

Mind the Gap: CEO-Employee Pay Ratios and Shareholder Say on Pay Votes

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ABSTRACT: We examine whether the ratio of CEO to employee pay (the pay ratio) informs shareholders' say on pay (SOP) votes for a broad panel of U.S. commercial banks. Voting dissent on SOP proposals is increasing in the level of the pay ratio, particularly for banks in the highest pay ratio decile. Results are robust to a number of sensitivity tests, including controlling for proxy advisor recommendations and information about executive compensation already disclosed in proxy statements. In falsification tests, we show that pay ratios do not inform shareholders' votes on the ratification of the firm's auditor or the election of directors.

Keywords: *Pay ratio; Mandatory SEC disclosure; Say on pay; Dodd-Frank Act.*

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I. INTRODUCTION

Will knowing how much the Chief Executive Officer (CEO) makes relative to rank and file employees provide useful information to shareholders? This question has raised considerable controversy ever since Congress included a provision in the Dodd-Frank Act which would require companies to disclose the ratio of CEO to employee pay, or the pay ratio. More than five years later, and over strenuous opposition from corporate lobbying groups, the Securities and Exchange Commission (SEC) issued the final pay ratio disclosure rule (SEC 2015). In crafting the new rule, the SEC “sought to carefully tailor the pay ratio disclosure requirement so that it provides shareholders with a company-specific metric that is relevant and useful to their say on pay voting” (SEC 2015, 12). Although the merits of this position have been extensively debated, there has not been any research examining whether there is a relation between pay ratios and shareholder voting decisions.

Companies began holding say on pay (SOP) votes in 2011, but will not be required to disclose pay ratios until the first fiscal year beginning on or after January 1, 2017.¹ Until then, companies may voluntarily disclose some form of a pay ratio, although few do (Abrams 2015). Most companies do not even disclose total workforce compensation, which would permit shareholders to calculate a pay ratio. However, SEC rules require bank holding companies to report total compensation expense as a separate line on the income statement.² In this paper, we leverage the unique compensation data in the banking sector to provide an initial assessment of the relation between pay ratios and SOP votes.

¹ For calendar-year companies, the first mandated disclosure will be included in the proxy statement for the 2018 annual meeting of shareholders.

² Rule 9-04 of Regulation S-X requires bank holding companies to report salaries and employee benefits on the face of the income statement if the amount exceeds one percent of the aggregate of total interest income and other income. Similarly, regulatory reporting requirements on Form Y9-C also require banks to report the total amount of salaries and employee benefits. In contrast, Rule 5-03 for commercial and industrial companies does not require separate reporting of aggregate compensation expense. According to Ballester, Livnat, and Sinha (2002), less than 10% of all firms disclose total compensation expense, with banks likely comprising the majority of disclosing firms.

Our sample consists of 1,175 observations from the first four years of the SOP rule. In our primary analysis, we investigate whether pay ratios are related to shareholders' SOP votes using three alternative empirical specifications of the pay ratio: (i) a continuous variable which assumes a linear relation between pay disparity and voting behavior, (ii) an indicator variable for the top decile of pay ratios because populist concerns focus on extreme high pay disparity, and (iii) both a continuous and quadratic variable to account for a potential nonlinear relation.

We find that SOP voting dissent, measured as the fraction of votes cast against approval of executive compensation, is significantly increasing in the level of the pay ratio. Despite the significant influence of proxy advisors on shareholder voting (Alexander, Chen, Seppi, and Spatt 2010; Ertimur, Ferri, and Oesch 2013), our results are robust to controlling for recommendations from Institutional Shareholder Services (ISS). Firms with a pay ratio in the top decile of our sample experience disproportionately greater shareholder dissatisfaction, with voting dissent that is 5-9% higher, on average, than other banks in the sample. This finding is significant from an economic standpoint as mean (median) voting dissent in the sample is 8% (4%). Finally, in the non-linear specification, we find evidence of a convex relation between voting dissent and the pay ratio, with voting dissent increasing not only in the highest pay ratio deciles, but also a less dramatic but still significant increase in the lowest deciles. Although we cannot fully explain this later finding, we note that it is inconsistent with the financial press and policy debate focusing solely on the highest pay ratios.

We extend our analysis by disaggregating the pay ratio into two components: (i) the ratio of CEO pay to top-five executive pay, i.e., the "pay slice" (Bebchuk, Cremers, and Peyer 2011), and (ii) the ratio of top-five executive pay to average employee pay, i.e., the executive pay ratio. The purpose of these tests is to investigate whether the pay ratio incrementally informs SOP

voting behavior beyond the pay slice which utilizes information already required to be disclosed in firms' proxy statements. We continue to find that SOP voting dissent is convex in the pay ratio. The coefficient estimates on both the continuous and quadratic pay ratio variables are nearly identical in magnitude and significance whether or not the pay slice is included in the estimation. These results indicate that the information in the pay ratio for shareholders' voting decisions is not subsumed by existing executive compensation disclosures.

Inferences are unaltered across a battery of robustness tests. Specifically, we examine alternative measures of the pay ratio (e.g., dividing CEO pay by average *nonexecutive* compensation or a log rather than rank transformation) and shareholder voting dissent (e.g., including broker non-votes and abstentions). Further, to assure that our results are not capturing shareholders' response to CEO pay rather than the pay ratio, we estimate models including three alternative controls for CEO compensation – the log of CEO compensation, expected CEO compensation, and unexpected CEO compensation. Finally, we exclude potentially influential observations (e.g., large banks or banks with the highest paid CEOs, or banks with negative stock returns) and also control for state-year fixed effects, CEO turnover, and banks that received financial assistance during the financial crisis.

To ensure that our results are not simply capturing the expression of overall shareholder dissatisfaction with the firm, we conduct falsification tests that examine the association between the pay ratio and voting dissent on two other proxy agenda items – ratification of the firm's auditor and election of directors. In both of these tests, we find no evidence of a relation between pay ratios and shareholders' voting behavior. Taken together, the results suggest that the information in the pay ratio is relevant to shareholders in evaluating executive compensation practices but is not considered in other proxy voting decisions.

Finally, we examine whether SOP voting patterns are related to measures of future firm operating performance and risk. We conduct this analysis to provide some evidence on whether the relation between SOP voting dissent and the pay ratio appears to be grounded in shareholders' concerns about future firm fundamentals. Consistent with this interpretation, we find a concave relation between the pay ratio and future firm performance and a convex relation between the pay ratio and future firm risk. Nevertheless, it will be important for future research to continue to explore how and why shareholders use the pay ratio in their SOP voting decisions.

Our paper makes several contributions. We are the first to study whether there is an association between pay ratios and SOP voting decisions which is central to the SEC's final pay ratio rule. We find that shareholders appear to scrutinize the firm's overall compensation structure, not just that of executives. Further, while proxy advisor recommendations are a significant determinant of voting behavior, they do not subsume the information in the pay ratio that shareholders appear to find relevant in casting their SOP votes. These findings inform the ongoing policy debate surrounding the pay ratio as well as academic research on corporate governance mechanisms, and shareholder voting behavior in particular.

Second, we decompose the pay ratio to show that it encompasses pay disparity both within the executive suite and between the executive suite and the average employee. This analysis provides a link to prior compensation research that mostly considers pay within the executive suite. We show that the CEO pay slice is not a substitute for directly measuring the CEO-employee pay ratio. Our analysis provides a structured approach for future research to investigate issues affecting one or both notions of pay disparity.

Third, we show that the interpretation of pay disparity is more nuanced than suggested in the policy debate. Specifically, permitting non-linearity in the relation between the SOP voting

dissent and the pay ratio reveals that pay ratios can have either a positive or a negative association depending on the magnitude of the disparity. The results provide consistent evidence that pay ratios have a convex relation with SOP voting dissent and future firm risk and a concave relation with future firm operating performance.

Fourth, we document that the gap between CEO and employee pay is likely much smaller for most firms than the perception ingrained in the financial media and popular press. Specifically, the mean (median) pay ratio in our sample is 23.36 (11.57). This finding is in stark contrast to recent estimates including only the largest companies in the economy. For example, Smith and Kuntz (2013) report an average estimated pay ratio of 204-to-1 for the S&P 500 while the largest 100 companies have an average pay ratio of nearly 500-to-1. The skewness in pay ratios is evident in our sample as we find a sharp increase in the top decile, reaching a maximum of 255-to-1. These results support the view that the firms in ExecuComp used by nearly all academic and practitioner compensation studies are not representative of firms outside the three major S&P indices (Cadman, Klasa, and Matsunaga 2010). As a result, care should be taken when interpreting the magnitude of the pay ratio and its effects based solely on a sample of ExecuComp firms.

Finally, we use publicly-available data to calculate a company-specific pay ratio, illustrating that shareholders of bank holding companies are currently able to approximate the information in the newly-mandated pay ratio rule for use in their SOP voting decisions. Once companies begin to disclose SEC pay ratios, the ability to calculate an alternative pay ratio from other information in the annual report will uniquely provide bank shareholders with a second data point to not only evaluate pay practices but also assess the reasonableness of the disclosed SEC pay ratio.

Despite the advantages of our setting, focusing on a single industry potentially limits the generalizability of the results. There is no guarantee that pay ratios behave similarly in other industries or that shareholders will view the information in a similar fashion when casting their SOP votes. There is significant variation in compensation contracting across industries for numerous reasons (e.g., incentive risk taking, alignment of shareholder interests, growth options, etc.), and thus the structure of banking sector compensation may lend itself differently to the outcome variables we investigate relative to other industries. However, this paper represents an important first step in understanding these issues.

