# Algorithmic Advocacy: Unpacking Distortion in the ISS Say-on-Pay Process[*]

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**Abstract:** Proxy advisors play a significant role in shaping shareholder voting outcomes. Core to proxy advisors' business model is the ability to efficiently provide recommendations for a large number of firms and ballot items, which has led to the use of standardized approaches. We evaluate the potential consequences of such standardized approaches in the context of the pay-for-performance analysis the most influential proxy advisor, Institutional Shareholder Services (ISS), conducts to formulate its Say-on-Pay (SoP) recommendations. We first identify potential sources of distortion in ISS's approach, many related to how ISS defines the peer group used to compare compensation and performance, and show these factors are predictably associated with key scores underlying ISS's SoP recommendations. Next, we document these distortions influence ISS's SoP voting recommendations, meaning ISS does not recognize and adjust for these factors during the qualitative phase of their executive compensation evaluation. Finally, investors do not seem to adjust for these distortions in casting their SoP votes. Taken together, our results raise concerns about ISS's role in shaping shareholder voting, and ultimately compensation, outcomes.

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# 1. Introduction

With the introduction of Say-on-Pay (SoP) for U.S. public corporations in 2011 and the increase in institutional ownership, particularly by passively owned funds, proxy advisory firms have become central to the shareholder voting process. Among these, Institutional Shareholder Services (ISS) stands out as the most influential, providing voting recommendations for close to 50% of institutional owners (Shu 2024). Prior studies show that these recommendations significantly influence shareholder votes, board responses, and, in the context of SoP, even compensation design (Ertimur, Ferri & Oesch 2013; Malenko & Shen 2016; Larcker, McCall & Ormazabal 2013). Against this background, ISS has faced ongoing criticism for, among other concerns, adopting a one-size-fits-all framework in its evaluation of executive compensation (Hayne and Vance 2019; Gordon 2009).

Central to the ISS SoP framework is a standardized methodology that benchmarks pay and performance Against an ISS-defined peer group to provide guidance on the reasonableness of executive pay (see Appendix A for a summary of ISS guidelines and related documents). While this methodology aims to ensure consistency and comparability across a variety of firms, it involves simplifications and heuristics that may create deviations from more individualized models tailored to assess a single firm's compensation appropriateness. In this study, we examine whether ISS's methodology introduces systematic distortions into its assessment of executive compensation, and, in turn, into its SoP recommendations.

ISS's SoP recommendation process includes assessments of several aspects of compensation and contract design. In particular, ISS focuses on "pay for performance," "problematic pay practices," and "poor communication and responsiveness," assigning a level of

concern (low, medium, high) to each category.[1] Pay-for-performance serves as a particularly important input into the final ISS SoP recommendations (Ertimur et al. 2013). The pay-for-performance evaluation relies heavily on four quantitative scores for pay-performance alignment including the Multiple of Median (MOM) and the Relative Degree of Alignment (RDA). MOM captures the magnitude of a CEO's annual total compensation relative to the median pay of an ISS-defined peer group, while RDA assesses the alignment between pay and total shareholder return (TSR) over a three-year period, also benchmarked against an ISS designated peer group.[2] These quantitative scores then flow through a qualitative assessment and adjustment process which results in ISS' final level of concern for pay-for-performance. As such, MOM and RDA play a central role in ISS's overall SoP recommendation process and are often decisive in determining whether a compensation plan is flagged as misaligned. See Figure 1 for a summary of ISS's process for developing recommendations.

Our central thesis is that ISS's approach to peer group construction and to compensation valuation introduces systematic distortions into its compensation assessment process through the MOM and RDA scores. First, to promote consistency and reduce the potential for manipulation by firms, ISS implements its own peer group construction methodology rather than relying on firm-selected compensation and performance benchmarking peers. ISS uses the same peer comparison group as a benchmark for both compensation and performance while the majority of firms identify a separate set of firms in their annual proxy statements. Key elements of this peer selection methodology include grouping by Global Industry Classification Standard (GICS) and size based on both revenue and market value of equity (MVE). Importantly, ISS groups firms into size buckets based on their MVE and then uses pre-determined MVE cutoff criteria for each bucket to

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[1] See, ISS's U.S. Proxy Voting Guidelines (https://www.issgovernance.com/policy-gateway/voting-policies/).
[2] We provide a detailed discussion of the four quantitative measures in Section 2.1.

assign peer groups. This approach introduces discontinuities in peer assignment. For firms at the upper end of any bucket, the fixed MVE ceiling mechanically yields a peer set composed of smaller firms. Because firm size is a key determinant of pay levels, this results in peer groups with lower compensation levels, placing firms at the top of these benchmarking buckets at a relative disadvantage. Second, ISS employs different valuation methods for some elements of compensation than the methods required by the SEC in compensation disclosures, with the most significant differences arising from ISS's higher valuation of most option grants. We posit that both aspects of ISS' SoP analysis framework potentially introduce distortion into their recommendation process.

As we outline above and in Figure 1, MOM and RDA scores are initial key inputs into ISS' analysis of executive pay, and therefore the first place distortion can enter the SoP recommendation process. As such, we start our empirical analyses by examining whether the potential sources of distortion in ISS's methodology influence MOM and RDA scores in a predictable manner.

To do so, we construct a sample of 16,932 firm-years (2,412 unique firms) covering fiscal years 2010 (when SoP first became effective) through 2024 using data from ISS Executive Compensation Analytics database. Our analyses reveal that firm-year scores are impacted not only by the underlying economics, but also through distortions created by the ISS methodology reflecting both the selection of appropriate peers and the measurement of total compensation. For example, MOM scores, which capture pay level relative to peers, are higher for firms with MVE close the high end of the corresponding bucket, which can lead ISS to assess these firms' compensation to be too high relative to their mechanically smaller ISS determined peer group. Similarly, MOM scores are higher for firms where a greater proportion of the CEO's compensation is option-based. This is consistent with ISS methodology leading to greater values for option

compensation, putting firms where options represent a higher proportion of compensation at a relative disadvantage. This option distortion also flows through the RDA score which captures misalignment between performance and pay.

Next, we turn our attention to consequences of the distortions in MOM and RDA scores, focusing on the association between our estimates of the distortions and ISS's ultimate SoP recommendations, as well as SoP voting outcomes. While MOM and RDA scores are critical inputs for ISS's final recommendations, the distortions may be inconsequential. First, the magnitudes of the distortions may not be sufficiently large to materially influence ISS's SoP recommendations or subsequent shareholder voting outcomes. Second, rather than basing its SoP recommendations mechanically on pay-for-performance scores, ISS conducts a qualitative evaluation subsequent to initial score calculations to arrive at its levels of concern and final recommendations. ISS may correct for any distortions at this qualitative evaluation stage.

We first examine whether the methodological distortions introduced to the MOM and RDA scores result in a firm shifting from one concern category to another (i.e., across the threshold to a higher concern level). To do so, we compare the reported concern levels for MOM and RDA to an as-if concern level arising from the corresponding score on each dimension after removing the estimated distortion. The results show that for both MOM and RDA, a significant number of observations shift to higher concern levels when score distortions are included. For example, of the 585 observations that received a "medium" MOM score concern from ISS, 145 observations (24.7%) would have received a "low" concern had the scores been free from distortion.

We then consider whether the distortion in the scores influences ISS's ultimate binary SoP recommendations (For/Against). First, we find that for firms where the underlying distortion leads to a higher MOM or RDA concern level (e.g., "medium" instead of "low"), the likelihood of

receiving an ISS Against recommendation for SOP proposals is higher compared to a matched set of control firms. Further, greater distortions in MOM and RDA scores are associated with greater likelihood ISS will recommend Against the SoP proposals. Notably, we do not find an association between the degree of distortion and the likelihood Glass Lewis (the second largest proxy advisory firm) issues an Against recommendation for SoP, which alleviates concerns that our proxies for MOM and RDA score distortion capture fundamentals of pay or performance. Overall, these results indicate that the distortions introduced by ISS's methodology carry through to their recommendations, suggesting ISS does not fully adjust for these factors in the qualitative phase of its compensation evaluation.

It is possible that before casting their votes, institutional investors identify and unwind the distortions and their effect on SoP recommendations. We evaluate this possibility by examining the association between our proxies for the distortion in MOM and RDA scores and SoP voting outcomes. We find that the degree of distortion in ISS scores does influence voting results, suggesting shareholders do not correct these distortions in their independent evaluation processes.

Institutional investors differ in the degree to which their votes align with proxy advisors' recommendations (Iliev and Lowry 2014; Bolton, Li, Ravina and Rosenthal 2020; Bubb and Catan 2022). In additional analyses, we examine whether the effect of distortions in ISS scores on voting outcomes varies with firms' institutional investor base. Using the framework in Bubb and Catan (2022), we classify mutual funds based on their voting alignment. This approach allows us to identify funds that appear to rely exclusively on ISS recommendations and funds that appear to rely on recommendations from both ISS and Glass Lewis. We find evidence that distortion affects votes for both groups, though the magnitude is larger among ISS-only funds. That is, consistent with our expectations, the distortions in ISS scores play a more pivotal role at firms where a greater

proportion of the investor base aligns with ISS. The results further suggest that introducing a second source of proxy advice does not eliminate the distortion effects introduced by the ISS methodology. Simply subscribing to multiple assessments of pay, therefore, does not neutralize the effects of the methodological distortions.

In our final analysis, we distinguish between firms for which we can identify and quantify methodological distortion and those for which it is inherently difficult to produce a balanced set of peers. We then examine whether ISS recommendations are more or less influential for the latter group. In contrast to our main findings and consistent with (some) investors recognizing the limitations of ISS methodology in these instances, we find some evidence that shareholders rely less on ISS recommendations when identifying a peer group is more difficult.

Our study has implications for academics, investors, practitioners, and regulators. The results suggest that the standard ISS methodology introduces distortion into the entire SoP process spanning the original quantitative score all the way through the shareholder voting outcome. For the set of firms for which this distortion is impactful, ISS recommendations, and ultimately shareholder votes, do not reflect the appropriateness of compensation – as intended – but instead the idiosyncrasies of the evaluation process itself. This has significant ramifications. Given the importance of ISS recommendations for ultimate shareholder voting outcomes (Ertimur et al.2013; Malenko & Shen 2016) as well as the consequences and costs to the firm from limited shareholder support (e.g., Dey et al. 2024; Kimbro and Xu 2016), these distortions can have real economic effects. Firms may alter their compensation practices away from those suggested by underlying economics as a result of distorted recommendations. Our study can help institutional investors, ISS' primary client base for voting-related services, identify situations when ISS recommendations are likely to embed distortions and, therefore, have suboptimal impacts on their holdings. Building

on our analyses, institutional investors can take simple steps to remove the distortions introduced by ISS and isolate firms for which further qualitative assessment and independent research is necessary to arrive at voting decisions.

Our study can inform the ongoing legislative and regulatory debate regarding the role of proxy advisors. Much of the recent pressure on proxy advisory firms relates to ESG issues, including diversity, equity, and inclusion, and focuses on "promoting accountability, transparency, and competition" (Lipton, 2026; Exec. Order No. 14366, 2025). Our findings highlight distinct but equally important concerns: the effect of transparent methodological choices ISS makes in evaluating a traditional governance mechanism, executive compensation. By demonstrating that identifiable distortions in peer group selection and compensation benchmarking persist through to final recommendations and voting outcomes, we show that concerns about proxy advisor influence extend beyond politically charged issues to fundamental questions of methodological choice.

Partially as a result of the increasing legislative and regulatory pressure, the proxy voting landscape is rapidly evolving. Asset managers, including the Big 3 (Blackrock, State Street and Vanguard), are introducing pass-through voting programs (Hermann, McInnis, Monsen and Starks 2025; Malenko and Malenko 2024). While implementation details vary, these programs decentralize voting by offering investors the choice to delegate voting to the fund or vote themselves by either formulating their own votes or instructing asset managers to vote in line with a specific proxy advisor's recommendations. Concurrently, proxy advisors are increasingly offering custom proxy advice to institutions (Hu, Malenko and Zytnick 2025; Glass Lewis, 2025) and technological developments are opening the door for institutional investors to rely on AI-powered platforms to guide their voting decisions (Pitcher, 2026). On the surface, these trends are likely to reduce the influence ISS SoP recommendations on voting outcomes. However, to the

extent investors, custom advice, and AI models rely on ISS proxy voting guidelines, methodology or scores, the distortions we document, which occur in the earliest stages of the SoP assessment process, will continue to have an effect. Coleman et al. (2025) demonstrate that analysts relying on the same underlying data provider produce systematically correlated forecast errors, even when applying different models. We argue the same mechanism operates here: ISS's pay-performance scores serve as a shared foundation, embedding distortions that persist across proxy advisors, institutional investors, and shareholders. Just as diversifying analyst sources cannot eliminate errors embedded in a common data foundation, pass-through voting, customized voting advice or AI-powered proxy voting cannot remedy distortions that originate in the quantitative scoring methodology itself.

Our study also adds to the literature on the SoP process and the role of proxy advisory firms. Unlike other studies which examine the impact of firm-level economic determinants and disclosure practices on SoP recommendations and voting outcomes (e.g., Balsam et al. 2012; Hooghiemstra et al 2017) or those which examine the effects of a negative recommendation or poor SoP voting outcome (e.g., Ferri and Maber 2013), we focus on the details of the ISS methodology itself to reveal unintended consequences of the SoP recommendation process.

Finally, our study highlights how the motivations and incentives of information intermediaries influence the information they produce, information that ultimately shapes the perceptions and decisions of shareholders and other stakeholders. A broad literature speaks to how the motivation of analysts (e.g., investment banking relationships, access to management) may influence analyst forecasts and ultimately stock price formation (e.g., Corwin et al. 2017; Ke and Yu 2006). Similarly, credit rating agencies display various biases in developing credit ratings which subsequently affect the cost of debt (e.g., Cornaggia et al. 2016; Xia 2014). Kraft (2015)

documents that credit rating agencies to cater to borrowers with performance-pricing provisions by making favorable "hard" and "soft" adjustments to borrowers' credit risk ratings. Proxy advisors serve as key information intermediaries in the shareholder voting setting. We show that the standardized methods proxy advisors use in order to efficiently generate recommendations for a large number of firms introduce distortions which lead to less favorable recommendations and voting outcomes.

## 2. Sample and Key Variables

Our sample starts with all firm-year observations from the ISS Executive Compensation Analytics Database, which includes key executive compensation variables along with ISS pay-for-performance quantitative scores (i.e., MOM and RDA scores as well as PTA and FPA scores, which we briefly discuss below) beginning in fiscal year 2010, when mandatory SoP voting was adopted in the US.[3] We merge this data with Compustat and Thomson Reuters for firm-level control variables including financial performance and institutional ownership. We obtain SoP voting results from ISS Voting Analytics. We further require observations have either an actual ISS SoP recommendation from Voting Analytics (generally available for meetings through 2021) or an imputed ISS recommendation based on Zytnick (2024) (generally available for meeting dates through 2024 at the time of data analysis); if both the actual and imputed recommendations are available we use the actual recommendation.[4] Finally, we remove 2,852 observations from certain financial industries (e.g., commercial and regional banks) where ISS does not use MVE as a

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[3] All public companies subject to the proxy rules were required to hold SoP votes at shareholder meetings starting on Jan. 21, 2011. The SEC delayed the vote by two years for companies with a public float of less than $75 million. These smaller companies were required to hold SoP votes at annual meetings starting on Jan. 21, 2013 (https://www.sec.gov/files/sayonpay.pdf). Companies must also hold a vote every six years to determine the frequency of the SoP votes (annual, biennial, triennial).

[4] ISS removed its recommendations from the Voting Analytics database sometime between 2020 and 2022, both retroactively and on an ongoing basis (Zytnick, 2024). For these more recent meetings, we rely on imputed ISS recommendations from Zytnick (2024).

screening criterion to identify peer firms for pay-for-performance analysis. This results in a primary sample of 16,932 firm-years (2,412 unique firms) over the period 2010-2024. Some of our empirical analyses also include Glass Lewis recommendations (imputed by Zytnick); further reducing sample size (16,631 firm-year observations). Table 1 provides details of the sample selection process. All variable definitions are found in Appendix B.

