

Say on Pay Votes and CEO Compensation: Evidence from the UK

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Abstract:

We examine the effect of say on pay regulation in the United Kingdom (UK). Consistent with the view that shareholders regard say on pay as a value-creating mechanism, the regulation's announcement triggered a positive stock price reaction at firms with weak penalties for poor performance. UK firms responded to negative say on pay voting outcomes by removing controversial CEO pay practices criticized as rewards for failure (e.g., generous severance contracts) and increasing the sensitivity of pay to poor realizations of performance.

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1. Introduction

In 2002 the United Kingdom (UK) was the first country to mandate an annual non-binding shareholder vote on executive pay (hereafter referred to as say on pay). The regulations marked the first instance of a non-binding advisory vote in UK company law (Cheffins and Thomas, 2001) and were to improve the “accountability, transparency and performance linkage of executive pay” (Baird and Stowasser, 2002) after a decade of growing concerns with “fat cat” pay and rewards for failure (e.g., Financial Times, 1995, 1998). Say on pay subsequently garnered considerable interest from investors and policy makers and has been adopted in many countries, including the United States (in 2011).¹

The merits (or lack thereof) of say on pay have been hotly debated. Proponents argue that enhanced shareholder voice, as formalized in a say on pay vote, and reputation concerns will help boards overcome psychological barriers to negotiating with CEOs on behalf of shareholders, resulting in more efficient compensation contracts (e.g., Bebchuk, 2007). Critics counter that say on pay votes will be ignored at best (since they are non-binding) and, at worst, will cause directors to pander to ill-informed shareholders, ultimately resulting in the adoption of suboptimal pay practices (Kaplan, 2007; Bainbridge, 2008). But empirical evidence is scant. This study examines the UK experience with regard to the effects of say on pay on shareholder value and executive pay practices.

We perform three sets of analyses. First, we examine the market reaction to the announcement of say on pay regulation. According to the business press (e.g., Financial News, 2002), the submission of say on pay regulations to the UK Parliament on June 25, 2002 was

¹ On July 21, 2010, President Obama signed into law the Dodd-Frank Wall Street Reform and Consumer Protection Act, one provision of which mandates that, beginning in 2011, publicly traded firms allow shareholders a non-binding vote on executive pay at least once every three years. For details about the adoption of say on pay in other countries, see Institutional Shareholder Services (2007).

largely unanticipated, making it a powerful setting in which to assess investor perception of the value of say on pay. Using standard event study methodologies, we find positive abnormal returns for firms with excess CEO pay (relative to the level predicted by its economic determinants), especially in instances in which excess CEO pay is combined with poor performance (i.e., firms that recently provided large payouts despite poor performance realizations). We also find positive abnormal returns for firms with generous severance contracts, often criticized as a form of reward for failure, that weaken penalties in the event of poor future performance. These findings are consistent with shareholders perceiving say on pay as a value enhancing monitoring mechanism for firms with weak penalties for poor performance.

Next, we test whether changes to compensation contracts disclosed in firms' remuneration reports were the result of say on pay by comparing changes made by 75 high dissent firms (i.e., firms that experienced more than 20% voting dissent) before and after the first say on pay vote, with changes made by a matched sample of low dissent firms (i.e., firms that experienced less than 5% voting dissent but with otherwise similar characteristics).

Our analyses indicate that shareholders viewed generous severance contracts as the most controversial pay practice. In particular, they used say on pay to pressure firms to reduce to 12 months notice periods that exceeded 12 months (implying severance payments greater than one year's compensation). Among firms with such notice periods, the percentage of high dissent firms that reduced them after the first vote (80.0%) is significantly higher than before the first vote (20.0%) and also significantly higher than among low dissent firms after the first vote (33.3%). This pattern suggests that reduction of notice periods was driven not by a general trend, but rather by the say on pay vote. The high rate of responsiveness among high dissent firms is particularly noteworthy because these firms were likely the most reluctant to change

controversial pay practices in the past (otherwise they would not have experienced high dissent). Interestingly, 70.0% of low dissent firms (compared to 20.0% of high dissent firms) reduced their notice periods during the year *before* the vote, suggesting that proactive pre-vote changes helped to avoid voting dissent. Consistent with this conjecture, we also find that high dissent firms that reduced their notice periods were rewarded by a 23.9% *decrease* in dissent at the second say on pay vote (from an average of 34.3% at the first vote), whereas the few firms that ignored the first vote were penalized by a 12.2% *increase* in dissent at the second vote, and then all of them reduced the notice period after the second vote. In essence, by the end of the second say on pay season, the ex ante and ex post effects of say on pay combined to eliminate the use of notice periods longer than one year.

The second most affected compensation item was performance-based vesting conditions in equity grants, namely, so-called retesting provisions. Retesting provisions provide for reevaluating in subsequent years performance targets not achieved during the initial measurement period (rather than allowing the options to lapse) and, as a result, are often criticized for the potential to reward failure. We find that 76.3% (5.0%) of high dissent firms and 28.0% (25.0%) of low dissent firms with retesting provisions shortened or removed them after (before) the first say on pay vote. Thus, as for notice periods, it appears that these contractual changes were the direct result of say on pay.

While the foregoing analysis provides direct evidence of the effect of say on pay, it may understate that effect because it examines only changes in disclosed, and thus readily observable, provisions of compensation contracts. Important elements of CEO pay (e.g., merit raises, bonuses, and the size of equity awards) involve considerable discretion, and boards do not disclose how they exercise such discretion year-to-year. Our third set of tests attempts to detect

changes in these discretionary choices by using regression analysis to evaluate the sensitivity of CEO pay to realized performance and other economic determinants before and after say on pay regulation. Using a large sample of UK firms, we find a significant increase in the sensitivity of CEO pay to poor performance, while the relationship between pay and other economic determinants remains unchanged. It thus appears that say on pay has a moderating effect on the level of CEO compensation only *conditional upon poor performance*. We further find the increase in the sensitivity of CEO pay to poor performance to be most pronounced in high dissent firms and firms characterized as having excess CEO pay before the adoption of say on pay, two proxies for controversial CEO pay practices. We do not find a similar increase in a control sample of UK firms not subject to say on pay (specifically, UK firms traded on the Alternative Investment Market). Taken together with our evidence of explicit changes to compensation practices, these additional tests support a causal interpretation of our findings.