The remainder of the paper is organized as follows. Section II provides background on the pay ratio disclosure and SOP rules and discusses related literature. Section III describes the research design. Section IV presents the empirical result. Section V summarizes and concludes.

II. INSTITUTIONAL BACKGROUND AND RELATED LITERATURE

The Dodd-Frank Act contains several measures intended to enhance compensation disclosure and accountability. Among these provisions are requirements to (i) conduct a non-binding shareholder vote to approve the compensation of named executives, and (ii) disclose the ratio of CEO compensation to median employee compensation. This section discusses each of these provisions in turn and concludes with a summary of the emerging literature.

Say on Pay

The SEC finalized the SOP rule in January, 2011, just six months after Congress enacted Dodd-Frank (SEC 2011). The rule requires public companies to hold an advisory vote to approve the compensation of the named executive officers disclosed in the annual proxy statement. The rule does not require companies to use any specific language, but the vote is a single resolution on the compensation of the named executive officers as a group rather than the CEO or any other

executive officer individually.³ Moreover, the vote is to approve executive compensation for the past fiscal year rather than the upcoming year (e.g., the vote held in conjunction with the 2014 annual meeting and proxy statement is to approve the 2013 executive compensation package). Although the results are not binding, most corporate boards consider substantial voting dissent as disruptive and a black eye on the firm's reputation (Chasan 2014; Del Guercio, Seery, and Woidtke 2008).

The SOP rule became effective for the first annual meeting of shareholders scheduled on or after January 21, 2011, although smaller reporting companies were allowed a temporary exemption until 2013. In addition to the SOP vote itself, firms are required to hold a separate shareholder advisory vote to determine how often the SOP vote will occur (i.e., every 1, 2, or 3 years), with this frequency vote taking place at least every six years. Finally, companies receiving financial assistance under the Troubled Asset Relief Program, or TARP, are required under the Emergency Economic Stabilization Act (EESA) of 2008 to hold annual votes on executive compensation as long as the TARP funds remain outstanding. To avoid a duplicative vote, the SOP rule exempts companies subject to the EESA requirement.

Pay Ratio Disclosure

The SEC issued the pay ratio disclosure rule on August 5, 2015, almost five years to the day after Dodd-Frank was enacted. The rule requires most public companies to disclose the following information for the first full fiscal year beginning on or after January 1, 2017:

- (a) median annual total compensation of all employees, excluding the CEO;
- (b) annual total compensation of the CEO; and

³ The rule provides the following example of language that meets the applicable requirements: "RESOLVED, that the compensation paid to the company's named executive officers, as disclosed pursuant to Item 402 of Regulation S-K, including the Compensation Discussion and Analysis, compensation tables and narrative discussion, is hereby APPROVED."

(c) the ratio of the amount in (a) to the amount in (b), presented either as a ratio in which median employee compensation equals one or as a multiple of CEO compensation to median employee compensation.

For example, if the annual total compensation of the CEO is \$2,500,000 and the median annual total compensation of all other employees is \$50,000, then the pay ratio is 50-to-1. Alternatively, companies can express the pay ratio in narrative form as “the CEO’s annual total compensation is 50 times that of the median of the annual total compensation of all employees.” The disclosure is required in SEC filings that include disclosure of executive compensation information pursuant to Item 402 of Regulation S-K, such as the summary compensation table and compensation discussion and analysis.⁴ In this way, the SEC intends for the pay ratio to be presented in the same context as other information that shareholders can use in making their SOP voting decisions.

Arguments against pay ratio disclosure center around two themes. First, some believe that the pay ratio does not provide useful information to shareholders, particularly in light of the extensive disclosures already required regarding the compensation of named executive officers.⁵ The SEC concluded, however, that the pay ratio is a useful new data point adding to the total mix of executive compensation information. Some analysts speculate that providing information about total compensation and its distribution within the firm might be more effective than the detailed information currently disclosed regarding executives’ compensation (Ciesielski 2011).

Second, although calculating the pay ratio is a seemingly simple requirement, in practice it could result in substantial compliance costs. To address this concern, the rule permits companies

⁴ Because emerging growth companies, smaller reporting companies, foreign private issuers, and Canadian MJDS filers are not required to present Item 402 information, they do not fall within the scope of the rule.

⁵ At the extreme, some opponents assert that Congress’s intent in requiring pay ratio disclosure is solely to publicly “shame” corporations into reining in executive pay. The SEC, however, explicitly rejects the notion that this objective was considered in framing the rule (SEC 2015).

to exercise flexibility along several dimensions.⁶ Some contend that this flexibility will diminish the ratio's usefulness and allow companies to manipulate it in their favor. To assist financial statement users in interpreting the ratio, companies must disclose relevant information on the methodology and any material assumptions, adjustments, or estimates used. Companies are also allowed to present additional ratios (such as separate pay ratios covering U.S. and non-U.S. employees) or other information to supplement the required ratio.

Related Literature

Because of the recency of both of these SEC rules, relatively little research has been conducted to date. Ertimur et al. (2013) studies the role of proxy advisors in SOP voting for S&P 1500 firms in 2011, the first proxy voting season under the new rule. They find that proxy advisor recommendations are a key determinant of SOP voting outcomes, although shareholders do not blindly follow these recommendations. Similarly, management recommendations significantly influence voting outcomes on the frequency of SOP votes (Ferri and Oesch 2014).⁷

While the initial years of SOP voting outcomes are available for study, pay ratios are not yet required to be disclosed, and, as noted above, the underlying financial statement data to calculate pay ratios are not widely available. Despite this limitation, Faleye, Reis, and Venkateswaran (2013) and Hyun, Kang, Kim, and Shin (2012) study the relation between pay ratios and future

⁶ For example, although all U.S. and non-U.S. employees of the company and its consolidated subsidiaries must be considered in the calculation, the rule includes a data privacy exemption for employees in foreign jurisdictions where it is illegal to provide the necessary data. The rule also includes a *de minimis* exemption allowing companies to exclude up to 5% of the workforce that are non-U.S. employees (including those falling under the data privacy exemption), provided it is not done selectively to exclude employees within any particular foreign jurisdiction. Further, to identify the median employee, companies can employ statistical sampling methods, use any consistently applied compensation measure (such as tax or payroll records), and make cost-of-living adjustments for employees in jurisdictions other than where the CEO resides. Moreover, this determination can be made as of any date within three months of the fiscal year end, and only once every three years (provided there are no significant changes in the employee population or compensation arrangements). However, once the median employee is identified, the company must calculate that employee's annual total compensation in a manner consistent with CEO compensation as prescribed in Item 402(c)(2)(x) of Regulation S-K.

⁷ Additional research examines compensation-related shareholder votes in the U.S. (Armstrong, Gow, and Larcker 2013) and the U.K. (Ertimur, Ferri, and Muslu 2011).

firm performance, with conflicting results.⁸ Specifically, for a small sample of S&P 1500 firms that voluntarily disclose total employee compensation, Faleye et al. (2013) finds that future operating performance is increasing in the ratio of CEO to average employee pay. This result should be interpreted with caution, however, as the research design does not control for self-selection bias stemming from the decision to disclose employee compensation. In contrast, Hyun et al. (2012) finds a negative association between operating returns and the pay ratio, defined as average executive compensation divided by average employee compensation, for a sample of Korean firms that have been required to disclose this information for several years. Pay ratios in Korea, however, are considerably lower than in the U.S. – they report a maximum ratio of just 46.82 – potentially limiting the generalizability of the results to U.S. samples. Finally, Chen, Smith, and Tanyi (2014) finds a negative relation between pay ratios, estimated for S&P 1500 firms using the U.S. Bureau of Labor Statistics industry-wide measure of employee wages, and financial reporting quality.

In our study, we examine a previously unexplored research question at the intersection of pay ratio disclosure and SOP voting. The pay ratio disclosure requirement is controversial, and has generated considerable debate regarding its merits. In the final rule (SEC 2015), the SEC contends that pay ratios are relevant and useful to shareholders in the context of SOP voting, although there is no empirical evidence to support this claim. The purpose of this paper is to investigate the SEC's assertion, and thereby inform not only the policy debate, but also the emerging literature on these topics.

⁸ There is a larger body of research examining the relation between pay disparity *within* the executive suite and firm performance (e.g., Main, O'Reilly, and Wade 1993; Bognanno 2001; Lee, Lev, and Yeo 2008; Kale, Reis, and Venkateswaran 2009; Bebchuk et al. 2011) and risk (e.g., Kini and Williams 2012).

III. RESEARCH DESIGN

Empirical Methodology

Our primary analysis examines whether the pay ratio is related to shareholders' SOP voting dissent using the following model:⁹

$$SOPNoVote_{t+1} = f \left[RankPayRatio_t, ISSAgainst_t, ROA_t, Return_t, LogAssets_t, NonIntInc\%_t, CapitalRatio_t, LLP\%_t, Trading_t, Bank_t, InstOwn\%_t, Region, Year \right]. \quad (1)$$

Recall that shareholders vote to approve the compensation of the named executive officers as disclosed in the annual proxy statement rather than to approve compensation for the upcoming year. Thus, we measure voting dissent (*SOPNoVote*) as the number of votes cast in year $t + 1$ against the executive compensation package for year t relative to the total number of votes cast. Because *PayRatio* is positively skewed (see Tables 1 and 2 below), we use a decile rank transformation, *RankPayRatio*, in our regression analyses.¹⁰

Following Ertimur et al. (2013), we control for the influence of proxy advisors, and expect voting dissent to be higher when the proxy advisor recommends against the SOP proposal (*ISSAgainst*). We also control for performance (*ROA* and *Return*) and size (*LogAssets*), which we expect to be inversely related to voting dissent (Ertimur et al. 2011; Ertimur et al. 2013). Because risk and operational complexity may affect the pay ratio (Larcker and Tayan 2011) we include *NonIntInc%*, a measure of the complexity of banks' income generating activities, *CapitalRatio*, an inverse measure of financial leverage common in the banking sector, and *LLP%*, an inverse measure of the quality of the bank's loan portfolio.

