Say on Pay Laws, Executive Compensation, Pay Slice, and Firm Valuation around the World

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Abstract

Using a sample of about 90,000 observations from 38 countries over the 2001-2012 period, we find evidence that following say on pay (SoP) laws, CEO pay growth rates decline and the sensitivity of CEO pay to firm performance improves. Further, the portion of total top management pay captured by CEOs is lower in the post-SoP period, which is associated with higher firm valuations. Overall, our results suggest that SoP laws are associated with significant changes in CEO pay policies.

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In order to facilitate a closer alignment of shareholders' interests with those of corporate directors and managers, eleven developed countries passed laws to give shareholders direct influence on executive compensation policies (i.e., say on pay –SoP– laws), and several countries are either contemplating or in the process of adopting such laws (e.g., member countries of the European Union). While the adoption of SoP laws is becoming widespread across the globe, several important issues about them remain unanswered. First, it is highly debated how effective such laws are in aligning executive pay practices with shareholders' interests. Although one of the main stated purposes of these laws is to curb the seemingly high levels of CEO pay, existing studies find that SoP laws do not rein in CEO pay (e.g., Ferri and Maber (2013)), leading to the conclusion that these laws are ineffective or redundant. However, difficulties in determining an accurate counterfactual within the country of analysis could render any generalizations inappropriate in such single-country studies. Second, the analysis of SoP laws is limited to changes in CEO pay and pay for performance sensitivity, firm value, and voting outcomes. However, there can be unintended effects of such laws on executive pay policies and consequently on firm value.

First, we re-examine the effects of SoP laws on CEO pay policies using a large holdout sample of firms from countries without SoP laws and with similar pre-law characteristics to control for any confounding effects of contemporaneous firm and country shocks. We find strong evidence that following SoP laws, the growth of CEO pay declines at firms, which is manifested as lower CEO compensation levels compared to the control group of firms in our regression analysis. While the average predicted CEO pay increases by 5.52% for countries that pass SoP laws during the sample period, it increases by 8.03% for the control group. Thus, in contrast to existing single-country studies of SoP laws, we are able to find an adverse effect of SoP laws on CEO pay growth patterns once a large

counterfactual sample is constructed.

Second, we analyze the effects of SoP laws on the share of total managerial pay captured by the CEO and its impact on firm value as unintended consequences of these laws. We find that the CEO's portion of total top management pay is lower for firms subject to SoP laws, suggesting that managerial pay inequality decreases within the firm's management team following the adoption of SoP laws. We also test how this quasi-exogenous change in managerial pay gap affects firm value. Managerial pay gap can be an outcome of tournament incentives provided by the board of directors to non-CEO executives to induce greater effort (Lazear and Rosen (1981)), or by the dominant position of the CEO within the firm to extract higher pay (e.g., Bebchuk, Cremers, and Peyer (2011)). Our results show that the overall firm value is higher following SoP laws, which is partly explained by declines in the managerial pay gap around the adoption of SoP laws, consistent with the management entrenchment argument in Bebchuck et al. (2011).

We also exploit the cross-country nature of our sample to examine the differential effects of binding and advisory SoP laws on CEO pay policies and firm value. The most important difference in SoP laws across countries is whether the board of directors has to address shareholder disapproval of executive pay (i.e., binding) or not (i.e., advisory). Our results show that the growth of CEO pay declines following both binding and advisory SoP laws but the average effect is significantly greater for binding laws. Further, pay growth rates decline in poorly performing firms and managerial pay inequality becomes lower only for advisory laws.

We conduct several robustness tests to ensure the consistency of our results. The adoption of SoP laws may be related to variables that determine executive pay policies. Thus, even when SoP laws have no influence on CEO compensation and firm valuation, we may erroneously attribute differential

changes in CEO pay policies and firm valuation between firms subject to SoP laws and the control group of firms to the passage of SoP laws. To alleviate this concern, we instrument the passage of SoP laws by distributing the likelihood of SoP law adoption quasi-randomly across countries with similar political environments. Studies on the determinants of regulatory changes find that the partisan composition of the ruling government is associated with the likelihood of reforms (e.g., Kroszner and Strahan (1999)). In addition, we undertake a nearest neighbor matching strategy where we match the firms subject to SoP laws with other firms in terms of industry-adjusted firm performance, CEO compensation levels, firm size, and legal origin as of the year prior to the adoption of SoP laws. Such an alternative control sample mitigates the concern that our results are driven by time-varying differences in the pre-law period between the firms subject to and not subject to SoP laws. Results are robust to these tests as well as to various additional checks.

Our paper contributes in several important ways to the evidence on the effects of SoP laws, and in general to the literature on executive compensation and regulatory changes. We provide the first empirical evidence on the managerial pay inequality and related firm valuation effects of SoP laws. This analysis also contributes to the strand of literature on managerial pay gap as we exploit the staggered adoption of SoP laws as a quasi-exogenous shock to identify the effects of managerial pay gap on firm valuation. Our findings imply that CEO pay gap partially reflects management entrenchment, consistent with the findings of Bebchuk et al. (2011).

Further, we expand the literature on the effects of SoP laws to a cross-country setting, which also allows us to exploit differences across countries in the characteristics of SoP laws. The evidence on the impact of SoP laws on CEO pay and firm value, which is limited to individual countries, is thus far inconclusive. Our dataset allows tests for the effects of SoP laws on executive pay and firm value using plausible counterfactuals formed from countries that have not implemented SoP laws as well as the

SoP firms in the pre-law period.[2] We document that relative to the control sample of firms with similar characteristics but not subject to such laws, the increase in CEO pay growth rates slow down following SoP laws. In addition, while there is a big debate on the binding versus advisory features of SoP laws, there is no evidence on the differential effects of these laws on CEO pay policies and firm valuation, if any (e.g., Larcker, McCall, Ormazabal, and Tayan (2012)).[3] Our results show that only advisory SoP votes as in the United States are associated with an improved relation between pay and realized firm performance, and affect the managerial pay inequality in a way that is associated with greater firm value.

Our paper also adds to the rich literature on the relation between shareholder influence and executive compensation, as SoP laws are shareholder empowerment mechanisms. Consistent with the evidence that executive pay is related to the governance environment of firms (e.g., Shivdasani and Yermack (1999), Core, Holthausen, and Larcker (1999), and Bebchuk (2003)), we find that SoP laws reduce CEO pay growth rates, tighten the link between executive pay and realized firm performance, and reduce managerial pay gap. Unlike studies on the effectiveness of firm-level measures of shareholder influence such as shareholder proposals and the associated voting outcomes on governance provisions (e.g., Cai, Garner, and Walkling (2009), Ertimur, Ferri, and Muslu (2011)), we use a country-level change in the ability of shareholders to directly influence managerial compensation

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[2] In this aspect, the most closely related study to our paper is by Iliev and Vitanova (2013) who employ a regression discontinuity design to examine changes in CEO pay in U.S. firms around the enactment of SoP laws in the United States. They make use of small firms with a public float below $75 million that were exempted from SoP laws for 2 years in their analysis. While such an identification strategy can also reduce endogeneity concerns, it has several drawbacks such as the fact that the stock market reaction and executive pay policies for exempted firms are likely to be influenced by the anticipation of investors and directors that the exemption would expire in 2 years.

[3] The debate surrounding the choice between binding and advisory SoP laws gained particularly greater momentum when the United Kingdom recently announced its plans to convert from its SoP laws from advisory to binding. Further, the advisory feature of SoP laws has drawn criticism from several activist shareholders in the United States in the form of lawsuits.

policies. This approach mitigates some of the concerns about the impact of selection biases on empirical findings. Finally, our paper contributes to the nascent group of cross-country studies on executive compensation (e.g., Fernandes et al. (2013), Burns, Minnick, and Starks (2013)).

The rest of the paper is organized as follows. Section 1 provides background information on SoP laws and the related literature. Section 2 presents sample construction and descriptive statistics. Section 3 outlines the main empirical specification and presents results on the effects of SoP laws on CEO compensation policies. Section 4 analyzes changes in managerial pay inequality in relation to SoP laws and Section 5 focuses on firm valuation effects of SoP laws. Section 6 provides robustness checks including instrumental variable and nearest neighbor matching methods and Section 7 examines the differential effects of binding and advisory SoP laws. Section 8 concludes.

1. Background on Say on Pay Laws

Say on pay laws provide shareholders with the ability to vote on their firms' compensation policies on a periodical basis.[4] Eleven countries around the world adopted SoP laws with the United Kingdom being the first country to enact them in 2003.[5] In addition, Switzerland is in the process of adopting binding SoP laws and several other countries are considering whether to adopt SoP laws (e.g., France).[6] Under the binding SoP laws, shareholders' decisions on executive pay policies become

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[4] Thomas and Van der Elst (2014) provide a detailed discussion of SoP laws around the world. As in Thomas and Van der Elst (2014), we define SoP laws as laws that mandate firms to hold shareholder vote on executive pay policies on a periodical basis, and are either binding or advisory for the board of directors in setting such pay policies.

[5] Its initial version was advisory but since October 2013, the Enterprise and Regulatory Reform Act requires forward-looking compensation policies of firms to be subject to a binding vote every 3 years or when the policy changes.

[6] In March 2013, Switzerland voted in favor of the Minder Initiative. The Swiss Federal Council has the task of implementing the constitutional amendments by way of an implementing ordinance within one year. Recently, the Swiss Federal Council announced that the implementing ordinance will come into force 1 January 2014. The new say on pay rules will be integrated into the corporate governance rules of the pending Swiss corporation law. The French government has

binding while under advisory SoP laws, firms do not have to revise their executive pay policies in response to shareholder votes. Of the 11 countries with SoP laws, 6 have advisory SoP laws. The main stated purposes of these laws are to limit the seemingly excessive levels of CEO pay, tighten the link between firm performance and CEO pay, and improve disclosure on executive compensation.

Why do countries adopt such laws on executive pay? Giving shareholders a say on compensation can empower and incentivize boards of directors in their negotiations with CEOs, potentially increasing accountability, linking firm performance to pay more strongly, and reducing pay levels (e.g., Coates (2009), Bebchuk, Friedman, and Friedman (2007), Davis (2007), Bebchuk and Fried (2003, 2005)). Thus, such laws facilitate a closer alignment of shareholders' interests with those of directors and managers (i.e., a complementary governance mechanism), which is a central tenet of corporate governance (e.g., see Yermack (2010)). For example, a Spencer Stuart governance survey in 2013 suggests that the most common topics between firms and their large institutional investors in the United States are say on pay (31%) and CEO compensation (19%). The evidence that CEOs have significant influence over board composition and that the monitoring of the management matters for CEO compensation is consistent with potential benefits of SoP laws (e.g., Shivdasani and Yermack (1999), Bebchuk (2003), Cai et al. (2009), Coles, Daniel, and Naveen (2007), Core et al. (1999)).

