriptions and item-number styles. For example, the Type A.1 and Type A.2 N-PX describes the fifth proposal as "5. Disclose Board Diversity and Qualifications", identical to ISS VDS; Type B N-PX describes it as "12. Shareholder Proposal Regarding Disclosure of Board Qualifications", identical to Glass Lewis VDS; Type C N-PX describes it as "5. A shareholder proposal entitled True Diversity Board Policay", identical to Broadridge VDS.

3. I use each N-PX form's column names to detect its format type (A.1, A,2, B, C, or none of them) and then use the type to identify each fund's use of a voting platform.

N-PX Type A.1 ↔ ISS VDS Version 1

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[25]BlackRock: https://www.sec.gov/Archives/edgar/data/1100663/000119312513350187/d583359dnpx.txt

Fidelity: https://www.sec.gov/Archives/edgar/data/35315/000087846713000520/npx811-02105_84.htm

John Hancock: https://www.sec.gov/Archives/edgar/data/1331971/000143893413000446/brd0310001331971.txt

TIAA: https://www.sec.gov/Archives/edgar/data/1068204/000093041313004438/c74883_npx.txt

[26]ISS VDS 1: http://vds.issproxy.com/SearchPage.php?CustomerID=1615

ISS VDS 2: https://vds.issgovernance.com/vds/#/NDM3Mg==

GL VDS: https://viewpoint.glasslewis.net/webdisclosure/search.aspx?glpcustuserid=TIA129

Broadridge VDS: https://central-webd.proxydisclosure.com/WebDisclosure/wdFundSelection?token=JPMFunds

ISS has two VDS and two N-PX formats. See https://www.sec.gov/litigation/admin/2013/ia-3611.pdf at 2: "Throughout the period of 2007 to early 2012, ISS provided an application via a confidential website to its institutional shareholder advisory clients to assist them in voting their proxy ballots. The current version of this application is called 'ProxyExchange,' which ISS rolled out in early 2010, but prior versions of the application have existed throughout the relevant time period (2007 to early 2012)."

N-PX Type A.2 ↔ ISS VDS Version 2

APPLE, INC.
MEETING DATE: MAR 01, 2019

TICKER: AAPL   SECURITY ID: 037833100

Proposal No	Proposal	Proposed By	Management Recommendation	Vote Cast
1a	Elect Director James Bell	Management	For	For
1b	Elect Director Tim Cook	Management	For	For
1c	Elect Director Al Gore	Management	For	For
1d	Elect Director Bob Iger	Management	For	For
1e	Elect Director Andrea Jung	Management	For	For
1f	Elect Director Art Levinson	Management	For	For
1g	Elect Director Ron Sugar	Management	For	For
1h	Elect Director Sue Wagner	Management	For	For
2	Ratify Ernst & Young LLP as Auditors	Management	For	For
3	Advisory Vote to Ratify Named Executive Officers' Compensation	Management	For	For
4	Proxy Access Amendments	Shareholder	Against	Against
5	Disclose Board Diversity and Qualifications	Shareholder	Against	Against

Apple, Inc.

Ticker	Meeting Date	Record Date	Security ID	Meeting Type	Industry Sector	Country
AAPL	01-Mar-2019	02-Jan-2019	037833100	Annual	Technology Hardware, Storage & Peripherals	USA

Item #	Proposal	Proponent	Mgmt Rec	Vote
1a	Elect Director James Bell	Management	For	For
1b	Elect Director Tim Cook	Management	For	For
1c	Elect Director Al Gore	Management	For	For
1d	Elect Director Bob Iger	Management	For	For
1e	Elect Director Andrea Jung	Management	For	For
1f	Elect Director Art Levinson	Management	For	For
1g	Elect Director Ron Sugar	Management	For	For
1h	Elect Director Sue Wagner	Management	For	For
2	Ratify Ernst & Young LLP as Auditors	Management	For	For
3	Advisory Vote to Ratify Named Executive Officers' Compensation	Management	For	For
4	Proxy Access Amendments	Shareholder	Against	Against
5	Disclose Board Diversity and Qualifications	Shareholder	Against	Against

N-PX Type B ↔ Glass Lewis VDS

Apple Inc.