We include two indicator variables to capture structural differences across banks that could affect pay ratios. Specifically, we control for whether the bank engages in trading activities

⁹ All variables are defined in Appendix A.

¹⁰ We also re-estimate all tests using a log transformation of the pay ratio which yields the same inferences, both in economic and statistical terms. See section 3.5 for further discussion.

(*Trading*), which are likely to require more highly compensated individuals. We also include an indicator variable (*Bank*) equal to one (zero) if the firm is classified as a bank (thrift). We control for institutional ownership (*InstOwn%*) which Ertimur et al. (2013) finds is positively associated with SOP voting dissent. Finally, we include geographic region (Ng and Roychowdury 2014) and year fixed effects.

We estimate equation (1) using three alternative specifications of the pay ratio. The first specification, as shown, assumes a linear relation between *RankPayRatio* and SOP voting dissent. The second specification substitutes an indicator variable for the top decile of pay ratios (*PayRatio Top Decile*) because it is these extreme high ratios that have been the focus of attention in the political debate. Finally, in the third specification we include *RankPayRatio* and $RankPayRatio^2$ to more explicitly capture potential nonlinearity in the relation between SOP voting dissent and *PayRatio*.

In all estimations, the null hypothesis is that the pay ratio has no relation to SOP voting dissent because shareholders do not perceive the pay ratio as useful in assessing the compensation of the firm's executives. The alternative prediction is that shareholders will consider pay ratios when casting their SOP vote. If high pay disparity is viewed as detrimental to the functioning of the firm, voting dissent is expected to be increasing in the pay ratio, particularly for ratios in the top decile of the distribution. However, a positive relation could also reflect an attempt to "shame" the firm's board and executives without any foundation in the underlying firm fundamentals. The third specification may provide some evidence to disentangle these alternative interpretations, as evidence of a nonlinear relation suggests shareholders' voting behavior is not a simple naïve response to the magnitude of the pay ratio. However, we conduct two additional analyses to provide further evidence.

First, we decompose *PayRatio* into two components: (i) *PaySlice*, equal to the ratio of CEO pay to the pay of the top five named executives (Bebchuk et al. 2011), and (ii) *ExecPayRatio*, equal to the ratio of the top five named executives' compensation to the average employee's compensation:

$$\frac{CEOCComp}{AvgEmplComp} = \frac{CEOCComp}{Top5Comp} \times \frac{Top5Comp}{AvgEmplComp} \quad (2a)$$

$$PayRatio = PaySlice \times ExecPayRatio \quad (2b)$$

Because the information to calculate *PaySlice* is already disclosed in proxy statements, finding that SOP voting dissent is only associated with this component would call into question the incremental usefulness of the pay ratio disclosure. However, if shareholders also consider the pay gap between executives and employees rather than merely targeting high CEO pay, we expect to find an incrementally significant association between voting dissent and *ExecPayRatio*.

Second, we examine whether the pay ratio is associated with future firm performance and risk outcomes. We capture performance using one-year-ahead return on assets (*ROA*) and risk using one-year-ahead standard deviation of daily returns (*StdReturn*).¹¹ To the extent that the relation between SOP voting dissent and the *PayRatio* in equation (1) reflects concerns about underlying firm fundamentals, we expect to find a negative (positive) association between future performance (risk) and the *PayRatio*.

Data Description

Our primary data source is the SNL Bank/Thrift Premier database which contains both financial statement and CEO compensation data collected from SEC filings. We focus our analysis on U.S. commercial bank holding companies. The key variable in our empirical tests is

¹¹ In calculating *ROA* we use pre-tax net income because compensation lowers taxable income. We also add back total compensation to avoid a mechanical relation between *ROA* and the pay ratio.

PayRatio. To calculate this variable, we first determine the annual total compensation of all employees by subtracting the annual total compensation of the CEO from the total compensation expense reported in the income statement. We then divide by the number of employees at the end of the fiscal year to obtain the average annual total compensation expense of all employees excluding the CEO (*AvgEmplComp*). Finally, we divide CEO compensation (*CEOCComp*) by *AvgEmplComp* to obtain *PayRatio*.¹²

To understand the broader context of pay disparity in the banking sector over time, Figure 1 plots the mean and median *PayRatio* for 1995-2013, the entire period with data available on SNL.¹³ We find that pay ratios were relatively stable in the decade preceding the financial crisis (1995-2005). After a sharp increase in 2006, pay ratios declined over the crisis period (2007-2009) before once again trending up in the post-crisis period that is the focus of our study (2010-2013). Even at its peak, however, the mean and median *PayRatio* are less than 18-to-1.

Our empirical tests focus on the first four years of SOP voting outcomes, 2011-2014, which relate to proposals to approve executive compensation for 2010-2013. Thus, the financial statement and compensation data used in our tests are for 2010-2013. There are 2,873 firm-year observations with *PayRatio* available for this sample period. We collect SOP voting outcomes from firm's proxy statements. This requirement excludes 1,586 firm-year observations, leaving a

¹² The data do not permit us to calculate pay ratios using median employee compensation as required by the rule. However, as discussed above, companies have some flexibility in determining median employee compensation, and thus also may not utilize the exact statistical median. We undertake sensitivity analysis with respect to our measure in section IV. Despite this constraint, our employee compensation measure is company-specific, as emphasized by the SEC (2015). In contrast, the standard metric of employee compensation used in the popular debate is an industry-wide measure of wages (excluding other forms of compensation) for U.S. workers based on survey data compiled by the U.S. Bureau of Labor Statistics.

¹³ We identify an initial sample of 19,115 firm-year observations. As noted above, SEC reporting rules require banks to disclose a line item containing total compensation. In the initial sample, there are only 63 firm-years missing total compensation on the income statement, and another 5 with CEO compensation exceeding total compensation. We exclude these observations as well as those missing CEO compensation (413) or the number of employees (492), resulting in a sample of 18,142 observations for Figure 1.

sample of 1,287 observations with both *PayRatio* and *SOPNoVote* available.¹⁴ Figure 2 plots the mean of *PayRatio* and *SOPNoVote* over our sample period.¹⁵ The two variables generally move in tandem over the sample period, although *SOPNoVote* increases more sharply in 2013 than does *PayRatio*.

Table 1 reports descriptive statistics for the regression variables. Mean (median) *SOPNoVote* is 8% (4%), comparable to Ertimur et al. (2013). Mean (median) *CEOComp* is \$1,878.8 (\$797.9), compared to *AvgEmplComp* of \$73.1 (\$68.6).¹⁶ Notably, the mean (median) *PayRatio* is 23.36 (11.57), substantially below the ratios attracting wide-spread attention in the press. Of particular relevance, Smith and Kuntz (2013) reports a pay ratio of approximately 325-to-1 for the financial services sector. Similar to related media reports (e.g., Kwoh 2012; Ackerman 2013; Mishel and Sabadish 2013), their analysis is based on large firms (e.g., the S&P 500) and estimates of average employee wages using Bureau of Labor Statistics data, which are below our calculated *AvgEmplComp*. Taken together, these two factors appear to overstate public perceptions of the pay ratio, at least for the vast majority of banks. At the 75th percentile of the distribution, the *PayRatio* is still only 24.23, essentially equal to the limit of 25-to-1 suggested by Drucker (1977) as a reasonable upper bound.

Table 2 reports the distribution of *PayRatio* by decile, and provides further evidence that pay ratios are highly skewed. In particular, the mean and median *PayRatio* more than doubles

¹⁴ SOP voting data are generally missing either because the firm is a smaller reporting company and thus not required to comply with the SOP rule until the 2013 shareholder meeting or because shareholders voted to hold the SOP vote on either a biennial or triennial basis.

¹⁵ Because Figure 2 requires observations to have data for both the *PayRatio* and *SOPNoVote* variables, the *PayRatio* differs somewhat from the statistics reported in Figure 1 where only *PayRatio* is required. Specifically, the mean *PayRatio* is marginally higher in Figure 2 and there is also a noticeable dip in 2012. These findings are likely attributable to smaller reporting companies which tend to have lower pay ratios and first entered the sample in 2012 (for the 2013 SOP vote). In untabulated analysis, we recalculate the mean *PayRatio* including data for all firm-year observations with at least one year of SOP data in the sample period. As expected, the mean is lower, never exceeding 21-to-1, and follows a path similar to Figure 1 (i.e., without the dip in 2012).

¹⁶ CEO compensation in our sample is lower, on average, than other banking studies which use ExecuComp data for S&P 1500 firms (e.g., John, Mehran, and Qian 2010). In contrast, the SNL database provides financial statement and compensation data for all banks filing with the SEC.

between the ninth and tenth deciles, reaching a maximum of 255-to-1 for the sample. The last two columns of the table provide descriptive evidence on the relation between *SOPNoVote* and *PayRatio*. Specifically, similar to the pay ratio, voting dissent increases disproportionately in the top *PayRatio* decile. However, there is also some evidence that the relation is convex in that *SOPNoVote* is marginally higher in the lowest two deciles.

Returning to the descriptive statistics for the regression variables in Table 1, we find that CEOs in our sample earn a mean (median) of 37% (36%) of the total compensation paid to executives (*PaySlice*), consistent with Bebchuk et al. (2011). Not surprisingly, *ExecPayRatio* is systematically higher than *PayRatio* because it includes total executive compensation in the numerator (i.e., total compensation to all named executive officers is larger than CEO compensation alone). Moreover, the mean (median) *ExecPayRatio* of 66.78 (33.44) reveals that the skewness in *PayRatio* discussed above is attributable to the pay disparity between executives and rank-and-file employees rather than within the executive suite.