However, SoP laws may lead to suboptimal pay practices (e.g., Bainbridge (2008), Kaplan (2007)).[7] They can result in the homogenization of CEO pay packages, forcing boards of directors to adopt one-size-for-all policies that are perceived as best practices by proxy advisors (e.g., Gordon (2009)).

considered introducing legislation on executive pay. For the French initiatives on SoP regulation, see "French companies adopt 'say on pay' to avert legislation," *Financial Times,* June 16, 2013.

[7] Kaplan (2007) and Gordon (2009) argue that additional shareholder involvement through SoP votes can hinder the effectiveness of the board of directors as some shareholders are not sophisticated enough to evaluate executive compensation policies.

Further, corporate boards are likely to have better information on the qualities of the CEO and on the firm's needs and operating environment. Such adverse effects of SoP laws are more likely to occur for binding SoP laws where the board of directors has to address shareholder disapproval of executive pay rather than advisory ones that do not impose such legal restrictions. Overall, SoP laws can cause deviation from the optimal executive compensation policies due to shareholder pressure and accordingly reduce firm value.

To date, some limited evidence, mostly focused on the United States and the United Kingdom, shows that shareholders rarely disagree with executive compensation plans presented at annual meetings of firms. For example, Kimbro and Xu (2013) find that in 2012 only 2.7% of the 2,307 firms included in the Russell 3000 index had a majority rejection vote on SoP and 12.1% of firms had a rejection vote greater than 25%. While these low rejection rates might imply that SoP votes are irrelevant to investors, they can be explained by the improved communication between the board of directors and shareholders as a result of SoP laws (e.g., Alissa (2009), Ferri and Maber (2013)). According to the Spencer Stuart governance report in 2013, 58% of S&P 500 firms proactively reached out to large institutional investors with the most common topics being say on pay (31%) and CEO compensation (19%).[8] Further, some of the effects of SoP laws may come from the strong tendency of corporate boards to avoid negative voting outcomes to minimize damages to their personal reputations and firms' public image, and to reduce lawsuit exposure. These arguments highlight that low rejection rates on SoP votes do not necessarily indicate inattention of shareholders to SoP votes.

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[8] See http://www.spencerstuart.com/~/media/PDF_Files/Research_and_Insight_PDFs/SSBI-2013_01Nov2013.pdf (page 32).

How effective are SoP laws in aligning executive pay practices with shareholders' interests? The empirical evidence so far suggests that SoP laws do not have any impact on the level or growth of CEO pay (e.g., Ferri and Maber (2013) and Iliev and Vintanova (2013)), and mixed effects on firm valuation (Cai and Walkling (2011), Larcker, Ormazabal, and Taylor (2011), and Ferri and Maber (2013)).[9] In this paper, we add to the debate on SoP laws by analyzing their effects on the share of total managerial pay captured by the CEO and their consequence on firm valuation. We also re-examine the findings of previous single-country studies in an international context by using a holdout sample of firms not subject to SoP laws and with similar pre-law characteristics to control for any confounding effects of contemporaneous firm and country shocks. Further, we examine the differential effects of binding and advisory SoP laws on CEO pay policies and firm valuation.

2. Sample Construction and Variable Definitions

We use the Standard&Poor's Capital IQ (CIQ) database to obtain information on executive compensation around the world.[10] This database includes detailed historical information on compensation for senior managers and directors for 119 countries. It reports information on total pay as well as a breakdown of its components such as salary, bonus, and equity pay, which is further broken down between restricted stock awards, stock grants, and long term incentive plans at the individual executive level. We use the end-of-year exchange rates and GDP deflators from World Bank to convert foreign compensation data into 2005 $US. CIQ also provides information on the

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[9] See Ferri (2013) for a review of evidence on SoP laws' effects.

[10] There are two main sources of managerial compensation data for cross-country studies: CIQ and BoardEx. Several studies such as Fernandes et al. (2013) and Ferri and Maber (2013) focus on BoardEx, and others like Balsam, Gordon, Li, and Runesson (2013) and Burns et al. (2013) use CIQ. Our comparison of the two datasets results in favor of CIQ in terms of coverage outside the United States and the United Kingdom.

career tracks of managers, from which firm governance characteristics such as board size and independence, and manager characteristics such as the title, committee membership, and the number of directorships are identified.

There are about 1.5 million unique observations with non-missing total compensation data for managers and directors between 2001 and 2012 in the CIQ dataset. Since we are interested in the effects of SoP laws on CEO compensation and firm value, we only keep around 205,000 observations with non-missing compensation data where the top executive of the firm is identifiable.[11] We then merge this dataset with Worldscope using CIQ and Thomson Reuters mapping databases that provide links among commonly used firm identifiers. Worldscope is the main source for firm-specific financial characteristics in our tests, and this matching strategy results in around 155,000 observations. However, missing information on variables such as net sales, stock returns, and governance characteristics, and excluding firms with assets less than $1 million and countries with fewer than 35 observations leads to a regression sample of around 90,000 firm-year observations. Panel A of Table 1 displays the distribution of our regression sample by country and the SoP law status. There are 17,609 firms from 38 countries in the final sample.

We construct several variables from CIQ in our analysis. The first one is total CEO pay, defined as total annual compensation of the CEO, which includes salaries, bonuses, restricted stock and option awards, long-term incentive plans, changes in pension plans, and all other compensation measured in US dollars. We also compute two measures of how much of total management pay among the five highest-paid executives is captured by the CEO. The first variable is CEO pay slice (CPS) defined as

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[11] If there is no manager with a title of chief executive officer or CEO, we look for managers with titles such as president, managing director, and general manager in the database. For joint CEOs, we take the average of the respective variables across both managers.

the percent of total annual compensation of the five highest-paid managers claimed by the CEO as in

Bebchuk et al. (2011). A similar measure is pay gap, defined as the difference between total CEO pay

and the median value of annual compensation of the five highest-paid managers (e.g., Kale, Reis, and

Venkateswaran (2009), Burns et al. (2013)). In calculating these variables, we impose the restriction in

our dataset that we have total pay figures for at least two executives excluding the CEO. Alternative

measures of managerial pay inequality including the entire management teams and the board of

directors produce similar results.

Panel B of Table 1 provides summary statistics for our CEO compensation and control variables

used in the regression analysis. The average total CEO pay is $1.09 million, which is lower than the $2

million average reported in Burns et al. (2013) and $4.2 million Fernandes et al. (2013). The lower

average CEO pay in our sample is mostly due to the larger sample size and a higher proportion of

smaller firms than in other studies.[12] The average CEO pay is $1.28 million in countries that pass SoP

laws and $0.69 million in other countries. CEOs of U.S. firms are paid significantly higher than CEOs

in other countries ($1.86 million versus $0.74 million, respectively). Excluding U.S. firms from the SoP

country subsample reduces the average CEO pay to $0.81 million. The average CPS is 47.6%, which is

larger than the average CPS of 35.7% in Bebchuk et al. (2011) for U.S. firms, and the average CEO pay

gap is $0.735 million, which is lower than the weighted average of $0.859 million in Burns et al. (2013).

3. Say on Pay Laws and CEO Compensation

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[12] For example, the average sales in our sample are $1,250 million compared to $2,662 million in the overall sample of Burns et al. (2013). If we restrict the sample to firms with average sales similar to that of Burns et al. (2013), the average CEO pay in our sample goes up to $1.87 million. Similarly, if we restrict the sample to firms with average sales similar to that of Fernandes et al. (2013), the average CEO pay in our sample goes up to $3.3 million.

In this section we analyze the effects of SoP laws on top executive pay policies. In settings where the CEO is powerful enough to extract rents in the form of compensation and directors are ineffective, SoP laws can empower the board of directors to negotiate better terms with the CEO through the use of explicit shareholder support as leverage (e.g., Bebchuk et al. (2007), Coates (2009)). Further, SoP votes can improve communication between the board of directors and shareholders, and better incentivize directors to act on shareholders' interests due to the increased threat to their (and their firms') reputation from SoP vote failures (e.g., Grundfest (1993), Davis (2007), Alissa (2009), and Ferri and Maber (2013)).

3.1. Empirical Approach

In order to examine the impact of SoP laws on CEO compensation policies, we estimate the following panel data regression with firm fixed effects between 2001 and 2012 for 38 countries:

$Log\ (Total\ CEO\ pay)_{it} = a + \beta * SoP_{it} + \gamma * Firm\ performance_{it-1} + \lambda * SoP_{it} * Firm\ performance_{it-1}$

$+ \partial * SoPcountry_i * Firm\ performance_{it-1} + \delta * firm\ controls_{it-1} + \eta * country\ and\ industry\ controls_{it-1} + \theta * CEO\ controls_{it-1}$

$+ \mu * year\ controls_{it} + \varepsilon_{it}$ \hfill (1)

where the dependent variable is the natural logarithm of total CEO pay for firm i in year t, *SoP* is a dummy variable that equals one for the time period following the staggered passage of SoP laws, if any, and zero otherwise. SoPcountry denotes countries that pass SoP laws during the sample period, and is included to control for pre-law differences in firm performance. *Firm performance* is the industry-adjusted realized stock returns in year *t-1*, *firm characteristics* measure firms' other financial and governance conditions in year *t-1*, *country* and *industry characteristics* are factors related to the macro economic conditions of the country and the sectoral growth opportunities worldwide measured as of *t-1*. We use the industry-adjusted stock returns as our main measure of firm performance but we also

report results using alternative performance measures for robustness. All continuous variables are winsorized at the 1% level. The firm fixed effects specification allows us to fully exploit the panel nature of our dataset and to control for unobserved heterogeneity not captured by the time-varying firm characteristics in the empirical specification.

The coefficient estimates on β and λ are the difference-in-difference estimators of the impact of SoP laws on the level of pay and the sensitivity of pay to realized firm performance, respectively. The staggered adoption of SoP laws allows us to use firms from SoP countries in the pre-law period as well as firms from non-SoP countries as the control sample. While the firm characteristics may be different between our treatment and control samples, we later use the nearest neighbor matching method to have firms with similar characteristics and also instrument the SoP law enactment with the political environment for robustness in Section 7 and find similar results. We compute robust standard errors by clustering at the firm level.

In examining the relation between SoP laws and CEO compensation, we control for other variables that are documented by prior literature to influence CEO compensation. The firm-specific financial variables are leverage and stock return volatility that are used to proxy for firm risk. We include percentage of shares owned by corporate insiders and institutional investors in eq. (1) to control for the firm's ownership structure (e.g., Boone, Field, Karpoff, and Charu (2004) and Hartzell and Starks (2003)). We also include board independence to proxy for the board of directors' ability to monitor managers (e.g., Core et al. (1999)). Finally, we control for whether the CEO serves as the chairman of the board (dual CEO dummy) and the number of directorships a CEO holds as a proxy for the entrenchment and ability of the CEO, respectively (e.g., Ferris, Jagannathan, and Pritchard (2003)). GDP growth and the median global industry market-to-book ratio are used to control for the macro-economic conditions of the country and sectoral growth opportunities worldwide.