	Ticker	Security ID:	Meeting Date	Meeting Status
	AAPL	CUSIP 037833100	03/01/2019	Voted
	Meeting Type	Country of Trade		
	Annual	United States		

Issue No.	Description	Proponent	Mgmt Rec	Vote Cast	For/Agnst Mgmt
1	Elect James A. Bell	Mgmt	For	For	For
2	Elect Timothy D. Cook	Mgmt	For	For	For
3	Elect Albert A. Gore	Mgmt	For	For	For
4	Elect Robert A. Iger	Mgmt	For	For	For
5	Elect Andrea Jung	Mgmt	For	For	For
6	Elect Arthur D. Levinson	Mgmt	For	For	For
7	Elect Ronald D. Sugar	Mgmt	For	For	For
8	Elect Susan L. Wagner	Mgmt	For	For	For
9	Ratification of Auditor	Mgmt	For	For	For
10	Advisory Vote on Executive Compensation	Mgmt	For	For	For
11	Shareholder Proposal Regarding Proxy Access Bylaw Amendment	ShrHoldr	Against	Against	For
12	Shareholder Proposal Regarding Disclosure of Board Qualifications	ShrHoldr	Against	Against	For

Company:
Apple Inc

Ticker:	Country:	Meeting Date:	Meeting Type:	Contested:
AAPL	United States	03/01/2019	Annual	No

|	Proposal	Mgmt Rec	Our Vote	Proponent
1	Elect James A. Bell	For	For	Mgmt
2	Elect Timothy D. Cook	For	For	Mgmt
3	Elect Albert A. Gore	For	For	Mgmt
4	Elect Robert A. Iger	For	For	Mgmt
5	Elect Andrea Jung	For	For	Mgmt
6	Elect Arthur D. Levinson	For	For	Mgmt
7	Elect Ronald D. Sugar	For	For	Mgmt
8	Elect Susan L. Wagner	For	For	Mgmt
9	Ratification of Auditor	For	For	Mgmt
10	Advisory Vote on Executive Compensation	For	For	Mgmt
11	(SHP) Shareholder Proposal Regarding Proxy Access Bylaw Amendment	Against	For	ShrHoldr
12	(SHP) Shareholder Proposal Regarding Disclosure of Board Qualifications	Against	Against	ShrHoldr