ISS recommended against 8% of the SOP proposals in our sample, far more than the fraction actually voted down, but also somewhat less than the fraction receiving voting dissent of at least 20%, a threshold viewed as indicating substantial shareholder dissatisfaction.¹⁷ Our sample includes a large cross-section of banks, with the distribution significantly skewed to the right. Specifically, mean total assets (\$38.83 billion, untabulated) exceeds the 90th percentile (\$21.35 billion, untabulated) by over \$16 billion. For this reason, we use the log transformation, *LogAssets*, in all empirical tests. We also find that 19% of the sample engages in trading activities and 81% are classified as banks (as opposed to thrifts). Finally, mean and median

¹⁷ SOP proposals were voted down (i.e., dissent greater than 50%) in only 9 instances (less than 1% of the observations), but voting dissent exceeds 20% for 104 observations, or 9% of the sample (results not tabulated).

institutional ownership is 42%. This statistic is lower than in other studies on compensation-related proposals (e.g., Ertimur et al. 2011) which include only S&P 1500 firms.

The correlations reported in Table 3 indicate that *SOPNoVote* is positively correlated with *RankPayRatio*. Moreover, while *ExecPayRatio* is highly positively correlated with *RankPayRatio*, it exhibits a negative correlation with *PaySlice*. This suggests that the two component measures of a firm's pay structure, *ExecPayRatio* and *PaySlice*, could each contain incremental information relevant for shareholders' SOP voting decisions. In fact, both display similar levels of correlation with *SOPNoVote*. Finally, *SOPNoVote* is positively correlated with *ISSAgainst* and negatively correlated with *ROA* and *CapitalRatio*, indicating that voting dissent is greater for firms with an adverse recommendation by the proxy advisor, and where performance is worse and risk (leverage) is higher.

IV. EMPIRICAL RESULTS

Pay Ratios and Shareholder Say on Pay Votes

We examine the association between SOP voting dissent and pay ratios in Table 4. We present two sets of results, the first excluding the proxy advisor recommendation (columns (1) through (3)), and the second including this measure as an additional explanatory variable (columns (4) through (6)). Column (1) presents results with *RankPayRatio* as our primary variable of interest, a specification which assumes a linear relation between SOP voting dissent and pay disparity. We find that voting dissent is significantly increasing in the pay ratio, with a one decile increase in *PayRatio* translating into a 0.69% increase in voting dissent. In other words, an interquartile increase in *RankPayRatio* is associated with an approximately 3% increase in voting dissent. Compared to the mean voting dissent of 8%, this effect is a reasonably large shift in the fraction of votes cast in opposition of the SOP proposal.

The second specification in column (2) of Table 4 substitutes an indicator variable for the top decile of pay ratios (*PayRatio Top Decile*). This specification recognizes that the focus of attention in the financial press and policy debate has been on firms that are perceived as having extremely high pay ratios. We find that banks in the top decile of the *PayRatio* distribution experience voting dissent that is 9.2% higher, on average, than the other banks in the sample. This finding suggests that shareholders have a strong negative opinion about executive compensation that creates an extreme pay gap relative to employees.

We include both *RankPayRatio* and *RankPayRatio*² in column (3) of Table 4 to more explicitly capture a potential nonlinear relation in the data. We find that the coefficient estimate on *RankPayRatio* (*RankPayRatio*²) is significantly negative (positive). In other words, SOP voting dissent is initially decreasing in the pay ratio, but eventually reaches an inflection point after which higher pay ratios are associated with increased voting dissent. Although the focus of the debate has been on the highest pay ratios, these results suggest that SOP voting dissent is also higher at the low end of the pay ratio distribution. One interpretation of this finding is that shareholders view extremely low pay ratios as counterproductive, perhaps indicating that executive compensation lacks sufficient incentives for the CEO to act in the best interests of shareholders. Finally, results for the control variables are generally consistent across all three specifications and indicate that voting dissent is higher in firms with poor performance, smaller and more levered firms, and firms with more institutional ownership.¹⁸

¹⁸ Consistent with Ertimur et al. (2013), in sensitivity tests we find a statistically significant negative association between *SOPNoVote* and insider ownership, but there is no change in the economic or statistical significance of the pay ratio variables. We do not tabulate these results as we only have insider ownership data for the last two years of the sample period. In additional untabulated results, we also interact *RankPayRatio* with *InstOwn%* and find that the estimated coefficient on the interaction term is positive and significant, suggesting that voting dissent is higher for firms with high pay ratios and high institutional ownership.

To provide a parsimonious mechanism for interpreting the results of this specification, we plot the marginal effects of *RankPayRatio* on *SOPNoVote* in Figure 3. Specifically, we calculate the predicted value of *SOPNoVote* for each *RankPayRatio* decile, holding constant the other regression variables at their mean values. As reported at the bottom of Table 4, the inflection point occurs between deciles 3 and 4 (3.88), indicating a pay ratio between approximately 6- and 9-to-1 (per Table 2). Figure 3 shows that the predicted value of *SOPNoVote* is approximately 4.5% for pay ratios in deciles 3-5, rising to approximately 16% for pay ratios in the top decile, an increase of 11.5%. Moreover, a shift of just one decile from the ninth to tenth decile results in a 3.5% increase. Although there is also evidence of an increase in predicted voting dissent as pay ratios fall below the inflection point, the effects are less dramatic. Specifically, the predicted value of *SOPNoVote* is approximately 7% in the lowest decile, an increase of 2.5% over the value at the inflection point.

To gauge the effects of proxy advisor recommendations on these results, we re-estimate the three specifications in columns (1) through (3) of Table 4 including *ISSAgainst* as an additional control variable. Although the evidence in Ertimur et al. (2013) suggests that shareholders do not blindly follow these recommendations, it is possible that pay ratios are not incrementally significant controlling for the significant influence of proxy advisors on voting outcomes. The results, reported in columns (4) through (6) of Table 4, reveal that the coefficient estimate on *ISSAgainst* is positive and significant, as expected, and of a similar magnitude to that reported in Ertimur et al. (2013). Moreover, the adjusted R^2 of the models increases four-fold, from approximately 10% to 45%.

Of primary concern for our study, inferences for *RankPayRatio* are largely unaffected despite the significant influence of proxy advisors on voting outcomes. Although the coefficient estimate

on *RankPayRatio* is insignificant in the linear specification in column (4), the findings for the nonlinear specifications in columns (5) and (6) continue to show that banks in the top decile of pay ratios experience significantly higher voting dissent and an overall significant convex relation between voting dissent and pay ratios. Although the magnitude of the coefficient estimates in these estimations declines by approximately one-half relative to the specification without *ISSAgainst*, the information in the pay ratio is both statistically and economically related to shareholder voting behavior. Interestingly, augmenting our model with *ISSAgainst* detracts from the significance level of several of our control variables, most notably *LogAssets*, but also *CapitalRatio* and *InstOwn%*. Taken together, the results indicate that there is a statistically significant and economically meaningful relation between SOP voting outcomes and pay ratios that is incremental to other determinants of voting dissent, including proxy advisor recommendations.

Decomposition of the Pay Ratio

In this section, we extend our analysis to examine whether our findings are driven by the executive compensation information already disclosed in the proxy statement or if there is additional relevant information in the pay ratio. Table 5 presents the results of estimating equation (1) substituting the two components *PaySlice* and *ExecPayRatio* for the aggregate *PayRatio*, as shown in equation (2). In column (1), we report the results of a benchmark model regressing *SOPNoVote* on *PaySlice* as the only compensation variable.¹⁹ We find a positive and significant coefficient estimate on *PaySlice*, indicating that SOP voting dissent is increasing in the CEOs share of executive team pay.

¹⁹ Following Bebchuk et al. (2011), we use the raw value of *PaySlice* rather than its rank transformation because this variable does not exhibit the significant skewness found in either *PayRatio* or *ExecPayRatio* (Table 1). Inferences are unchanged using a decile rank transformation of *PaySlice*.

Column (2) of Table 5 supplements the benchmark model with our primary variables of interest, *RankExecPayRatio* and *RankExecPayRatio*². Although *PaySlice* continues to be a significant determinant of *SOPNoVote*, albeit at the 0.10 level, the coefficient estimates on *RankExecPayRatio* and *RankExecPayRatio*² are similar in both magnitude (−0.0207 and 0.0029, respectively) and significance to the coefficient estimates in column (3) of Table 4 (−0.0237 and 0.0031, respectively) which does not include *PaySlice*. Thus, the findings indicate that the existing executive compensation disclosures do not subsume the information in the pay ratio that shareholders appear to find relevant in forming their SOP voting decisions.