3.2. Results

Results from estimating the regression specification in eq. (1) are reported in Table 2. The first column shows that the SoP dummy has a negative coefficient that is statistically significant at the one percent level (-0.043, t = -3.21), suggesting that SoP laws are associated with lower CEO compensation compared to the control group of firms not subject to SoP laws. This result differs from the prior country-specific studies that find no change in the level of CEO pay around the adoption of SoP laws (e.g., see Ferri and Maber (2013) for the United Kingdom and Iliev and Vitanova (2013) for the United States). The main difference between our paper and these studies is that we control for any confounding effects of contemporaneous unobserved firm shocks using a large holdout sample of countries that did not implement SoP laws. The coefficient estimate of -0.043 reflects a relative decrease of 4.2% in CEO pay, which translates into $45,919 decline in average CEO compensation. We also analyze the effects of SoP laws for firms with high versus low CEO pay to better understand the SoP laws' differential effects on pay. We find that SoP laws reduce CEO pay not for the average firm but for those with relatively high CEO pay in the pre-law period (untabulated).[13]

The coefficient on the interaction term between SoP and realized firm performance is positive and statistically significant (0.049, t = 5.95), suggesting that the link between CEO pay and realized performance tightens following the enactment of SoP laws.[14] The positive and significant coefficient on the interaction term also suggests that CEO compensation in firms with poor performance is more

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[13] When the SoP observations only include firms in the top quartile of CEO pay in the pre-law period, the coefficient on SoP dummy becomes -0.352 (t = -15.27), which corresponds to a 29.5% decrease in pay. When the SoP observations only include firms in the bottom quartile of CEO pay in the pre-law period, the coefficient is 0.310 (t = 11.82). These results are consistent with the view that SoP laws are more important in restraining pay levels in firms with relatively high CEO pay.

[14] While it would also be interesting to analyze if the pay for performance changes around the staggered passage of SoP laws, the unavailability of data on CEO equity ownership prevents us from calculating the pay for performance sensitivities in our analysis.

severely affected by the passage of SoP laws. For example, for firms in the bottom quartile of industry-adjusted stock returns, total CEO compensation decreases by 7.87% after the passage of SoP laws versus a decrease of 1.52% for firms not subject to SoP laws. On the other hand, SoP laws do not have meaningful overall effects on CEO pay for firms with strong performance. For firms in the top quartile of industry-adjusted stock returns, total CEO compensation increases by 2.14% after the passage of SoP laws compared to 2.26% for firms not subject to SoP laws. This finding is consistent with Ferri and Maber (2013) who document a stronger link between CEO pay and firm performance following the passage of SoP laws in the United Kingdom. In the next column we use industry-adjusted ROA as an alternative measure of realized firm performance, and continue to find that SoP laws influence CEO compensation in a similar way. In addition, we consider regressions where we include both the current and one-year lagged values of firm performance and their interaction terms with the SoP dummy to control for the pre-law environment, and find positive and statistically significant coefficients on all four variables (reported in Table 2 in the Appendix).

When we run separate regressions for the countries that pass SoP laws, we still find a greater sensitivity of CEO pay to firm performance in the post-law period. However, we cannot detect any change in the level of CEO pay associated with SoP laws. When we estimate eq. (1) separately for each country, the pay levels increase in some countries. This finding shows that it is crucial to fully control for variation in pay and firm characteristics across countries with and without SoP laws when analyzing the effectiveness of SoP laws on compensation policies. Further, it implies that even though CEO compensation has increased in several SoP countries including the United States and the United Kingdom, the growth in CEO pay is higher in countries that have not passed SoP laws. This effect of SoP laws is shown in figure 1, where we plot the estimated growth in CEO pay in our sample separately for countries with and without SoP laws for every year after we control for firm, industry,

and country characteristics.[15] In particular, the growth in CEO pay is much higher for the control group of firms not subject to SoP laws. The average predicted CEO pay increases by 5.52% for countries that pass SoP laws during the sample period whereas the increase is 8.03% for the control sample during the same time period. Thus, SoP laws appear to be followed by lower compensation growth, which in turn drives the negative and statistically significant coefficient on SoP in Table 2.

Most of our control variables have coefficient estimates consistent with prior research. For example, Table 2 displays positive and statistically significant coefficients on firm performance and firm size consistent with prior research that larger and more profitable firms pay their CEOs more.[16] Overall, Table 2 provides strong empirical evidence that SoP laws are associated with lower CEO pay growth and a greater link between CEO pay and firm performance. These findings are echoed in SEC Commissioner Luis Aguilar's June 2013 speech that firms are addressing issues like eliminating company subsidies for certain tax liabilities of executives and excessive severance packages, and improving performance-based compensation plans. Our findings are in line with the stated objective of SoP laws under the presumption that some CEOs were paid abnormally and that their pay were relatively disconnected from realized firm performance prior to the enactment of these laws. We examine the firm valuation implications of SoP laws to test this presumption in Section 5.

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[15] It presents the estimated average natural logarithm of CEO pay over time for SoP and non-SoP observations for a hypothetical firm with $1 billion in sales and average values of other variables based on the regression specification in column (1) of Table 2.

[16] Stock return volatility is negatively related to CEO pay as in Fernandes et al. (2013), who argue that such negative correlation can result from the noise induced by CEO's effect on firm performance and thus lower expected pay. A higher percentage of institutional ownership is related to higher CEO pay levels (e.g., Hartzell and Starks (2003)). A greater independent director percentage is positively related to CEO pay, consistent with Core et al. (1999)). CEO pay is lower for top executives who also serve as the chairman of the board but larger for those with a greater number of directorships. The latter finding is consistent with the notion that multiple directorships are indications of superior managerial talent (e.g., Ferris et al. (2003)). GDP growth and industry opportunities are positively related to CEO compensation.

4. SoP Laws and CEO Pay Inequality

Do the effects of SoP laws extend beyond CEO pay levels? This section tests a specific effect of SoP laws, the pay inequality among top managers. In particular, we examine if SoP laws influence the portion of total top management pay captured by the CEO. The descriptive statistics in Panel B of Table 1 show that there is a large pay differential between the pay granted to the CEO and other 4 senior executives with the highest pay. The average CEO captures 48% of total pay of the five executives with the highest pay within a firm. Several studies show that the CPS has been going up in the United States (Bebchuk and Grinstein (2005)), and we also observe a similar trend for most countries in our sample.

The literature suggests that the pay gap amongst the CEO and other senior managers can be due to tournament incentives or CEO power. In the former group of studies, the pay gap is set by the board of directors to provide incentives to non-CEO executives to induce greater effort (e.g., Lazear and Rosen (1981)). In addition, such pay gaps can reflect relative value creation of the CEO and other managers, or the premium for talent (Kaplan and Rauh (2013)). In the latter group, the dominant position of the CEO allows him to extract higher pay at the cost of shareholder wealth (e.g., Bebchuk et al. (2011)). Such pay inequality can also influence firm value (e.g., Kale et al. (2009), Bebchuk et al. (2011), Burns et al. (2013)), which we analyze in the next section in conjunction with SoP laws.

To examine the potential effects of SoP laws on the managerial pay differentials, we estimate the following specification with firm fixed effects:

$$Log(CEO\ pay\ gap)_{it} = a' + \beta'^* SoP_{it} + \delta'^* firm\ controls_{it-1} + \eta'^* country\ and\ industry\ controls_{it-1} +$$

$$\theta'^* CEO\ controls_{it-1} + \mu'^* year\ controls_{it} + \varepsilon'_{it} \tag{2}$$

where CEO pay gap is the difference between CEO pay and the median value of total annual compensation of the other top four managers. The specification includes the same control variables as in eq. (1) and several additional variables that are shown by prior studies to influence the pay differentials among top managers.

These tests employ the pay on senior managers as a control sample in analyzing CEO pay and are thus less subject to any potential endogeneity concerns. They are akin to triple difference estimates, as the firm effects on the executive pay level are perfectly controlled for: they capture the impact of SoP laws on the difference between CEO compensation and other top managerial compensation before and after the SoP laws and between the countries with and without such laws. However, sample size decreases in these tests, as we add the constraint that compensation information on at least two other senior executives is available for each firm.

The results from eq. (2) are reported in Table 3. The first column shows that SoP laws are associated with lower pay gap, as the coefficient on SoP is negative and statistically significant at the five percent level (-0.126, t = -4.71). While the pay inequality is not among the stated objectives of SoP laws, this column shows that SoP laws effectively result in lower portion of total management pay being awarded to the CEO. In the next column, we use the CEO pay slice as an alternative measure of the pay differential among the top managers, defined as the portion of total annual compensation of the five highest-paid managers captured by the CEO. The coefficient on SoP is -0.007 and is statistically significant (t = -2.11). We also find that the decrease in pay differential is explained by lower CEO pay and no significant change in median senior management pay (untabulated). Further, we estimate eq. (2) using Tobit for CEO pay slice as a robustness check because it is bounded between 0 and 1, and find similar effects of SoP laws on the CEO pay inequality (untabulated).

These findings point to an unintended consequence of SoP laws: the pay gap among executives shrinks following the passage of SoP laws that provide shareholders with a stronger voice in executive compensation. A natural question that follows is whether this decrease in pay inequality due to SoP laws is for good reasons (i.e., reducing entrenched managers' ability to expropriate wealth from shareholders as higher compensation as in Bebchuk et al. (2011)) or for bad reasons (i.e., denying premium for highly-talented CEOs thereby dis-incentivizing them). We analyze this question in the next section along with an analysis of the overall effects of SoP laws on firm valuation.

5. SoP Laws and Firm Valuation

Accordingly, we test whether SoP laws are associated with changes in firm value around the world where we have a counterfactual control sample and also include a triple interaction effect with respect to CEO pay inequality and the level of CEO pay in the pre-law period. In particular, we estimate the following specification with firm fixed effects:

$$\text{Industry-adjusted } Log(Tobin's \ Q)_{it} = a'' + \beta''*SoP_{it} + \lambda''*SoP_{it}*High \ CEO \ pay \ slice_i + \tau''*SoP_{it}$$
$$*High \ CEO \ pay_i + \delta''*firm \ controls_{it-1} + \eta''*country \ and \ industry \ controls_{it-1} + \theta''*CEO \ controls_{it-1}$$
$$+\mu''*year \ controls_{it} + \varepsilon''_{it} \tag{3}$$

where high CEO pay slice is an indicator variable that equals one for firms whose abnormal CEO pay slice values are greater than the country median values in the period prior to the enactment of SoP laws, and zero otherwise. Abnormal CEO pay slice values are defined as the difference between actual levels of pay slices and their estimated values obtained from fitting the regression specification in column (2) of Table 3. This approach is similar to the classification of firms with relatively high and low CEO pay in Cai and Walking (2011), who find higher firm values within three days surrounding

the passage of SoP legislation in the United States for firms with high CEO compensation. Similarly, we create an indicator variable to represent firms with abnormal CEO pay in the pre-law period, where abnormal pay is defined as the difference between actual levels of pay and their estimated values obtained from fitting the regression specification in column (1) of Table 2.[17]

In general, SoP laws can increase firm value directly by reducing abnormal levels of CEO pay, linking CEO pay to firm performance more strongly, shrinking the pay inequality among top managers, and indirectly through providing a greater dialogue between directors and shareholders, and enhanced disclosure on executive compensation. SoP laws can empower boards to more effectively negotiate executive compensation terms using the SoP votes. However, corporate boards are likely to have better information on the abilities of the CEO and on the firm's needs, operating environment, and objectives. Further, SoP laws can lead to the homogenization of CEO pay packages, forcing boards of directors to adopt one-size-for-all suboptimal policies. Thus, an alternative hypothesis is that any deviation from the optimal executive compensation policies due to shareholder pressure by SoP laws can reduce firm value.