N-PX Type C ↔ Broadrige VDS

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APPLE INC.                                        Agenda Number: 934919359
--------------------------------------------------------------------------
      Security: 037833100
  Meeting Type: Annual
  Meeting Date: 01-Mar-2019
        Ticker: AAPL
          ISIN: US0378331005
--------------------------------------------------------------------------
```

Prop.#	Proposal	Proposal Type	Proposal Vote	For/Against Management
1a.	Election of director: James Bell	Mgmt	For	For
1b.	Election of director: Tim Cook	Mgmt	For	For
1c.	Election of director: Al Gore	Mgmt	For	For
1d.	Election of director: Bob Iger	Mgmt	For	For
1e.	Election of director: Andrea Jung	Mgmt	Against	Against
1f.	Election of director: Art Levinson	Mgmt	For	For
1g.	Election of director: Ron Sugar	Mgmt	For	For
1h.	Election of director: Sue Wagner	Mgmt	For	For
2.	Ratification of the appointment of Ernst & Young LLP as Apple's independent registered public accounting firm for 2019	Mgmt	For	For
3.	Advisory vote to approve executive compensation	Mgmt	For	For
4.	A shareholder proposal entitled "Shareholder Proxy Access Amendments"	Shr	Against	For
5.	A shareholder proposal entitled "True Diversity Board Policy"	Shr	Against	For

APPLE INC.

Meeting Date: 01-MAR-2019	Meeting Type: Annual	Security/CINS: 037833100
Ticker: AAPL	Agenda Number: 934919359	ISIN: US0378331005

Item	Proposal Description	Type	Vote	For/Against Management's Recommendation
1a.	Election of director: James Bell	Mgmt	For	For
1b.	Election of director: Tim Cook	Mgmt	For	For
1c.	Election of director: Al Gore	Mgmt	For	For
1d.	Election of director: Bob Iger	Mgmt	For	For
1e.	Election of director: Andrea Jung	Mgmt	For	For
1f.	Election of director: Art Levinson	Mgmt	For	For
1g.	Election of director: Ron Sugar	Mgmt	For	For
1h.	Election of director: Sue Wagner	Mgmt	For	For
2.	Ratification of the appointment of Ernst & Young LLP as Apple's independent registered public accounting firm for 2019	Mgmt	For	For
3.	Advisory vote to approve executive compensation	Mgmt	For	For
4.	A shareholder proposal entitled "Shareholder Proxy Access Amendments"	Shr	Against	For
5.	A shareholder proposal entitled "True Diversity Board Policy"	Shr	Against	For

III. Cost of Proxy Advice and Voting Platforms

The prices that proxy advisors charge their customers are generally confidential. To shed some light on the cost of proxy advice, I sent Freedom of Information Act (FOIA) requests to the 30 largest public pension funds. I asked about their subscription to proxy advice, the voting platform they use, and the price they pay. Eleven of them responded and provided me with the information. The rest either declined my request or did not subscribe to any proxy advice. The first figure below plots the total price each pension pays and its total assets (as of 2017). Among the eleven pension funds, seven of them subscribe to only one firm between ISS and Glass Lewis. Four of them subscribe to both ISS and Glass Lewis for proxy advice but use only one platform for vote execution. This fact enables me to estimate the difference between the cost of proxy advice and the cost of the bundled package of proxy advice and vote execution. The right figure plots the prices separately for proxy advice and bundled packages.