ISS uses data from publicly filed proxy statements (of both the focal and peer firms) to assess compensation appropriateness. ISS analyzes this information to provide recommendations to subscribing institutional investors, typically between 14 and 24 days before the annual meeting.[5] In its evaluation of compensation, ISS focuses on whether (i) there is misalignment between CEO pay and company performance (pay-for-performance), (ii) the company maintains significant problematic pay practices, and (iii) the board exhibits a significant level of poor communication and responsiveness to shareholders.[6] Of these, pay-for-performance serves as a particularly important input into the final ISS SoP recommendations: most ISS Against recommendations for SoP involve a high concern with pay-for-performance (Ertimur, Ferri and Oesch 2013) and ISS evaluates problematic pay practices in the context of a company's "demonstrated pay-for-performance philosophy" (See Figure 1 for an overview of the ISS process). Our initial analysis uses details about ISS's methodology to focus on potential sources of distortion that can influence the pay-for-performance scores and consequently ISS's voting recommendation.

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[5] These recommendations (for both SoP and other items on the ballot) are provided to subscribers and included in ISS reports that also discuss the rationale underlying the recommendations. While available to subscribers, these reports are not available to shareholders at large or to academics.
[6] https://www.issgovernance.com/file/policy/active/americas/US-Voting-Guidelines.pdf?v=2025.2

*2.1 ISS Pay-For-Performance Scores*

ISS describes its standard approach to calculating pay-for-performance scores in its pay-for-performance guidelines published annually on the firm's website.[7] The overall pay-for-performance score is built from scores on four underlying measures: Multiple of Median (MOM), Relative Degree of Alignment (RDA), Pay-TSR Alignment (PTA) and Financial Performance Assessment (FPA). Of these, MOM, RDA and FPA are relative and therefore impacted by ISS's peer group selection; PTA is not. ISS uses FPA, which relies on four long-term Economic Value Added (EVA) metrics only as a secondary measure after the three primary screens (MOM, RDA and PTA). As such, we focus our analysis MOM and RDA scores.

The MOM score evaluates the level of total CEO compensation relative to that at ISS selected peer firms for the current fiscal year. It is calculated as ISS defined total CEO compensation at a given firm divided by the median CEO compensation of the ISS peer group. A score of 1 represents compensation equal to the median of peers while higher (lower) scores represent compensation that is above (below) peers. This score has a minimum value of 0 and does not have a theoretical maximum. We denote the variable that captures ISS's MOM Score as *ISS MOM Score*.

The RDA score evaluates the alignment of CEO compensation and stock performance (Total Shareholder Return (TSR)) of a given firm relative to peers. The RDA score is calculated as the percentile rank of three-year TSR less the percentile rank of three-year CEO compensation, where both percentile ranks are calculated using the ISS defined peer group. This score can range from -100 to +100. A firm that falls in the same percentile rank among its peers for both pay and

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[7] https://www.issgovernance.com/file/policy/active/americas/Pay-for-Performance-Mechanics.pdf. In addition, we use cached internet sites (e.g., via the Wayback Machine) to identify the details of the standard methodology in use for each year of our sample.

performance will receive a score of 0, suggesting no misalignment in performance and pay. A negative (positive) score indicates that a firm has high (low) pay relative to performance. For ease of interpretation, throughout the paper, we multiply the RDA score by negative one such that higher values represent worse scores (i.e., high pay relative to performance) and denote the resulting variable as *ISS RDA Score*.

Both MOM and RDA rely on ISS's definition of total compensation and on its peer group selection criteria. ISS's approach to calculating compensation is generally similar to that required by the SEC in the Summary Compensation Table. However, ISS makes some adjustments.[8] As we discuss below, these adjustments can lead to significant differences in reported values of equity compensation, especially for option-based pay. To define peer groups, ISS uses a procedure that identifies peers in the same or similar industries (based on GICS code) and of similar size based on both MVE and revenues. ISS peer groups include between 14 and 24 firms. The actual ISS peer group is disclosed to subscribers (and the firm) in the ISS report but is not available to non-subscribers (including academics).

Descriptive statistics on the ISS quantitative scores are provided in Table 2. We note that *ISS MOM Score* has a mean (median) of 1.14 (1.00) suggesting that the average firm-year in our sample has a total compensation level at or very near the median of the ISS peer group. The average (median) firm year also has an *ISS RDA Score* of -3.67 (-3.19). This number implies that the percentile rank of performance is, on average, about equal to that for compensation.

*2.2 Sources of Distortion*

We read the ISS guidelines to identify elements of the methodology ISS uses to calculate compensation and select peers that can introduce some degree of distortion into the MOM and

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[8] See question 2 "How is Total Compensation calculated?"
 https://www.issgovernance.com/file/policy/active/americas/US-Compensation-Policies-FAQ.pdf

RDA scores; i.e., factors that can influence scores in a way that is plausibly unrelated to the fundamentals of pay and performance.

The first set of factors we consider pertain to ISS's peer selection approach which begins with identifying peers of similar size along revenue and MVE dimensions. In the case of revenue, ISS requires peers to have revenues between 0.4 and 2.5 times that of the focal firm; while this limits potential peers it does not introduce any obvious distortion. For MVE, ISS first puts firms into four buckets: micro-cap firms are those with MVE below $200M, small-cap firms are those with MVE between $200M and $1B, mid cap firms are those with MVE between $1B and $10B, and large-cap firms are those with MVE above $10B. ISS then uses the multiples of MVE cutoffs of the bucket, and not of the individual firms, to define potential peers. Specifically, for a focal firm in a given bucket, the potential peers must have MVE between 0.25 times the low end of the bucket and 4 times the high end of the bucket.

Different from the revenue range which relies on the firm's own revenue level, this bucketing system puts firms at the high end of any bucket at a relative disadvantage. For these firms, the corresponding MVE range will necessarily be tilted towards identifying potential peers that are smaller than the focal firm (and thus likely have lower compensation given size is one of the key determinants of compensation (e.g., Graham, Li, & Qui, 2012)). For example, consider two similar firms. Firm A has MVE of $999M putting it at the top of the small-cap bucket while Firm B has MVE of $1,001M putting it at the bottom of the mid-cap bucket. For Firm A, ISS would consider peers with MVE between $50M and $4B for inclusion in the peer group while for Firm B ISS would consider firms with MVE between $250M and $40B for inclusion. Given these groupings, eligible peers for Firm A will be between 5% and 400% its MVE while eligible peers

for Firm B will be between 25% and 4000% its MVE. (We outline ISS' buckets and peer selection methodology in Appendix A).

We define three variables to capture the potential distortion resulting from the MVE bucketing system ISS uses. The first variable, *MVE Bucket Percentile*, is the firm's percentile rank within in MVE bucket. A firm with MVE near the top of the bucket will have *MVE Bucket Percentile* near 1 while a firm with MVE near the bottom of the bucket will have *MVE Bucket Percentile* near 0. A second and related distortion can arise based on fiscal-year end timing. ISS downloads data and calculates potential peer groups at the beginning of December for firms with annual meetings between February 1 and September 15. ISS repeats this process on June 1 for firms with annual meetings between September 16 and January 31. This means that the inclusion of many firms in an MVE bucket is determined by MVE calculations that do not represent end-of-year results. For example, for calendar year-end firms (which tend to have annual meetings in the second quarter), MVE is captured on December 1, about a month before fiscal year end. To capture the potential distortion arising from this aspect of the MVE bucketing system, we define *YE Bucket Above*, an indicator variable taking the value of one for firm-years that would have been classified in a higher MVE bucket had ISS done the MVE calculation at the end of the firm's fiscal year (e.g., a firm that had MVE below $1,000M on November 30 but above $1,000M on December 31), and zero otherwise. We define a similar variable, *YE Bucket Below*, that equals one for firms that would have been in a lower MVE bucket at the end of the year relative to the ISS data date.

In the first stage of peer selection, ISS defines the universe of potential peers that meet revenue and MVE criteria as described above. The peers selected from this universe must also meet industry criteria. ISS first narrows the group to select peers from the focal firm's 8-digit GICS code in the size-matched universe. If this screen leaves an insufficient number of peers, ISS next

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considers size-matched firms in the same 8-digit GICS as the set of compensation benchmarking peers disclosed by the focal firm (i.e., peers of peers). If additional peers are still required, ISS moves onto size-matched potential peers in 6- and 4-digit GICS codes. Even though all selected peers are required to meet revenue and MVE rules above, ISS gives preference to within-industry peers. This process can result in ISS selecting a set of peers not evenly distributed across the size distribution. For example, to meet the within-industry peer preference, in some cases ISS may choose peers that are near the top of the MVE distribution while for others ISS may choose peers near the bottom of the MVE distribution. The relative size position within the chosen peer groups can create distortions as discussed above. To capture this source of distortion, we define *Few High* (*Few Low*), an indicator variable that is equal to one if a firm has relatively fewer 6-digit GICS peers with higher (lower) MVE that meet ISS's revenue and MVE requirements.[9] If a firm has *Few High (Few Low)* peers, ISS may be more likely to select a peer group comprised primarily of firms with MVE less (greater) than the focal firm.

The above describes distortion arising from differences in the MVE rank within the selected industry-peer group. Another potential distortion arises from differences in the degree of similarity between the focal firm and chosen peers with respect to underlying economics. While ISS prefers to use size-matched firms in the same 8-digit GICS code, if there are not enough peers in this universe ISS expands its industry definition to "peers of peers" or broader industry classifications (6- or 4-digit GICS) resulting in less "economically similar" peers. To capture this source of distortion, we consider the number of potential industry peers in the firm's 6-digit GICS that meet ISS's size criteria. To the extent this is a small group, ISS will likely select a greater

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[9] Recall that we cannot observe the actual peer group ISS chooses. We base the definition of *Few High* (*Few Low*) on 6-digit GICS in our main analyses to ensure that we capture a peer group that ISS is likely to consider in its selection process.

number of peers that are less similar to the focal firm. This, in turn, can lead to peer group composition that is further removed from the focal firm's underlying economics and thus, a poorer reference (either too high or too low) for assessments of compensation appropriateness. We define *Large GICS* (*Small GICS*) as an indicator variable taking the value of one for firm-years that are in the top 10% (bottom 10%) for the count of peer firms within its 6-digit GICS code that meet ISS revenue and MVE criteria, and zero otherwise.

The second set of factors that can influence MOM and RDA scores pertain to ISS's approach to calculating total compensation. The most significant difference in ISS's calculation of total compensation from that in the summary compensation table relates to option valuation. In the summary compensation table, firms value options based on their expected life at the time of grant (i.e., generally ~6-7 years for a 10-year option). This expected life coincides with the fact that, on average, executives exercise options early, generally within 6 years of grant (Aboody et al. 2008). In contrast, ISS values options based on their stated duration (i.e., generally 10 years). Because duration is, on average, greater than expected life, this leads to higher valuations of option compensation under ISS's valuation method.

Another, albeit likely less significant, source of divergence stems from valuation of stock awards. ISS values time-vesting stock awards by multiplying the price on grant date with the number of shares awarded; for performance-vesting awards ISS uses the target number of shares. ISS's approach should generally result in the same valuation as reported in the summary compensation table for time-based awards. However, ISS's valuation is likely to be somewhat different for performance-based awards.[10] Thus, the directional effect of ISS stock valuation on

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[10] Firms typically value performance-based awards with accounting conditions (e.g., EPS, revenue) using the target number of shares (i.e., the same as ISS). Firms are not allowed to report target-based valuations for awards with market conditions (e.g., relative TSR). Instead, firms must simulate expected valuations for these awards. On average, reported valuations for performance awards are slightly higher than target valuation (mean = 103%) (Pawliczek 2021).

total compensation is less clear. We define *Option %* (*Stock %*) as the grant date fair value of option compensation (stock compensation) as reported in the summary compensation table divided by total compensation as reported in the summary compensation table less the median percentage for the industry and year (based on 6-digit GICS).[11] The mean value for Option % (Stock %) is 5% (-2%); without industry-year adjustment the mean values are 12% (41%). Appendix C provides a summary of the sources of distortion and their expected effects on scores.

## 3. Results

### *3.1 Does ISS methodology distort MOM and RDA scores?*

In our first set of analyses, we evaluate whether the potential sources of distortion in ISS methodology—discussed in Section 2.2—influence ISS pay-for-performance quantitative scores in a predictable manner. We estimate the following OLS regression:

$$[ISS\ Score_{i,t}] = \alpha + \boldsymbol{\beta} \cdot [Econ\ Determinants_{i,t}] + \boldsymbol{\Phi} \cdot [Distortion_{i,t}]$$

$$+\ \mathbf{T} \cdot \tau_t + \boldsymbol{\Omega} \cdot v_k + \varepsilon_{it} \qquad\qquad (1)$$

where the indices *i*, *k*, and *t* correspond to firm, industry, and year, respectively. We set the dependent variable, [*ISS Score_{i,t}*], alternatively to *ISS MOM Score_{i,t}* or *ISS RDA Score_{i,t}*. ISS uses compensation for the most recent fiscal year, which we denote year *t*, as the basis for *ISS MOM Score_{i,t}* (note that for a December fiscal year end firm, shareholders vote on fiscal year *t* compensation during the calendar year *t+1* and ISS releases its year *t* scores during calendar year *t+1*). To capture economics underlying each score, we include control variables appropriate for each dependent variable. When the dependent variable is *ISS MOM Score_{i,t}*, we include the natural logarithm of total compensation for year *t*, (*TotalComp_{i,t}*). Similarly, when the dependent variable is *ISS RDA Score_{i,t}*, we include total compensation over the past three fiscal years, (*TotalComp_{t-2→}*

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[11] ISS always uses the Black-Scholes model for valuation while firms may choose among methodologies including Black-Scholes. We do not have a clear prediction about how different estimation techniques will influence valuation.

$_t$). In both specifications, we include MVE as of the end of fiscal year t, ($MVE_{i,t}$) to capture the fact that ISS compares compensation to similarly sized peers. In addition, for the *ISS RDA Score*, we include firm TSR over the 3-year period, $TSR_{t-2 \to t}$, which should directly influence this score.

Our key variables of interest are the distortion variables that pertain to how ISS selects peer firms and calculates total compensation, defined in Section 2.2. Recall that *MVE Bucket Percentile, YE Bucket Above,* and *Few High* intend to capture situations where ISS is likely to compare the focal firm to relatively smaller peers, which, in turn, can lead ISS to view pay to be "too high" relative to peers. To the extent ISS does not correct for these distortions when assigning the quantitative scores, we expect *MVE Bucket Percentile, YE Bucket Above,* and *Few High* to be positively associated with the *ISS MOM Score* and *ISS RDA Score* (where greater values of each quantitative score indicate less desirable compensation practices). Conversely, *YE Bucket Below* and *Few Low* captures situations that may lead ISS to compare the focal firm to relatively larger peers. We therefore expect the coefficients on *YE Bucket Below* and *Few Low* to be negative. With respect to variables that intend to capture ISS's approach to calculating total compensation, we expect the coefficient of *Option %* to be positive reflecting a larger and less desirable level of pay as the total compensation ISS uses in its calculation is likely increasing with the proportion of option pay. We do not have directional predictions for the other distortion variables (i.e., *Large GICS, Small GICS,* and *Stock %*). To alleviate concerns that our inferences are attributable to omitted time trends (e.g., macroeconomic shocks) or industry characteristics (e.g., business models across sectors), we include year fixed effects $\tau_t$ and industry fixed effects $v_k$, which are based on the GICS 6-digit groups. To correct for any arbitrary correlation in the firm-year-specific error term $\varepsilon_{it}$ across time within a given firm, we base inferences on standard errors clustered at the level of treatment (i.e., firm), following Abadie et al. (2023).