Overall, our tests suggest that UK investors perceived say on pay to be a value enhancing monitoring mechanism, and were successful in using say on pay votes to pressure firms to remove controversial pay practices and increase the sensitivity of pay to poor performance.

Our study contributes to the literature on say on pay in two ways. First, and most important, it is the first study to examine the impact of say on pay on firms' compensation practices, prior research having focused on the market reaction to say on pay-related events (Cai and Walkling, 2011; Larcker et al., 2011). Second, our event study provides new evidence on investor perception of say on pay. This is important given the mixed findings in prior US-based research. For example, whereas Cai and Walkling (2011) find the stock prices of firms with excess CEO pay to respond positively to the US House of Representatives' passage of a say on pay bill in 2007, using slightly different methodologies, Larcker et al. (2011) report no abnormal

returns around the same event (and no or negative abnormal returns around related regulatory events). This sensitivity to different specifications may reflect the low power of the setting. The passage of a say on pay bill by a Democratic-controlled House may have had only a marginal impact on the likelihood of say on pay regulation because the Senate was Republican-controlled and the Bush White House opposed say on pay (Associated Press, 2007; New York Times, 2007). The UK government's decision to submit say on pay regulation to Parliament, because it represents a marked and largely unexpected increase in the likelihood of say on pay regulation, arguably provides a more powerful setting for an event study.

More broadly, our study contributes to the literature on the effect of shareholder voice. Early studies concluded that shareholder proposals are generally a weak governance mechanism (see Karpoff, 2001 and Romano, 2001, for a review of the evidence).² However, more recent research suggests that they have become increasingly effective, but mostly when they achieve majority vote support (Thomas and Cotter, 2007; Ertimur et al., 2010). For example, Ertimur et al. (2011) find that between 1997 and 2007 boards implement 40.3% (3.8%) of compensation-related shareholder proposals winning (failing to win) a majority vote. In stark contrast, we find that a say on pay dissent vote higher than 20% (well below a majority vote) results in boards implementing 75%-80% of shareholder requests to remove specific provisions. This figure is comparable to the success rate of hedge fund activism.³ Moreover, our finding that firms respond to the mere threat of voting dissent highlights the importance of accounting for ex ante effects when studying the impact of shareholder votes.

² With respect to compensation, an exception is Thomas and Martin (1999), who report a significantly lower increase in pay levels for firms targeted by compensation-related shareholder proposals over the two-year period subsequent to the proposal relative to a size/industry matched sample. Other studies of compensation-related activism have focused on management-sponsored compensation plans, examining the market reaction to and shareholders' votes on these plans (Thomas and Martin, 2000; Morgan and Poulsen, 2001; Morgan et al., 2006).

³ Brav et al. (2008) and Klein and Zur (2009) find US hedge fund activists to achieve their goals (fully or partially) in about 60%-70% of cases, and Becht et al. (2008) find the success rate of the Hermes UK Focus Fund to range between 44% and 100% depending on the stated objective.

This high rate of responsiveness may reflect the fact that say on pay votes are more likely to generate reputation concerns (relative to shareholder proposals), because they directly question directors' choices. This is an effective threat because "no insurance policy for managers or directors can protect them from such reputational penalties" (Dyck and Zingales, 2002). In this sense, our results are consistent with the claim that public expressions of outrage, such as say on pay votes, are perhaps the only effective constraint on CEO pay given boards' incentives to acquiesce to CEO requests and the limited effectiveness of other mechanisms (Bebchuk and Fried, 2004). It is also possible that say on pay votes are more effective because, rather than force investors and boards to agree on a specific shareholder proposal, they spur a broader dialogue about executive pay. In these respects, say on pay votes are similar in spirit to vote-no campaigns, which prior research has shown to be an increasingly effective activism tool (Del Guercio et al., 2008; Cai et al., 2009; Ertimur et al., 2011).

Lastly, our study contributes to the research on the effect of monitoring mechanisms on executive pay,⁴ and complements a broader literature that examines how executive pay is affected by institutional arrangements that alter the allocation of decision rights.⁵ In this sense, our finding that say on pay is associated with steeper penalties for poor performance and greater shareholder value indirectly provides insights into how (and how much) extant compensation practices may be deficient when shareholders are diffuse and lack a low-cost mechanism for communicating their dissatisfaction with executive pay.

⁴ Prior studies have examined the effect of institutional ownership, board independence, hedge fund activism, disclosure, financial reporting, tax rules, and media coverage (Harris and Livingstone, 2002; Hartzell and Starks, 2003; Almazan et al., 2005; Carter et al., 2007; Brav et al., 2008; Core et al., 2008; Göx, 2008; Chhaochharia and Grinstein, 2009; Dikolli et al., 2009; Ferri and Sandino, 2009; Grinstein et al., 2009; Guthrie et al., 2010).

⁵ Research in this area has examined firms that go private with a private equity sponsor (Cronqvist and Fahlenbrach, 2011), firms with independent blockholders on their boards (Agrawal and Nasser, 2010), and privately held firms (Gao et al., 2011).

The paper proceeds as follows. Section 2 examines the market reaction to the passage of say on pay regulation. Section 3 presents the analysis of explicit changes to compensation plans around say on pay votes. Section 4 documents changes in the sensitivity of CEO pay to performance and other determinants. Section 5 concludes.

2. Market Reaction to Say on Pay Regulation

On June 25, 2002, the UK Department of Trade and Industry (DTI) submitted say on pay regulations to Parliament, which approved them on July 25, 2002, effective for fiscal years ending on and after December 31, 2002 (Directors' Remuneration Report Regulations, 2002).