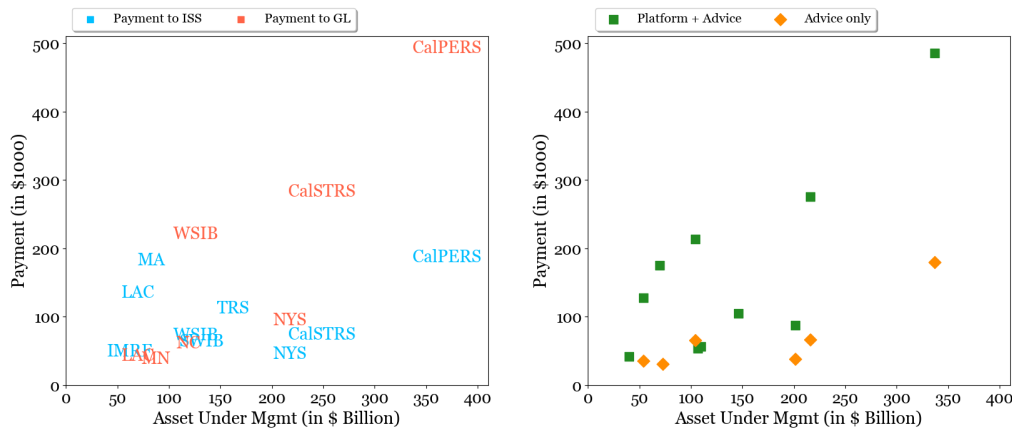
The following table displays the OLS regression of payment as a function of vendor identity, whether the payment is for the proxy advice only or vote execution service bundle, and the total asset assets. It shows that if a fund also uses the proxy advisor's voting platform, the fund has to pay $161,290 more than if it only subscribes to its advice (the unconditional mean for advice is $69,080).

	Payment (in $1000)	
Recipient = ISS	-45.61	
	(42.37)	
Bundled with platform	106.55**	161.29**
	(43.69)	(45.11)
Total Asset (in $ billion)	0.82***	
	(0.23)	
Fund Effect		Yes
Adjusted R^2	0.53	0.65
Observations	16	16

IV. Robo Voter Examples

This table shows examples of robo-voters. I define a fund-family as an ISS robo-voter in a particular year if all of the following three conditions hold: (i) it is an ISS customer; (ii) its votes are aligned with ISS recommendations on more than 99.9 percent of the time (column "% Aligned With ISS"); and (iii) its votes are aligned with ISS recommendations on more than 99.9 percent of proposals where ISS and management disagree (column "% Sided With ISS"). Glass Lewis robo-voters are defined analogously. I define a fund-family as a management robo-voter if (i) its votes are aligned with management recommendations on more than 99.9 percent of the time (the column % Aligned With Mgmt); and (ii) its votes are aligned with management recommendations on more than 99.9 percent of proposals where either ISS or Glass Lewis disagree with the management (column "% Sided With Mgmt").

ISS Robo-Voters

Fund-Family Name	Year	# of Votes	% Aligned With ISS	# of Contentious Votes	% Sided With ISS
Guggenheim Investments	2017	30,230	99.98%	3,579	100.00%
Profunds Group	2014	26,562	100.00%	2,467	100.00%
Nuveen Fund Advisors	2015	25,206	99.98%	2,413	99.96%
Wilmington Funds	2014	23,899	100.00%	2,025	99.95%
Rydex Investments	2017	21,661	100.00%	2,402	100.00%

Glass Lewis Robo-Voters

Fund-Family Name	Year	# of Votes	% Aligned With GL	# of Contentious Votes	% Sided With GL
Forward Management	2017	1,016	100.00%	42	100.00%
Evercore Wealth Management	2015	512	100.00%	28	100.00%
Kalmar Investment Advisers	2010	488	100.00%	27	100.00%
Destra Capital Advisors	2017	470	100.00%	28	100.00%
Aew Capital Management	2016	385	100.00%	12	100.00%

Management Robo-Voters

Fund-Family Name	Year	# of Votes	% Aligned With Mgmt	# of Contentious Votes	% Sided With Mgmt
Rydex/Sgi Funds	2011	24,137	99.99%	3,072	99.90%
Reynolds Capital Mgmt	2014	9,446	99.99%	1,038	100.00%
Nashville Capital Corporation	2017	2,548	100.00%	255	100.00%
Johnson Investment Counsel	2015	2,305	100.00%	214	100.00%
Weston Capital Advisors	2015	1,798	100.00%	272	100.00%

V. Relating to Malenko and Shen (2016)