Finally, column (3) of Table 5 presents the results of the augmented regression model including *ISSAgainst*. Similar to the effects documented in Table 4, the coefficient estimate on *ISSAgainst* is positive and significant and its inclusion substantially increases the explanatory power of the model. More importantly, the coefficients estimates on *RankExecPayRatio* and *RankExecPayRatio*² retain their statistical significance at the 0.01 level, although their magnitudes decline somewhat. In contrast, the coefficient estimate on *PaySlice* is insignificant in this specification. This finding suggests that the proxy advisor recommendation subsumes the executive compensation information currently disclosed in proxy statements but does not fully capture the incremental information required by the new SEC pay ratio rule.²⁰

Pay Ratios and Shareholder Votes on Other Proxy Agenda Items

Shareholders regularly vote on other proxy agenda items in addition to the SOP proposal, most notably to ratify the selection of the company's audit firm and to elect directors. If dissatisfied shareholders are expressing their concerns by dissenting on all proposals put before

²⁰ In untabulated analysis, we also allow for nonlinearity in *PaySlice* to ensure that the findings are not a manifestation of a different functional form for this variable. Although the findings for *RankExecPayRatio* and *RankExecPayRatio*² are essentially unchanged in this estimation, neither *PaySlice* nor *PaySlice*² is significant. Moreover, *PaySlice* and *PaySlice*² are also insignificant when *RankExecPayRatio* and *RankExecPayRatio*² are excluded from the estimation.

them, then our results could reflect this overall dissatisfaction rather than any specific relation between the information in the pay ratio and SOP voting dissent. Thus, we perform a falsification test substituting auditor voting dissent (*AuditorNoVote*) or director voting dissent (*DirectorNoVote*) as the dependent variable in equation (1) as well as the respective proxy advisor recommendation for *ISSAgainst*.²¹ Our analysis is limited to firms in the sample that also belong to the Russell 3000, reducing our sample size to approximately 700 observations.²²

The results for shareholders' voting behavior on auditor ratification are reported in Panel A of Table 6 using the same three alternative specifications of the pay ratio as in our previous analyses. As expected, the coefficient estimate on *ISSAgainst* is positive and highly significant. However, the coefficient estimates on the pay ratio variables are generally insignificant across all three specifications. The only exception is the quadratic variable, *RankPayRatio*², in the specification in column (3) which is negative and marginally significant at the 0.10 level. However, *RankPayRatio* is insignificant in this specification, and thus the results cannot be interpreted as providing evidence of a nonlinear relation between the pay ratio and shareholders' voting decisions. Moreover, across all three specifications the pattern of coefficient estimates on the pay ratio variables is opposite to that found in our analysis of SOP voting dissent.

We find similar results for the election of directors in Panel B. Specifically, the proxy advisor recommendation is highly influential, but there is no evidence of a relation between pay ratios and shareholders' voting on directors. Taken together, the results of our tests suggest that

²¹ Because more than one director for a firm is typically up for election in any given year, we measure *DirectorNoVote* as the average voting dissent for all directors. We code *ISSAgainst* equal to one if any of the directors standing for election received an "Against" recommendation, and zero otherwise. Inferences are unchanged if we instead use the maximum voting dissent registered for any director.

²² To test for the effects of sample differences, we re-estimate the regressions in Table 4 on the reduced sample with no change in inferences.

shareholders differentiate between the three proxy agenda items, and only appear to perceive the pay ratio as relevant for casting their SOP votes.

Pay Ratios and Subsequent Firm Operating Performance and Risk

As a final test, we examine one possible explanation for shareholders apparent use of the pay ratio to inform their SOP voting decisions, namely that the pay ratio is informative of underlying firm fundamentals. If performance concerns are affecting shareholders' voting decisions, we expect to observe a similar association between the pay ratio and firm outcomes as we document above for the pay ratio and voting dissent. In contrast, if SOP voting dissent reflects an attempt to "shame" the firm's board and CEO for high levels of executive pay, as some have alleged, we do not expect to find an association between pay ratios and future firm fundamentals.

We examine the relation between *RankPayRatio* and the one-year-ahead measures of firm performance and risk in Table 7.²³ The evidence indicates that there is a significant concave (convex) relation between pay ratios and future firm performance (risk). In other words, banks with pay ratios at either extreme of the distribution garner more SOP voting dissent, as documented above, and subsequently experience lower operating performance and higher risk. These results suggest that the relation between SOP voting dissent and pay ratios reflects shareholder concerns about underlying firm fundamentals rather than a naïve response to high levels of executive pay.

Additional Robustness Tests

Our objective in our primary tests is to calculate the pay ratio in a manner consistent with the SEC rule. However, as discussed above, data constraints do not permit us to determine median employee compensation as required by the rule. To test the robustness of our results, we

²³ The sample for this table is the 2,873 observations from 2010-2013 with *PayRatio* available, as noted above in Section 2. The number of observations is further reduced based on data availability to measure the regression variables.

calculate an alternative measure equal to total CEO compensation divided by the average *nonexecutive* compensation. In other words, we exclude all named executive officers including the CEO from employee compensation and the number of employees. Including the other named executive officers could skew our calculation of average employee compensation upwards (and pay ratios downwards) relative to the median employee compensation required by the rule. Our results are robust to this alternative measure. We also re-estimate our primary regressions using the log of the pay ratio. Similar to the rank transformation, this approach mitigates skewness in the underlying measure. However, the log of the pay ratio is equal to the difference between the log of CEO compensation and the log of average employee compensation, a formulation that is inconsistent with the disclosure required in the pay ratio rule. Nevertheless, inferences are unaltered using this alternative measure. Finally, we sort observations into deciles by year rather than pooled over the sample period, also with no change in inferences.

We also test the sensitivity of the results to including three alternative controls for CEO compensation – the log of CEO compensation, expected CEO compensation, and abnormal CEO compensation (Core, Holthausen, and Larcker 1999). Similar to the pay ratio decomposition, if shareholders consider the pay gap between the CEO and employees rather than merely targeting high CEO pay, we expect to find an incrementally significant association between voting dissent and *RankPayRatio*. Consistent with the results reported above, inferences for the pay ratio are unaltered regardless of which CEO compensation variable is included. These results provide additional evidence that SOP voting outcomes are associated with the pay ratio incremental to concerns about CEO pay.

In addition to alternative measures of the pay ratio and controls for CEO compensation, we also investigate the robustness of the findings to alternative measures of and controls for

shareholder voting behavior. Because retail investors are less likely to submit voting instructions to their broker than institutional investors, *SOPNoVote* could vary with the investor base.

Although we include institutional ownership as a control variable in our primary tests, in untabulated analyses we calculate voting dissent including broker non-votes and abstentions in the denominator of *SOPNoVote* with no changes in inferences. Alternatively, we include the log of broker non-votes as an additional independent variable, also with no change in inferences.

We also assess the robustness of our results to excluding potentially influential observations. First, we eliminate observations with negative stock returns. Although we include stock returns as a control in our primary tests, it is possible that shareholders are particularly sensitive to negative returns and express their dissatisfaction by voting against the SOP proposal. We find, however, that inferences are unchanged in these tests. Second, large banks or banks with the highest paid CEOs could attract extra publicity that triggers increased voting dissent. Thus, we re-run our primary tests eliminating the top ten observations in each year based on total assets or CEO pay. In both cases, inferences are unchanged.

Finally, the results are robust to alternative measures of firm size, including the market value of equity, total shareholders' equity, and sales revenue. Results are also robust to including state-year fixed effects to control for heterogeneity in state banking laws across our sample, and controlling for CEO turnover, for CEOs promoted from within the firm versus hired externally, and for firms that received TARP funds during the financial crisis. Overall, we find that inferences are generally robust to a variety of alternative specifications, alternative measures of the dependent and independent variables, and alternative control variables. While we can never completely rule out alternative explanations, the evidence is consistent with pay ratios providing relevant and useful information for shareholders' SOP voting decisions.

V. SUMMARY AND CONCLUSION

The financial media and popular press have frequently denounced what is perceived to be a large and growing gap in the compensation of CEOs relative to rank-and-file employees. To shed some light on this issue, the SEC recently approved a rule that will soon require firms to disclose the ratio of CEO pay to median worker pay under the belief that this information provides shareholders a valuable new perspective on executive compensation practices useful in their say on pay voting decisions.

Despite the public outcry, the relation between pay disparity and shareholders voting behavior has not been studied. To address this issue, we identify a previously unexplored setting for which compensation disclosure requirements permit the calculation of CEO-to-average worker pay. Specifically, we use a broad sample of U.S. bank holding companies because they are required to separately report total compensation expense from which we can calculate average worker pay and hence the pay ratio. We then investigate whether company-specific pay ratios inform shareholders' SOP voting decisions. Our sample consists of 1,175 shareholder votes on executive compensation disclosed in proxy statements for the period 2010-2013.

We document that pay ratios are generally much lower than the levels discussed in the press. This finding gives context to the debate and acts as a caution against generalizing the high pay ratios estimated for the largest firms in the economy. Nevertheless, there is substantial cross-sectional variation in pay ratios in our sample, suggesting that shareholders could find this information relevant in their SOP voting decisions. Our tests show that firms with high pay ratios experience significantly greater shareholder dissent on SOP votes, particularly in the highest decile of pay ratios. There is also evidence, however, that the relation is convex as there is an increase in voting dissent for pay ratios in the lowest two deciles.

In further analysis, we decompose the pay ratio into two components capturing the pay slice (i.e., the ratio of CEO to executive pay (Bebchuk et al. 2011)) and the ratio of executive to average employee pay. Importantly, we find that the pay slice, which is information already required to be disclosed in firms' proxy statements, does not subsume the information in the pay gap relative to the average employee. In other words, conditional on the pay slice, there is a significant (convex) relation between SOP voting dissent and the pay gap between executives and employees. We also show that pay ratios do not inform shareholder voting on auditor ratifications and director elections, indicating that our findings with respect to SOP votes are not simply the result of general shareholder dissatisfaction with the firm. Further, our results are robust to controlling for proxy advisor recommendations on SOP proposals, as well as a battery of additional sensitivity tests.

Our study has the advantage of providing timely evidence before the SEC pay ratio rule takes effect and hence in an environment where firms are less likely to engage in strategic behavior designed to influence the reported ratio. For example, some have suggested that firms will change their compensation practices or operational structure to take advantage of permitted flexibility in the rule to present a pay ratio that is less likely to draw attention. Thus, the pay ratio measure we investigate in this paper is only an approximation of the ratio that banks may ultimately disclose under the pay ratio rule. Nevertheless, our findings provide initial confirmatory evidence that pay ratios disclosed under the new SEC rule have the potential to provide shareholders with a company-specific metric that is relevant and useful to their SOP voting decisions.