Having these competing hypotheses in the background, we analyze changes in firm value around the time SoP laws are adopted. We exclude firms in the financial and regulated industries because of their unique business structure, and use the industry-adjusted natural logarithm of Tobin's Q as our proxy for firm value. Table 4 shows results from these regressions. The first column reports a positive and significant coefficient on the SoP law dummy (0.028, t = 5.30), suggesting a 2.8% increase firm

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[17] Using the country's top quartile instead of the median to identify high CPS and high CEO pay firms yields similar findings.

value following the adoption of SoP laws. This result is consistent with the findings of several studies on the valuation consequences of SoP laws in the United States (e.g., Cai and Walking (2011)).

The increased alignment of CEO pay to realized firm performance reported in Table 2 is potentially one of the channels through which SoP laws increase firm value. The decrease in CEO pay growth, which could be value-increasing under the assumption that CEO pay prior to SoP laws was abnormal, is too small to justify the 2.8% change in Tobin's Q alone. We hypothesize that the decrease in CPS can be an additional way for SoP laws to enhance firm value. In particular, several studies show that higher pay differentials amongst senior managers are related to lower firm values (e.g., Siegel and Hambrick (2005), Bebchuck et al. (2011)). However, the literature on tournament incentives suggests that reductions in CEO pay gap can reduce firm value (e.g., Kale et al. (2009) and Burns et al. (2013)). We test the valuation implications of CEO pay gap using the staggered adoption of SoP laws across countries as a natural experiment.

The way we test this hypothesis is by identifying firms with relatively high levels of CPS in the pre-SoP period and to compare changes in firm value around SoP laws between this subsample of firms and the rest with an interaction term between the high CEO pay slice and SoP dummies. Consistent with the first set of studies described above, the second column in Table 4 shows a positive and statistically significant coefficient on the interaction term *SoP * high CEO pay slice* (0.022, t = 2.18), suggesting that firms with higher levels of CPS prior to the SoP laws experience a larger increase in firm value following the enactment of the laws. Taken together with our previous finding that SoP laws reduce CPS, these results imply that the increase in firm value is partly related to changes in CPS around the adoption of SoP laws, and that pay inequality among the top management team partially reflects management entrenchment, consistent with Bebchuk et al. (2011).

In equation (3) we also include an interaction term between high CEO pay and the SoP dummy to test how firm valuation changes following SoP laws' passage for firms with high CEO pay in the pre-law period. Firms should experience higher valuations to the extent that higher pay was due to poor monitoring. The coefficient estimate on this interaction term has no explanatory power, implying that the increase in firm value is not likely due to reductions in abnormal pay. The SoP dummy still has a positive and statistically significant coefficient, suggesting that there are additional channels at work for the SoP laws' effect on firm value, which likely reflect the enhanced communication between directors and shareholders and disclosure standards among other factors (e.g., Cunat et al. (2012)).

6. Robustness Tests

6.1. Say on Pay Laws as an Outcome of the Political Environment

In this section we examine the robustness of our results shown in Tables 2 through 5 on CEO pay, pay inequality, and firm value to potential endogeneity, omitted variables, and various subsamples. An important concern with our estimators is that the adoption of SoP laws may not be random and instead related to variables that determine CEO pay policies. Thus, even when SoP laws have no influence on CEO pay, our estimator might erroneously attribute differential changes in CEO pay policies between firms subject to SoP laws and the control group of firms to the passage of SoP laws.

To mitigate this concern, we instrument the enactment of SoP laws by distributing the likelihood of SoP law passage quasi-randomly across countries with similar political environments. The political environment variables capture the sentiment in the country toward pay differentials and the ability of

the current government in power and its leaning towards passing economic regulations.[18] In general, political economy variables are shown to be linked to regulatory changes (e.g., Krozner and Strahan (1999)) and there is a growing literature on the relationship between political choices in democracies and financial structures and outcomes across countries (e.g., Perotti (2013)).

Our first-stage regressions show that countries are more likely to pass SoP laws when the political party in power is left-leaning compared to other parties and when the main opposition party has a greater voting power. Further, compensation levels are not significantly affected by these instrumental variables in a regression analysis (untabulated). The diagnostic tests for our instrumental variables reported at the bottom of Table 5 show that these variables are jointly different from zero (p-value for the F test < 0.001) suggesting that our instruments satisfy the relevance condition, as the under-identification test shows that the political environment variables are correlated with the enactment of SoP laws. We also find that these political environment variables are strong instruments in the econometric sense that we reject the null hypothesis of our instruments being weakly correlated to the enactment of SoP laws. For example, the weak identification test has a p-value of less than 0.001 in every column in Table 5. Thus, our instruments are relevant and do not appear to suffer from biases that may arise in presence of weak instruments. Finally, the Sargan-Hansen over-identification test is not statistically significant for any columns except for column (3), suggesting that our instruments are appropriately uncorrelated with the error term from the estimation for most columns in Table 5.

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[18] These variables are the dummy variable denoting if the party orientation with respect to economic policy is right or left leaning, the largest opposition party's voting share, and the margin of majority. The political variables are obtained from the World Bank's database on Political Institutions 2012 (Beck, Clarke, Groff, Keefer, and Walsh (2001)). We also use alternative instrumental variables that employ the interaction terms between these time-varying political environment variables and time-invariant cultural variables such as the degree to which people in a society consider differences in income to be fair based on differences in more efficiency, reliability, and speed resulting in differences in pay, and obtain similar results.

The results from this instrumental variable estimation with firm fixed effects are reported in Table 5. The sample size is smaller than in previous tables due to missing information on the political environment for some countries and years in the main sample. We continue to find that SoP laws are associated with lower CEO pay growth rates, a greater link between realized firm performance and CEO pay, lower managerial pay gap, and higher firm valuations. These findings suggest that our results are not exclusively driven by the potentially non-random nature of the decision by countries to enact SoP laws. At the same time, it is important to note as a caveat that political environment such as political instability can affect CEO compensation indirectly through its potential effects on economic activity, which weakens the exclusion restriction assumption in our estimation as indicated by the large coefficient estimates on our key variables of interest.

6.2. Alternative Samples and Specifications

We also examine the robustness of our results to various subsamples and report the results in Table 6. We only report the key coefficient estimates for brevity but all columns include the corresponding control variables from Tables 2 through 5.

To mitigate the concern that our results are driven by other regulatory changes and reforms around the enactment of SoP laws, we control for potentially omitted time-varying variables at the country level by introducing country-specific time trends and clustering error terms by country in Panel A. Panel A shows that SoP laws continue to influence top executive compensation policies and firm value in a way similar to the findings in previous tables once we include linear time effects for each country as additional controls. We next test the robustness of our results to excluding U.S. firms, which make up about one quarter of our sample. Results from these regressions are reported in Panel B, which again show similar results. In the next panel, we recognize that not all countries mandate their

firms to disclose CEO pay, and this cross-country variation in disclosure regulations can create a potential selection bias in our tests. Thus, we limit our sample to countries with such a mandated disclosure. There are 14 such countries in our sample, as reported by Fernandes et al. (2013). We also undertake a test where we control for potentially omitted time-varying variables at the industry level to ensure that our results are not driven by changes at the industry level in the post-law period. We do so by introducing industry*year fixed effects in the regression specifications and report the results in Panel D. We next exclude observations for firms that experience a CEO turnover event in Panel E, as the compensation package for the incumbent and new CEOs can be unusual due to severance packages and signing bonuses. Further, CEO characteristics such as education, age and tenure can change substantially as a result of CEO turnover and cause our coefficient estimates on SoP-related variables to be biased. Overall, Table 6 suggests that the previous findings are robust to additional controls, alternative samples and estimations.

6.3. Results from the Matched Sample

Ideally, we would like to compare changes in CEO pay policies and firm valuation around the adoption of SoP laws for firms with similar pre-law characteristics except for the treatment of being subject to SoP laws (Angrist and Pischke, (2009)). We include firm fixed effects throughout our analysis to control for unobserved firm heterogeneity. However, to the extent that other firm characteristics are different between SoP and non-SoP firms in the period prior to the passage of SoP laws, our estimates could reflect such pre-law differences among firms rather than capturing the effects of SoP laws. A remedy for such problems is to construct a matched sample of firms with observable characteristics similar to the firms subject to SoP laws in the pre-law period. In this section,

we undertake this approach using the nearest neighbor matching procedure with the Mahalanobis metric as the weighting criterion (Abadie, Herr, Imbens, and Drukker (2004)).

Specifically, we construct a matched sample of treated and control firms starting from the universe of firms used in the estimations in previous sections. We match each firm in the treatment group (those subject to SoP laws) to one firm in the control group (those not subject to SoP laws) with replacement using the following characteristics as of the year prior to the adoption of SoP laws: total CEO compensation, the natural logarithm of total assets, industry-adjusted ROA, and the legal origin of the country. We match U.S. firms and non-U.S. firms separately because the relative size of U.S. firms and their CEO compensation levels distort the matching procedure for the overall sample.

Figure 2 plots the natural logarithm of CEO pay between our treatment and control groups around the time SoP laws are enacted. It shows that the trends for both groups are almost identical prior to the passage of the SoP laws. These trends start differing roughly the year after the law is implemented. This graphical evidence suggests that the sample of control firms represents a valid counterfactual to test for the effect of SoP laws on CEO compensation. However, we take a step further and test whether the means for the relevant matching variables for the treated and control groups differ the year before the SoP laws are passed.

Table 7 presents the results from this comparison. Panel A splits the sample between the international and U.S. firms. As noted above, the group of control firms is smaller than the group of treated firms, as a firm in the control group can be matched to multiple firms in the treated group.[19] There are two important facts to gather from the table. First, the mean of total compensation is much

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[19] Although legal origin is one of our matching criteria, we do not report the results on this indicator variable in Panel A because it is perfectly matched between treatment and control groups.

larger for U.S. firms. This finding supports our strategy of splitting the sample between the two groups. Second, the means for our main matching variables are not significantly different for the treated and control groups in most cases. The only exception is for the natural logarithm of assets for U.S. firms. However, for these U.S. firms we are able to find firms in the control group that have very similar total CEO compensation. These results confirm the trends observed in Figure 2, namely, that the firms in the control and treated groups appear to have very similar trends in CEO compensation prior to the adoption of SoP laws. In Panel B, we further divide the international sample between countries that adopted advisory and binding SoP laws. As with the tests for the full sample, our matching strategy yields a sample of control firms that are similar in compensation, size, and profitability to firms in the countries that adopted SoP laws.