Table 3, Panel A presents the results of estimating Equation (1) when the dependent variable is *ISS MOM Score*. We find the level of CEO pay and firm size are significant predictors of the quantitative score and directionally consistent with our expectations. That is, total compensation is positively associated with *ISS MOM Score* – all else equal, higher compensation leads to pay greater than the median. The negative association between firm size and MOM reflects the denominator effect inherent in the relative MOM measure: larger firms are matched to larger, higher-paid peer groups, which elevates the benchmark against which their pay is evaluated. This means that, holding *Ln*(*TotalComp*) constant, *ISS MOM Score* should decrease as firm size increases, consistent with the results presented here.

Turning to tests of our distortion expectations, we find that factors that are likely to lead to a firm being compared to smaller peers (*MVE Bucket Percentile, YE Bucket Above, Few High*) are positively associated with *ISS MOM Score* while factors likely to lead to being compared to larger peers (*YE Bucket Below*, *Few Low)* are negatively associated with *ISS MOM Score* in Columns (1) – (3). That is, when distortions in peer group composition lead to a smaller (larger) median peer firm, MOM is likely to be larger (smaller). In Column (4), we turn to tests for the size of the potential peer group and find that *Small GICs* is positively associated with MOM Score while *Large GICs* is negatively associated with the score. These results imply that as the availability of economically relevant industry peers decreases (increases), MOM scores increase (decrease) indicating that compensation outside of the focal firm's industry may vary systematically. In Column (5), as predicted we find *Option %* is positively associated with MOM scores; we find a marginally significant negative association for *Stock %*. Results are generally consistent if we include all distortion variables in the same regression (Column 6) with the exception of *Large GICS*, which is no longer significant at conventional levels.

Table 3, Panel B displays the results when the dependent variable in Equation (1) is *ISS RDA Score*. The results for the main predictors of *ISS RDA Score* (total pay, TSR, and firm size) are consistent with expectations. Specifically, we document a positive association between *ISS RDA Score* and *Ln*(*TotalComp*), and a negative association between *ISS RDA Score* and *TSR*. That is, all else equal, the pay relative to performance versus peers looks worse as pay increases and performance decreases. Turning our attention to potential sources of distortion, we do not find that the variables capturing distortion from MVE bucketing (*MVE Bucket Percentile, YE Bucket Below*) significantly influence *ISS RDA Score*. We do, however, find evidence that *Few High* and *Few Low*, which proxy for the bucketing effects on peer availability, are associated with the *ISS RDA Score* as predicted—when *Few High* is equal to one, *ISS RDA Score* is higher (reflecting higher pay relative to performance) and vice versa. Additionally, on the peer availability dimension, we find that *Small GICS* is also associated with worse scores while *Large GICS* are associated with better scores. Finally, we note a significant negative effect of the percentage of option pay (*Option%*), as predicted, capturing distortions related to the measurement of total pay. Overall, these results demonstrate that specific aspects of ISS methodology influence pay-for-performance scores in a predictable manner.[12]

To the extent that economic determinants impact ISS quantitative scores in a non-linear manner, the above analyses may lead us to incorrectly attribute underlying firm economics to proxies for distortion. To allow for such non-linear effects, we adopt an alternative methodology and conduct additional analyses. Specifically, we first estimate a score designed to be free of the distortions introduced by ISS's methodology. Our methodology, which we describe in detail in the Online Appendix, centers on identifying a sufficient number of industry peer firms of similar size;

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[12] The inferences from Table 3 are generally consistent if we estimate Equation (1) without industry fixed effects (untabulated).

we are able to do so for 59.9% of firm years. For the remaining 40% of firm-years, firm economics (e.g., industry, size, etc.) create inherent difficulty in identifying an appropriate set of balanced peers for these firms.[13] Next, we evaluate whether the difference between the ISS score and the estimated score is predictably associated with the distortion variables. Our inferences are similar to those from Table 3 (see Table OA1). In addition to accounting for the potential influence of non-linearities, the results in Table OA1 demonstrate that the distortions the ISS methodology introduces are not driven by the subset of firms where peer identification is more difficult (i.e, those for which our methodology cannot estimate a score).

*3.2 Effects of Score Distortion*

The results so far show that distortions inherent to ISS methodology influence pay-for-performance scores in a predictable manner. We next consider whether these distortions influence ISS's final recommendations and ultimately SoP voting outcomes. While MOM and RDA scores are critical inputs for ISS's final recommendations, there are at least two reasons the distortions may be inconsequential. First, if the magnitudes of distortion are small, they may not materially influence ISS SoP recommendations or subsequent shareholder voting outcomes. Second, ISS recommendations are not mechanically based on pay-for-performance scores. As we outline in Figure 1, after assigning concern levels to MOM and RDA scores (as well as to the PTA score), ISS may adjust the quantitative pay-for-performance concern level based on FPA analysis. More importantly, ISS also conducts a subjective qualitative evaluation of pay-for-performance in arriving at its final pay-for-performance assessment (not included in the ECA dataset and therefore not observable to us). These adjustments may serve as the mechanism to remove any distortions created by the methodology before providing voting recommendations.

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[13] We evaluate the potential effect of these firms on ISS's SoP recommendation process in Section 3.2.4.

To evaluate the influence of the potential distortions on ISS's final recommendations and SoP voting outcomes, we disaggregate the quantitative scores into the portion suggested by economic determinants and the portion reflecting the underlying distortion. To do this, we rely on the coefficient estimates for both the economic determinants and the distortion-related variables from Table 3. Specifically, for each firm-year observation in the sample, we calculate the expected score generated from economic determinants (*MOM Fundamental-Estimate*) as the predicted value resulting from the economic determinants predictors (size, total compensation, industry, and year) in Table 3 Panel A Column (6) (i.e., the sum of the firms' size in that year multiplied by the size coefficient and the firms' total compensation in that year multiplied by the total compensation coefficient, etc.). Similarly, we use estimates from Table 3 Panel B Column (6) to calculate or *RDA Fundamental-Estimate*. We follow the same procedure to calculate the portion of the score arising from distortion (*MOM Distortion or RDA Distortion*) except we use the coefficient estimates on the independent variables in Table 3 capturing the sources of distortion (*MVE Bucket Percentile*, *YE Bucket Above*, *YE Bucket Below*, *Few High, Few Low, Large GICS, Small GICS, Option %* and *Stock %)*. Table 4 Panel A provides descriptive statistics on our estimates of distortion. Large positive values of a distortion measure represent cases where distortion makes the score appear substantially worse (i.e., pay is less appropriate). At the mean, the portion of the ISS score driven by distortions is relatively low, but for a subset of observations, the changes are more significant. For example, the $75^{th}$ percentile of *MOM Distortion* is 0.25 or approximately 21.9% of mean *ISS MOM Score*.

We also further disaggregate each distortion score (e.g., *MOM Distortion*) into the part arising from peer selection distortions (*MOM Distortion – Peer*) and that arising from

compensation valuation distortions (*MOM Distortion – Valuation*) by limiting each measure to the subset of the sources of distortion related to each category (See Appendix C).

*3.2.1 Score Distortion and Score Concern Levels*

As we discuss above, after calculating numerical pay-for-performance scores (i.e., MOM, RDA, PTA and FPA), ISS classifies each score into high, medium, or low concern levels by comparing each individual quantitative score to score thresholds.[14] The individual concern levels on each pay dimension are then combined into an overall quantitative pay-for-performance concern level (low, medium, high). Receiving concern levels above "low" on a single individual category is consequential for firms; firms are almost certain to receive a "medium" or "high" overall pay-for-performance concern if at least one of the individual scores falls into this concern level. For example, of the 1,649 firm-years that received a "high" overall pay-for-performance concern, 99.6% (1,849) had either a MOM or RDA (or both) pay-for-performance concern at the "medium" or "high" level; this was true of 79.7% (1,125) of firm-years that received a "medium" overall pay-for-performance concern (untabulated). The pay-for-performance concern level in turn has significant influence on ISS recommendations.[15]

One approach to evaluate the effects of the distortion ISS's methodology introduces to the MOM and RDA scores is to identify the cases in which the estimated distortion portion of the observed score is likely to have shifted a firm from one concern level to another (i.e., across the threshold to a higher concern level). To do so, we compare the reported concern levels for MOM and RDA to an as-if concern level arising from the corresponding score on each dimension after

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[14] ISS threshold levels corresponding to different concern categories change over time. In some instances, different thresholds are used for S&P 500 firms versus others. We review historical ISS guidelines to identify the appropriate threshold for each year. These thresholds over time are provided in Appendix A.

[15] Of firms-years receiving a High (Medium) concern level from ISS for overall pay-for-performance, 53.3% (31.1%) received an "Against" recommendation from ISS. In contrast, only 3.4% of firms receiving a Low overall pay-for-performance concern from ISS ultimately received and Against recommendation.

removing the estimated distortion. We begin our analysis with univariate tests of the levels of concern and ultimate SoP recommendations with and without the estimated distortion.

Table 4, Panel B cross tabulates actual and estimated ISS concern levels for MOM scores. Observations above (below) the diagonal represent cases where the actual ISS score results in a greater (lower) concern level than the score without distortion. The results show that a significant number of observations would have received a lower concern level had distortions been removed from the quantitative scores. For example, in Panel B, of the 585 observations that received a "medium" MOM score concern from ISS, 145 observations (24.7%) would have received a "low" concern had distortion been removed from the scores. Conversely, removing distortion rarely leads to a greater concern level evidenced by only 6 observations shifting from "medium" to "high" concern level. The results in Panel C for the RDA scores are similar. For example, of the 1,340 observations rated as having a "high" concern level for RDA, 179 (13.3%) and 13 (1.0%) would have been rated as "medium" and "low" concern, respectively, absent the distortion. This analysis provides initial evidence that the score distortion can be large enough to impact concern levels.

*3.2.2 Score Distortion and Proxy Advisor Recommendations*

While the results so far suggest that MOM and RDA scores include distortion and these distortions can be large enough to lead to higher ISS concern levels for the respective categories, ISS may augment scores with additional qualitative assessments as it develops its overall recommendation. Therefore, we next consider whether the distortion in the scores influences ISS's ultimate binary SoP recommendations (For/Against). We first evaluate whether the firms where the distortion leads to a higher concern level are more likely to receive an ISS Against recommendation for SoP. In this analysis, treatment firms are those that would have received a lower level of concern absent the effect of distortion on their quantitative scores (i.e., the

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observations that are above the diagonal in Table 4, Panels B and C). We construct a sample of matched control firms whose distortion-adjusted MOM or RDA scores are similar to the distortion-adjusted scores of the treatment firms. We use nearest neighbor matching without replacement and match each treatment observation to one control observation. Table 4, Panel D presents the frequency of *ISS Against* recommendations for these treatment and control firms. In across all concern categories, we find that treatment firms (those where distortion alters their level of concern) are more likely to receive an *ISS Against* recommendation than control firms whose pay practices are more accurately reflected in their levels of concern. These differences are statistically significant for firms where distortion removal alters concern levels for the RDA score. These results provide initial evidence that the effects of distortion extend to influence ISS' ultimate recommendation.

We further examine the impact of distortion on ISS recommendations in a multivariate setting in the following tests. Specifically, we estimate the following linear model:

$$PA\ Against_{i,t} = \alpha + \beta_1 \cdot \%\ Change\ Total\ Comp_{i,t} + \beta_2 \cdot TSR_{i,t}$$
$$+ \gamma_1 \cdot [Fundamental\ Score_{i,t}] + \gamma_2 \cdot [Distortion\ Score_{i,t}]$$
$$+ \mathbf{\Phi} \cdot [Controls_{i,t}] + \mathbf{T} \cdot \tau_t + \mathbf{\Omega} \cdot v_k + \varepsilon_{it} \qquad (2)$$

The dependent variable, *ISS Against_{i,t}*, is an indicator variable that is equal to one if ISS issues an Against recommendation for SoP, and zero otherwise. We include control variables previously shown to influence proxy advisor recommendations including total pay, change in pay, and performance (Ertimur et al. 2013). In specifications including the *ISS MOM Score* or estimates of the fundamental portion of the MOM score we exclude total compensation given the high correlation. We also control for firm characteristics, other aspects of the compensation contract, and firms' governance choices (e.g., stock ownership guidelines) that may influence ISS's

evaluation. The key variable of interest is [*Distortion Score$_{i,t}$*], which we alternatively set equal to *MOM Distortion* and *RDA Distortion*. In some specifications, we split the distortion scores into the portion resulting from the way ISS values equity (*MOM* or *RDA Distortion – Valuation* calculated from *Option %* and *Stock %*) and the way ISS selects peers (*MOM* or *RDA Distortion – Peer* calculated from *MVE Bucket Percentile*, *YE Bucket Above*, *YE Bucket Below*, *Few High, Few Low, Large GICS, Small GICS)*. If ISS does not fully adjust for the distortions in formulating its final recommendations, we predict distortion scores will be positively associated with ISS Against recommendations.

Table 5, Panel A presents the results with MOM score distortions as the key predictor variables. We first estimate Equation (2) with *ISS MOM Score* (column 1) to provide a baseline evaluation of the association between the actual *ISS MOM Score* with ISS Against recommendations on SoP. As expected, we find an economically and statistically significant positive association between both the ISS quantitative score and the included controls and ISS Against recommendations. Next, in column (2) we present the results from estimating Equation (2). We find that the coefficients are positive and statistically significant on both the fundamental and distortion portions of the score. That is, in formulating final recommendations, ISS does not seem to unwind the distortions its methodology generates. In column (3), we repeat this analysis after further disaggregating the distortion component into its "*Peer*" and "*Valuation*" components. The coefficients on these components are both positive and statistically significant. These results provide evidence that both sources of distortion, peer selection and compensation valuation, influence ISS recommendations beyond firm determinants.

As a counterfactual, in columns (4) and (5) we replace the ISS recommendation with that of their counterpart, Glass Lewis. The Glass Lewis recommendation is associated with *MOM*

*Fundament – Estimated;* this portion of the score represents compensation arising from underlying fundamentals, which should influence Glass Lewis's evaluation. In contrast, we do not find a significant association between the portions of the scores related to distortion and the Glass Lewis recommendation, suggesting our empirical approach is capturing ISS specific methodological distortions and not underlying firm economics.

Panel B presents the results for the same analysis for the RDA scores. Similar to the results in Panel A, we find evidence consistent with an incremental impact of distortion on ISS's overall ISS SoP recommendations, both in total (column (2)) and in its valuation and peer components (column (3)). Further, in columns (4) and (5), we again document no relation between ISS methodological distortion and Glass Lewis recommendations.[16]

In additional (untabulated) analysis, we evaluate whether a higher concern level stemming from the inclusion of distortion influences the likelihood that firms respond with a compensation-related supplemental proxy filing (DEFA14A). These filings directly address concerns raised by ISS or provide further context around compensation decisions (Ertimur et al. 2025). To the extent that firms are more surprised by or disagree more with Against recommendations that result from distortion, they may be more likely to file a DEFA14A to explain these issues to investors. We compare firms that received an ISS Against recommendation for which MOM or RDA concern levels are greater than expected because of distortion (from Table 4) to other firms that received an ISS Against recommendation.[17] We do not find differences in filing frequency along the quantitative MOM dimension. However, among firms with ISS Against recommendations, 35.2%

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[16] We use linear probability models in our primary analyses because Greene (2004) suggests that with binary dependent variables these models result in fewer estimation biases when including many fixed effects. When we estimate the specifications from Table 5 using logit models (untabulated) our inferences remain unchanged; the distortion scores are consistently predictive of ISS recommendations in the expected direction and not significantly associated with Glass Lewis recommendations.

[17] We rely on data from Ertimur at el. (2025) to identify these filings. This data is only available through fiscal year 2021 so we limit this analysis to that period.

of firms that only received a High level of concern due to distortion in the RDA score filed a DEFA14A. This is a significantly higher proportion than among firms that would have remained in the High concern level even after adjusting for distortion (18.5%).

In sum, two key inferences emerge from the results in Tables 4 and 5. First, the distortions introduced by ISS's methodology carry through to their recommendations, suggesting these factors are not fully adjusted for in subsequent analysis and adjustments. Second, the fact that the distortion estimates do not influence Glass Lewis recommendations provides support that this portion of the score is a result of ISS methodology and is not capturing something fundamental to pay or performance.