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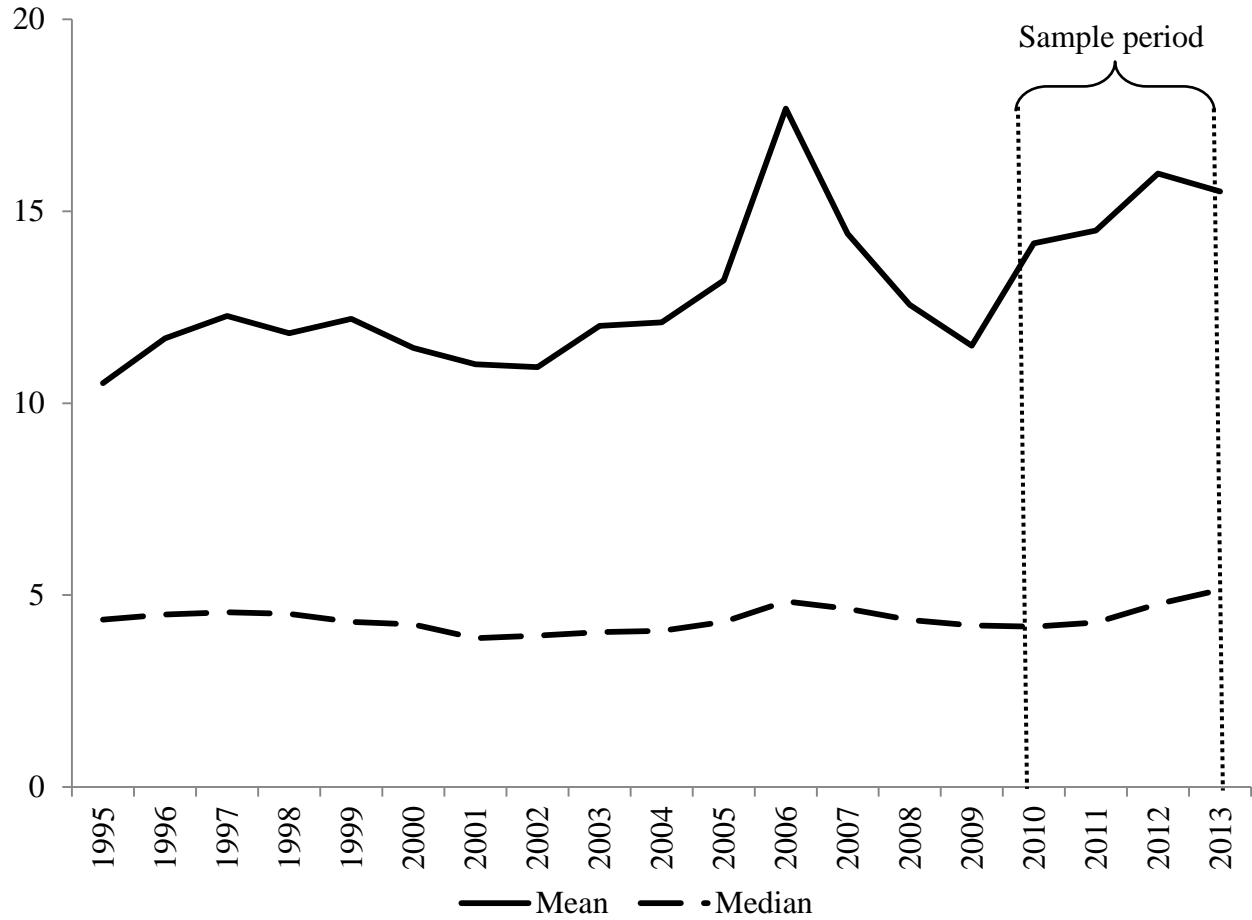
APPENDIX A
Variable definitions

Variable	Definition
<i>AuditorNoVote</i>	number of no votes scaled by the total number of votes on a firm's auditor ratification vote;
<i>AvgEmplComp</i>	total employee compensation less total CEO compensation, scaled by the number of non-CEO employees at fiscal year-end;
<i>Bank</i>	indicator variable equal to one (zero) if the firm is a bank (thrift);
<i>CapitalRatio</i>	total equity capital divided by total assets;
<i>CEOCComp</i>	total CEO compensation (in thousands);
<i>DirectorNoVote</i>	number of no votes scaled by the total number of votes on the election of the director, averaged over all directors up for election in the firm;
<i>ExecPayRatio</i>	total compensation of the top five named executive officers scaled by <i>AvgEmplComp</i> ;
<i>InstOwn%</i>	total number of shares owned by institutions divided by total shares outstanding;
<i>ISSAgainst</i>	indicator variable equal to one if Institutional Shareholder Services (ISS) issues an "Against" recommendation for the related proxy agenda item, and zero otherwise. For the election of directors, this variable is equal to one if any of the directors standing for election received an "Against" recommendation, and zero otherwise.
<i>LLP%</i>	loan loss provisions scaled by interest income;
<i>LogAssets</i>	natural logarithm of total assets;
<i>NonIntInc%</i>	total non-interest income scaled by interest income;
<i>PayRatio</i>	<i>CEOCComp</i> scaled by <i>AvgEmplComp</i> ;
<i>PaySlice</i>	<i>CEOCComp</i> scaled by total compensation of the top five named executive officers;
<i>ROA</i>	net income before taxes plus total compensation and benefits, scaled by average total assets;
<i>Return</i>	market adjusted buy-and-hold return for the bank during the fiscal year;
<i>SOPNoVote</i>	number of no votes scaled by the total number of votes on a firm's say on pay advisory vote on executive compensation;
<i>StdROA</i>	standard deviation of <i>ROA</i> measured over a four-year window;
<i>StdReturn</i>	standard deviation of daily returns estimated over the fiscal year;
<i>Trading</i>	indicator variable equal to one if trading income is non-zero, and zero otherwise;

APPENDIX A (continued)

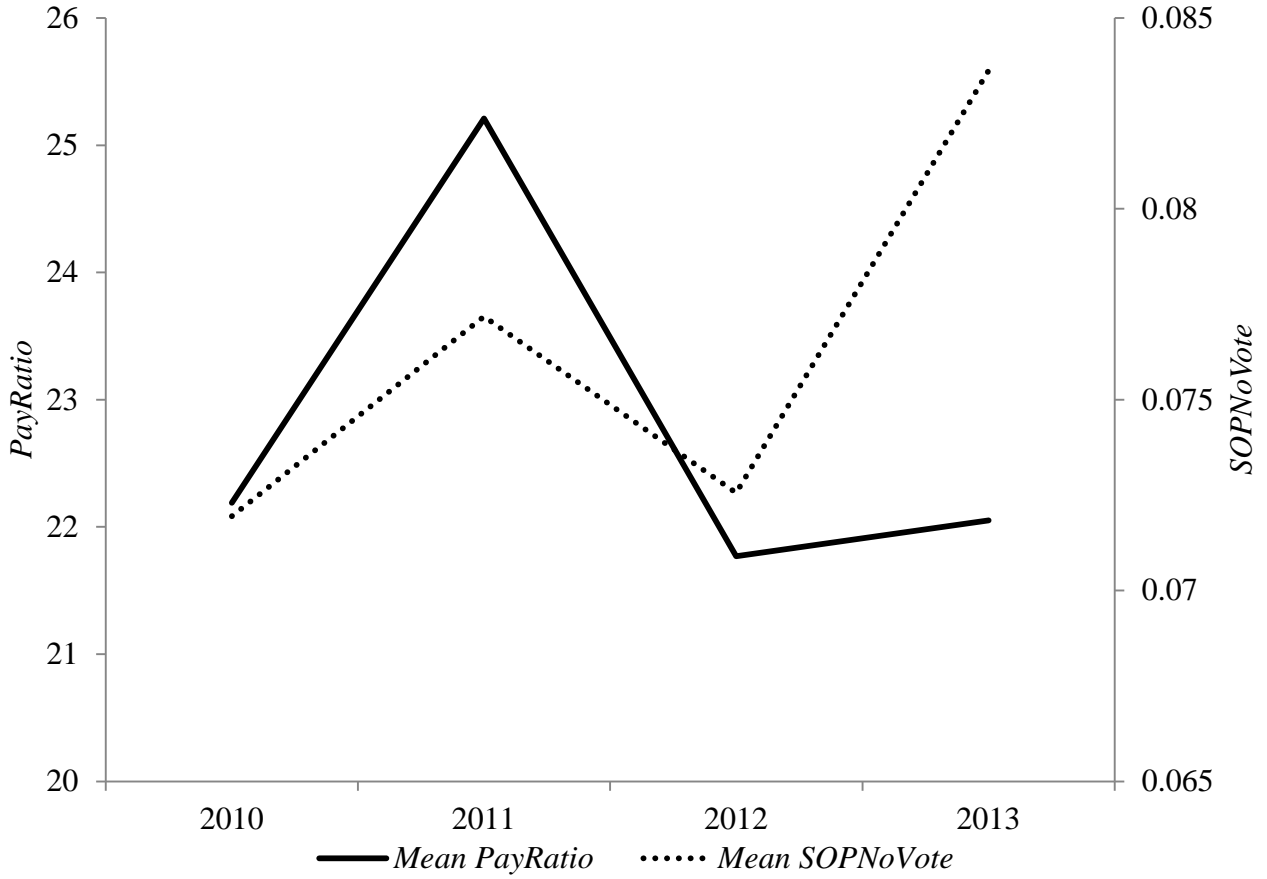
Variable	Definition
Geographic regions are defined as follows:	
<i>Midwest</i>	indicator variable equal to one if the firm's headquarters are in IA, IL, IN, KS, MI, MN, MO, NE, ND, OH, SD, or WI, and zero otherwise;
<i>Northeast</i>	indicator variable equal to one if the firm's headquarters are in CT, MA, ME, NH, NJ, NY, PA, RI, or VT, and zero otherwise;
<i>South</i>	indicator variable equal to one if the firm's headquarters are in AL, AR, DC, DE, FL, GA, KY, LA, MD, MS, NC, OK, SC, TN, TX, VA, or WV, and zero otherwise;
<i>West</i>	indicator variable equal to one if the firm's headquarters are in AK, AZ, CA, CO, HI, ID, MT, NM, NV, OR, UT, WA, or WY, and zero otherwise.