We use this set of firms to estimate our main specifications and report the results in Table 8. It shows that SoP laws are still associated with lower CEO pay growth rates, greater sensitivity of CEO pay to realized firm performance, and higher firm value.[20] An interesting finding reported in column (5) is that once we employ a matched sample, higher firm valuations following the SoP law enactment are related to both high CEO pay slice and high CEO pay in the pre-law period. In Table 3 in the Appendix we also investigate how sensitive the results in Table 8 are to an instrumental variable estimation and the additional tests covered in Table 6 for the full sample, and find that they are mostly robust to such additional checks. These results suggest that our previously reported results on the effects of SoP laws on CEO pay policies and firm valuation are likely not influenced by potential differences between our treatment and control sample firms in the pre-law period.

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[20] Unlike in Table 2, we do not include SoP country*firm performance in examining the effects of SoP laws on CEO pay in Table 8. The matching strategy explicitly controls for any pre-law differences in firm performance between the treatment and control group.

7. Binding versus Advisory SoP Laws

While 11 countries have passed SoP laws to date, the content of such laws differ substantially across countries. The most important difference in SoP laws in terms of the criticism received by shareholders and the public is whether the board of directors has to address shareholder disapproval on executive pay (binding SoP votes) or not (advisory SoP laws), even though companies are required in both cases to put the compensation policy up for voting on a periodical basis. The inability of shareholders to force the firm to change its executive compensation plans following failed SoP votes has led to several shareholder lawsuits.[21] It also caused some shareholders to threaten the re-election of members of boards' compensation committees who have not taken corrective action following failed SoP votes.[22] Further, the United Kingdom recently announced its plans to make its advisory SoP laws binding, and the European Commissioner Michel Barnier recently proposed that the European Union members adopt binding SoP laws. Despite these discussions on the features of SoP laws, there is no evidence on what differential effects the binding or advisory SoP laws may have on CEO compensation and firm valuation.

In this section, we provide a formal comparison between binding and advisory SoP laws in terms of the change in CEO pay, managerial pay inequality, and firm value following the adoption of such laws. For these tests, we replace the SoP dummy with the binding and advisory SoP law dummy variables and re-estimate our relevant specifications in previous tables. The results from these estimations are reported in Table 9. In the first column, we find that while both types of SoP laws are associated with lower total CEO pay, only advisory laws are related to a greater sensitivity of CEO pay

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[21] For example, one third of about 40 companies that failed to garner a majority for SoP proposals in 2011 faced derivative lawsuits brought by shareholders (Romanchek and Meyer (2013)).

[22] See "Calpers to awaken zombie boards," *Financial Times*, April 7, 2013.

to realized performance. Binding SoP laws appear to influence pay reduction in almost every firm whereas the advisory laws have more adverse effects on CEO pay when firm performance is low, which is better aligned with shareholder interests. The joint Wald test of whether the effects of binding and advisory SoP laws are different on CEO pay has a p-value of less than 0.01, suggesting that binding SoP laws have greater effects on CEO pay growth rates than advisory SoP laws.[23] The second column shows that the CEO pay gap decreases only when advisory laws are passed, as shown by the negative and significant coefficient on *advisory SoP law* (-0.135, t = -4.84), and the p-value of 0.019 for the joint Wald test. In the third column we find that both types of SoP laws are related to higher firm valuations but the overall effect on firm valuation is not statistically different between binding and advisory laws as shown by the joint Wald test statistics. The large column shows that firms with relatively higher levels of managerial pay inequality in the pre-SoP period experience a larger increase in firm value, but only in the case of advisory SoP laws (0.025, t = 2.14). Overall, results in Table 9 show that both types of laws are associated with higher firm value and lower CEO pay growth rates.

8. Conclusion

Executive pay is one of the most heavily debated features of corporate governance. Historically, regulatory changes have had a major influence on patterns in executive compensation.[24] In this paper, we examine changes in CEO compensation policies, the CEO pay inequality, and firm value following the adoption of SoP laws in a cross-country sample. SoP laws are unique in the sense that they do not focus on narrow aspects of CEO pay like some previous regulations on compensation. Rather, they

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[23] A test of the difference in the sensitivity of SoP laws to realized firm performance between binding and advisory SoP laws is also statistically significant (p-value<0.01).

[24] See Murphy (2013) for a detailed review of the effects of regulations on CEO pay policies.

allow shareholders to evaluate the compensation policies in their entirety.

Our analysis documents three important findings. First, the level of CEO pay growth is lower in the period following the adoption of SoP laws compared to various control groups. Thus, SoP laws appear to seize a part of the upward trend in CEO pay. The link between CEO pay and realized firm performance also becomes stronger. Second, using the staggered adoption of SoP laws as a quasi-exogenous shock to identify the effects of CEO pay gap on firm valuation, we find that the managerial pay inequality shrinks after SoP laws are passed. Firm value increases for firms subject to SoP laws compared to the control group, and this increase is linked to the incidence of high CEO pay gap in the pre-SoP period. These findings imply that CEO pay gap partially reflects management entrenchment, consistent with the findings of Bebchuk et al. (2011).

Finally, our results suggest that binding and advisory SoP laws are associated with differential CEO pay outcomes. If the main concern in the country is the disconnect between pay and performance, our results imply that advisory laws may be more preferable, as this type of laws has the advantage of decreasing pay growth rates only in poorly performing firms. Further, higher firm valuations following the enactment of SoP laws are empirically more robust in the case of the advisory laws.

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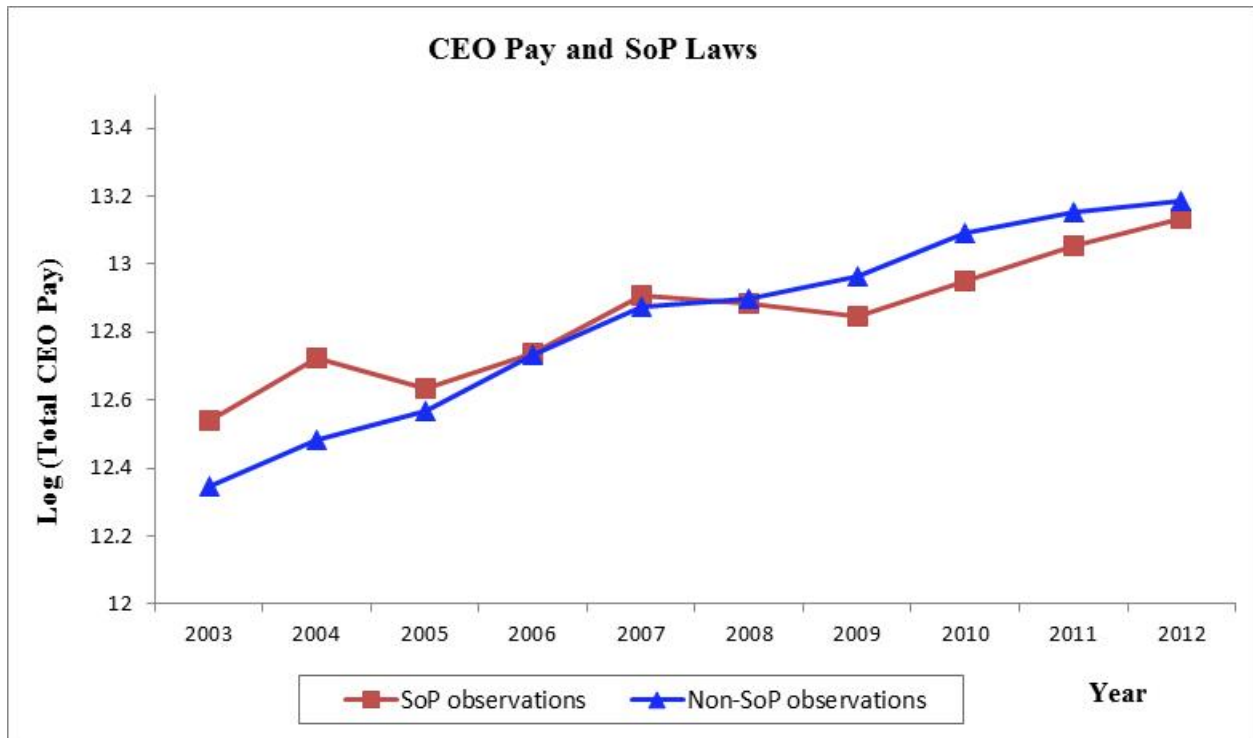
Figure 1. This figure shows the estimated average natural logarithm of CEO pay over time for SoP and non-SoP observations for a hypothetical firm with $1 billion in sales and average values of other variables based on the regression specification in column (1) of Table 2. SoP observations include firms in countries that pass a SoP law in the post-law period. The rest of the sample constitutes the non-SoP observations. The starting year is 2003 because the first year for the SoP subsample is 2003.
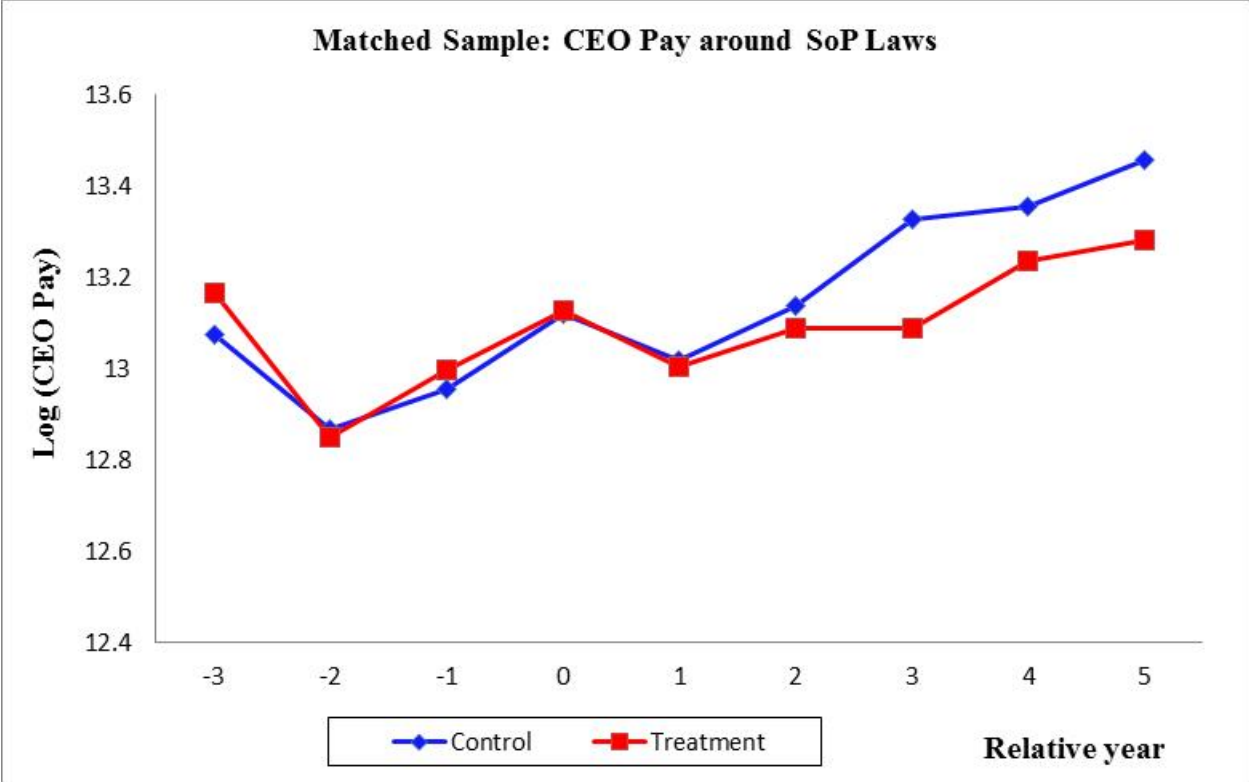
Figure 2. This figure shows the average natural logarithm of CEO pay around the time SoP laws are passed for the treatment and control firms. The treatment group consists of firms that are subject to SoP laws. The control group includes firms not subject to SoP laws and matching to the treatment group of firms is done as of year t-1 using one-year lagged values of total CEO compensation, industry-adjusted ROA, and the natural logarithm of total assets, legal origin and year. Year 0 is defined as the year immediately following the passage of SoP laws. The nearest neighbor matching procedure with the Mahalanobis metric as the weighting criterion is used for matching purposes.