This table repeats the analyses in Table 5's Panel A by restricting the sample of say-on-pay proposals to the ones where Glass Lewis supports the management. Each observation represents a fund vote in say-on-pay proposals. Columns 1 and 2 restrict the sample of say-on-pay proposals to the ones where Glass Lewis supports the management; similarly, columns 3 and 4 restrict the sample of say-on-pay proposals to the ones where ISS supports the management. All columns include proposal fixed effect and controls for fund-family characteristics appeared in Table 1A. Standard errors are clustered at the fund family-year level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	Dependent Variable = 1 if the vote is in the same direction as ISS recommendation		Dependent Variable = 1 if the vote is in the same direction as GL recommendation	
	ISS Supports Management	ISS Opposes Management	GL Supports Management	GL Opposes Management
	(1)	(2)	(3)	(4)
ISS Customer	0.01	0.38***		
	(0.01)	(0.03)		
GL Customer			0.00	0.38***
			(0.01)	(0.04)
Controls	Yes	Yes	Yes	Yes
Proposal Effect	Yes	Yes	Yes	Yes
Adjusted R^2	0.02	0.15	0.02	0.11
Observations	434,419	27,370	434,419	54,157
# of Clusters	1,886	1,729	1,886	1,769

Back-of-the-envelope calculation:

ISS's influence on total mutual fund votes = $(0.01 + 0.38)$ * ISS market share = $(0.01 + 0.38) * 63\% = 24.6\%$

(that is, exogenously changing ISS's recommendations from "For" to "Against" while keeping Glass Lewis recommendations unchanged will reduce the total support of the proposal by 24.6%)

GL's influence on total mutual fund votes = $(0.00 + 0.38)$ * GL market share = $(0.00 + 0.38) * 28\% = 10.6\%$

(that is, exogenously changing Glass Lewis's recommendations from "For" to "Against" while keeping ISS recommendations unchanged will reduce the total support of the proposal by 10.6%.)

VI. Alternative Specifications for Proxy Advisors' Influence

Each observation is a fund-vote. For all columns, dependent variables are dummy variables that equal one if the fund voted "For" the proposal. Independent variables "ISS Recommends For"/"GL Recommends For"/"Mgmt Recommends For" are dummy variables that equal 1 if ISS/GL/management recommends voting "For" the proposal. Standard errors are clustered at the fund family-year level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. Regressions are of the form

$$\text{Vote For}_{ip} = \text{ISS For}_p \cdot \left(\beta_1 + \beta_2 \cdot \text{ISS Customer}_{it} + \beta_3 \cdot \text{GL Customer}_{it} \right)$$
$$+ \text{GL For}_p \cdot \left(\beta_4 + \beta_5 \cdot \text{ISS Customer}_{it} + \beta_6 \cdot \text{GL Customer}_{it} \right)$$
$$+ \text{Mgmt For}_p \cdot \left(\beta_7 + \beta_8 \cdot \text{ISS Customer}_{it} + \beta_9 \cdot \text{GL Customer}_{it} \right) + \varepsilon_{ip}$$

	Dependent variable = 1 if the Fund Voted "For"			
	(1)	(2)	(3)	(4)
ISS Recommends For	0.47***	0.32***		
	(0.01)	(0.02)		
ISS Recommends For × ISS Customer		0.27***	0.27***	0.27***
		(0.02)	(0.02)	(0.02)
ISS Recommends for × GL Customer		-0.21***	-0.21***	-0.20***
		(0.02)	(0.02)	(0.02)
GL Recommends For	0.14***	0.17***		