FIGURE 1
Pay Ratio by Year



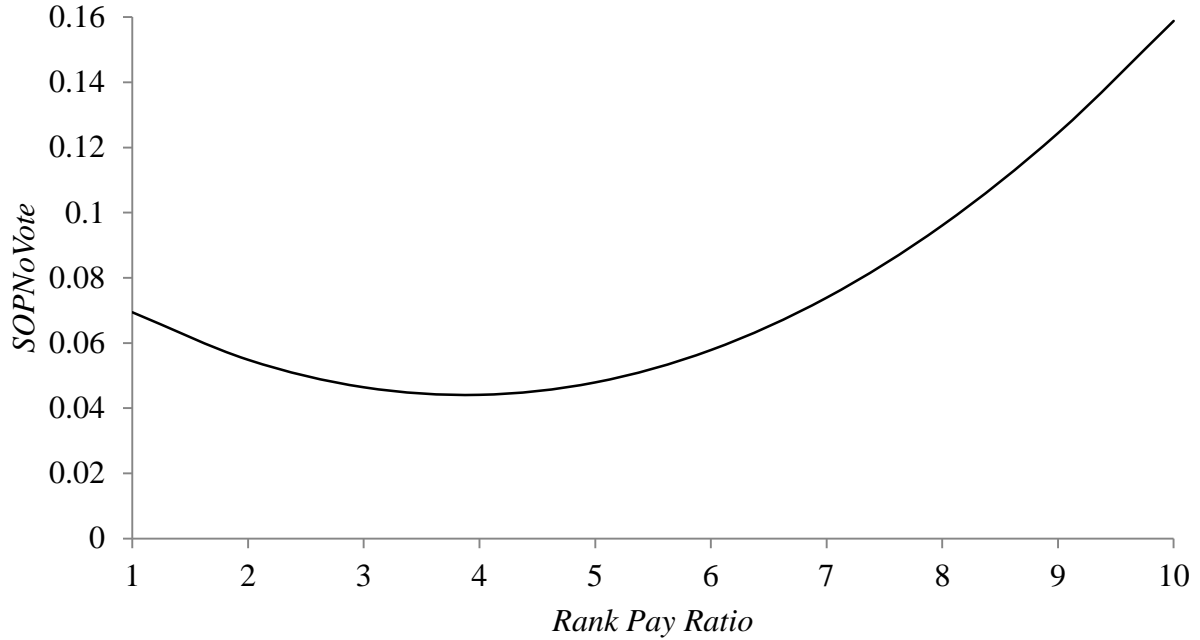
This figure presents the mean and median *PayRatio* for 18,142 firm-year observations with the data necessary to calculate this variable. See Appendix A for variable definitions.

FIGURE 2
Pay Ratios and SOP Voting Dissent



This figure presents the mean *PayRatio* and *SOPNoVote*. There are 1,287 observations with available data for both variables during the sample period, 2010-2013. See Appendix A for variable definitions.

FIGURE 3
Marginal Effect of the Pay Ratio on SOP Voting Dissent



This figure plots the relation between *SOPNoVote* and *RankPayRatio*. Predicted values of *SOPNoVote* are calculated using the coefficient estimates in column (3) of Table 4 for each *RankPayRatio* decile, holding constant the other regression variables at their mean values. See Appendix 1 for variable definitions.

TABLE 1
Descriptive Statistics

Variable	Observations	Mean	Standard Deviation	Q1	Median	Q3
<i>SOPNoVote</i>	1,175	0.08	0.09	0.02	0.04	0.09
<i>CEOComp</i>	1,175	1,878.81	3,131.49	461.02	797.91	1,747.56
<i>AvgEmplComp</i>	1,175	73.08	22.47	58.31	68.64	82.50
<i>PayRatio</i>	1,175	23.36	32.94	6.99	11.57	24.23
<i>PaySlice</i>	1,175	0.37	0.11	0.30	0.36	0.43
<i>ExecPayRatio</i>	1,175	66.78	101.47	20.87	33.44	67.19
<i>ISSAgainst</i>	1,133	0.08	0.27	0.00	0.00	0.00
<i>ROA</i>	1,175	0.02	0.01	0.02	0.03	0.03
<i>Return</i>	1,175	0.04	0.34	-0.13	0.01	0.17
<i>StdReturn</i>	1,175	0.02	0.01	0.02	0.02	0.03
<i>LogAssets</i>	1,175	14.87	1.65	13.77	14.43	15.68
<i>NonIntInc%</i>	1,175	0.29	0.33	0.13	0.23	0.34
<i>CapitalRatio</i>	1,175	0.11	0.03	0.09	0.11	0.12
<i>LLP%</i>	1,175	0.12	0.16	0.04	0.08	0.16
<i>Trading</i>	1,175	0.19	0.39	0.00	0.00	0.00
<i>Bank</i>	1,175	0.81	0.39	1.00	1.00	1.00
<i>InstOwn%</i>	1,175	0.42	0.26	0.20	0.42	0.63
<i>Northeast</i>	1,175	0.30	0.46	0.00	0.00	1.00
<i>Midwest</i>	1,175	0.22	0.42	0.00	0.00	0.00
<i>South</i>	1,175	0.32	0.47	0.00	0.00	1.00
<i>West</i>	1,175	0.15	0.36	0.00	0.00	0.00

See Appendix A for variable definitions.

TABLE 2
Distribution of *PayRatio* and *SOPNoVote* by *PayRatio* Decile

<i>PayRatio</i> Decile	<i>PayRatio</i>								<i>SOPNoVote</i>	
	N	Mean	Standard Deviation	Minimum	Q1	Median	Q3	Maximum	Mean	Median
1	117	3.73	1.06	0.00	3.40	4.01	4.44	4.99	0.07	0.05
2	118	5.73	0.39	5.02	5.40	5.75	6.10	6.32	0.08	0.06
3	117	6.98	0.40	6.32	6.61	6.99	7.29	7.71	0.06	0.04
4	118	8.54	0.42	7.73	8.20	8.50	8.91	9.26	0.07	0.04
5	117	10.23	0.65	9.26	9.68	10.14	10.70	11.56	0.05	0.03
6	118	12.97	0.93	11.57	12.13	12.85	13.74	14.66	0.06	0.03
7	118	16.72	1.37	14.66	15.44	16.66	17.77	19.48	0.07	0.05
8	117	24.35	3.04	19.61	21.65	24.23	27.04	30.39	0.07	0.04
9	118	39.79	6.77	30.46	33.55	38.37	45.26	52.06	0.10	0.05
10	117	104.79	49.28	52.18	64.79	87.14	127.79	255.31	0.14	0.07

See Appendix A for variable definitions.

TABLE 3
Correlation Matrix

<i>Variable</i>	<i>SOPNoVote</i>	<i>RankPayRatio</i>	<i>PaySlice</i>	<i>ExecPayRatio</i>	<i>ISSAgainst</i>	<i>ROA</i>	<i>Return</i>	<i>StdReturn</i>	<i>LogAssets</i>	<i>NonIntInc%</i>	<i>CapitalRatio</i>	<i>LLP%</i>	<i>Trading</i>	<i>Bank</i>	<i>InstOwn%</i>
<i>SOPNoVote</i>		0.09	0.11	0.06	0.64	-0.09	-0.04	-0.02	0.09	0.03	-0.06	0.01	0.03	-0.06	0.13
<i>RankPayRatio</i>	0.16		0.19	0.91	0.20	0.22	0.03	-0.36	0.75	0.29	0.12	-0.09	0.38	0.18	0.67
<i>PaySlice</i>	0.10	0.19		-0.14	0.09	0.02	0.07	-0.07	-0.15	-0.12	0.03	-0.12	-0.06	-0.10	-0.12
<i>ExecPayRatio</i>	0.15	0.91	-0.13		0.19	0.20	0.00	-0.33	0.81	0.32	0.12	-0.03	0.41	0.20	0.71
<i>ISSAgainst</i>	0.40	0.20	0.08	0.19		0.00	-0.03	-0.05	0.10	0.04	-0.03	0.01	0.06	0.01	0.14
<i>ROA</i>	-0.17	0.28	0.01	0.28	0.02		0.29	-0.46	0.12	0.32	0.24	-0.66	0.10	0.14	0.18
<i>Return</i>	-0.02	0.06	0.08	0.02	-0.05	0.23		-0.13	0.00	0.07	0.03	-0.25	-0.01	0.03	0.03
<i>StdReturn</i>	0.01	-0.33	-0.06	-0.31	-0.05	-0.41	-0.09		-0.25	-0.13	-0.38	0.38	-0.13	0.08	-0.35
<i>LogAssets</i>	-0.01	0.80	-0.13	0.86	0.13	0.22	0.02	-0.26		0.42	0.03	0.02	0.48	0.26	0.65
<i>NonIntInc%</i>	-0.01	0.35	-0.08	0.38	0.00	0.46	0.08	-0.15	0.38		-0.06	-0.07	0.31	0.12	0.24
<i>CapitalRatio</i>	-0.09	0.18	0.03	0.18	-0.03	0.19	0.01	-0.33	0.11	-0.02		-0.18	-0.04	-0.29	0.29
<i>LLP%</i>	0.04	-0.06	-0.11	0.00	-0.01	-0.45	-0.20	0.44	0.04	-0.02	-0.16		-0.02	0.05	-0.06
<i>Trading</i>	0.03	0.38	-0.03	0.41	0.06	0.15	-0.02	-0.12	0.44	0.34	0.00	-0.02		0.14	0.30
<i>Bank</i>	-0.09	0.18	-0.12	0.20	0.01	0.23	0.05	0.15	0.29	0.24	-0.26	0.10	0.14		0.10
<i>InstOwn%</i>	0.03	0.67	-0.11	0.72	0.14	0.24	0.06	-0.32	0.73	0.25	0.35	-0.05	0.30	0.10	

Pearson (Spearman) correlations are presented above (below) the diagonal. Correlations significant at the 0.05 level or less are presented in boldface type. See Appendix A for variable definitions.