### 3.2.3 Score Distortion and Voting Outcomes

Our preceding analyses demonstrate that the ISS SoP methodology introduces predictable distortions into critical measures of compensation appropriateness. Moreover, despite ISS allowing for subjectivity in moving from numerical scores to final recommendations, these distortions are still reflected in ISS's ultimate SoP recommendations. However, much like we did here, institutional investors may be able to identify and unwind the distortions and their effect on SoP recommendations. To the extent this is the case, we would not expect these distortions to impact actual voting outcomes. We test this prediction by estimating the following regression:

$$\% \, Votes \, Against_{i,t}$$

$$= \alpha + \beta_1 \cdot GL \, Against_{i,t} + \beta_1 \cdot ISS \, Against_{i,t}$$

$$+ \beta_2 \cdot \% \, Change \, Total \, Comp_{i,t} + \beta_3 \cdot TSR_{i,t}$$

$$+ \beta_4 \cdot [High \, Distortion_{i,t}]$$

$$+ \gamma \cdot ISS \, Against_{i,t} \times [High \, Distortion_{i,t}]$$

$$+ \Phi \cdot [Controls_{i,t}] + \mathbf{T} \cdot \tau_t + \Omega \cdot v_k + \varepsilon_{it} \qquad (3)$$

The dependent variable, *% Votes Against$_{i,t}$*, is the number of votes cast Against the SoP proposal divided by the voting base. *High Distortion$_{i,t}$* is an indicator variable taking the value of one for firm-years in the top decile of distortion for the different estimates of MOM and RDA distortion (i.e., distortion that makes scores look worse), and zero otherwise. We interact the alternative *High Distortion* variables (i.e., *MOM* and *RDA Distortion*) with ISS Against recommendations to evaluate whether shareholders correct for the distortion when casting their votes. If shareholders recognize cases where ISS methodology may introduce significant distortion, they should rely less on ISS recommendations when distortion is likely to be high and instead use other sources (e.g., other proxy advisor recommendations, their own analysis); this would result in a negative coefficient on the interaction term. We include firm level and compensation contract controls (i.e., the controls from Table 5) but do not report them for brevity.

Table 6, Panel A presents the results of this analysis. The coefficient of the interaction terms is not significant in either column (1), *MOM Distortion*, or column (2), *RDA Distortion*. That is, the influence of ISS recommendations on actual shareholder voting outcomes does not lessen in instances where ISS scores contain higher distortion, which, in turn suggests that investors, on average, do not recognize the distortions ISS methodology introduces into its recommendations.[18]

In our next analysis, we remove the final ISS recommendation as the intermediary and directly evaluate the influence of distortion scores on voting outcomes in the following OLS specification:

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[18] We find similarly insignificant results on interaction terms with *ISS Against* if we define high distortion based on the absolute value of distortion or use continuous distortion estimates. In these analyses, we do not have predictions on the main effects of the distortion score given that we include the overall ISS recommendation (i.e., it is not clear if the distortion scores would incrementally predict voting outcomes above the effects of the ISS recommendation).

$% \, Votes \, Against_{i,t}$

$$= \alpha + \beta_1 \cdot GL \, Against_{i,t} + \beta_2 \cdot \% \, Change \, Total \, Comp_{i,t}$$

$$+ \, \beta_3 \cdot TSR_{i,t} + \gamma_1 \cdot [Fundamental \, Score_{i,t}]$$

$$+ \, \gamma_2 \cdot [Distortion \, Score_{i,t}] + \Phi \cdot [Controls_{i,t}]$$

$$+ \, \mathbf{T} \cdot \tau_t + \mathbf{\Omega} \cdot v_k + \varepsilon_{it} \qquad (4)$$

The variables of interest are the distortion scores, [*Distortion Score<sub>i,t</sub>*]. If shareholders recognize

the potential distortions embedded in ISS scores and subsequent recommendations and adjust, the

distortion scores should not influence voting outcomes. If they do not make adjustments, the

distortion scores, as well as the overall score, will be positively associated with voting dissent. We

first examine the association between the percentage of votes cast Against the SoP proposal and

the actual *ISS MOM Score.* Consistent with this quantitative score capturing one dimension of the

appropriateness of executive pay, in Table 6, Panel B, column (1) we document a positive and

significant coefficient on *ISS MOM Score.* We next estimate models where we differentiate

between the fundamental and distortion components of the *MOM Score.* In column (2) we see that

*MOM Distortion* is positively and significantly associated with *% Votes Against* controlling for

the fundamental portion of the score. This suggests that the distortion component incrementally

informs shareholder vote outcomes beyond the piece shaped by economic determinants. In column

(3), we further split the distortion component into the distortion stemming from ISS' peer selection

methodology and from its approach to calculating option- and stock-based compensation. We find

the coefficients of both components are positive and significant, suggesting that voting

shareholders on average do not correct for either source of distortion in MOM scores.

Table 6, Panel C reports the results for the same analysis for RDA scores. Inferences are

similar. As expected, *ISS RDA Score* is positively and significantly associated with *% Votes*

*Against* (column (1)). This is also the case for both the total distortion component, *RDA Distortion,* as well as both sources of distortion, *Valuation* and *Peer,* controlling for the fundamental portion of the RDA score (columns (2)-(3)). These results show that the distortion portion of ISS scores do influence voting results, suggesting investors are not fully adjusting for these distortions.[19, 20]

In additional analysis, we consider the role of firms' institutional investor base on the extent to which distortions in ISS recommendations influence voting outcomes. Institutional investors differ in the degree to which their votes align with proxy advisors' recommendations (Iliev and Lowry 2014; Bolton, Li, Ravina and Rosenthal 2020; Bubb and Catan 2022). Investors that align with ISS will potentially be more influenced by the distortions in SoP recommendations. However, institutions that rely on ISS as their only source of proxy advice may also invest in separating distortion from fundamental aspects of ISS recommendations, which would, in turn reduce the impact of the distortions. Further, a somewhat low-cost solution might be to supplement ISS recommendations with additional proxy advice as a means to identify and unwind these distortions. To assess these scenarios, we rely on Bubb and Catan (2022) to classify mutual funds based on their voting alignment with specific proxy advisors focusing on those funds aligned most with ISS ("Shareholder Reform Party" in Bubb and Catan) and those that are likely to subscribe to both major proxy advisors ("Traditional Governance Party").

We find that ISS Against recommendations on average have a larger effect on votes by shareholders in the Shareholder Reform Party than for those in the Traditional Governance Party

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[19] In untabulated analysis, we repeat the analyses in Table 6 using Poisson pseudo maximum likelihood estimation as this method is robust to data with fat tails, which are common in shareholder voting outcomes. We run these analyses using *% Votes Against* and *% Votes For* as the dependent variable. Results are directionally consistent in all cases and in 15 of 16 instances the coefficients on score distortions are statistically significant at conventional levels (Columns (2)-(5) in Panels B and C).

[20] We repeat the tests in Table 5 and Table 6 Panels A and B using our alternative measures of distortion based on estimated scores as described in the Online Appendix. We find consistent results: estimates of distortion are associated with ISS recommendations and voting outcomes, but not Glass Lewis recommendations. These results are found in Tables OA2 and OA3 in the Online Appendix.

(see Table OA4 in the Online Appendix). Further, neither of these shareholder groups appear to adjust their votes when ISS methodological distortion is high. These results suggest that 1) even relatively sophisticated investors who should be familiar with ISS methodology do not adjust for distortion in voting and 2) access to a recommendation without distortion (i.e., the Glass Lewis recommendation for investors in the Tradition Governance Party) does not result in investors fully backing out distortion effects.

*3.2.4 Additional Analysis – Score Estimation Difficulty*

In our main analyses, we identify predictable distortions in ISS's quantitative scores and document that these distortions flow through the recommendation and voting process. We implicitly assume that, absent these methodological choices (e.g., MVE bucketing), it is possible to choose a peer group with similar economic attributes as the focal firm. Indeed, the methodology we outline in the Online Appendix aims to correct for the bucketing- and industry-related distortions and yields a set of peer firms for most firms in the sample. The resulting estimates of MOM and RDA scores are highly correlated with actual ISS scores (Pearson correlations between estimated MOM (RDA) and actual scores are 0.742 (0.814) (untabulated)), providing validation that our approach reasonably approximates the ISS scoring process. The deviation from perfect correlation captures exactly the distortions we document in our main analyses—cases where methodological choices such as MVE bucketing shift firms into peer groups that do not best reflect their economic attributes.

At the same time, for 6,790 firm-years (40.1% of the sample), we cannot estimate scores using the methodology described in the Online Appendix. These firms lack a sufficient number of peers with similar size and industry characteristics to construct a balanced comparison group, making relative pay assessment through quantitative means infeasible. Put differently, for these

firms, relative pay assessment is inherently difficult—not because of methodological distortions, but because no appropriate peer comparison set exists. In this section, we examine how these firms affect the recommendation process. To do so, we define an indicator variable, *No Score*, that is equal to one for firm-years where our methodology cannot produce an estimated MOM or RDA score. We define two additional indicator variables to capture whether our inability to estimate a score results from not being able to identify sufficient number of (1) similarly-sized peers within the 6-digit GICS (*No Score GICS*) or (2) peers that are larger or smaller than the focal firm to generate a balanced peer group (*No Score Balance*). In (1), ISS will identify peer firms outside the 6-digit GICS including peers of the focal firm's self-defined compensation peers or peers in the focal firm's 4-digit GICS code. In (2), ISS may use an unbalanced peer set in terms of size or use peers outside the 6-digit GICS. In either of these cases, the peers are likely to be less similar to the focal firms (in terms of size and industry/market) compared to a focal firm with many similarly sized peers in the same 6-digit GICS. Given that ISS' calculation of the quantitative scores is less prescribed for these firm, it is unclear how ISS' evaluations will be impacted for these *No Score* firms for which an appropriate peer group is more difficult to find.

In untabulated analysis, we find *No Score* is positively associated with *ISS MOM* Score and *ISS RDA Score* (i.e., associated with worse average scores than their counterparts with adequate information to identify balanced peer groups). This is true for both *No Score GICS* and *No Score Balance.* We further find *No Score, No Score GICS, No Score Balance* are positively associated with *ISS Against* recommendations, suggesting these firms for which peer group identification is challenging fare worse in ISS evaluations.[21]

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[21] In regressions of *ISS Against,* if we control for the *ISS MOM Score* and *ISS RDA Score*, then *No Score* is no longer associated with *ISS Against.* We interpret these results as showing that the reason *No Score* is more likely to result in an *ISS Against* recommendation is because it results in worse MOM and RDA Scores and not because of other differences (e.g., qualitative adjustments) in the ISS process for *No Score* firms.

We then consider whether ISS recommendations are more or less influential in these instances when ISS may have more difficulty constructing a peer group. On one hand, if investors recognize the limitations of ISS methodology in these instances, they may place less weight on the ISS recommendation. On the other hand, in these instances where investors may have trouble making their own assessments (because peers are hard to identify) they may rely more on ISS' recommendation. To evaluate these possibilities, we interact *No Score, No Score GICS, and No Score Balance* with *ISS Against* and *% Votes Against* including the same controls from Equation (3). A positive (negative) coefficient on the interaction terms would indicate investors are putting more (less) weight on ISS recommendations for *No Score* firms.

The results are presented in Table 7. We find no interactive effect in Column (1) when we consider *No Score*. In Column (2), we find a negative interaction on *No Score GICS* while we find a marginally significant positive interaction on *No Score Balance* in Column (3). When we include both *No Score GICS* and *No Score Balance* in the same regression, in Column (4) only the interaction with *No Score GICS* remains significant (and negative). In terms of economic magnitudes, these results suggest that an ISS Against recommendation results in 2.0-2.4% less voting dissent for firms with few GICS peers (or approximately 10% of average effect of *ISS Against* of ~23%). This result is consistent with some investors recognizing that ISS methodology may be more limited for firms with few industry peers and thus, relying less on ISS recommendations in these cases. We do not document the same type of investor adjustment when the challenges come not from a lack of peers but rather the difficulty in identifying a balanced set of peers.

## 4. Conclusion

Proxy advisors play a significant role in shareholder voting, but have faced criticism for employing a "one-size fits all" approach in formulating their recommendations. In this paper, we document that several methodological decisions underlying ISS's evaluation of executive compensation predictably influence the key quantitative "pay-for-performance" scores that serve as inputs into SoP recommendations. In turn, the distortions introduced by these choices affect ISS's ultimate SoP recommendations, suggesting that the qualitative analysis ISS conducts to supplement its quantitative analysis of compensation does not fully adjust for the distortions. Further, investors do not seem to account for these distortions when casting ballots.

We contribute to the literature on understanding the determinants of proxy advisor recommendations and voting outcomes. In contrast to other studies which focus on the influence of compensation and firm characteristics (e.g., Ertimur et al. 2013; Balsam et al. 2012; Hooghiemstra et al. 2017), our study documents the influence of ISS's methodological choices. Our results have implications for investors, regulators and proxy advisory firms.

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**Appendix A – ISS Guideline Information**
This appendix includes descriptions of the information found in different sets of ISS guidelines that is relevant to their evaluation and recommendations for Say-On-Pay (SOP) votes.

**Executive Compensation Policies**
https://www.issgovernance.com/file/policy/active/americas/US-Compensation-Policies-FAQ.pdf

ISS describes its overall evaluation process and factors that influence SOP recommendations including pay-for-performance factors and other issues (e.g., contractual arrangements such as severance, compensation disclosure). Included are descriptions of how total compensation is calculated (e.g., how option grants are valued)

**Pay-for-Performance Mechanics**
https://www.issgovernance.com/file/policy/active/americas/Pay-for-Performance-Mechanics.pdf

ISS describes the mechanics for how each of the four quantitative Pay-for-Performance scores are calculated (Multiple of Median (MOM), Relative Degree of Alignment (RDA), Financial Performance Assessment (FPA), and Pay-TSR Alignment (PTA). ISS also describes it qualitative assessment procedures.

**Peer Group Selection Methodology and Issuer Submission Process**
https://www.issgovernance.com/file/policy/active/americas/US-Peer-Group-FAQ.pdf?v=1

ISS explains its procedure for selecting the peer groups that are used in the calculation of the relative pay-for-performance scores (i.e., MOM, RDA, and FPA).

Below we outline ISS' selection procedure for peer firms:
1) *Within market value of equity (MVE) Range for the MVE bucket that the focal firm falls in* – Firms a put into buckets based on their MVE at the beginning of December (June) for firms with annual meetings between February 1 and September 15 (September 16 and January 31). Peer MVE must fall between 0.25 the lower threshold for the bucket and 4 times the larger threshold for the bucket

| Firm MVE (M) | ISS MVE Bucket Name | Minimum Peer MVE (M) (0.25 X low end of bucket) | Maximum Peer MVE (M) (4 X high end of bucket) |
|---|---|---|---|
| 0 to 200 | *Micro* | 0 | 800 |
| 200 to 1,000 | *Small* | 50 | 4,000 |
| 1,000 to 10,000 | *Mid* | 250 | 40,000 |
| 10,000 to no cap | *Large* | 2,500 | NA |

2) *Within Revenue Range of focal firm* – Peer revenues must between 0.4 and 2.5 times the revenues of the focal firm. For firms with revenues less than $200M or greater than $10B, ISS may expand these ranges.
3) Industry-Based Algorithm – ISS attempts to select available peers in similar industries among the peers that fall in allowed MVE and revenue ranges. ISS considers available

peers based on industry in the following order. All else equal, peers closer in size to the focal firm are preferred.

    a) from the subject's own 8-digit GICS group
    b) from the subject's self-disclosed compensation benchmarking peers' 8-digit GICS groups
    c) from the subject's 6-digit GICS group
    d) from the subject's self-disclosed compensation benchmarking peers 6-digit GICS groups
    e) from the subject's 4-digit GICS group

**Threshold Scores for Concern Levels**

The calculation of the RDA and MOM score has remained consistent across since 2010. After ISS calculates each score, it classifies firms into a level of concern (low, medium, high) based on defined thresholds. The thresholds have changed over time and in some cases are different for firms within the S&P 500 index. We search for historical guidelines to identify the relevant threshold scores over time, which are presented below (used in the analysis in Table 5).