	(0.01)	(0.01)		
GL Recommends For × ISS Customer		-0.10***	-0.10***	-0.10***
		(0.02)	(0.02)	(0.02)
GL Recommends For × GL Customer		0.31***	0.31***	0.31***
		(0.03)	(0.03)	(0.03)
Mgmt Recommends For	0.33***	0.43***		
	(0.01)	(0.02)		
Mgmt Recommends For × ISS Customer		-0.15***	-0.15***	-0.14***
		(0.02)	(0.02)	(0.02)
Mgmt Recommends For × GL Customer		-0.07**	-0.07**	-0.06**
		(0.03)	(0.03)	(0.03)
ISS Customer		-0.00	-0.01	
		(0.01)	(0.01)	
GL Customer		-0.02	-0.02	
		(0.02)	(0.02)	
Proposal Effect			Yes	Yes
Fund × Year Effect				Yes
Adjusted R^2	0.38	0.41	0.43	0.49
Observations	8,035,567	8,035,567	8,035,460	8,035,460
# of Clusters	2411	2411	2411	2411

VII. List of Funds That Have Been Acquired

Panel (A) displays the full list of funds that have been acquired and subsequently adopted the acquirer managements' proxy advisors. Panel (B) displays a sample list of funds that have been acquired but have not changed their proxy advisors. To search for funds that have been acquired, I look for funds that have changed management during my sample years in the CRSP database (variable mgmt_cd); I then search Nexis-Lexis, SDC Platinum, and the internet to confirm the acquisition (in order to eliminate the cases where the change of management is due to subadvisor arrangement). There are a total of 348 funds (from 90 families) that have changed management during my sample years, among which 19 funds (from 6 families) have also changed proxy advisors.

(A) Acquired funds that have adopted acquirer managements' proxy advisors

Fund Name	Effective Year	Management (pre-merger)	Management (post-merger)	Proxy Advisor
BNY Hamilton Multi-Cap Equity	2009	BNY Hamilton	AMG Funds	ISS ->Others
Barrett Opportunity Fund	2011	Legg Mason	Barrett Asset Mgmt	ISS ->Others
1919 Financial Services Fund	2014	Legg Mason	Stifel Financial Corp	ISS->Others
1919 Socially Responsive Balanced Fund	2014	Legg Mason	Stifel Financial Corp	ISS->Others
Holland Large Cap Growth Fund	2012	Holland Capital	American Beacon	ISS ->GL
RevenueShares Small Cap Fund	2016	VTL Associates	Oppenheimer Funds	Others ->ISS
RevenueShares ADR Fund	2016	VTL Associates	Oppenheimer Funds	Others ->ISS
RevenueShares Financials Sector Fund	2016	VTL Associates	Oppenheimer Funds	Others ->ISS
RevenueShares Large Cap Fund	2016	VTL Associates	Oppenheimer Funds	Others ->ISS
RevenueShares Mid Cap Fund	2016	VTL Associates	Oppenheimer Funds	Others ->ISS
RevenueShares Navellier Overall A-100 Fund	2016	VTL Associates	Oppenheimer Funds	Others ->ISS
RevenueShares Ultra Dividend Fund	2016	VTL Associates	Oppenheimer Funds	Others ->ISS
Claymore Clear Global Timber Index ETF	2010	Claymore	Oppenheimer Funds	ISS ->GL
Claymore Global Solar Energy Index ETF	2010	Claymore	Guggenheim Partners	ISS ->GL
Claymore–Sabrient Stealth Portfolio	2010	Claymore	Guggenheim Partners	ISS ->GL
Claymore S&P Global Water Index ETF	2010	Claymore	Guggenheim Partners	ISS ->GL
Claymore/AlphaShares China All-Cap ETF	2010	Claymore	Guggenheim Partners	ISS ->GL
Claymore China Technology ETF	2010	Claymore	Guggenheim Partners	ISS ->GL