TABLE 4
Pay Ratios and SOP Voting Dissent

	<i>SOPNoVote</i>					
	(1)	(2)	(3)	(4)	(5)	(6)
<i>RankPayRatio</i>	0.0069*** (3.37)		-0.0237*** (-4.64)	0.0014 (0.88)		-0.0158*** (-3.84)
<i>PayRatio Top Decile</i>		0.0916*** (4.67)			0.0515*** (3.91)	
<i>RankPayRatio</i> ²			0.0031*** (5.38)			0.0017*** (4.25)
<i>ISSAgainst</i>				0.2101*** (12.93)	0.2050*** (13.19)	0.2036*** (13.04)
<i>ROA</i>	-1.0090*** (-2.95)	-0.7770** (-2.42)	-0.8044** (-2.45)	-0.8898*** (-2.77)	-0.8247*** (-2.70)	-0.7855*** (-2.53)
<i>Return</i>	-0.0065 (-0.89)	-0.0049 (-0.66)	0.0008 (0.12)	-0.0006 (-0.07)	0.0003 (0.04)	0.0035 (0.44)
<i>LogAssets</i>	-0.0063 (-1.44)	-0.0123*** (-2.97)	-0.0156*** (-3.08)	-0.0003 (-0.08)	-0.0060* (-1.91)	-0.0057 (-1.61)
<i>NonIntInc%</i>	0.0079 (0.65)	-0.0056 (-0.49)	0.0044 (0.38)	0.0075 (0.65)	0.0012 (0.11)	0.0058 (0.54)
<i>CapitalRatio</i>	-0.3400*** (-3.25)	-0.3674*** (-3.51)	-0.3461*** (-3.42)	-0.1957** (-2.05)	-0.2150** (-2.24)	-0.2062** (-2.18)
<i>LLP%</i>	-0.0256 (-1.00)	-0.0212 (-0.85)	-0.0128 (-0.49)	-0.0320 (-1.30)	-0.0291 (-1.24)	-0.0260 (-1.06)
<i>Trading</i>	-0.0062 (-0.67)	-0.0012 (-0.13)	-0.0088 (-1.01)	-0.0050 (-0.76)	-0.0029 (-0.46)	-0.0067 (-1.05)
<i>Bank</i>	-0.0182** (-2.00)	-0.0122 (-1.31)	-0.0084 (-0.94)	-0.0159** (-2.09)	-0.0127 (-1.63)	-0.0104 (-1.36)
<i>InstOwn%</i>	0.0464** (2.37)	0.0850*** (4.03)	0.0603*** (3.02)	0.0261 (1.55)	0.0400** (2.37)	0.0347** (2.03)
Constant	0.1987*** (3.60)	0.2978*** (5.50)	0.3717*** (5.45)	0.1082*** (2.61)	0.1910*** (4.43)	0.2085*** (4.27)
Observations	1,175	1,175	1,175	1,133	1,133	1,133
Adj. <i>R</i> ²	0.071	0.102	0.116	0.438	0.452	0.452
Inflection point			3.88			4.57

This table presents the results of estimating equation (1). Reported t-statistics are derived from robust standard errors clustered at the firm level. All regressions include untabulated year and geographic region fixed effects. The inflection point is calculated by taking the derivative of each dependent variable with respect to *RankPayRatio* in the regressions that include both *RankPayRatio* and *RankPayRatio*². See Appendix A for variable definitions. *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

TABLE 5
Decomposition of the Pay Ratio and SOP Voting Dissent

	<i>SOPNoVote</i>		
	(1)	(2)	(3)
<i>RankExecPayRatio</i>		-0.0207*** (-3.92)	-0.0166*** (-3.75)
<i>RankExecPayRatio</i> ²		0.0029*** (4.99)	0.0018*** (4.26)
<i>PaySlice</i>	0.0992*** (2.74)	0.0538* (1.69)	0.0173 (0.62)
<i>ISSAgainst</i>			0.2040*** (13.24)
<i>ROA</i>	-0.8196** (-2.41)	-0.9369*** (-2.78)	-0.8118** (-2.58)
<i>Return</i>	-0.0087 (-1.12)	-0.0010 (-0.13)	0.0022 (0.26)
<i>LogAssets</i>	0.0009 (0.24)	-0.0170*** (-3.21)	-0.0066* (-1.75)
<i>NonIntInc%</i>	0.0068 (0.58)	0.0064 (0.54)	0.0062 (0.55)
<i>CapitalRatio</i>	-0.3454*** (-3.30)	-0.3291*** (-3.34)	-0.1989** (-2.16)
<i>LLP%</i>	-0.0198 (-0.74)	-0.0188 (-0.72)	-0.0259 (-1.05)
<i>Trading</i>	-0.0053 (-0.58)	-0.0098 (-1.11)	-0.0070 (-1.08)
<i>Bank</i>	-0.0162* (-1.73)	-0.0055 (-0.62)	-0.0082 (-1.11)
<i>InstOwn%</i>	0.0721*** (3.48)	0.0563*** (2.99)	0.0357** (2.20)
Constant	0.0783 (1.49)	0.3622*** (5.07)	0.2134*** (3.83)
Observations	1,175	1,175	1,133
Adj. <i>R</i> ²	0.069	0.117	0.454

This table presents the results of estimating equation (1), decomposing *PayRatio* into its constituent components *PaySlice* and *RankExecPayRatio* as shown in equation (2a). Reported t-statistics are derived from robust standard errors clustered at the firm level. All regressions include untabulated year and geographic region fixed effects. See Appendix A for variable definitions. *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

TABLE 6
Pay Ratios and Voting Dissent on Other Proxy Agenda Items

Panel A: Auditor Ratification

	<i>AuditorNoVote</i>		
	(1)	(2)	(3)
<i>RankPayRatio</i>	-0.0004 (-1.10)		0.0029 (1.59)
<i>PayRatio Top Decile</i>		-0.0045 (-1.61)	
<i>RankPayRatio</i> ²			-0.0003* (-1.65)
<i>ISSAgainst</i>	0.1695*** (61.46)	0.1689*** (62.79)	0.1680*** (69.08)
Controls	Yes	Yes	Yes
Observations	700	700	700
Adj. <i>R</i> ²	0.113	0.114	0.117

Panel B: Election of Directors

	<i>DirectorNoVote</i>		
	(1)	(2)	(3)
<i>RankPayRatio</i>	0.0001 (0.05)		-0.0015 (-0.38)
<i>PayRatio Top Decile</i>		-0.0016 (-0.29)	
<i>RankPayRatio</i> ²			0.0001 (0.43)
<i>ISSAgainst</i>	0.0545*** (6.39)	0.0545*** (6.39)	0.0545*** (6.39)
Controls	Yes	Yes	Yes
Observations	742	742	742
Adj. <i>R</i> ²	0.202	0.202	0.202

This table presents the results of estimating equation (1) substituting auditor voting dissent (*AuditorNoVote*) or director voting dissent (*DirectorNoVote*) as the dependent variable and the respective proxy advisor recommendation for *ISSAgainst*. Reported t-statistics are derived from robust standard errors clustered at the firm level. All regressions include year and geographic region fixed effects See Appendix A for variable definitions. *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

TABLE 7
Pay Ratios and Future Firm Performance and Risk

	ROA_{t+1}	$StdReturn_{t+1}$
<i>RankPayRatio</i>	0.0016*** (3.95)	-0.0034*** (-3.74)
<i>RankPayRatio</i> ²	-0.0001** (-2.44)	0.0002*** (3.01)
<i>LogAssets</i>	-0.0004 (-1.23)	-0.0019*** (-5.25)
<i>NonIntInc%</i>	0.0132*** (4.78)	0.0004 (0.52)
<i>CapitalRatio</i>	0.0541*** (3.88)	-0.0989*** (-5.40)
<i>LLP%</i>	-0.0208*** (-11.87)	0.0259*** (8.59)
<i>Trading</i>	-0.0003 (-0.28)	0.0008 (1.21)
<i>Bank</i>	0.0038*** (4.52)	0.0003 (0.21)
Constant	0.0142*** (3.36)	0.0680*** (10.65)
Observations	2,619	1,794
Adj. R^2	0.334	0.369

This table presents the results of regressions that examine the relation between *RankPayRatio* and future firm performance, measured using *ROA* at time $t+1$, and future firm risk, measured using *StdReturn* at time $t+1$. All regressions include untabulated year and geographic region fixed effects. Reported t-statistics are derived from robust standard errors clustered at the firm level. See Appendix A for variable definitions. *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.