**MOM Score Thresholds**

| Meeting Date | Medium Concern Threshold | | High Concern Threshold | |
|---|---|---|---|---|
| | S&P 500 | Non-S&P 500 | S&P 500 | Non-S&P 500 |
| Before 02/01/2018 | 2.33 | 2.33 | 3.33 | 3.33 |
| 02/01/2018 – 01/31/2020 | 2.00 | 2.33 | 3.33 | 3.33 |
| 02/01/2020 – 12/31/2024 | 2.00 | 2.33 | 3.00 | 3.33 |

**-RDA Score Thresholds***

| Meeting Date | Medium Concern Threshold | High Concern Threshold |
|---|---|---|
| Before 02/01/2020 | 40 | 50 |
| After 02/01/2020 | 50 | 60 |

*Thresholds do not differ for S&P 500 versus non-S&P 500 firms for the RDA score. We use the -RDA Score throughout the paper so thresholds are for the -RDA score (i.e., the threshold in ISS guidelines time -1).

**Appendix B – Variable Definitions**

| Variable Name | Definition (Source) |
|---|---|
| **Scores** | |
| *ISS MOM Score* | ISS Multiple of Median Score calculated as CEO annual compensation (as defined by ISS) divided by median annual compensation for ISS peer group (ECA) |
| *ISS RDA Score* | ISS Relative Degree of Alignment score calculated 3-year performance (TSR) percentile less 3-year CEO compensation percentile compared to ISS peer group (ECA) multiplied by -1 such that higher scores indicate high pay relative to performance |
| *MOM Distortion* | Estimate of the part of the ISS MOM Score Based on distortion. Calculated by firm-year using the coefficients estimated on the distortion variables from Table 3, Panel A, Column (6) |
| *MOM Distortion - Valuation* | The portion of *MOM Distortion 1* from *Option %* and *Stock %* |
| *MOM Distortion - Peer* | The portion of *MOM Distortion 1* from *MVE Bucket Percentile. YE Bucket Above, YE Bucket Below, Few High, Few Low, Large GICS,* and *Small GICs* |
| *RDA Distortion* | Estimate of the part of the ISS RDA Score Based on distortion. Calculated by firm-year using the coefficients estimated on the distortion variables from Table 3, Panel B, Column (6) |
| *RDA Distortion - Valuation* | The portion of *RDA Distortion 1* from *Option %* and *Stock %* |
| *RD Distortion - Peer* | The portion of *RDA Distortion 1* from *MVE Bucket Percentile. YE Bucket Above, YE Bucket Below, Few High, Few Low, Large GICS,* and *Small GICs* |
| MOM Fundamental | Estimate of the fundamental portion of the ISS MOM Score. Calculated by firm-year using predicted MOM score from regression in Table 3, Panel A, Column (6) less MOM Distortion 1 |
| *RDA Fundamental* | Estimate of the fundamental portion of the ISS RDA Score. Calculated by firm-year using predicted RDA score from regression in Table 3, Panel B, Column (6) less RDA Distortion 1 |
| *No Score* | Indicator equal to 1 if we are unable to calculate estimated MOM and RDA scores based on methodology outlined in section 3.2.4 (additional details provided in the Online Appendix) |
| *No Score - GICS* | Indicator equal to 1 if we are unable to calculate estimated MOM and RDA scores because the firm does not have sufficient peers in its 6-digit GICS. |
| *No Score - Balance* | Indicator equal to 1 if we are unable to calculate estimated MOM and RDA scores because although the firm has sufficient total 6-digit GICS peers, it does not have sufficient peers that are larger or smaller in terms of MVE. |
| **Compensation** | |
| *TotalComp $_t$* | Total CEO Compensation (t) as disclosed in the proxy statement (ECA) |
| *TotalComp$_{t-2 \to t}$* | Sum of Total CEO Compensation as disclosed in the proxy statement for years t, t-1, and t-2 (ECA) |
| *% Change Total Comp* | (Total CEO Compensation (t) – Total CEO Compensation (t-1))/(Total CEO Compensation(t-1) + 1) (ECA) |
| *CEO Ownership Guidelines* | Indicator equal to 1if the firm has guidelines about minimum CEO equity ownership (ECA) |
| *CIC Payment/Total Comp* | Change-in-Control Payment (ECA)/ CEO Disclosed Total Compensation |
| *Clawback* | Indicator equal to 1 if the firm has a clawback provision to recoup compensation (ECA) |
| *Hedge Policy* | Indicator equal to 1 if the firm has a policy prohibiting executives from hedging (ECA) |
| **Voting** | |
| *ISS Against* | Indicator equal to 1 if ISS recommends "Against" SOP (from ISS Voting Analytics if available – generally before 2021, or imputed based on Zytnick 2024) |
| *GL Against* | Indicator equal to 1 if Glass Lewis recommends "Against" SOP (imputed based on Zytnick 2024) |
| *% Votes Against* | Votes cast "Against" SOP divided by voting base (ISS Voting Analytics) |

| | |
|---|---|
| *% Votes For* | Votes cast "For" SOP divided by voting base (ISS Voting Analytics) |
| **Controls** | |
| *TSR $_t$* | 1-year total shareholder return (Compustat) |
| *TSR $_{t-2 \to t}$* | 3-year total shareholder return (Compustat) |
| *MVE* | Market Value of Equity = Price times total shares outstanding (end of year t) (Compustat) |
| *ROA* | Return on Assets = Income Before Extraordinary Items (t)/Total Assets (t, end of year) (Compustat) |
| *Institutional Ownership* | % of shares owned by institutional investors (t) (Thomson Reuters 13F) |
| *# of BH* | Number of institutional blockholders defined as those with >5% ownership (t) (Thomson Reuters 13F) |
| **Distortion Measures** | |
| *MVE Bucket Percentile* | The percentile rank (between 0 and 1) of the MVE of a firm among firms in the same MVE bucket as defined by ISS (See Appendix A). Higher values indicate MVE nearer the top of the bucket. |
| *YE Bucket Above* | Indicator equal to 1 for firms that would have been in a higher ISS MVE bucket based on the firm's fiscal year end MVE than the bucket they were in based on ISS's calculation of MVE which occurs at the beginning of December or June (see peer selection guidelines) |
| *YE Bucket Below* | Indicator equal to 1 for firms that would have been in a lower ISS MVE bucket based on the firm's fiscal year end MVE than the bucket they were in based on ISS's calculation of MVE which occurs at the beginning of December or June (see peer selection guidelines) |
| *Few High* | Indicator equal to 1 for firms that have fewer than 6 peers with higher MVE in their GICS 6 code that also meet ISS revenue criteria and more peers with lower MVE than higher |
| *Few Low* | Indicator equal to 1 for firms that have fewer than 6 peers with lower MVE in their GICS 6 code that also meet ISS revenue criteria and more peers with higher MVE than lower |
| *Large GICS* | Indicator equal to 1 for firms in the top decile for the number of peers within their GICS 6 code that meet ISS MVE and revenue requirements |
| *Small GICS* | Indicator equal to 1 for firms in the bottom decile for the number of peers within their GICS 6 code that meet ISS MVE and revenue requirements |
| *Option %* | Value of option grants as disclosed by firm divided by disclosed total CEO compensation (t) (ECA) less the median percentage for the GICS6 and year |
| *Stock %* | Value of stock grants as disclosed by firm divided by disclose total CEO compensation (t) (ECA) less the median percentage for the GICS6 and year |

**Appendix C – Sources of Distortion**

| Variable | Reason for Distortion | Expected Effect on MOM and RDA Scores (higher = worse) | Distortion Category |
|---|---|---|---|
| *MVE Bucket Percentile* | For a firm that is nearer to the top of its ISS defined MVE bucket, ISS selected peers will likely have relatively lower MVE. | Higher | Peer |
| *YE Bucket Above* | ISS will select from smaller MVE peers if the firm would have been in a higher MVE bucket at fiscal year-end than on the ISS measurement date. | Higher | Peer |
| *YE Bucket Below* | ISS will select from larger MVE peers if the firm would have been in a lower MVE bucket at fiscal year-end than on the ISS measurement date. | Lower | Peer |
| *Few High* | If there are few available peers that have larger MVE within the firm's industry, ISS is more likely to choose smaller peers. | Higher | Peer |
| *Few Low* | If there are few available peers that have smaller MVE within the firm's industry, ISS is more likely to choose larger peers. | Lower | Peer |
| *Small GICS* | For firms that are in 6-digit GICS with a small number of firms, the ISS peer group will likely have more firms from outside the GICS. | Unclear | Peer |
| *Large GICs* | For firms that are in 6-digit GICS with many firms, the ISS peer group will likely have more firms from the same GICS. | Unclear | Peer |
| *Option %* | ISS uses the full life rather than the expected life of options resulting in higher valuations (relative to those reported in the summary compensation table). | Higher | Valuation |
| *Stock %* | ISS uses its own methodology to value performance share grants. | Unclear | Valuation |

## Figure 1: ISS Say-on-Pay Assessment Process



Quantitative PFP Scores

PFP Score Concerns

MOM Score*

| High (2.4%) |
| Medium (3.4%) |
| Low (94.2%) |

RDA Score*

| High (7.9%) |
| Medium (5.4%) |
| Low (86.7%) |

PTA Score

| High (1.7%) |
| Medium (3.8%) |
| Low (94.5%) |

17.9% of firm-years receive at least 1 medium or high score concern.

Assignment of PFP scores to concern levels is based on defined numeric thresholds

*Score calculated relative to ISS defined peer group
Percentages based on data from sample within paper (max N=16,932).
Not all scores/assessments are available for all firm-years.

Initial Quantitative PFP Concern

| High (11.2%) |
| Medium (8.4%) |
| Low (80.3%) |

All firm-years receiving at least 1 medium or high score concern receive a medium or high initial quantitative concern level.

Concern level may be adjusted based on FPA* Analysis

4.0% of firm-years have their initial concern level changed for the overall assessment (2.3% reduced, 1.7% increased).

### PFP Assessment

Overall Quantitative PFP Concern

| High (11.0%) |
| Medium (8.3%) |
| Low (80.7%) |

+

Qualitative Assessment

Final assessments and any component/interim scores for these evaluations are not available in the ISS ECA database.

Problematic Pay Practices Assessment

Communication and Responsiveness Assessment

Of firm-years receiving a high (medium) overall quantitative concern, 53.3% (31.1%) receive an ISS Against recommendation.

ISS SOP Recommendation

| Against (11.2%) |
| For (88.8%) |

24.7% firm-years with ISS Against recommendations have a "low" Overall Quantitative PFP concern, suggesting other issues are influencing the recommendation.

Voting Outcomes

An ISS Against recommendation is associated with 27.9% greater voting dissent

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## Table 1: Sample Selection

| | |
|---|---|
| Firm Profile and CEO Pay data in Executive Compensation Analytics (ECA), 2010 or later, US firms | 42,569 |
|   less missing lag pay or performance data (3 yrs) | (11,620) |
|   less missing Say-on-Pay voting results | (6,532) |
|   less missing ISS recommendation (actual or imputed) | (672) |
|   less industries where ISS uses asset groups instead of MVE | (2,852) |
|   less missing ISS PFP scores (MOM or RDA) or control variables including IO | (3,608) |
| **Primary Sample** | **16,932** |
| **Tests requiring Glass Lewis Recommendations** | **16,631** |

Table 1 presents sample selection procedures.

**Table 2: Descriptive Statistics**

| Variable | N | Mean | Std Dev | p10 | p25 | p50 | p75 | p90 |
|---|---|---|---|---|---|---|---|---|
| ISS MOM Score | 16,932 | 1.14 | 0.73 | 0.46 | 0.74 | 1.00 | 1.33 | 1.86 |
| ISS RDA Score | 16,932 | -3.67 | 40.42 | -58.06 | -32.19 | -3.19 | 24.67 | 50.13 |
| ISS Against | 16,932 | 0.11 | 0.32 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 |
| GL Against | 16,631 | 0.15 | 0.36 | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 |
| % Votes Against | 16,932 | 0.09 | 0.12 | 0.01 | 0.02 | 0.05 | 0.09 | 0.23 |
| Total Comp$_t$ (000) | 16,932 | 7,655 | 6,845 | 1,106 | 2,685 | 5,742 | 10,473 | 16,629 |
| MVE (M) | 16,932 | 13,239 | 31,347 | 216 | 760 | 2,742 | 9,727 | 32,706 |
| ROA | 16,932 | 0.02 | 0.14 | -0.10 | 0.00 | 0.04 | 0.08 | 0.13 |
| TSR$_t$ | 16,932 | 0.14 | 0.44 | -0.33 | -0.12 | 0.10 | 0.33 | 0.63 |
| Institutional Ownership | 16,932 | 0.78 | 0.21 | 0.45 | 0.69 | 0.84 | 0.93 | 1.00 |
| # of BH | 16,932 | 3.23 | 1.49 | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 |
| Option % (ind adjusted) | 16,932 | 0.05 | 0.16 | -0.09 | 0.00 | 0.00 | 0.12 | 0.26 |
| Stock % (ind adjusted) | 16,932 | -0.02 | 0.24 | -0.36 | -0.16 | 0.00 | 0.14 | 0.28 |
| % Change Total Comp | 16,932 | 0.23 | 0.89 | -0.34 | -0.11 | 0.06 | 0.29 | 0.77 |
| CEO Ownership Guidelines | 16,932 | 0.70 | 0.46 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 |
| CIC Payment/Total Comp | 16,932 | 2.14 | 2.11 | 0.00 | 0.70 | 1.88 | 2.90 | 4.22 |
| Clawback | 16,932 | 0.67 | 0.47 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 |
| Hedge Policy | 16,932 | 0.75 | 0.44 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 |

Table 2 presents descriptive statistics for the variables used in our empirical tests. See Appendix B for variable descriptions.