Claymore Wilshire US REIT ETF	2010	Claymore	Guggenheim Partners	ISS ->GL

## (B) Acquired funds that have not changed proxy advisors (sample)

| Fund Name	Effective Year	Management (pre-merger)	Management (post-merger)	Proxy Advisor
Salomon Brothers Capital Fund	2007	Salomon Brothers	Legg Mason	ISS
Gartmore Worldwide Leaders Fund	2008	Gartmore US Equity	Aberdeen	ISS
GE Funds: US Large-Cap Core Equity Fund	2016	GE Asset Management	State Street	ISS
Sentinel Balanced Fund	2017	Sentinel Asset Mgmt	Touchstone Asset	ISS
Skyline Special Equities Portfolio	2008	Skyline Asset Mgmt	AMG Funds	Other
Aston/River Road Small Cap Value Fund	2016	Aston Funds	AMG Funds	Other

VIII.   Robustness: Figure 2 After Excluding the Big Four Fund Families

One may be concerned that the findings in Figure 2 – that ISS has been losing market share to Glass Lewis and Egan-Jones – is predominately driven by the largest investors. This figure repeats the analyses of Figure 2 after excluding the Big Four (i.e., BlackRock, Vanguard, Fidelity, and State Street). We still observe that the proxy advisory industry has become less concentrated from 2007 to 2017.

(A) Using the N-PX Method to Identify Voting Platform
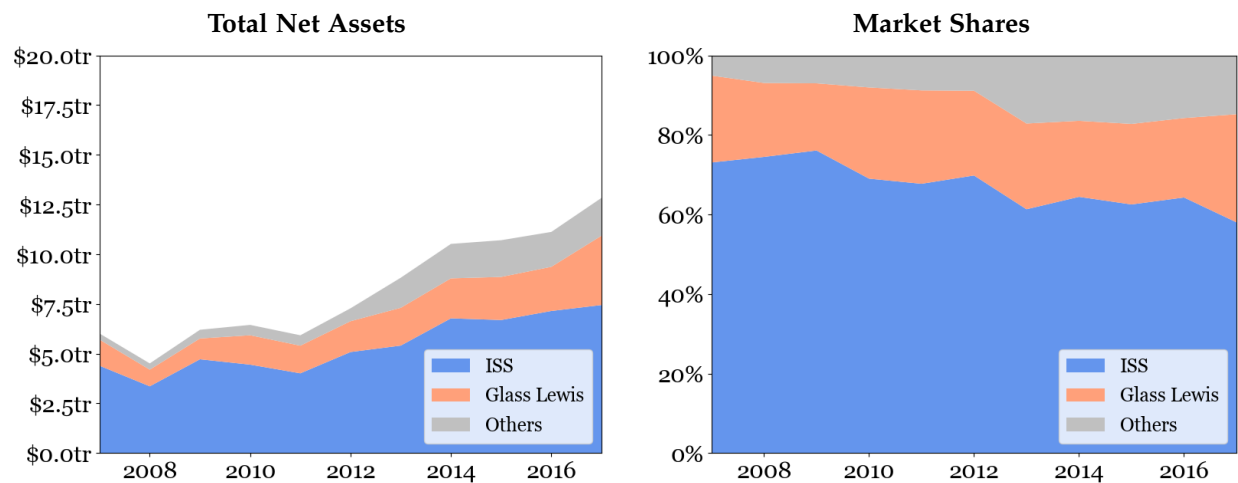
(B) Using the Prospectus Method to Identify Proxy Advisors
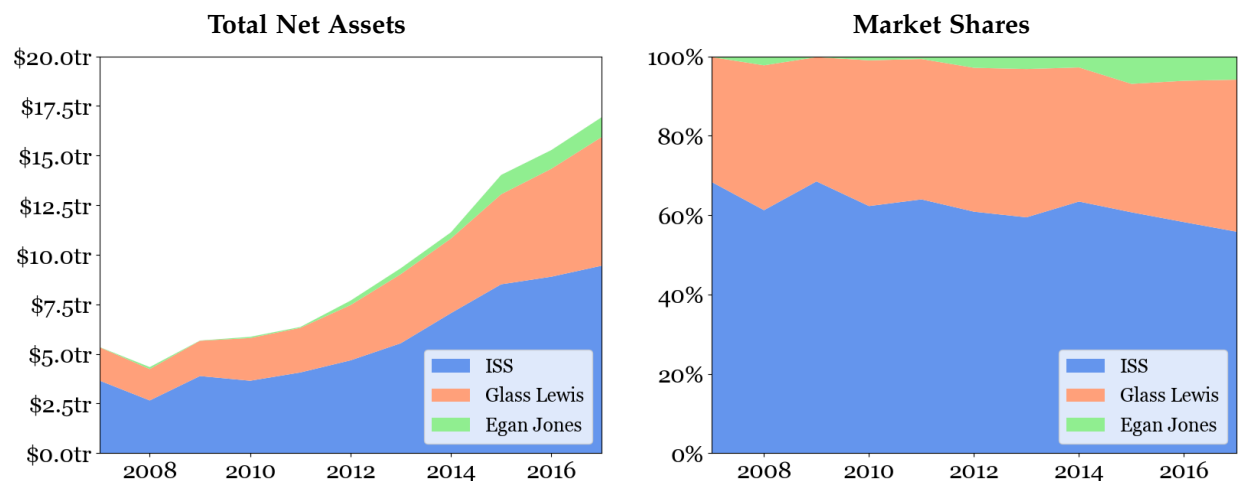
IX. Robustness: Table 11 Using Different Proposal Definitions

This table provides robustness tests for Table 11 Panel B by using the proposal definitions provided by ISS Voting Analytics. It reports OLS regressions of whether ISS or Glass Lewis changes its recommendation as a function of investors' disagreement with the proxy advisor's past recommendations. I use director names to link director elections within the same company and proposal types to link non-election proposals within the same company. Panel A uses agenda descriptions (agendageneraldesc) and Panel B uses item descriptions (itemdesc). All columns include year fixed effect and firm×proposal fixed effect. Standard errors are clustered at the company level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

(A) Using Agenda Descriptions

	Dependent Variable = 1 If ISS Changes Recommendation				Dependent Variable = 1 If Glass Lewis Changes Recommendation			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Director Elections	Say-on-Pay Proposals	Ratifying Auditors	Other Proposals	Director Elections	Say-on-Pay Proposals	Ratifying Auditors	Other Proposals
% Votes Disagreed with ISS	0.62***	0.78***	0.42***	0.11***				
	(0.02)	(0.03)	(0.05)	(0.04)				
% Votes Disagreed with GL					0.46***	0.38***	0.20**	0.44***
					(0.02)	(0.03)	(0.10)	(0.05)
Adjusted R^2	0.30	0.26	0.28	0.31	0.31	0.21	0.23	0.36
Observations	182,343	17,767	22,946	20,696	49,590	5,536	4,999	5,053
Clusters	4,362	3,394	3,978	3,995	1,261	1,145	1,238	1,037

(A) Using Item Descriptions

	Dependent Variable = 1 If ISS Changes Recommendation				Dependent Variable = 1 If Glass Lewis Changes Recommendation			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Director Elections	Say-on-Pay Proposals	Ratifying Auditors	Other Proposals	Director Elections	Say-on-Pay Proposals	Ratifying Auditors	Other Proposals