Table 1. Descriptive Statistics

This table presents the distribution of the regression sample by country and SoP law status, and descriptive statistics for the main variables. Panel A displays the number of observations, firms, and SoP law status. Information about the worldwide adoption of SoP laws is obtained from several sources starting with Larcker et al. (2012), and supplementing it with several additional studies such as Murphy (2013), Thomas and Van der Elst (2014), and Factiva searches. In column (4) under the heading of SoP law year, (A) refers to advisory SoP laws and (B) refers to binding SoP laws as of end-2012. Panel B shows univariate statistics for the sample used in the analysis. Table 1 in the Appendix provides variable definitions and data sources. We winsorize all continuous variables at the one percent level and use one-year lagged values of time-varying independent variables.

Panel A. Sample Distribution by Country

Country	# Obs.	# Firms	SoP Law Year	Country	# Obs.	# Firms	SoP Law Year
Australia	10,590	1,943	2005 (A)	Luxembourg	64	15	-
Austria	97	23	-	Malaysia	416	110	-
Belgium	260	71	2012 (A)	Netherlands	837	157	2004 (B)
Bermuda	186	45	-	New Zealand	357	92	-
Canada	14,108	2,746	-	Norway	750	175	2008 (B)
Chile	61	16	-	Oman	96	28	-
China	1,560	444	-	Pakistan	205	82	-
Denmark	117	30	2007 (B)	Philippines	108	28	-
Finland	460	105	-	Poland	138	51	-
France	1,448	259	-	Portugal	84	31	2010 (A)
Germany	1,503	352	-	Singapore	296	80	-
Hong Kong	6,287	983	-	South Africa	2,034	358	2011 (B)
Iceland	40	10	-	Spain	206	48	-
India	7,944	1,767	-	Sweden	1,100	235	2006 (B)
Ireland	446	74	-	Switzerland	834	200	-
Israel	200	53	-	Taiwan	84	38	-
Italy	926	240	2011 (A)	Thailand	887	221	-
Japan	79	56	-	United Kingdom	11,048	2,126	2003 (A)
Jordan	35	13	-	United States	23,443	4,309	2011 (A)
Total	**89,315**	**17,609**					

Panel B.   Firm, CEO, and Country Characteristics

Variables	# Obs	Mean	Median	Standard deviation
SoP dummy	89,334	0.267	0.000	0.442
Total CEO pay (in 2005 $US)	89,334	1,091,028	364,451	8,289,593
Pay gap (in 2005 $US)	54,805	735,017	224,327	1,506,900
CEO pay slice	55,348	0.476	0.446	0.204
High CEO pay slice dummy	89,334	0.197	0.000	0.398
High CEO pay dummy	89,334	0.234	0.000	0.423
Industry-adjusted stock returns	89,334	0.195	0.009	0.938
Industry-adjusted log (Q)	88,143	0.107	-0.002	0.449
Industry-adjusted ROA	89,077	-0.087	0.003	0.677
Annualized stock return volatility	89,334	0.058	0.058	0.020
Net sales ($US millions)	89,334	1,250	71.6	4,230
Total assets ($US millions)	89,334	3,050	131	12,800
Leverage	89,334	0.134	0.053	0.190
Cash / total assets	89,334	0.090	0.024	0.154
Capex / total assets	89,334	0.497	0.224	0.763
Inside ownership (%)	89,334	0.300	0.255	0.272
Total institutional ownership (%)	89,334	0.130	0.009	0.219
Independent director %	89,334	0.572	0.600	0.600
Dual CEO dummy	89,334	0.139	0.000	0.346
Number of directorships	89,334	1.977	1.000	1.839
CEO age	74,995	52.822	53.000	8.509
CEO tenure	81,449	8.941	7.000	7.804
ADR dummy	89,334	0.087	0.000	0.281
Industry mkbk ratio	89,334	1.658	1.570	0.543
GDP growth (%)	89,334	2.732	2.653	3.042

Table 2. Say on Pay Laws' Impact on CEO Pay

This table presents estimates of the impact of SoP laws on the level of CEO pay and the sensitivity of CEO pay to realized firm performance. The dependent variable is the natural logarithm of total annual CEO compensation. Firm and year fixed effects are included in all columns. Table 1 in the Appendix provides variable definitions and data sources. We winsorize all continuous variables at the one percent level and use one-year lagged values of time-varying independent variables. The t-statistics appear in brackets below parameter estimates. Robust standard errors are estimated by clustering at the firm level. Asterisks ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

Variables	Firm performance is industry-adjusted stock returns (1)	Firm performance is industry-adjusted ROA (2)
SoP	-0.043***	-0.036***
	[-3.215]	[-2.750]
SoP * Firm performance	0.049***	0.059***
	[5.950]	[2.881]
SoP country*Firm performance	-0.002	-0.072***
	[-0.303]	[-4.278]
Firm performance	0.033***	0.076***
	[7.519]	[5.899]
Log (sales)	0.023***	0.022***
	[11.727]	[11.631]
Leverage	-0.033	-0.014
	[-0.949]	[-0.413]
Stock return volatility	-2.422***	-2.010***
	[-7.787]	[-6.841]
Inside ownership (%)	-0.022	-0.022
	[-1.015]	[-1.026]
Total institutional ownership (%)	0.217***	0.227***
	[9.469]	[10.171]
Independent director %	0.074**	0.076***
	[2.506]	[2.612]
Dual CEO dummy	-0.028**	-0.025**
	[-2.316]	[-2.053]
Log (number of directorships)	0.069***	0.070***
	[3.049]	[3.138]
Industry mkbk ratio	0.036**	0.030**
	[2.384]	[2.003]
GDP growth	0.009***	0.011***
	[4.514]	[5.498]
Constant	12.675***	12.679***
	[240.113]	[249.577]
Firm and Year F.E.	Yes	Yes
Observations	89,334	93,211
R-squared	0.138	0.136

Table 3. Say on Pay Laws' Impact on CEO Pay Inequality

This table presents estimates of the impact of SoP laws on managerial pay inequality. The dependent variable is the natural logarithm of the difference between CEO pay and the median value of total annual pay among the top five managers in the first column and the portion of total annual compensation of the top five highest-paid managers captured by the CEO in the last column. Firm and year fixed effects are included in all columns. Table 1 in the Appendix provides variable definitions and data sources. We winsorize all continuous variables at the one percent level and use one-year lagged values of time-varying independent variables. The t-statistics appear in brackets below parameter estimates. Robust standard errors are estimated by clustering at the firm level. Asterisks ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

Variables	Log(CEO pay gap) (1)	CEO pay slice (2)
SoP	-0.126***	-0.007**
	[-4.709]	[-2.115]
Log (net sales)	0.028***	-0.003***
	[6.285]	[-8.275]
Leverage	-0.153*	-0.005
	[-1.676]	[-0.763]
Stock return volatility	-2.404***	-0.184***
	[-3.422]	[-2.834]
Cash / total assets	-0.085	0.001
	[-1.146]	[0.161]
Industry-adjusted ROA	0.037**	0.001
	[2.070]	[0.533]
ADR dummy	-0.061	-0.0001
	[-1.110]	[-0.062]
Inside ownership (%)	-0.109**	0.003
	[-2.207]	[0.527]
Total institutional ownership (%)	0.123***	-0.024***
	[3.310]	[-5.070]
Independent director %	0.150**	0.076***
	[2.381]	[12.328]
Dual CEO dummy	-0.061**	-0.014***
	[-2.129]	[-4.600]
Log (number of directorships)	0.061	-0.004
	[1.497]	[-0.907]
Industry mkbk ratio	-0.003	0.461***
	[-0.092]	[42.111]
GDP growth	0.009	-0.024***
	[1.397]	[-5.070]
Constant	12.408***	0.076***
	[100.659]	[12.328]
Firm and Year F.E.	Yes	Yes
Observations	50,760	57,039
R-squared	0.089	0.014

Table 4. Say on Pay Laws' Impact on Firm Value

This table presents estimates of the impact of SoP laws and the managerial pay inequality on firm value. The dependent variable is the industry-adjusted natural logarithm of Tobin's Q. Financial and regulated utility industries are excluded. Firm and year fixed effects are included in all columns. Table 1 in the Appendix provides variable definitions and data sources. We winsorize all continuous variables at the one percent level and use one-year lagged values of time-varying independent variables. The t-statistics appear in brackets below parameter estimates. Robust standard errors are estimated by clustering at the firm level. Asterisks ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

Variables	(1)	(2)
SoP	0.028***	0.022***
	[5.300]	[2.716]
SoP * High CEO pay slice		0.022**
		[2.178]
SoP * High CEO pay		-0.003
		[-0.343]
Log (assets)	-0.097***	-0.097***
	[-28.772]	[-28.764]
Leverage	0.085***	0.085***
	[5.606]	[5.622]
Stock return volatility	0.787***	0.786***
	[6.971]	[6.963]
Cash / total assets	0.093***	0.092***
	[5.637]	[5.624]
Industry-adjusted ROA	-0.010*	-0.010*
	[-1.740]	[-1.738]
ADR dummy	0.030***	0.031***
	[3.501]	[3.515]
Capex / total assets	0.002	0.002
	[0.842]	[0.828]
Inside ownership (%)	0.016	0.017
	[0.763]	[0.781]
Inside ownership squared (%)	0.019	0.018
	[0.716]	[0.695]
Total institutional ownership (%)	0.041***	0.041***
	[5.188]	[5.196]
Independent director %	-0.043***	-0.044***
	[-3.764]	[-3.794]
Dual CEO dummy	0.011**	0.011**
	[2.098]	[2.108]
GDP growth	0.003***	0.003***
	[4.469]	[4.442]
Constant	2.687***	2.687***
	[39.693]	[39.675]
Firm and Year F.E.	Yes	Yes
Observations	83,975	83,975
R-squared	0.133	0.133