As noted in the press at the time, the DTI's June 25, 2002 submission of say on pay regulations to the UK Parliament was viewed as a surprise.⁶ Although say on pay had been discussed by DTI officials for some time and had been the subject of two consultation documents (one in 1999, the other in 2001), after three years of inaction and rhetoric the market had become skeptical of any chance of near-term regulation.⁷ Since it was largely unexpected and it represented a substantial increase in the probability of say on pay regulation, the June 25, 2002 event is an ideal setting for an event study.⁸

To examine the market reaction to this event, following the approach in Larcker et al. (2011), in Table I we present cross-sectional regressions of event-day abnormal returns

⁶ For example, the *Financial News* (2002) reported: "The UK government has surprised companies by pressing ahead with the rapid implementation of new regulations giving shareholders an annual vote on executive pay... one DTI official suggested that the recent pay furores at Prudential and Vodafone may have contributed to the government's desire to see the new standards in place as soon as possible."

⁷ See, for example, Ward, L. and Treanor, J. (2002) Investors to vote on top pay: Government curbs boardroom excess – three years after promising action. *The Guardian*. June 26.

⁸ An appendix that examines four prior events that either increased or decreased (arguably to a lesser extent) the probability of say on pay regulation as well as one subsequent event (Parliament's approval of say on pay on July 25, 2002) is available as supplemental material on the journal's homepage www.revfin.org and from the publisher's web site <http://rof.oxfordjournals.org>.

(computed relative to an equally-weighted market index of all UK firms in our sample) on proxies for controversial CEO pay and controls for size, momentum, and book-to-market.

We begin our investigation by examining whether the market reaction was more positive for firms with controversial CEO pay levels, proxied for by excess CEO pay. Consistent with Core et al. (1999) and subsequent research, we compute excess pay as the residual from a cross-sectional regression of the natural log of total compensation on key economic determinants – namely, size (the natural log of sales), performance (ROA and annual stock returns), the market-to-book ratio, and industry indicators. Panel A documents a positive and statistically significant association between excess CEO pay and abnormal returns (p -value = 0.023).

While sometimes interpreted as a pay-level metric, excess pay captures not only performance-independent rents (e.g., a CEO who simply receives an extra 100,000 pounds) but also abnormal pay practices (e.g., abnormally weak penalties for poor performance). Put differently, although excess pay appears to speak to *how much* CEOs are paid (i.e., pay levels), these deviations from expected pay likely result from inefficiencies in *how* CEOs are paid. To examine whether the market reaction is more pronounced for firms with weak penalties for poor performance, in Panel B we re-estimate our model including the interaction between excess pay and an indicator for poor performance (coded 1 for firms in the bottom quartile of ROA, and 0 otherwise). The results indicate that the association between excess CEO pay and abnormal returns documented in Panel A is driven by firms with weak penalties for poor performance, consistent with the claim that shareholders view misaligned incentives as more costly and controversial than performance-independent rents (the latter typically representing a small portion of firm value; Jensen and Murphy, 1990; Bebchuk and Fried, 2004).

Finally, in Panel C we examine a more direct and easily observable measure of weak penalties for poor performance: notice periods greater than 12 months (implying severance payments greater than one year's compensation).⁹ Generous severance terms can be viewed as provisions that weaken penalties in the event of poor future performance. We find that firms with these provisions at the time of the June 2002 announcement had incremental positive abnormal returns of approximately 50 basis points ($p\text{-value} < 0.05$).

Overall, our event study analyses indicate that the submission of say on pay regulation to the UK Parliament was accompanied by positive stock price reactions at firms with controversial pay practices and, more specifically, practices that weaken penalties for poor performance, consistent with investors perceiving say on pay as a value-creating governance mechanism.

3. The Effect of Say on Pay: Evidence from Changes to Compensation Contracts

The foregoing event study captures shareholders' expectations about the value of say on pay. We now analyze the effect of say on pay on firms' CEO compensation practices.

Prior research casts doubt on the likelihood of any effect. Levit and Malenko (2011) analytically show non-binding shareholder votes to generally fail to convey shareholder preferences and, thus, to have a limited advisory role. The empirical evidence is more nuanced, with boards in recent years increasingly responsive to non-binding shareholder proposals that win a majority vote (e.g., Thomas and Cotter, 2007; Ertimur et al., 2010; Ertimur et al., 2011). However, as shown in Table II, say on pay votes rarely achieve majority dissent, raising the question of whether they will have any impact.

⁹ In Section 3 we present evidence that notice periods longer than 12 months were the most controversial compensation practice before say on pay and the provision most affected by say on pay votes.

Table II reports summary statistics for say on pay voting outcomes in 2003 and 2004 for FTSE 350 firms (data from Manifest, a UK proxy advisor). Consistent with prior research on pay-related shareholder votes (e.g., Thomas and Martin, 1999, 2000; Ertimur et al., 2011), Table II shows high voting dissent, as measured by votes against plus abstention votes (scaled by votes cast), to be relatively rare. For example, in 2003 (2004), we observe voting dissent in excess of 20% in only 26.5% (15.5%) of FTSE 350 firms (we focus on the 20% threshold because it is viewed by practitioners and previous studies as an indication of substantial opposition, e.g., Del Guercio et al., 2008). Between 2003 and 2004, mean voting dissent decreased from 14.0% to 10.9%, a decline driven by firms with the highest dissent (e.g., from 63.1% to 19.4% for firms with dissent in excess of 50% in 2003).

Episodes of high dissent, being relatively rare, are likely to attract boards' attention. The large vote against GlaxoSmithKline's remuneration report received worldwide coverage in the press, causing the board to engage in an extensive consultation process with shareholders (BBC News, 2003).¹⁰ On the other hand, given that say on pay votes are non-binding, firms may choose to ignore them, particularly when the voting dissent is relatively low. Ultimately, whether and how firms respond to say on pay votes is an empirical question.