## Table 3 – Score Distortion Analysis

*Panel A: ISS MOM Score*

| | Pred | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|---|
| | | | | DV = ISS MOM Score | | | |
| LN(TotalComp ₜ) | + | 0.654*** | 0.656*** | 0.692*** | 0.655*** | 0.651*** | 0.694*** |
| | | (37.75) | (37.74) | (37.89) | (37.52) | (33.06) | (33.10) |
| LN(MVE) | - | -0.255*** | -0.252*** | -0.298*** | -0.251*** | -0.250*** | -0.302*** |
| | | (-27.33) | (-27.01) | (-28.50) | (-26.99) | (-26.58) | (-28.11) |
| MVE Bucket Percentile | + | 0.095*** | | | | | 0.037* |
| | | (4.76) | | | | | (1.73) |
| YE Bucket Above | + | | 0.132*** | | | | 0.116*** |
| | | | (5.39) | | | | (4.67) |
| YE Bucket Below | - | | -0.134*** | | | | -0.134*** |
| | | | (-5.18) | | | | (-5.23) |
| Few High | + | | | 0.237*** | | | 0.217*** |
| | | | | (13.13) | | | (12.62) |
| Few Low | - | | | -0.154*** | | | -0.154*** |
| | | | | (-9.26) | | | (-9.71) |
| Large GICs | ? | | | | -0.050** | | -0.017 |
| | | | | | (-2.09) | | (-0.72) |
| Small GICs | ? | | | | 0.071** | | 0.066** |
| | | | | | (2.39) | | (2.30) |
| Option % | + | | | | | 0.555*** | 0.457*** |
| | | | | | | (8.86) | (7.34) |
| Stock % | ? | | | | | -0.074* | -0.076* |
| | | | | | | (-1.73) | (-1.82) |
| Year FE | | Y | Y | Y | Y | Y | Y |
| Industry FE (GICS 6) | | Y | Y | Y | Y | Y | Y |
| S.E. clustered by firm | | Y | Y | Y | Y | Y | Y |
| No. of observations | | 16,932 | 16,932 | 16,932 | 16,932 | 16,932 | 16,932 |
| Adj. R-Squared | | 0.388 | 0.390 | 0.435 | 0.388 | 0.405 | 0.452 |

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*Panel B: ISS RDA Score*

| | Pred | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|---|
| | | | | DV = *ISS RDA Score* | | | |
| *LN(TotalComp t-2→t)* | + | 33.668*** | 33.638*** | 34.482*** | 33.730*** | 33.429*** | 34.251*** |
| | | (42.97) | (42.85) | (41.67) | (42.65) | (40.69) | (39.18) |
| *TSR t-2→t* | - | -16.647*** | -16.614*** | -17.065*** | -16.658*** | -16.704*** | -16.998*** |
| | | (-38.91) | (-38.78) | (-39.95) | (-39.08) | (-39.26) | (-40.02) |
| *LN(MVE)* | - | -11.688*** | -11.617*** | -12.557*** | -11.689*** | -11.675*** | -12.719*** |
| | | (-27.85) | (-27.72) | (-27.64) | (-27.72) | (-27.62) | (-27.32) |
| *MVE Bucket Percentile* | + | 1.315 | | | | | 1.846 |
| | | (1.31) | | | | | (1.61) |
| *YE Bucket Above* | + | | -1.935* | | | | -2.510** |
| | | | (-1.75) | | | | (-2.10) |
| *YE Bucket Below* | - | | 0.104 | | | | 0.139 |
| | | | (0.08) | | | | (0.11) |
| *Few High* | + | | | 6.044*** | | | 5.292*** |
| | | | | (6.92) | | | (6.02) |
| *Few Low* | - | | | -1.546* | | | -1.795** |
| | | | | (-1.77) | | | (-2.04) |
| *Large GICs* | ? | | | | -2.434** | | -1.171 |
| | | | | | (-2.09) | | (-0.97) |
| *Small GICs* | ? | | | | 2.667** | | 2.728** |
| | | | | | (2.06) | | (2.12) |
| *Option %* | + | | | | | 14.797*** | 13.232*** |
| | | | | | | (6.87) | (6.22) |
| *Stock %* | ? | | | | | 0.771 | 0.986 |
| | | | | | | (0.45) | (0.58) |
| Year FE | | Y | Y | Y | Y | Y | Y |
| Industry FE (GICS 6) | | Y | Y | Y | Y | Y | Y |
| S.E. clustered by firm | | Y | Y | Y | Y | Y | Y |
| No. of observations | | 16,932 | 16,932 | 16,932 | 16,932 | 16,932 | 16,932 |
| Adj. R-Squared | | 0.485 | 0.485 | 0.491 | 0.485 | 0.488 | 0.494 |

Table 3 presents analysis of predictors of ISS Pay-for-performance Scores on economic determinants and potential sources of distortion. Panel A examines the *ISS MOM Score* while Panel B examines the *ISS RDA Score*. Standard errors are clustered by firm and t-statistics are in parentheses. ***, **, * denote statistical significance at the 1%, 5%, and 10% levels, respectively. See Appendix B for variable descriptions.

**Table 4: Category Changes**

*Panel A: Descriptive Statistics*

| Variable | N | Mean | Std Dev | p10 | p25 | p50 | p75 | p90 |
|---|---|---|---|---|---|---|---|---|
| *MOM Distortion* | 16,932 | 0.09 | 0.20 | -0.15 | -0.09 | 0.07 | 0.25 | 0.34 |
| *RDA Distortion* | 16,932 | 3.26 | 4.25 | -1.63 | -0.49 | 2.56 | 6.59 | 8.96 |

*Panel B: MOM Score Category Changes*

| | | Actual ISS Score Concern Level | | | |
|---|---|---|---|---|---|
| | | Low | Medium | High | Total |
| **Score Concern Level Without Distortion** | Low | **15,909** | 145 | 0 | 16,054 |
| | Medium | 32 | **434** | 50 | 516 |
| | High | 0 | 6 | **356** | 362 |
| | Total | 15,941 | 585 | 406 | 16,932 |

*Panel C: RDA Score Category Changes*

| | | Actual ISS Score Concern Level | | | |
|---|---|---|---|---|---|
| | | Low | Medium | High | Total |
| **Score Concern Level Without Distortion** | Low | **14,794** | 274 | 13 | 15,081 |
| | Medium | 41 | **459** | 179 | 679 |
| | High | 0 | 24 | **1,148** | 1,172 |
| | Total | 14,835 | 757 | 1,340 | 16,932 |

*Panel D - ISS Against for Firms that Change Category based on Distortion vs Matched Controls*
Control group matched based on ISS Score - Distortion (nearest neighbor, no replacement)

| | N | | *ISS Against* (Mean) | | | |
|---|---|---|---|---|---|---|
| Treatment Group | Treat | Control | Treat | Control | Diff | Sig. (2 tail) |
| **MOM Score Low to Medium Change** | 145 | 145 | 47% | 39% | 8% | 0.19 |
| **MOM Score Medium to High Change** | 50 | 50 | 70% | 56% | 14% | 0.15 |
| **RDA Score Low to Medium Change** | 274 | 274 | 36% | 20% | 16% | 0.00*** |
| **RDA Score Medium to High Change** | 179 | 179 | 52% | 34% | 18% | 0.00*** |

Table 4 presents data on estimates of the distortion within ISS Pay-for-performance scores. Panel A includes descriptive statistics. Panel B includes analysis of firms ISS Concern Level category based on *ISS MOM Score* versus the concern level based on the score without distortion. Firms in the upper right portion (bottom left) of the table would have received a lower concern level (higher concern level) absent distortion estimates. Panel C includes similar analysis for *ISS RDA Scores*. Panel D provides analysis of the frequency of firms receiving an *Against* recommendation from ISS comparing firms that received higher ISS Concern Levels from distortion compared to matched control samples.

## Table 5: Proxy Advisor Recommendations

*Panel A: ISS MOM Scores*

| | Pred (ISS/GL) | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|---|
| | | | DV = ISS Against | | DV = GL Against | |
| *% Change Total Comp* | +/+ | 0.009** | 0.046*** | 0.045*** | 0.033*** | 0.033*** |
| | | (2.33) | (11.20) | (11.16) | (7.38) | (7.32) |
| *$TSR_t$* | -/- | -0.067*** | -0.054*** | -0.053*** | -0.030*** | -0.029*** |
| | | (-10.94) | (-8.60) | (-8.53) | (-4.11) | (-4.03) |
| *ISS MOM Score* | +/+ | 0.178*** | | | | |
| | | (33.93) | | | | |
| *MOM Fundamental - Estimate* | +/+ | | 0.168*** | 0.167*** | 0.228*** | 0.227*** |
| | | | (15.70) | (15.57) | (18.62) | (18.56) |
| *MOM Distortion* | +/0 | | 0.098*** | | 0.025 | |
| | | | (5.47) | | (1.24) | |
| *MOM Distortion  - Valuation* | +/0 | | | 0.152*** | | 0.075 |
| | | | | (3.45) | | (1.49) |
| *MOM Distortion - Peer* | +/0 | | | 0.083*** | | 0.012 |
| | | | | (4.00) | | (0.53) |
| *CEO Ownership Guidelines* | -/- | -0.052*** | -0.062*** | -0.061*** | -0.059*** | -0.058*** |
| | | (-5.58) | (-6.04) | (-5.94) | (-5.29) | (-5.21) |
| *CIC Payment/Total Comp* | +/+ | 0.005*** | 0.008*** | 0.008*** | 0.010*** | 0.011*** |
| | | (2.74) | (3.72) | (3.77) | (4.46) | (4.49) |
| *Clawback* | -/- | -0.023*** | -0.034*** | -0.034*** | -0.057*** | -0.057*** |
| | | (-2.94) | (-3.89) | (-3.85) | (-5.54) | (-5.51) |
| *Hedge Policy* | -/- | -0.007 | -0.012 | -0.012 | -0.032*** | -0.032*** |
| | | (-0.90) | (-1.35) | (-1.36) | (-2.91) | (-2.92) |
| *LN(MVE)* | | 0.005** | 0.011*** | 0.011*** | 0.022*** | 0.022*** |
| | | (2.16) | (3.82) | (3.85) | (7.18) | (7.20) |
| *IO* | | -0.110*** | -0.162*** | -0.162*** | -0.156*** | -0.155*** |
| | | (-5.12) | (-6.53) | (-6.52) | (-5.08) | (-5.07) |
| *ROA* | | -0.146*** | -0.137*** | -0.134*** | -0.330*** | -0.328*** |
| | | (-5.58) | (-4.60) | (-4.51) | (-9.20) | (-9.08) |
| *# BH* | | 0.003 | 0.005* | 0.004* | 0.007** | 0.006** |
| | | (1.31) | (1.81) | (1.76) | (2.08) | (2.04) |
| Year FE | | Y | Y | Y | Y | Y |
| Industry FE (GICS 6) | | Y | Y | Y | Y | Y |
| S.E. clustered by firm | | Y | Y | Y | Y | Y |
| No. of observations | | 16,932 | 16,932 | 16,932 | 16,631 | 16,631 |
| Adj. R-Squared | | 0.210 | 0.120 | 0.120 | 0.132 | 0.132 |

*Panel B: ISS RDA Scores*

| | Pred (ISS/GL) | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|---|
| | | | DV = *ISS Against* | | DV = *GL Against* | |
| *LN (Total Comp$_t$)* | +/+ | 0.041*** | 0.042*** | 0.042*** | 0.090*** | 0.090*** |
| | | (6.04) | (4.91) | (4.81) | (8.85) | (8.79) |
| *% Change Total Comp* | +/+ | 0.059*** | 0.061*** | 0.061*** | 0.047*** | 0.047*** |
| | | (14.55) | (14.06) | (14.11) | (10.03) | (10.04) |
| *TSR$_t$* | -/- | -0.002 | -0.012* | -0.012* | 0.003 | 0.003 |
| | | (-0.31) | (-1.81) | (-1.81) | (0.40) | (0.40) |
| *ISS RDA Score* | +/+ | 0.002*** | | | | |
| | | (24.03) | | | | |
| *RDA Fundamental - Estimate* | +/+ | | 0.002*** | 0.002*** | 0.002*** | 0.002*** |
| | | | (11.46) | (11.49) | (8.85) | (8.87) |
| *RDA Distortion* | +/0 | | 0.005*** | | 0.001 | |
| | | | (5.69) | | (1.37) | |
| *RDA Distortion - Valuation* | +/0 | | | 0.005*** | | 0.001 |
| | | | | (2.77) | | (0.72) |
| *RDA Distortion - Peer* | +/0 | | | 0.005*** | | 0.001 |
| | | | | (4.89) | | (1.26) |
| *CEO Ownership Guidelines* | -/- | -0.065*** | -0.067*** | -0.067*** | -0.061*** | -0.061*** |
| | | (-6.80) | (-6.58) | (-6.56) | (-5.57) | (-5.55) |
| *CIC Payment/Total Comp* | +/+ | 0.005*** | 0.007*** | 0.007*** | 0.009*** | 0.009*** |
| | | (2.81) | (3.32) | (3.30) | (4.06) | (4.04) |
| *Clawback* | -/- | -0.039*** | -0.040*** | -0.039*** | -0.061*** | -0.061*** |
| | | (-4.83) | (-4.57) | (-4.56) | (-5.94) | (-5.94) |
| *Hedge Policy* | -/- | -0.018** | -0.016* | -0.016* | -0.035*** | -0.035*** |
| | | (-2.12) | (-1.83) | (-1.83) | (-3.16) | (-3.16) |
| *LN(MVE)* | | -0.008** | -0.010** | -0.010** | -0.019*** | -0.019*** |
| | | (-2.19) | (-2.17) | (-2.14) | (-3.69) | (-3.68) |
| *IO* | | -0.137*** | -0.151*** | -0.151*** | -0.143*** | -0.143*** |
| | | (-6.06) | (-6.26) | (-6.24) | (-4.66) | (-4.64) |
| *ROA* | | -0.063** | -0.079*** | -0.078** | -0.284*** | -0.283*** |
| | | (-2.34) | (-2.60) | (-2.56) | (-7.73) | (-7.64) |
| *# BH* | | 0.001 | 0.003 | 0.003 | 0.006* | 0.006* |
| | | (0.53) | (1.40) | (1.39) | (1.75) | (1.74) |
| Year FE | | Y | Y | Y | Y | Y |
| Industry FE (GICS 6) | | Y | Y | Y | Y | Y |
| S.E. clustered by firm | | Y | Y | Y | Y | Y |
| No. of observations | | 16,932 | 16,932 | 16,932 | 16,631 | 16,631 |
| Adj. R-Squared | | 0.210 | 0.120 | 0.120 | 0.134 | 0.134 |

Table 5 evaluates the influence of ISS Pay-for-performance Scores on proxy advisor recommendations Panel A examines the *ISS MOM Score* while Panel B examines the *ISS RDA Score*. Standard errors are clustered by firm and t-statistics are in parentheses. ***, **, * denote statistical significance at the 1%, 5%, and 10% levels, respectively. See Appendix B for variable descriptions.

**Table 6: Voting Outcomes**

*Panel A: Influence of ISS Recommendation with High Distortion*

|  | Pred | (1) DV = % Votes Against | (2) |
|---|---|---|---|
| GL Against | + | 0.116*** | 0.116*** |
|  |  | (37.98) | (38.00) |
| ISS Against | + | 0.231*** | 0.231*** |
|  |  | (45.91) | (45.59) |
| % Change Total Comp | + | -0.002* | -0.002* |
|  |  | (-1.75) | (-1.74) |
| $TSR_t$ | - | -0.012*** | -0.012*** |
|  |  | (-8.14) | (-8.02) |
| $LN(TotalComp_t)$ | + | 0.010*** | 0.010*** |
|  |  | (6.41) | (6.38) |
| High MOM Distortion | ? | 0.004** |  |
|  |  | (2.15) |  |
| High MOM Distortion X ISS Against | - | -0.002 |  |
|  |  | (-0.14) |  |
| High RDA Distortion | ? |  | 0.003 |
|  |  |  | (1.59) |
| High RDA Distortion X ISS Against | - |  | 0.001 |
|  |  |  | (0.08) |
| Firm Level Controls |  | Y | Y |
| Compensation Controls |  | Y | Y |
| Year FE |  | Y | Y |
| Industry FE (GICS 6) |  | Y | Y |
| S.E. clustered by firm |  | Y | Y |
| No. of observations |  | 16,631 | 16,631 |
| Adj. R-Squared |  | 0.682 | 0.682 |

*Panel B: Influence of MOM Distortion on Voting Outcomes*

| | Pred | (1) | (2) | (3) |
|---|---|---|---|---|
| | | | DV = % Vote Against | |
| *GL Against* | + | 0.163*** | 0.175*** | 0.175*** |
| | | (35.29) | (36.02) | (36.05) |
| *% Change Total Comp* | + | -0.001 | 0.006*** | 0.006*** |
| | | (-0.97) | (4.41) | (4.36) |
| *$TSR_t$* | - | -0.026*** | -0.022*** | -0.022*** |
| | | (-13.20) | (-11.37) | (-11.32) |
| *ISS MOM Score* | + | 0.042*** | | |
| | | (19.59) | | |
| *MOM Fundamental - Estimate* | + | | 0.042*** | 0.042*** |
| | | | (12.43) | (12.40) |
| *MOM Distortion* | + | | 0.024*** | |
| | | | (3.99) | |
| *MOM Distortion - Valuation* | + | | | 0.039** |
| | | | | (2.57) |
| *MOM Distortion - Peer* | + | | | 0.020*** |
| | | | | (3.00) |
| Firm Level Controls | | Y | Y | Y |
| Compensation Controls | | Y | Y | Y |
| Year FE | | Y | Y | Y |
| Industry FE (GICS 6) | | Y | Y | Y |
| S.E. clustered by firm | | Y | Y | Y |
| No. of observations | | 16,631 | 16,631 | 16,631 |
| Adj. R-Squared | | 0.415 | 0.386 | 0.386 |

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*Panel C: Influence of RDA Distortion on Voting Outcomes*

| | Pred | (1) | (2) | (3) |
|---|---|---|---|---|
| | | DV = *% Vote Against* | | |
| *GL Against* | + | 0.166*** | 0.173*** | 0.173*** |
| | | (35.62) | (36.38) | (36.37) |
| *LN(TotalComp$_t$)* | + | 0.011*** | 0.011*** | 0.011*** |
| | | (5.21) | (4.32) | (4.23) |
| *% Change Total Comp* | + | 0.010*** | 0.010*** | 0.010*** |
| | | (7.03) | (6.64) | (6.62) |
| *TSR$_t$* | - | -0.009*** | -0.012*** | -0.012*** |
| | | (-4.86) | (-5.93) | (-5.92) |
| *ISS RDA Score* | + | 0.001*** | | |
| | | (20.35) | | |
| *RDA Fundamental - Estimate* | + | | 0.001*** | 0.001*** |
| | | | (9.79) | (9.83) |
| *RDA Distortion* | + | | 0.001*** | |
| | | | (4.89) | |
| *RDA Distortion - Valuation* | + | | | 0.002** |
| | | | | (2.50) |
| *RDA Distortion - Peer* | + | | | 0.001*** |
| | | | | (4.21) |
| Firm Level Controls | | Y | Y | Y |
| Compensation Controls | | Y | Y | Y |
| Year FE | | Y | Y | Y |
| Industry FE (GICS 6) | | Y | Y | Y |
| S.E. clustered by firm | | Y | Y | Y |
| No. of observations | | 16,631 | 16,631 | 16,631 |
| Adj. R-Squared | | 0.409 | 0.391 | 0.391 |

Table 6 evaluates the influence of distortions in ISS scores on voting outcomes. Panel A examiness whether the influence of ISS scores is different for firms whose scores contain high levels of distortion. Panel B evaluates the influence of MOM scores and distortion estimates on voting outcomes. Panel C includes similar analysis for RDA scores. The firm and compensation control variables from Table 5 are included but not tabulated. Standard errors are clustered by firm and t-statistics are in parentheses. ***, **, * denote statistical significance at the 1%, 5%, and 10% levels, respectively. See Appendix B for variable descriptions.