Table 5. Instrumenting SoP Laws with the Political Environment

This table presents estimates from an instrumental variable firm fixed effect specification on the impact of SoP laws on CEO pay, CEO pay gap, and firm valuation. The time-varying instrumental variables for the passage of SoP laws are the dummy variable denoting if the party orientation with respect to economic policy is right or left leaning, the largest opposition party's voting share, and the margin of majority. Results from diagnostic tests for the instrumental variables are reported at the bottom of each column. Firm performance is measured by industry-adjusted stock returns. Table 1 in the Appendix provides variable definitions and data sources. We winsorize all continuous variables at the one percent level and use one-year lagged values of time-varying independent variables. T-statistics appear in brackets below parameter estimates. Robust standard errors are estimated by clustering at the firm level. Asterisks ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

Variables	Log (CEO pay)	Log(CEO pay gap)	Ind-adj Log(Tobin's Q)
SoP	-0.510***	-0.833***	0.235***
	[-5.031]	[-3.487]	[10.441]
SoP * Firm performance	0.063***		
	[6.401]		
SoP country * Firm performance	-0.009		
	[-1.085]		
Firm performance	0.029***		
	[5.788]		
Log (net sales)	0.020***	0.024***	
	[8.979]	[4.940]	
Leverage	0.022	-0.068	0.066***
	[0.563]	[-0.565]	[5.745]
Stock return volatility	-0.896**	0.364	0.374***
	[-2.433]	[0.399]	[3.211]
Inside ownership (%)	-0.044*	-0.067	0.024
	[-1.663]	[-1.136]	[1.039]
Inside ownership (%) squared			0.007
			[0.248]
Total institutional ownership (%)	0.396***	0.306***	0.068***
	[11.495]	[4.881]	[5.894]
Independent director %	0.067*	0.029	-0.012
	[1.888]	[0.368]	[-1.182]
Dual CEO dummy	-0.046***	-0.113***	0.010*
	[-3.042]	[-2.964]	[1.786]
Log (number of directorships)	0.068***	0.082*	
	[2.800]	[1.780]	
Industry mkbk ratio	0.033*	-0.017	
	[1.924]	[-0.459]	
GDP growth	0.013***	0.01	0.012***
	[5.317]	[1.424]	[12.710]
Cash / total assets		-0.066	0.095***
		[-0.723]	[8.922]
Industry-adjusted ROA		0.052**	0.004
		[2.496]	[1.291]
ADR dummy		-0.057	0.004
		[-0.891]	[0.440]
Log (total assets)			-0.102***
			[-47.336]
Capex / total assets			0.005**
			[2.201]
Firm and Year F.E.	Yes	Yes	Yes
Under-identification test (p-value)	<0.001	<0.001	<0.001
Weak identification test (p-value)	<0.010	<0.010	<0.010
Over-identification test (p-value)	0.335	0.698	0.125
Observations	68,096	36,709	58,419
R-squared	0.103	0.060	0.130

Table 6. Additional Robustness Tests

This table presents firm fixed effect estimates of the impact of SoP laws on CEO pay, CEO pay gap, and firm valuation under different subsamples and various controls. FP refers to industry-adjusted stock returns. In Panel A we report results using country-specific time trends in addition to clustering of standard errors by country. Panel B excludes U.S. firms. Panel C reports results for the subsample of countries that mandate the disclosure of CEO pay. Panel D controls for industry and time varying effects through industry*year fixed effects, and panel E excludes the year of turnover for firms that experience a CEO turnover event. We only report the key coefficient estimates for brevity but all columns include the corresponding control variables from Tables 2 through 5. Table 1 in the Appendix provides variable definitions and data sources. We winsorize all continuous variables at the one percent level and use one-year lagged values of time-varying independent variables. The t-statistics appear in brackets below parameter estimates. Robust standard errors are estimated by clustering at the firm level. Asterisks ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

Dependent variable	No. of Observations	SoP	SoP*Financial performance	R-squared
A. Country-specific time trends				
Log (total CEO pay)	86,979	-0.074**	0.032***	0.143
		[-2.517]	[3.335]	
Log (CEO pay gap)	48,154	-0.141***		0.093
		[-3.591]		
Industry-adjusted Log(Tobin's Q)	80,474	0.025*		0.143
		[1.704]		
B. US firms excluded				
Log (total CEO pay)	65,891	-0.071***	0.044***	0.128
		[-4.521]	[6.408]	
Log (CEO pay gap)	33,151	-0.147***		0.067
		[-3.463]		
Industry-adjusted Log(Tobin's Q)	61,870	0.044***		0.130
		[7.493]		
C. Mandated disclosure				
Log (total CEO pay)	67,795	-0.057***	0.043***	0.157
		[-4.730]	[6.585]	
Log (CEO pay gap)	42,651	-0.145***		0.107
		[-5.297]		
Industry-adjusted Log(Tobin's Q)	63,779	0.043***		0.162
		[7.647]		
D. Industry*year FE				
Log (total CEO pay)	89,334	-0.031***	0.042***	0.156
		[-2.588]	[6.721]	
Log (CEO pay gap)	50,760	-0.093***		0.101
		[-3.242]		
Industry-adjusted Log(Tobin's Q)	83,975	0.027***		0.156
		[5.676]		
E. CEO turnover years excluded				
Log (total CEO pay)	79,969	-0.027**	0.047***	0.167
		[-2.359]	[7.414]	
Log (CEO pay gap)	45,727	-0.105***		0.098
		[-3.720]		
Industry-adjusted Log(Tobin's Q)	75,283	0.029***		0.133
		[5.933]		

Table 7. Matched Sample

This table presents univariate statistics for the treatment and matched control sample. The treatment group consists of firms that are subject to SoP laws and the control group includes firms not subject to SoP laws. Matching is established using the nearest neighbor matching procedure with the Mahalanobis metric as the weighting criterion and as of the year prior to the enactment of SoP laws using one-year lagged total CEO compensation, industry-adjusted ROA, the natural logarithm of total assets, legal origin, and year. We report matching diagnostic tests separately for the U.S. and non-U.S. samples, and for the samples based on advisory and and binding SoP laws. Table 1 in the Appendix provides variable definitions and data sources. We winsorize all continuous variables at the one percent level and use one-year lagged values of time-varying independent variables. The t-statistics appear in brackets below parameter estimates. Asterisks ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

Panel A. Matching non-U.S. and U.S. samples

	Non-U.S. sample				U.S. sample			
	Treated	Control	Difference	p-value	Treated	Control	Difference	p-value
Total CEO compensation	709,531	675,018	34,512	0.36	1,459,386	1,315,725	143,660	0.23
Log (total assets)	21.20	21.27	-0.07	0.43	22.07	21.86	0.21	0.05
Industry-adjusted ROA	-0.025	-0.018	-0.007	0.44	0.002	0.002	-0.001	0.92
Observations	1,859	1,233			694	521		

Panel B. Advisory and Binding SoP laws

	Advisory SoP law sample				Binding SoP law sample			
	Treated	Control	Difference	p-value	Treated	Control	Difference	p-value
Total CEO compensation	666,675	646,244	20,431	0.66	805,958.6	795,580.4	-10,378	0.88
Log (total assets)	20.87	20.93	-0.07	0.55	21.95	21.94	0.02	0.89
Industry-adjusted ROA	-0.049	-0.044	-0.004	0.72	0.029	0.029	0.000	0.99
Observations	1,287	794			572	482		

Table 8. Matched Sample Regression Results

This table presents firm fixed effect estimates of the impact of SoP laws on CEO pay, CEO pay gap, and firm valuation in a matched sample. Matching is established using the nearest neighbor matching procedure with the Mahalanobis metric as the weighting criterion and as of the year prior to the enactment of SoP laws using one-year lagged total CEO compensation, industry-adjusted ROA, the natural logarithm of total assets, legal origin, and year. Firm performance is measured by industry-adjusted stock returns. Table 1 in the Appendix provides variable definitions and data sources. We winsorize all continuous variables at the one percent level and use one-year lagged values of time-varying independent variables. The t-statistics appear in brackets below parameter estimates. Robust standard errors are estimated by clustering at the firm level. Asterisks ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

Variables	Log (CEO pay)	Log (CEO pay gap)	Ind-adj Log(Tobin's Q)
SoP	-0.059***	-0.071*	0.019**
	[-2.832]	[-1.779]	[2.267]
SoP * Firm performance	0.044***		
	[3.231]		
SoP * High CEO pay slice			0.041***
			[3.588]
SoP * High CEO pay			0.025**
			[2.344]
Industry-adjusted stock returns	0.032***		
	[4.309]		
Industry-adjusted ROA		0.106***	-0.023***
		[3.387]	[-4.013]
Log (sales)	0.034***	0.039***	
	[6.615]	[7.326]	
Leverage	-0.069	0.039	0.003
	[-0.817]	[0.390]	[0.197]
Stock return volatility	-1.789***	-0.584	0.238
	[-2.992]	[-0.598]	[1.523]
Inside ownership (%)	0.003	-0.044	-0.013
	[0.083]	[-0.652]	[-0.446]
Inside ownership (%) squared			0.004
			[0.115]
Total institutional ownership (%)	0.206***	0.087	0.009
	[4.706]	[1.239]	[0.708]
Independent director %	0.061	0.054	-0.012
	[1.189]	[0.586]	[-0.842]
Dual CEO dummy	-0.038	-0.054	0.022***
	[-1.574]	[-1.180]	[2.907]
Log (number of directorships)	0.02	0.181***	
	[0.553]	[2.727]	
Cash / total assets		-0.017	0.150***
		[-0.167]	[9.493]
ADR dummy		-0.106*	0.016
		[-1.726]	[1.585]
Log (total assets)			-0.085***
			[-26.603]
Capex / total assets			0.008***
			[2.705]
Industry mkbk ratio	0.009	-0.018	
	[0.337]	[-0.358]	
GDP growth	0.011***	0.011	0.006***
	[3.000]	[1.353]	[5.053]
Constant	11.667***	10.918***	2.395***
	[81.093]	[42.722]	[38.698]
Firm and Year F.E.	Yes	Yes	Yes
Observations	23,140	14,286	21,056
R-squared	0.176	0.101	0.145