3.1 IDENTIFYING CHANGES IN COMPENSATION PRACTICES AROUND SAY ON PAY

As a starting point for our analysis, we examine changes in compensation practices around say on pay for the 75 firms that experienced more than 20% voting dissent at their first say on pay vote (their average dissent was 31.6%), hereafter referred to as high dissent firms. As shown in Table III, high dissent firms are generally similar to the other FTSE 350 firms, except that they experienced significantly worse returns before the vote and were somewhat larger.

¹⁰ At GlaxoSmithKline, 50.7% of shares voted were cast against approval of the remuneration report. Shareholders objected to an estimated £22 million severance arrangement for the CEO (reflecting a two-year notice period), lack of challenging performance targets, and the presence of a retesting provision in the stock option plan.

For each of the high dissent firms, we compare pre and post vote remuneration reports and find that most changes occurred in two areas, severance contracts and performance-based vesting conditions in equity plans (see Table IV). With respect to the former, 16 firms reduced the notice period for existing executives' contracts from 24 to 12 months, which implies a 50% reduction in severance pay. As only 20 of the 75 firms had notice periods greater than 12 months to begin with, this implies that 80.0% of eligible companies reduced their notice periods.¹¹

With respect to performance-based vesting conditions, we find that 29 firms agreed to eliminate or reduce their retesting provisions, which allow targets to be re-evaluated if missed during the initial measurement period, for future option grants. As shown later in Table VI, before the first say on pay vote 38 of the 55 high dissent firms with an option plan allowed retesting. Thus, the rate of removal or reduction of retesting, like that for changes in notice periods, is high at 76.3% (29 out of 38 firms).

Note that two approaches to retesting are common among UK firms. Under the so-called three-year rolling retesting approach, if the performance target (say, EPS growth of 9% over three years) is not met by the end of the third year (that is, between years 0 and 3), the plan allows for the condition to be retested during each subsequent three-year period (i.e., EPS growth between years 1 and 4, years 2 and 5, and so on until expiration). Under the so-called fixed point retesting, if the performance target is not met by the end of the third year, the plan allows for the condition to be retested, from the same fixed point (the grant date), at the end of the fourth year and again at the end of the fifth year, with the performance target adjusted accordingly (EPS growth of 12% over four years, 15% over five years); if the performance condition is still not met after the fifth year, the options lapse. Shareholders generally express stronger concerns about

¹¹ We also find that four firms reduced the notice period upon a change in control to 12 months (some firms with a regular notice period of 12 months allow for a 24-month notice period upon change in control).

rolling retesting than about fixed point retesting (average voting dissent 34.8% vs. 27.6%, untabulated). Consistent with this view, Table IV shows that the rate of removal of retesting is higher among firms that allow rolling retesting (15 out of 18 firms, or 83.3%) than among firms that allow fixed point retesting (11 out of 19 firms, or 57.9%).

We also find that 11 firms incorporated tougher performance-based vesting conditions in their equity plans, usually by adopting higher performance targets (e.g., higher EPS growth conditions for stock options to vest).

The foregoing changes to severance contracts and performance-based vesting conditions share two important features. First, they are essentially directed at removing or modifying provisions that increase the likelihood of rewards for failure (i.e., payments after poor performance). Second, they often can be traced to consultations with shareholders, as shown in the online appendix. As the bottom of Table IV shows, 31% of sample firms explicitly state that they changed pay practices in response to consultations with shareholders after a say on pay vote.¹² Most of these cases refer to severance contracts or performance-based vesting conditions.

Other, relatively infrequent, reported changes can be classified as measures aimed at increasing executive ownership (e.g., minimum ownership requirements, mandatory holding periods for stock awards, bonus plans with awards payable in stock). In a few instances, firms shifted from stock options to restricted stock. Apart from being infrequent, these changes usually are not reported as responses to shareholder requests or say on pay votes, but rather as efforts to comply with best practice guidelines (e.g., increase executive ownership; see Sheehan, 2007) or new accounting rules (e.g., the shift towards restricted stock).

¹² Publicly reported cases of consultation with shareholders are likely to understate the full extent of such communication. Indeed, when asked, “Has the extent to which companies actively consult with you about remuneration increased [after say on pay],” 60% (32%) of surveyed UK institutional investors answered 5 (4) on a 5-point scale, 5 denoting “to a large extent” (Deloitte, 2004).

Perhaps surprisingly, reported changes to bonus plans are few, and mostly involve increasing or decreasing the maximum bonus rather than changing plan parameters (performance targets and measures, slope, and so forth). It is important to note, however, that UK firms, like US firms, generally disclose few or no details about their bonus plans (UK shareholders have long complained about the lack of disclosure about bonus plans; Deloitte, 2004). For this reason, we employ a regression-based methodology to infer whether the sensitivity of bonuses to performance changed as a result of say on pay (see Section 4).

3.2 ARE CHANGES IN COMPENSATION PRACTICES DUE TO SAY ON PAY?

To formally test whether the changes in Table IV are the result of say on pay or other confounding factors, we collect for our sample of 75 high dissent (HD) firms information on changes in remuneration practices *before* the first say on pay vote. We collect an analogous set of *pre*- and *post*-vote information for a carefully matched sample of low-dissent counterfactual firms selected using a variant of the binary hybrid matching procedure introduced by Rosenbaum and Rubin (1985) and Lechner (2002). This procedure, which is designed to identify control firms that differ from the treatment sample in terms of realized voting dissent (our treatment), but are similar in terms of expected dissent (that is, in terms of the firm characteristics expected to drive voting dissent), involves the following steps. To ensure the highest-powered comparisons, we first draw potential matches from the pool of firms with low dissent at the first say on pay vote (defined as voting dissent less than 5%; our sample includes 85 such firms). Then, using data for the combined sample of high and low dissent firms, we estimate a logistic regression where $Y=1$ (0) if the firm experiences high (low) dissent.¹³ Using the outputs of the logistic