**Table 7: Firms with No Estimated Scores**

| | Pred | (1) | (2) | (3) | (4) |
|---|---|---|---|---|---|
| | | | DV = % Votes Against | | |
| GL Against | + | 0.116*** | 0.116*** | 0.116*** | 0.116*** |
| | | (38.00) | (38.01) | (38.03) | (38.07) |
| ISS Against | + | 0.233*** | 0.237*** | 0.227*** | 0.233*** |
| | | (36.78) | (43.95) | (44.87) | (36.78) |
| % Change Total Comp | + | -0.002* | -0.002 | -0.002* | -0.002 |
| | | (-1.71) | (-1.60) | (-1.65) | (-1.61) |
| $TSR_t$ | - | -0.011*** | -0.011*** | -0.012*** | -0.011*** |
| | | (-7.98) | (-7.98) | (-8.02) | (-7.97) |
| $LN(TotalComp_t)$ | + | 0.010*** | 0.010*** | 0.010*** | 0.010*** |
| | | (6.41) | (6.33) | (6.46) | (6.43) |
| No Score | ? | 0.004*** | | | |
| | | (2.72) | | | |
| No Score X ISS Against | ? | -0.003 | | | |
| | | (-0.35) | | | |
| No Score GICS | ? | | 0.005** | | 0.006** |
| | | | (2.22) | | (2.53) |
| No Score GICS X ISS Against | ? | | -0.024** | | -0.020* |
| | | | (-2.30) | | (-1.79) |
| No Score Balance | ? | | | 0.001 | 0.002 |
| | | | | (0.71) | (1.55) |
| No Score Balance X ISS Against | ? | | | 0.018* | 0.012 |
| | | | | (1.82) | (1.16) |
| Firm Level Controls | | Y | Y | Y | Y |
| Compensation Controls | | Y | Y | Y | Y |
| Year FE | | Y | Y | Y | Y |
| Industry FE (GICS 6) | | Y | Y | Y | Y |
| S.E. clustered by firm | | Y | Y | Y | Y |
| No. of observations | | 16,631 | 16,631 | 16,631 | 16,631 |
| Adj. R-Squared | | 0.682 | 0.683 | 0.683 | 0.683 |

Table 7 evaluates the influence of ISS recommendation voting outcomes in cases where we were not able to estimate MOM and RDA scores. The firm and compensation control variables from Table 5 are included but not tabulated. Standard errors are clustered by firm and t-statistics are in parentheses. ***, **, * denote statistical significance at the 1%, 5%, and 10% levels, respectively. See Appendix B for variable descriptions.

**Online Appendix for "Algorithmic Advocacy: Unpacking Distortion in the ISS Say-on-Pay Process"**

## I: Estimated Score Analysis

While we control for key economic determinants of MOM and RDA scores, including pay and firm size in our prior analysis, the calculation of these scores is non-linear so controls within a linear model may not appropriately capture the influence of these variables. As an alternative to only controlling for the core determinants of each of the ISS quantitative scores, we instead estimate a score designed to be free of the distortions introduced by ISS's methodology (e.g., percentile ranking versus peers). We can then calculate a measure of distortion as the different between our estimated values of each score and the actual ISS values. Then, to test potential distortion effects, we evaluate whether the estimated distortion variables are predictably associated with the difference between the ISS score and the estimated score.

To estimate scores, we follow a simple process designed to avoid the distortions ISS's methodology introduces. With respect to distortions related to peer selection, first, we identify between four and 24 peers in the focal firm's 6-digit GICS code with (i) revenues that fall between 0.4 and 2.5 times the focal firm's revenues and (ii) MVE that fall between 0.125 and 8 times the focal firm's MVE (i.e., we do not utilize MVE buckets). Next, we require an equal number of peer firms with smaller and larger MVE to a maximum of 12 larger peers and 12 smaller peers (e.g., if there are only 5 larger peers that meet the MVE and revenue criteria, we select the 5 smaller peers that are closest in MVE). We drop focal firms that do not have at least two larger and two smaller peers that meet the above criteria; this restriction results in a sample of 10,143 firm-years. Table OA1, Panel A presents the descriptive statistics for the estimated scores (*Estimated MOM Score*; *Estimated RDA Score*) and the score differences (*MOM Difference*; *RDA Difference*) calculated as

*ISS MOM Score* less *Estimated MOM Score* and *ISS RDA Score* less *Estimated RDA Score.*[24] On average, the differences between ISS scores and estimated scores are relatively small, but they are substantial in some cases. For example, at the 90th percentile the *MOM Difference (RDA Difference)* is 0.39 (57.14), representing 53% (141%) of the standard deviation of the *ISS MOM Score (ISS RDA Score)*.

To evaluate the signed score differences, we re-estimate Equation (1) after replacing the dependent variable alternatively with *MOM Difference$_{i,t}$* and *RDA Difference$_{i,t}$*. If these differences capture the distortion in ISS scores and if our included independent variables identify underlying sources of this distortion, we expect to observe significant associations.[25] We exclude control variables pertaining to compensation and performance because the estimated scores are designed to account for the influence of these factors on scores. Table OA1 Panels B and C present the results of the analyses for *MOM Difference* and *RDA Difference*, respectively. The results are generally consistent with those in Table 3. This alternative methodology provides additional support that the variables we identify as the sources of distortion are in fact capturing predictable distortions and not some underlying economic factor influencing ISS quantitative scores.

**II. Effects of Score Distortion**

*2.1. Estimates of Distortion*

To evaluate the influence of the potential distortions on ISS's final recommendations and SoP voting outcomes, we disaggregate the quantitative scores into the portion suggested by economic determinants and the portion reflecting the underlying distortion. We conduct this

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[24] For ease of interpretation, in all RDA Score analysis, we calculate scores as -1 times the ISS definition of RDA Score such that for all variables (e.g., *Estimated RDA Score, RDA Difference)* used in analysis, higher scores are indicative of high pay relative to performance.
[25] We are not able to include the variable *Small GICS* in this analysis because any firm meeting this criterion (<3 size qualified industry peers) will not have sufficient peer firms to calculate the estimated score as described above.

disaggregation using regression analysis of overall ISS scores in the manuscript. As an alternative, we use the coefficient estimates from Table OA1, Panel B, Column (6) (i.e., estimates when *MOM Difference* is the dependent variable) and from Table OA1, Panel C, Column (6) (i.e., estimates for when *RDA Difference* is the dependent variable). We label the resulting estimates of the quantitative score arising from economic determinants as either *MOM Score Estimated* or *RDA Score Estimated* and that arising from the distortions as either *MOM Distortion 2* and *RDA Distortion 2*. We also further disaggregate each distortion score (e.g., *MOM Distortion 2*) into the part arising from peer selection distortions (*MOM Distortion 2 – Peer*) and that arising from compensation valuation distortions (*MOM Distortion 2– Valuation*) by limiting each measure to the subset of the sources of distortion related to each category (See Appendix C).

*2.2. Distortion and Proxy Advisor Recommendations*

To evaluate the influence of score distortion we re-estimate equation (2) using the alternative measures of score distortion defined above. Table OA2 Panel B presents the results of this analysis for the MOM Score. Consistent with expectations and results in Table (5), we find that both the *Estimated MOM Score* (representing the portion based on the economic determinants) are *MOM Distortion 2* are positively associated with *ISS Against* recommendations in Column (1). This is also true for *MOM Distortion 2 – Peer* and *MOM Distortion 2 – Valuation* in Column (2). In Columns (3) and (4), we find that *Estimated MOM Score* is positively associated with GL *Against* recommendations but do not find a significant effect for measures of distortion. Again, these results are consistent with our predictions and results in Table (5) that Glass Lewis recommendations should be influenced by the fundamental aspects of the quantitative scores but not the portion introduced by distortions in the ISS methodology. Table OA2 Panel C repeats this analysis with RDA scores with similar results.

*2.3. Distortion and Voting Outcomes*

In Table OA3, we repeat the analysis of the effect of distortion on SoP voting outcomes from Table 6, Panels B and C using the alternative measures of distortion. Table OA3, Panel A and Panel B include results for analysis of MOM and RDA scores, respectively. Across both panels, we find that measures of distortion are positively associated with adverse voting outcomes. These results are consistent with the results presented in Table 6 of the manuscript

*2.4. Distortion and Voting Outcomes by Investor Type*

In Table OA4, we augment the voting analysis in equation (3) and results in Table 6, Panel A by considering investor type. We classify shareholders based on their alignment with different proxy advisors using Bubb and Catan (2022). For each observation, we calculate the percentage ownership from the CRSP Mutual Fund database for the "Shareholder Reform Party" (*SH Reform %*) that is most aligned with ISS and the Traditional Governance Party (*Trad Gov %*) that includes many investors who subscribe to both ISS and Glass Lewis.[26]

In Column (1), we first interact *ISS Against* with *SH Reform %* and *Trad Gov %.* As expected, we find significant and positive coefficients on these interactions meaning that these two types of shareholders are more influenced by ISS recommendations. In Columns (2) and (3), we include indicator variables for firms that have high levels of MOM or RDA distortion, respectively, and interact these variables with *ISS Against* and shareholder ownership by type. The variables of interest are the triple interaction terms (e.g., *High MOM Distortion X ISS Against X SH Reform %*).[27] Negative coefficients on these interaction terms would suggest that these shareholders rely

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[26] We also calculate ownership for the "Shareholder Protest Party" the party most aligned with Glass Lewis and include this variable and relevant interaction terms but do not report these results for brevity. 47 observations are excluded for not matching to the CRSP mutual fund data.

[27] The interaction terms between shareholder ownership by type and high distortion indicators are included in regressions but not tabulated.

less on ISS recommendations when those recommendations include more distortion and are thus less representative of underlying compensation and firm performance. We do not find significant coefficients for any of the triple interaction terms. Further the combine effects of shareholder type and the triple interaction (e.g., *High MOM Distortion X ISS Against + High MOM Distortion X ISS Against X SH Reform %*) are significant for both the Shareholder Reform Party and Traditional Governance Party in both columns.

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## OA Appendix A: Variable Definitions

| Variable Name | Definition |
|---|---|
| **Scores** | |
| *Estimated MOM Score* | Estimated MOM score designed to be free of ISS distortions. Disclosed annual CEO total compensation divided by peer group median. Peer group based on GICS 6, requires balanced group (equal number of smaller and larger MVE peers), uses revenue and MVE constraints but not buckets, minimum of four peers required and maximum of 12 |
| *Estimated RDA Score* | Estimated RDA score designed to be free of ISS distortions. 3-yer percentile rank of TSR less 3-yr percentile rank of disclosed CEO compensation compared to peer group. Peer group based on GICS 6, requires balanced group (equal number of smaller and larger MVE peers), uses revenue and MVE constraints but not buckets, minimum of four peers required and maximum of 12 |
| *MOM Difference* | ISS MOM Score – Estimated MOM Score |
| *RDA Difference* | ISS -RDA Score – Estimated -RDA Score |
| *MOM Distortion 2* | Estimate of the part of the ISS MOM Score Based on distortion. Calculated by firm-year using the coefficients estimated on the distortion variables from OA Table 1, Panel B, Column (6) |
| *MOM Distortion 2 - Valuation* | The portion of *MOM Distortion 2* from *Option %* and *Stock %* |
| *MOM Distortion 2 - Peer* | The portion of *MOM Distortion 12* from *MVE Bucket Percentile. YE Bucket Above, YE Bucket Below, Few High, Few Low,* and *Large GICs* |
| *RDA Distortion 2* | Estimate of the part of the ISS RDA Score Based on distortion. Calculated by firm-year using the coefficients estimated on the distortion variables from OA Table 1, Panel C, Column (6) |
| *RDA Distortion 2 - Valuation* | The portion of *RDA Distortion 2* from *Option %* and *Stock %* |
| *RDA Distortion 2 - Peer* | The portion of *RDA Distortion 2* from *MVE Bucket Percentile. YE Bucket Above, YE Bucket Below, Few High, Few Low,* and *Large GICs* |
| *SH Reform %* | % of shares owned in the firm as of end of year t in CRSP Mutual Fund Database by mutual funds classified in the "Shareholder Reform Party" by Bubb and Cataan (2022) (i.e., the party most aligned with ISS) |
| *Trad Gov %* | % of shares owned in the firm as of end of year t CRSP Mutual Fund Database by mutual funds classified in "Traditional Governance Party" by Bubb and Cataan (2022) (i.e., the party more aligned with management, likely to subscribe to both ISS and Glass Lewis) |

Other variables are defined in Appendix B in the manuscript.