Table 9. Binding versus Advisory Say on Pay Laws

This table presents estimates of the impact of binding and advisory SoP laws on the level of CEO pay, the sensitivity of CEO pay to realized firm performance, and firm valuation. The dependent variable is the natural logarithm of total annual CEO compensation (CEO pay) in the first column, the natural logarithm of the difference between CEO pay and the median value of total annual pay among the top five managers in the second column, and the industry-adjusted natural logarithm of Tobin's Q in the final two columns. Binding (advisory) SoP laws require (do not require) the board of directors to address shareholder disapproval of executive pay. Firm performance is measured by industry-adjusted stock returns. Firm fixed effects along with year dummy variables are used in the estimations. We only report the key coefficient estimates for brevity but all columns include the corresponding control variables from the previous Tables 2 through 4. The H_0 provides p-values of the joint Wald test that the sum of coefficients on binding SoP laws equal the sum of coefficients on advisory SoP laws. Table 1 in the Appendix provides variable definitions and data sources. We winsorize all continuous variables at the one percent level and use one-year lagged values of time-varying independent variables. The t-statistics appear in brackets below parameter estimates. Robust standard errors are estimated by clustering at the firm level. Asterisks ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

Variables	Log (CEO pay)	Log (CEO pay gap)	Industry-adjusted Log (Tobin's Q)	
	(1)	(2)	(3)	(4)
Binding *SoP*	-0.063*	0.039	0.035***	0.028***
	[-1.805]	[0.562]	[7.355]	[3.669]
Advisory *SoP*	-0.037***	-0.135***	0.027***	0.021**
	[-2.684]	[-4.842]	[4.480]	[2.265]
Binding *SoP* * Firm performance	-0.032			
	[-1.242]			
Advisory *SoP* * Firm performance	0.053***			
	[6.431]			
Binding *SoP* * High CEO pay slice				0.007
				[0.807]
Advisory *SoP* * High CEO pay slice				0.025**
				[2.141]
Binding *SoP* * High CEO pay				-0.006
				[-0.564]
Advisory *SoP* * High CEO pay				0.01
				[1.256]
Firm, industry, and country controls	Yes	Yes	Yes	Yes
Firm and year F.E.	Yes	Yes	Yes	Yes
H_0: Binding SoP = Advisory SoP	0.004	0.019	0.273	0.228
Observations	89,334	50,760	83,975	83,975
R-squared	0.138	0.089	0.133	0.133

Appendix

Table 1. Variable Definitions and Data Sources

This table provides a detailed description of the variables and their data sources used in the analysis.

Variables	Definition (source)
SoP law dummy	Equals one for the time period following the staggered passage of SoP laws, if any, and zero otherwise. SoP laws are laws that mandate firms to hold shareholder vote on executive pay policies on a periodical basis, and are either binding or advisory for the board of directors in setting such pay policies (Larcker et al. (2012), Murphy (2013), Thomas and Van der Elst (2014), and Factiva searches).
Total CEO pay	Total annual compensation of the top executive, including salaries, bonuses, restricted stock and option awards, long-term incentive plans, changes in pension plans and all other compensation measured in 2005 $US (Capital IQ).
CEO pay slice	The portion of total annual compensation of the top five managers captured by the CEO (Capital IQ).
CEO pay gap	The difference between CEO pay and the median value of total annual compensation of the other top four managers, measured in 2005 $US (Capital IQ).
High CEO pay slice	Equals one for firms whose abnormal CEO pay slice values are greater than the country median values in the period prior to the enactment of SoP laws, zero otherwise. Abnormal CEO pay slice values are defined as the differences between actual levels of pay slices and their estimated values obtained from fitting the regression specification in column (1) of Table 3.
High CEO pay	Equals one for firms with abnormal CEO pay in the pre-law period, where abnormal pay is defined as the difference between actual levels of pay and their estimated values obtained from fitting the regression in column (1) of Table 2.
Industry-adjusted stock returns	Total investment returns in $US from holding the firm's stock in excess of its corresponding global industry median value in a given year at the 2-digit SIC level.
Industry-adjusted Tobin's Q	The firm's Tobin's Q in excess of its corresponding global industry median value in a given year at the level of 2-digit SIC code, where Tobin's Q is the ratio of total assets plus market value of equity minus book value of equity to total assets.
Industry-adjusted ROA	The return on assets of the firm in excess of its corresponding global industry median value in a given year at the level of 2-digit SIC code (Worldscope).
Annualized stock return volatility	Annualized standard deviation of weekly stock returns in $US (Datastream).
Net sales	Net sales of firms in $US in a given year (Worldscope).
Total assets	Total assets of firms in $US in a given year (Worldscope).
Leverage	Long term debt divided by the book value of total assets (Worldscope).
Cash / total assets	The ratio of cash assets to total assets (Worldscope).
Capex / total assets	The ratio of capital expenditures to total assets (Worldscope).
Inside ownership (%)	The percentage of a firm's shares that are closely held, where closely held is defined as those owned by shareholders such as officers and directors and immediate families, other corporations, or individuals (Worldscope).
Total institutional ownership (%)	The percentage of a firm's shares owned by institutional investors (Global Share Ownership database).
Independent director %	The percentage of independent directors on firms' boards (Capital IQ).
Dual CEO dummy	Equals one if the CEO is also the chairman of the board of directors, zero otherwise (Capital IQ).
Number of directorships	The number of directorships of the CEO (Capital IQ).
CEO tenure	The number of years the CEO is with the firm (Capital IQ).
ADR dummy	Equals one if the firm's shares are cross-listed on a US exchange, zero otherwise (JP Morgan ADR database).
Industry mkbk ratio	The global industry median value in a given year of firms' market-to-book ratios at the level of 2-digit SIC code, where market-to-book is defined as the ratio of the market value of equity to its book value (DataStream).
GDP growth (%)	Annual GDP growth (World Development Indicators database).

Table 2. Controlling for Present and Past Firm Performance

This table presents firm fixed effect estimates of the impact of SoP laws on CEO pay and the sensitivity of CEO pay to firm performance after controlling for both one-year lagged and current firm performance, where firm performance is measured by industry-adjusted stock returns. We only report the key coefficient estimates for brevity but all columns include the corresponding control variables from Table 2 in the paper. Table 1 in the Appendix provides variable definitions and data sources. We winsorize all continuous variables at the one percent level and use one-year lagged values of time-varying independent variables. The t-statistics appear in brackets below parameter estimates. Robust standard errors are estimated by clustering at the firm level. Asterisks ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	Log (CEO Pay)	
Variables	(1)	(2)
SoP	-0.035***	
	[-2.949]	
SoP * Firm performance	0.052***	
	[8.082]	
SoP * Current firm performance	0.043***	
	[6.505]	
Advisory SoP		-0.029**
		[-2.292]
Binding SoP		-0.054*
		[-1.955]
Advisory SoP * Firm performance		0.056***
		[8.610]
Binding SoP * Firm performance		-0.027
		[-1.122]
Advisory SoP * Current firm performance		0.044***
		[6.479]
Binding SoP * Current firm performance		0.032
		[1.220]
Firm performance	0.035***	0.035***
	[11.373]	[11.351]
Current firm performance	0.019***	0.019***
	[5.833]	[5.797]
Firm, industry, and country controls	Yes	Yes
Firm and Year F.E.	Yes	Yes
Observations	83,831	83,831
R-squared	0.139	0.139

Table 3. Instrumental Variable Estimation and Other Robustness Tests Using the Matched Sample

This table presents robustness tests for the matched sample in Table 8. Panel A presents estimates from an instrumental variable firm fixed effect specification on the impact of SoP laws on CEO pay, CEO pay gap, and firm valuation. The time-varying instrumental variables for the passage of SoP laws are the dummy variable denoting if the party orientation with respect to economic policy is right or left leaning, the largest opposition party's voting share, and the margin of majority. Results from diagnostic tests for the instrumental variables are reported at the bottom for each column. Panel B presents firm fixed effect estimates of the impact of SoP laws on CEO pay, CEO pay gap, and firm valuation under different subsamples and various controls. In Panel B1 we report results using country-specific time trends in addition to clustering of standard errors by country. Panel B2 excludes U.S. firms. Panel B3 reports results for the subsample of countries that mandate the disclosure of CEO pay. Panel B4 controls for industry and time varying effects through industry*year fixed effects, and panel B5 excludes the year of CEO turnover for firms that experience a CEO turnover event. Panel B6 reports results using country*year fixed effects in addition to industry fixed effects and clustering of standard errors by country. We only report the key coefficient estimates for brevity but all columns include the corresponding control variables from Tables 2 through 5 in the paper. Table 1 in the Appendix provides variable definitions and data sources. We winsorize all continuous variables at the one percent level and use one-year lagged values of time-varying independent variables. The t-statistics appear in brackets below parameter estimates. Robust standard errors are estimated by clustering at the firm level. Asterisks ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

Panel A. Instrumental Variable Estimation

Variables	Log (CEO pay)	Log (CEO pay gap)	Industry-adjusted Log(Tobin's Q)
	(1)	(2)	(3)
SoP	-0.235**	-0.474*	0.209***
	[-2.457]	[-1.935]	[6.216]
SoP * Firm performance	0.055***		
	[3.658]		
Firm and Year F.E.	Yes	Yes	Yes
Diagnostics for IV estimation			
Under-identification test (p-value)	<0.001	<0.001	<0.001
Weak identification test (p-value)	<0.010	<0.010	<0.010
Over-identification test (p-value)	<0.010	0.149	0.917
Observations	19,230	11,273	17,551
R-squared	0.163	0.089	0.114

Panel B. Additional Robustness Tests

Dependent variable	# obs.	SoP	SoP*FP	R²
B1. Country-specific time trends				
Log (total CEO pay)	22,985	-0.074*	0.033***	0.187
		[-1.787]	[3.681]	
Log (CEO pay gap)	13,841	-0.092*		0.111
		[-1.718]		
Industry-adjusted Log(Tobin's Q)	21,009	0.028***		0.154
		[2.619]		
B2. US firms excluded				
Log (total CEO pay)	20,055	-0.082***	0.038***	0.168
		[-4.083]	[3.439]	
Log (CEO pay gap)	11,900	-0.086*		0.101
		[-1.788]		
Industry-adjusted Log(Tobin's Q)	18,240	0.045***		0.139
		[6.175]		
B3. Mandated disclosure				
Log (total CEO pay)	19,305	-0.065***	0.039***	0.169
		[-3.428]	[3.315]	
Log (CEO pay gap)	12,450	-0.067		0.103
		[-1.617]		
Industry-adjusted Log(Tobin's Q)	17,534	0.052***		0.168
		[7.060]		
B4. Industry*year FE				
Log (total CEO pay)	23,140	-0.051***	0.036***	0.196
		[-2.794]	[3.447]	
Log (CEO pay gap)	14,286	-0.055		0.129
		[-1.343]		
Industry-adjusted Log(Tobin's Q)	21,145	0.042***		0.176
		[6.424]		
B5. CEO turnover years excluded				
Log (total CEO pay)	20,750	-0.039**	0.031***	0.201
		[-2.220]	[2.994]	
Log (CEO pay gap)	12,871	-0.056		0.11
		[-1.370]		
Industry-adjusted Log(Tobin's Q)	18,968	0.044***		0.141
		[6.586]		