¹³ We include as explanatory variables proxies for size (natural log of sales), performance (one-year stock returns, return on assets), growth (market-to-book ratio), leverage (debt-to-equity ratio) and monitoring mechanisms (institutional ownership, board independence, and CEO ownership). We find high dissent to be more likely among larger firms and firms with worse stock performance.

regression, we compute a propensity score for each firm and, for each high dissent firm, identify the set of low dissent firms with a similar propensity score (that is, within 25% of the standard deviation of the propensity scores; see Rosenbaum and Rubin, 1985; Mola et al., 2010). From this subset of potential matches, we select the single match closest to the HD firm in natural log of market value of equity and stock returns (the variables with the largest imbalances in Table III) based on the Mahalanobis distance (for a description, see Rubin, 1980; Roberts and Whited, 2011). Hereafter, we refer to the resulting matched sample of 75 low dissent observations as LD firms.¹⁴ As shown in Table V, the matching procedure produces suitable counterfactuals for the HD firms. In particular, we no longer observe the significant difference in returns and size documented in Table III.

Next, we hand collect information on compensation changes for the LD firms. To increase the power of our tests, we focus on the two changes Table IV indicates to be most frequent (and thus amenable to statistical tests) and most often linked to shareholder pressure: reduction of notice periods to 12 months, and elimination or reduction of retesting provisions.

The results are reported in Table VI. With respect to severance, Panel A yields three major insights. First, at the beginning of the fiscal year prior to the first say on pay vote (e.g., at the beginning of 2002 if the vote is in April 2003), the proportion of firms with a notice period in excess of 12 months is larger in the HD than in the LD group (33.3% vs. 13.3%). Second, 70.0% of LD firms, but only 20.0% for HD firms, reduce the notice period to 12 months during the year *before* the vote. Consequently, at the time of the vote, 26.7% of HD firms, but only 4.0% of LD firms, still have a notice period greater than 12 months. Third, after the vote, 80.0% of HD firms but only 33.3% of LD firms, reduce their notice period to 12 months. All of these differences are

¹⁴ The low dissent sample in Table VI was selected by matching with replacement. Matching without replacement results in 58 closely-matched high/low dissent pairs and produces identical inferences.

statistically significant. Most important, the likelihood that an HD firm will reduce its notice period is higher during the year subsequent to the vote (80.0%) than during the year preceding the vote (20.0%). Given that the opposite pattern obtains for LD firms, HD firms' high probability of a post-vote reduction is not likely to be driven by other events or a general trend.¹⁵

The foregoing evidence raises the question of whether the reduction in voting dissent among HD firms documented in Table II is driven by the removal of controversial pay practices. To address this question, Panel B of Table VI examines how voting dissent changed for HD firms between the first and second say on pay votes conditional on whether a firm reduced its notice period. As can be seen in row A, the 16 HD firms that reduced their notice period experienced a 23.9% decrease in dissent (from an average of 34.3% at the first vote) versus an *increase* of 12.2% among the (admittedly small sample of) four HD firms that maintained a notice period longer than 12 months, resulting in a significant difference of 36.1% ($p < 0.01$). When we repeat this test in row B after excluding firms that removed retesting provisions (in order to eliminate any effect of that on the change in dissent), the difference is even more pronounced at 51.9%. All three HD firms that did not reduce their notice period (and did not remove retesting provisions) experienced an increase in dissent, respectively, of 22.3%, 24.3% and 28.4%, suggesting a strong penalty for lack of responsiveness to shareholder pressure. During the year after the second say on pay vote (the year with the spike in dissent), all three

¹⁵ After the passage of say on pay, the National Association of Pension Funds and Association of British Insurers, the most influential institutional investor groups in the UK, released a Joint Statement on Best Practice on Contracts endorsing the use of one-year notice periods. A UK government study of severance contracts made the same recommendation (Department of Trade and Industry, 2003; House of Commons Trade and Industry Committee, 2003). However, these events cannot explain the pattern exhibited by the reduction of notice periods documented in Table VI (i.e., after the vote for HD firms, before the vote for LD firms), which is more consistent with a causal effect of the say on pay vote. Also, firms explicitly link the decision to reduce notice periods to consultation with institutional investors around the say on pay vote (see the online appendix).

firms reduced their notice period to 12 months, suggesting that continued shareholder pressure ultimately succeeds at inducing governance changes (untabulated analysis).

Overall, the findings in Panels A and B of Table VI indicate that (i) long notice periods were a major source of shareholder discontent (high dissent was observed in 20 of 23 sample firms with notice periods exceeding 12 months), (ii) many firms removed this provision *ahead* of the vote, presumably in an attempt to avoid voting dissent and consistent with institutional investors' preference for "bargaining in the shadow" (Black and Coffee, 1994; Becht et al., 2008; Listokin, 2008), (iii) most firms reluctant to remove the provision ahead of the first vote did so after the adverse vote and experienced a significant decrease in dissent at the second say on pay vote, and (iv) the few firms that did not respond to the first vote were penalized by a substantial increase in dissent at the second vote, after which they reduced the notice period to 12 months. By the end of the second say on pay season, the ex ante effect of say on pay regulation, together with the ex post effect of shareholder votes, prompted firms to adopt the one-year notice periods best practice recommended by the Combined Code.