% Votes Disagreed with ISS	0.62***	0.78***	0.42***	0.12***				
	(0.02)	(0.03)	(0.05)	(0.04)				
% Votes Disagreed with GL					0.46***	0.38***	0.20**	0.44***
					(0.02)	(0.03)	(0.10)	(0.06)
Adjusted R^2	0.30	0.27	0.28	0.25	0.31	0.21	0.23	0.35
Observations	182,343	17,736	22,940	14,342	49,590	5,536	4,995	3,875
Clusters	4,362	3,398	3,976	3,355	1,261	1,145	1,237	921

X.   Robustness: Table 12 After Matching on Fund Family Sizes

This table provides robustness tests for Table 12 after matching a vote of a proxy advisor customer with a vote of a non-customer that has the closest asset size. It reports OLS regressions of whether a proxy advisor changes its recommendation as a function of investors' disagreement with its past recommendations, separated by whether the investors are its customers. Each observation represents a proposal. The dependent variable in Panel A (Panel B) are dummy variables that equal one if ISS (Glass Lewis) changed its recommendations. In both panels, columns 1 to 3's sample includes the full sample as in Table 12; columns 4 to 6's sample includes the matched sample. The independent variables are the percentage of different proxy advisor customers' votes that disagreed with the proxy advisor when the proposal last appeared in the same firm. I define a mutual fund family as an ISS (Glass Lewis) customer if either the N-PX method or the prospectus method flags it as an ISS (Glass Lewis) customer. All columns include firm×proposal fixed effect. Standard errors are clustered at the company level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

(A) ISS's Response to Investors that Subscribe to Different Proxy Advisors

| | Dependent Variable = 1 If ISS Changes Recommendation | | | | | |
| | Full Sample | | | Matched Sample | | |
	(1)	(2)	(3)	(4)	(5)	(6)
% Votes Disagreed With ISS	0.59***		0.59***	0.53***		0.35***
By ISS Customers	(0.01)		(0.02)	(0.02)		(0.02)
% Votes Disagreed With ISS		0.35***	0.16***		0.30***	0.21***
By Other Investors		(0.01)	(0.01)		(0.01)	(0.01)
$\hat{\beta}_1 - \hat{\beta}_2$			0.43***			0.14***
F-statistics			294.5			57.4
Adjusted R^2	0.23	0.24	0.27	0.23	0.24	0.26
Observations	260,465	215,651	214,904	192,874	192,874	192,874
# of Clusters	5,939	4,994	4,938	4,254	4,254	4,254

(B) Glass Lewis's Response to Investors that Subscribe to Different Proxy Advisors

| | Dependent Variable = 1 If Glass Lewis Changes Recommendation | | | | | |
| | Full Sample | | | Matched Sample | | |
	(1)	(2)	(3)	(4)	(5)	(6)
% Votes Disagreed With GL	0.50***		0.30***	0.49***		0.34***
By GL Customers	(0.01)		(0.04)	(0.01)		(0.03)
% Votes Disagreed With GL		0.41***	0.17***		0.37***	0.13***
By Other Investors		(0.01)	(0.03)		(0.01)	(0.02)
$\hat{\beta}_1 - \hat{\beta}_2$			0.12*			0.21***
F-statistics			3.2			18.4
Adjusted R^2	0.25	0.25	0.25	0.25	0.24	0.25
Observations	70,768	70,800	70,742	70,896	70,896	70,896
Clusters	1,869	1,869	1,868	1,847	1,847	1,847