**Table OA1: Score Difference Distortion Analysis**

*Panel A: Descriptive Statistics*

| Variable | N | Mean | Std Dev | p10 | p25 | p50 | p75 | p90 |
|---|---|---|---|---|---|---|---|---|
| *Estimated MOM Score* | 10,143 | 1.15 | 0.72 | 0.47 | 0.74 | 1.01 | 1.36 | 1.91 |
| *Estimated RDA Score* | 10,143 | 0.43 | 40.28 | -55.56 | -28.57 | 0.00 | 28.57 | 57.14 |
| *MOM Difference* | 10,143 | -0.03 | 0.44 | -0.49 | -0.19 | 0.00 | 0.17 | 0.39 |
| *RDA Difference* | 10,143 | -3.99 | 23.92 | -34.94 | -19.56 | -3.83 | 11.53 | 25.85 |

*Panel B: MOM Difference*

| | Pred | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|---|
| | | | | DV = *MOM Difference* | | | |
| *MVE Bucket Percentile* | + | 0.092*** | | | | | 0.012 |
| | | (5.37) | | | | | (0.67) |
| *YE Bucket Above* | + | | 0.080*** | | | | 0.084*** |
| | | | (4.02) | | | | (3.95) |
| *YE Bucket Below* | - | | -0.147*** | | | | -0.132*** |
| | | | (-5.28) | | | | (-4.78) |
| *Few High* | + | | | 0.147*** | | | 0.132*** |
| | | | | (12.12) | | | (10.87) |
| *Few Low* | - | | | -0.136*** | | | -0.143*** |
| | | | | (-10.70) | | | (-11.14) |
| *Large GICs* | ? | | | | -0.037** | | -0.031* |
| | | | | | (-2.21) | | (-1.95) |
| *Option %* | + | | | | | 0.304*** | 0.224*** |
| | | | | | | (7.10) | (5.45) |
| *Stock %* | ? | | | | | -0.059** | -0.087*** |
| | | | | | | (-2.32) | (-3.64) |
| Year FE | | Y | Y | Y | Y | Y | Y |
| Industry FE (GICS 6) | | Y | Y | Y | Y | Y | Y |
| S.E. clustered by firm | | Y | Y | Y | Y | Y | Y |
| No. of observations | | 10,142 | 10,142 | 10,142 | 10,142 | 10,142 | 10,142 |
| Adj. R-Squared | | 0.036 | 0.039 | 0.104 | 0.034 | 0.048 | 0.122 |

*Panel C: RDA Difference*

| | Pred | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|---|
| | | | | DV = *RDA Difference* | | | |
| *MVE Bucket Percentile* | + | 0.775 | | | | | -0.041 |
| | | (0.82) | | | | | (-0.04) |
| *YE Bucket Above* | + | | -1.677 | | | | -1.470 |
| | | | (-1.52) | | | | (-1.25) |
| *YE Bucket Below* | - | | -2.612** | | | | -2.601** |
| | | | (-2.30) | | | | (-2.19) |
| *Few High* | + | | | 2.572*** | | | 2.262*** |
| | | | | (3.57) | | | (3.08) |
| *Few Low* | - | | | -1.660** | | | -1.481** |
| | | | | (-2.33) | | | (-2.03) |
| *Large GICs* | ? | | | | -0.298 | | -0.017 |
| | | | | | (-0.32) | | (-0.02) |
| *Option %* | + | | | | | 14.373*** | 13.272*** |
| | | | | | | (7.00) | (6.44) |
| *Stock %* | ? | | | | | 0.960 | 0.578 |
| | | | | | | (0.75) | (0.45) |
| Year FE | | Y | Y | Y | Y | Y | Y |
| Industry FE (GICS 6) | | Y | Y | Y | Y | Y | Y |
| S.E. clustered by firm | | Y | Y | Y | Y | Y | Y |
| No. of observations | | 10,142 | 10,142 | 10,142 | 10,142 | 10,142 | 10,142 |
| Adj. R-Squared | | 0.040 | 0.040 | 0.045 | 0.040 | 0.048 | 0.052 |

Table OA1 presents analysis of predictors of the difference betwee ISS Pay For Performance and an estimated score based on economic determinants and potential sources of distortion. Panel A presents descriptive statistics. Panel B examines the signed MOM Score differences while Panel C examines the signed RDA Score Differences. Standard errors are clustered by firm and t-statistics are in parentheses. ***, **, * denote statistical significance at the 1%, 5%, and 10% levels, respectively. See Appendix B and OA Appendix A for variable descriptions.

## Table OA2: Proxy Advisor Recommendations

*Panel A: MOM Scores*

| | Pred (ISS/GL) | (1) DV = *ISS Against* | (2) | (3) DV = *GL Against* | (4) |
|---|---|---|---|---|---|
| *% Change Total Comp* | +/+ | 0.023*** | 0.023*** | 0.010 | 0.010 |
| | | (4.36) | (4.28) | (1.61) | (1.62) |
| *TSR $_t$* | -/- | -0.048*** | -0.047*** | -0.026*** | -0.026*** |
| | | (-6.56) | (-6.43) | (-2.79) | (-2.79) |
| *Estimated MOM Score* | +/+ | 0.134*** | 0.135*** | 0.158*** | 0.158*** |
| | | (18.75) | (18.79) | (20.02) | (19.91) |
| *MOM Distortion 2* | +/0 | 0.124*** | | -0.018 | |
| | | (4.71) | | (-0.54) | |
| *MOM Distortion 2 - Valuation* | +/0 | | 0.263*** | | -0.025 |
| | | | (3.24) | | (-0.25) |
| *MOM Distortion 2 - Peer* | +/0 | | 0.097*** | | -0.017 |
| | | | (3.51) | | (-0.47) |
| *CEO Ownership Guidelines* | -/- | -0.049*** | -0.048*** | -0.053*** | -0.053*** |
| | | (-4.50) | (-4.37) | (-4.01) | (-4.00) |
| *CIC Payment/Total Comp* | +/+ | 0.007*** | 0.007*** | 0.007** | 0.007** |
| | | (2.92) | (3.01) | (2.50) | (2.49) |
| *Clawback* | -/- | -0.031*** | -0.031*** | -0.050*** | -0.050*** |
| | | (-3.35) | (-3.31) | (-3.99) | (-3.99) |
| *Hedge Policy* | -/- | 0.004 | 0.004 | -0.011 | -0.011 |
| | | (0.44) | (0.46) | (-0.83) | (-0.83) |
| *LN(MVE)* | | 0.007** | 0.008** | 0.020*** | 0.020*** |
| | | (2.09) | (2.26) | (4.86) | (4.85) |
| *IO* | | -0.082*** | -0.081*** | -0.036 | -0.036 |
| | | (-3.10) | (-3.05) | (-1.07) | (-1.07) |
| *ROA* | | -0.137*** | -0.136*** | -0.344*** | -0.344*** |
| | | (-4.10) | (-4.07) | (-7.86) | (-7.85) |
| *# BH* | | 0.003 | 0.003 | 0.006* | 0.006* |
| | | (1.17) | (1.10) | (1.66) | (1.66) |
| Year FE | | Y | Y | Y | Y |
| Industry FE (GICS 6) | | Y | Y | Y | Y |
| S.E. clustered by firm | | Y | Y | Y | Y |
| No. of observations | | 10,142 | 10,142 | 9,973 | 9,973 |
| Adj. R-Squared | | 0.158 | 0.158 | 0.148 | 0.148 |

*Panel B: RDA Scores*

| | Pred (ISS/GL) | (1) DV = ISS Against | (2) DV = ISS Against | (3) DV = GL Against | (4) DV = GL Against |
|---|---|---|---|---|---|
| LN (TotalComp$_t$) | +/+ | 0.071*** | 0.072*** | 0.112*** | 0.114*** |
| | | (9.14) | (9.11) | (10.64) | (10.72) |
| % Change Total Comp | +/+ | 0.051*** | 0.051*** | 0.037*** | 0.037*** |
| | | (9.43) | (9.46) | (6.32) | (6.36) |
| TSR $_t$ | -/- | -0.020*** | -0.021*** | -0.003 | -0.005 |
| | | (-2.86) | (-2.94) | (-0.38) | (-0.50) |
| Estimated RDA Score | +/+ | 0.001*** | 0.001*** | 0.001*** | 0.001*** |
| | | (14.03) | (14.02) | (10.48) | (10.47) |
| RDA Distortion 2 | +/0 | 0.006*** | | 0.000 | |
| | | (4.19) | | (0.10) | |
| RDA Distortion 2 - Valuation | +/0 | | 0.004** | | -0.002 |
| | | | (2.29) | | (-1.03) |
| RDA Distortion 2 - Peer | +/0 | | 0.008*** | | 0.004 |
| | | | (3.88) | | (1.47) |
| CEO Ownership Guidelines | -/- | -0.057*** | -0.057*** | -0.064*** | -0.064*** |
| | | (-4.99) | (-5.01) | (-4.77) | (-4.79) |
| CIC Payment/Total Comp | +/+ | 0.008*** | 0.008*** | 0.008*** | 0.008*** |
| | | (3.12) | (3.06) | (2.85) | (2.74) |
| Clawback | -/- | -0.040*** | -0.040*** | -0.062*** | -0.062*** |
| | | (-4.25) | (-4.26) | (-4.96) | (-4.97) |
| Hedge Policy | -/- | -0.002 | -0.002 | -0.019 | -0.019 |
| | | (-0.22) | (-0.21) | (-1.40) | (-1.39) |
| LN(MVE) | | -0.026*** | -0.027*** | -0.030*** | -0.032*** |
| | | (-5.87) | (-5.94) | (-4.96) | (-5.19) |
| IO | | -0.112*** | -0.110*** | -0.080** | -0.078** |
| | | (-4.09) | (-4.05) | (-2.27) | (-2.21) |
| ROA | | -0.067* | -0.068** | -0.265*** | -0.268*** |
| | | (-1.96) | (-2.01) | (-5.91) | (-5.97) |
| # BH | | 0.002 | 0.002 | 0.005 | 0.005 |
| | | (0.54) | (0.55) | (1.35) | (1.35) |
| Year FE | | Y | Y | Y | Y |
| Industry FE (GICS 6) | | Y | Y | Y | Y |
| S.E. clustered by firm | | Y | Y | Y | Y |
| No. of observations | | 10,142 | 10,142 | 9,973 | 9,973 |
| Adj. R-Squared | | 0.158 | 0.158 | 0.138 | 0.138 |

Table OA2 evaluates the influence of ISS Pay-for-performance Scores on proxy advisor recommendations Panel A examines the *MOM Difference* while Panel B examines the *RDA Difference*. Standard errors are clustered by firm and t-statistics are in parentheses. ***, **, * denote statistical significance at the 1%, 5%, and 10% levels, respectively. See Appendix B and OA Appendix A for variable descriptions.

**Table OA3: Voting Outcomes**

*Panel A: MOM Scores*

|  | Pred | (1) | (2) |
|---|:---:|:---:|:---:|
|  |  | DV = % Vote Against | |
| *GL Against* | + | 0.162*** | 0.162*** |
|  |  | (29.73) | (29.73) |
| *% Change Total Comp* | + | 0.003 | 0.002 |
|  |  | (1.32) | (1.25) |
| *TSR$_t$* | - | -0.021*** | -0.021*** |
|  |  | (-8.34) | (-8.26) |
| *MOM Score Estimated* | + | 0.035*** | 0.035*** |
|  |  | (14.03) | (14.04) |
| *MOM Distortion 2* | + | 0.025*** | |
|  |  | (2.62) | |
| *MOM Distortion 2 - Valuation* | + | | 0.073** |
|  |  | | (2.47) |
| *MOM Distortion 2 - Peer* | + | | 0.017* |
|  |  | | (1.74) |
| Firm Level Controls | | Y | Y |
| Compensation Controls | | Y | Y |
| Year FE | | Y | Y |
| Industry FE (GICS 6) | | Y | Y |
| S.E. clustered by firm | | Y | Y |
| No. of observations | | 9,973 | 9,973 |
| Adj. R-Squared | | 0.393 | 0.393 |

Panel B: RDA Scores

| | Pred | (1) | (2) |
|---|---|---|---|
| | | DV = % Vote Against | |
| *GL Against* | + | 0.164*** | 0.164*** |
| | | (29.93) | (29.95) |
| *LN(TotalComp$_t$)* | + | 0.020*** | 0.020*** |
| | | (8.09) | (7.98) |
| *% Change Total Comp* | + | 0.009*** | 0.009*** |
| | | (4.77) | (4.78) |
| *TSR$_t$* | - | -0.014*** | -0.014*** |
| | | (-5.47) | (-5.48) |
| *RDA Score Estimated* | + | 0.000*** | 0.000*** |
| | | (11.93) | (11.92) |
| *RDA Distortion 2* | + | 0.002*** | |
| | | (3.12) | |
| *RDA Distortion 2 - Valuation* | + | | 0.002** |
| | | | (2.28) |
| *RDA Distortion 2 - Peer* | + | | 0.002** |
| | | | (2.49) |
| Firm Level Controls | | Y | Y |
| Compensation Controls | | Y | Y |
| Year FE | | Y | Y |
| Industry FE (GICS 6) | | Y | Y |
| S.E. clustered by firm | | Y | Y |
| No. of observations | | 9,973 | 9,973 |
| Adj. R-Squared | | 0.390 | 0.390 |

Table OA3 evaluates the influence of distortions in ISS scores on voting outcomes. Panel A evaluates the influence of Estimated MOM scores and distortion estimates on voting outcomes. Panel B includes similar analysis for Estimated RDA scores. The firm and control variables from Table OA2 are included but not tabulated. Standard errors are clustered by firm and t-statistics are in parentheses. ***, **, * denote statistical significance at the 1%, 5%, and 10% levels, respectively. See Appendix B and OA Appendix A for variable descriptions.

**Table OA4: Voting Outcomes by Shareholder Type**

| | Pred | (1) | (2) | (3) |
|---|---|---|---|---|
| | | Dependent Variable = *% Votes Against* | | |
| *GL Against* | + | 0.116*** | 0.116*** | 0.116*** |
| | | (37.98) | (38.00) | (38.00) |
| *ISS Against* | + | 0.231*** | 0.231*** | 0.231*** |
| | | (45.91) | (45.59) | (45.59) |
| *% Change Total Comp* | + | 0.011*** | 0.011*** | 0.011*** |
| | | (7.17) | (7.26) | (7.23) |
| $TSR_t$ | - | -0.001 | -0.001 | -0.001 |
| | | (-1.07) | (-1.16) | (-1.11) |
| $LN(TotalComp_t)$ | + | -0.013*** | -0.013*** | -0.013*** |
| | | (-8.96) | (-9.06) | (-8.93) |
| *SH Reform %* | ? | -0.144*** | -0.142*** | -0.143*** |
| | | (-5.12) | (-5.05) | (-5.17) |
| *Trad Gov %* | ? | -0.076*** | -0.076*** | -0.077*** |
| | | (-5.55) | (-5.45) | (-5.48) |
| *SH Reform % X GL Against* | ? | 0.449*** | 0.447*** | 0.449*** |
| | | (4.11) | (4.10) | (4.12) |
| *Trad Gov % X GL Against* | ? | 0.042 | 0.044 | 0.043 |
| | | (1.11) | (1.14) | (1.13) |
| *SH Reform % X ISS Against* | + | 1.161*** | 1.166*** | 1.194*** |
| | | (6.94) | (6.44) | (6.54) |
| *Trad Gov % X ISS Against* | + | 0.401*** | 0.413*** | 0.412*** |
| | | (7.70) | (7.32) | (7.33) |
| *High MOM Distortion* | ? | | 0.002 | |
| | | | (0.36) | |
| *High MOM Distortion X ISS Against* | - | | 0.025 | |
| | | | (0.97) | |
| *High MOM Distortion X ISS Against X SH Reform %* | - | | -0.049 | |
| | | | (-0.11) | |
| *High MOM Distortion X ISS Against X Trad Gov %* | - | | -0.098 | |
| | | | (-0.73) | |
| *High RDA Distortion* | ? | | | -0.003 |
| | | | | (-0.44) |
| *High RDA Distortion X ISS Against* | - | | | 0.035 |
| | | | | (1.23) |
| *High RDA Distortion X ISS Against X SH Reform %* | - | | | -0.204 |
| | | | | (-0.48) |
| *High RDA Distortion X ISS Against X Trad Gov %* | - | | | -0.113 |
| | | | | (-0.80) |
| Firm Level Controls | | Y | Y | Y |
| Compensation Controls | | Y | Y | Y |
| Year FE | | Y | Y | Y |
| Industry FE (GICS 6) | | Y | Y | Y |
| S.E. clustered by firm | | Y | Y | Y |
| No. of observations | | 16,585 | 16,585 | 16,585 |
| Adj. R-Squared | | 0.714 | 0.714 | 0.714 |

Table OA4 evaluates the influence of distortions in ISS scores on voting outcomes including interactions for firm years with high levels of score distortion similar to Table 6, Panel A. Further, ownership classified by type based on Bubb and Catan (2022) and these values are interacted with ISS recommendations and High Levels of Distortion. The interaction between ownership types and ISS recommendation are included in columns (2) and (3) but not tabulated. All interactions are also included for the third ownership type in Bubb and Catan (Shareholder Protest Party) but these values are not tabulated. The firm and control variables from Table 6, Panel A are included but not tabulated. Standard errors are clustered by firm and t-statistics are in parentheses. ***, **, * denote statistical significance at the 1%, 5%, and 10% levels, respectively. See Appendix B and OA Appendix A for variable descriptions.