Panels C and D of Table VI present results of analyses related to retesting provisions. Consistent with our investigation of notice periods, these analyses confirm that say on pay votes affect firm behavior, and firms' response to say on pay votes, in turn, impacts future shareholder votes. Specifically, (i) at the beginning of the fiscal year prior to the first say on pay vote, retesting provisions are more common among HD than among LD firms (74.1% vs. 51.6%), (ii) LD firms are more likely than HD firms to remove retesting provisions in the year preceding the first vote (25.0% vs. 5.0%), (iii) HD firms are more likely than LD firms to remove retesting provisions in the year following the first vote (76.3% vs. 28.0%), (iv) after the first vote, the likelihood of retesting provisions being removed increases for HD firms (from 5% to 76.3%), but

not for LD firms, and (v) HD firms that remove retesting provisions in the year after the first vote experience a substantial decline in voting dissent relative to HD firms that do not remove them (22.1% vs. 3.4%, excluding the effect of reductions in notice periods). Of the nine HD firms that did not eliminate retesting provisions after the first say on pay vote, seven out of eight (one firm was acquired) eliminated them in the subsequent year, after facing similar dissent (untabulated). Hence, as for notice periods, over the course of two years say on pay essentially resulted in the elimination of retesting provisions among HD firms.

The similarity of results regarding changes in the retesting and severance provisions is noteworthy given differences in the prevalence of the two practices. In contrast to notice periods exceeding 12 months, retesting provisions were quite common (and not only among HD firms) in the years leading up to say on pay. For example, at the beginning of the fiscal year prior to the first vote, across the HD and LD samples 62.1% of the sample firms (i.e., 72 of the 116 firms with an option plan) had a retesting provision, but only 23.3% (35 out of 150) had notice periods in excess of 12 months. This suggests that retesting provisions were generally less controversial than long notice periods. Consistent with this observation, whereas notice periods exceeding 12 months essentially vanished from both the HD and LD groups within two years of the first vote, retesting provisions disappeared only in HD firms.¹⁶ This suggests a nuanced shareholder use of say on pay votes, contrary to the notion that they would result in one-size-fits-all compensation practices (Gordon, 2009). For a subset of firms (the LD firms), shareholders viewed retesting as a benign practice, hence, the lack of a voting penalty. Our reading of LD firms' remuneration reports further supports this inference. Many LD firms that retained retesting provisions provided

¹⁶ The 23 LD firms that continued to allow retesting after the first say on pay vote experienced low dissent at the second say on pay vote (average ~5%), and more than 60% of them continued to use retesting after the second say on pay vote (untabulated), despite the peer pressure potentially occasioned by the high frequency of elimination by HD firms.

an economic rationale like business cyclicalities or challenging vesting conditions that apparently resonated well with shareholders.¹⁷

4. The Effect of Say on Pay: Evidence from Cash and Total Direct Compensation

4.1 RESEARCH DESIGN

Because it documents only changes in disclosed, and thus observable, provisions of compensation contracts (e.g., retesting), the evidence presented in Section 3 may not capture the full effect of say on pay on compensation practices. As noted earlier, important elements of CEO pay including merit raises, bonuses, and the size of equity awards involve considerable discretion, the exercise of which on a year-to-year basis is rarely disclosed by boards. To examine changes in these discretionary choices, we regress CEO pay on its economic determinants before and after say on pay. This analysis enables us to examine as well whether the changes documented in Section 3 are offset by increases in other elements of compensation.

As a starting point, we estimate an OLS panel regression of CEO pay on its economic determinants for a broad sample of UK firms over the 2000-2005 period. The dependent variable is $\ln(\text{Compensation})$, defined as the natural log of either CEO cash compensation (*CEO Cash Pay*) or CEO total direct compensation (*CEO Total Pay*).¹⁸ The independent variables include $\text{Industry-Adjusted Returns}^{+(-)}$, defined as the difference between the one-year stock return of a

¹⁷ For example, Scottish Radio Holdings asserted that: “Given the cyclical nature of advertising revenue, the Committee considers it appropriate that should the performance condition not be met over this period [3 years] it would be extended to four years” (Scottish Radio Holdings, 2003, p.20). At the same time, the firm raised the performance target for vesting from an EPS growth of 2% over inflation to an EPS growth of 4-9%. Another interesting example is SABMiller. After the say on pay vote and in response to shareholder pressure, the firm decided not to remove retesting because it would put its UK executives at a disadvantage relative to its US and South African executives, who receive options with time-based rather than performance-based vesting (SABMiller, 2003, p.20).

¹⁸ Similar to the corresponding data for US firms, CEO cash compensation is defined as salary plus cash-based bonus. CEO total direct compensation is defined as the sum of CEO cash pay, stock options (valued using the Black-Scholes formula), restricted stock grants (valued at 100% of performance contingent awards), benefits (e.g., company car, health insurance, life insurance, etc.) and other compensation (e.g., pension contributions, loans, ad hoc payments such as relocation expenses, etc.).

given firm and that of its industry, if positive (negative), and 0 otherwise; *Industry Returns*, the average one-year stock return of firms in a given industry; *Industry-Adjusted ROA*¹⁹, the difference between the annual ROA of a given firm and that of its industry, if positive (negative), and 0 otherwise; *Industry ROA*, the average annual ROA of firms in a given industry;¹⁹ *Ln(Sales)*, the natural logarithm of annual revenue; *Market-to-Book*, the ratio of market to book value of equity; *CEO Ownership*, the percentage of the firm's equity held by the CEO; and *Trend*, defined as the fiscal year minus 1999 (2002) for observations from the pre- (post-) say on pay period. We include firm fixed effects to control for omitted firm-specific characteristics that are constant over time (Murphy, 1985).²⁰

To capture any post-regulation changes in the sensitivity of CEO pay to its determinants we utilize an indicator variable, *Post*, equal to 1 for observations in the period 2003-2005 (post-say on pay) and 0 for those in the period 2000-2002 (pre-say on pay). In particular, we interact the aforementioned determinants of pay both with *Post* and with *I-Post* (see the notes to Table IX for the full equation). Thus, we essentially stack two regressions: the first where the observations are from the pre-say on pay period (2000-2002), and the second where the observations are from the post-say on pay period (2003-2005). By stacking the regressions, we are able to test whether the coefficient estimates (e.g., the sensitivity of pay to performance)

¹⁹ We do not split the market- and accounting-based industry performance measures into positive and negative realizations because no sample industries experience a negative average ROA, and only one industry realizes a negative average stock return in the post-period.

²⁰ More detailed definitions are provided at the bottom of Tables VIII and IX. An extensive literature on executive pay highlights the role of size, performance, growth options, and CEO ownership (e.g., Murphy, 1985; Jensen and Murphy, 1990; Rosen, 1992; Smith and Watts, 1992; Sloan, 1993; Core et al., 1999; Core et al., 2003b; Gabaix and Landier, 2008). Examples of studies that analyze asymmetry in the sensitivity of CEO pay to positive and negative performance realizations include Dechow et al. (1994), Gaver and Gaver (1998), Comprix and Muller (2006), and Shaw and Zhang (2010). Studies that investigate the relation between CEO pay and sector performance include Bertrand and Mullainathan (2001), Oyer (2004), Garvey and Milbourn (2006), Rajgopal et al. (2006), and Gopalan et al. (2010). Note that we include stock returns as determinants of cash CEO compensation because they may proxy for other (omitted) performance measures explicitly used in compensation contracts (individual and nonfinancial performance measures; see, for example, Bushman and Smith, 2001) or implicitly used in determining discretionary bonuses (e.g., Murphy and Oyer, 2004).

change after say on pay. In addition, we include among the independent variables the indicator *Post*, to capture any one-time, performance independent shift in the average level of CEO pay.

Our sample is based on a database compiled by BoardEx, an independent research company that tracks compensation and governance data for the 750 largest UK firms including all FTSE 350 firms. From BoardEx, we obtain CEO compensation, CEO ownership, board independence, institutional ownership, and industry classification data between 2000 and 2005. We obtain financial data from Worldscope and stock returns from Datastream. To ensure consistency in the sample composition over time, we restrict the analysis to firms with available data in at least one year in both the pre- and post-say on pay periods. We also exclude firm-year observations for years with a CEO turnover event to avoid the effect of confounding factors that typically accompany a change in CEO (e.g., mega grants, sign-on bonuses, big bath accounting) and maintain a clearer link between firm performance and the compensation of a single CEO. The final sample used in our regression analyses consists of 3,305 firm-year observations.

Finally, note that although we present our results for both cash and total CEO pay, our inferences emphasize the former. First, cash compensation is especially relevant in UK firms because it represents two-thirds of CEO total pay, as shown in the next subsection. Second, due to the formulaic nature of most cash-based bonus plans, there is typically a direct structural link between *realized* cash pay and *realized* operating performance that allows for a powerful empirical analysis (e.g., Dechow et al., 1994; Gaver and Gaver, 1998; Murphy, 1999). In contrast, the link between the grant value of equity awards (the major component of non-cash total direct compensation) and *realized* performance is less clear because rewarding past performance is only one of many objectives of equity-based pay.²¹ Moreover, virtually all UK

²¹ Firms use equity-based pay mostly to re-align incentives for *future* performance (Core and Guay, 1999), attract and retain executives (Oyer and Schaefer, 2005), and for liquidity, accounting, and tax-related reasons (Core et al.,

firms employ in their equity plans some performance-based vesting conditions (Carter et al., 2009) that are likely to be a key lever used by boards to obtain the desired sensitivity of (future) realized equity pay to (future) performance. Indeed, they draw significant attention from shareholders, as shown in Table IV. But the Black-Scholes estimates of the value of equity grants included in our measure of total CEO pay do not account for these conditions. For all these reasons, we view the analysis of cash pay as a more powerful test of the effect of say on pay on the sensitivity of CEO pay to performance.²² We nevertheless report the total CEO pay analysis, to shed light on whether cash compensation effects are offset by other elements of pay.

4.2 DESCRIPTIVE STATISTICS ON CEO PAY

Table VII provides descriptive information for our regression sample. Consistent with prior studies (e.g., Conyon and Murphy, 2000; Conyon et al., 2011), most UK executives are paid primarily in cash. Median cash compensation is £363,000, while median equity compensation is £100,000 (Panel A), with cash pay representing about two-thirds of total pay (Panel B). There is some evidence that compensation increased over our sample period, with greater weight on the performance-based component (bonus and equity pay). But as Table VIII indicates, at least part of this increase can be attributed to a stronger economy, with bull markets raising the value of equity grants for firms issuing options according to fixed number policies (Hall, 1998). To assess the effect of say on pay on CEO compensation, it is thus necessary to control for its economic determinants using regression analysis.

4.3 RESULTS – THE IMPACT OF SAY ON PAY ON CEO COMPENSATION

2003a). Indeed, most studies find no association between the value of equity grants and realized performance (Yermack, 1995; Baber et al., 1996; Baber et al., 1998; Core and Guay, 1999).

²² In the online appendix we replace cash pay with its most performance-sensitive component, bonus pay. Our inferences are unchanged.

Table IX provides the results of our analysis of the determinants of CEO compensation in the pre- and post-say on pay periods. Our main focus is on the test for differences in coefficients across the two periods (i.e., the Difference Post-Pre column).

For both cash (Panel A) and total pay (Panel B), the analysis yields two main insights. First, we observe a marked increase in the sensitivity of CEO pay to poor performance. In particular, the coefficients on *Industry-Adjusted ROA*⁻ and *Industry-Adjusted Returns*⁻ switch from negative and insignificant in the pre-period to significant and positive in the post-period, with a statistically significant increase. One interpretation of this finding is that the introduction of say on pay leads to higher accountability for poor performance, consistent with calls to eliminate rewards for failure.

This result is in line with, but incremental to, the evidence presented in Tables IV and VI. Most of the documented changes (e.g., reduction in notice periods, removal of retesting, tougher vesting conditions) are *not* reflected in our measures of CEO cash and total pay, and thus cannot drive our results. Hence, it appears that investors have used say on pay to pressure firms to increase the sensitivity of CEO pay to poor performance through changes not only to observable provisions, but also to less observable elements of pay (e.g., performance targets of bonus plans). Our finding also implies that firms did not offset the explicit changes reported in Table VI through other elements of pay that are more difficult for investors to monitor.

The second key insight from Table IX is that *after* controlling for performance and other determinants there is no change in the growth rate of CEO pay, as captured by the coefficient on *Trend*. The coefficient on *Post* is also insignificant, suggesting the absence of any one-time, performance-independent shift in the level of CEO pay.²³

²³ With respect to the other variables, we find in both the pre- and the post- periods, as expected and consistent with prior studies, that CEO cash pay shows a significantly positive association with size (*Ln Sales*), positive operating

Taken together, our findings suggest that say on pay had a moderating effect on the level of CEO compensation only *conditional upon poor performance*. These results are consistent with voting UK investors focusing more on *how* CEOs are paid (e.g., the linkage between pay and performance) than on *how much* they are paid. Ertimur et al. (2011) similarly find that voting US shareholders support pay-related proposals that address pay design and the pay-setting process while ignoring proposals that attempt to micromanage target levels of pay.

These results are robust to (i) restricting the analysis to firms with available data in at least two (rather than one) years in both pre and post periods, (ii) removing the observations from 2002 to allow for the possibility of pay changes in response to the announcement of the regulation, and (iii) clustering standard errors by industry or firm-period rather than by firm.

Finally, to investigate whether the effects documented in Table IX are attributable to say on pay or to other factors that affect all firms, we examine a control sample of UK firms not subject to say on pay because they are traded on the AIM, a sub-market of the London Stock Exchange with a more flexible regulatory system. We show in the online appendix that the increased sensitivity of CEO cash compensation to poor operating performance documented in Table IX is observed only for firms subject to say on pay (i.e., non-AIM UK firms).

4.4 IS THE IMPACT OF SAY ON PAY MORE PRONOUNCED IN FIRMS WITH CONTROVERSIAL CEO PAY PRACTICES?

If the increased penalty for poor performance documented in Section 4.3 was the result of say on pay, we would expect it to be more pronounced for firms with more controversial CEO pay practices (and thus under greater shareholder pressure to revise those practices). We use two

performance (*Industry-Adjusted ROA*⁺), and growth options (*Market-to-Book Ratio*). CEO cash pay is also positively related to *Industry ROA* and (only in the post-period) *Industry Returns*. As for CEO total pay, in both the pre- and post-periods it shows a significantly positive association with size (*Ln Sales*), positive stock and operating performance (*Industry-Adjusted ROA*⁺ and *Industry-Adjusted Returns*⁺), and *Industry Returns*. The *Trend* variable is significant in both periods for both CEO cash pay and CEO total pay.

proxies to identify such firms. The first, degree of voting dissent, captures shareholder perception of the quality of CEO pay practices.²⁴ Our analysis of changes in specific provisions (Section 3) indicates that firms that experience higher voting dissent are more likely to respond to shareholder calls to remove contractual features that soften penalties for poor performance. Here we examine whether degree of voting dissent also explains changes in unobservable elements of CEO pay. In particular, we test whether firms that experience high voting dissent respond by imposing stronger pay penalties for poor performance.

To do so, we effectively stack four regressions, two for *HD* firms (one for the pre- and one for the post-period) and two for non-*HD* FTSE 350 firms (see the notes to Table X for the full equation). As in Tables III-VI, *HD* is coded 1 for firms with more than 20% voting dissent at their first say on pay vote and 0 otherwise (results are robust to using 15% and 25% thresholds). Stacking the regressions enables us to test not only whether coefficients change across periods, but also whether such changes differ across the two subsamples (difference-in-differences).

The results, presented in Table X, indicate a greater increase in penalties for poor operating performance among high dissent firms. In the CEO cash compensation regression (Panel A), we find a positive and significant increase in the coefficient on *Industry-Adjusted ROA* only for the *HD* subsample, and this increase is significantly greater than for the non-*HD* group (Difference in Difference column). Notably, the increase in the coefficient on *Industry-Adjusted ROA* is larger than for the overall sample (Table IX). In contrast, degree of voting dissent does not seem to affect the change in the sensitivity of CEO pay to other determinants. Results are similar when the dependent variable is CEO total compensation (Panel B).

²⁴ Survey evidence and numerous press reports (Deloitte, 2004; Sheehan, 2007) indicate, consistent with our evidence in Table VI, that voting dissent increases with the presence of controversial compensation provisions (e.g., long notice periods, low performance hurdles, retesting, one-time and discretionary awards, and large termination payments). Also, Carter and Zamora (2009) find dissent to be higher in firms with higher salaries, weaker pay-for-performance sensitivity in bonus pay, and greater potential dilution in equity pay.

Our second proxy for controversial CEO pay practices is average excess CEO pay in the pre-period. To estimate excess CEO pay, similar to other studies (e.g., Core et al., 1999) we run a regression of the natural log of total pay on its economic determinants over the pre-period, controlling for industry (as opposed to firm) effects. We then compute for each firm the average residual over the pre-period (i.e., across the yearly residuals). Lastly, we construct an indicator variable, *Excess CEO Pay*, that is equal to 1 for firms with an average residual value in the top 25% of the distribution, and 0 otherwise, and substitute this variable for the *HD* variable (see the notes to Table XI for the full equation). Unlike voting dissent, this measure is not affected by actions taken by the firm immediately prior to the vote (e.g., commitment to change pay practices to avoid dissent), and may thus be a useful complement to the prior analysis. As reported in Table XI, we find a significant increase in the sensitivity of CEO pay to *Industry-Adjusted ROA* only for *Excess CEO Pay* firms (see Difference Post–Pre columns), and this increase is significantly larger than for *No Excess CEO Pay* firms (see Difference in Difference column). Again, the results are similar when the dependent variable is CEO total pay (Panel B).

Note that the correlation between *HD* and *Excess CEO Pay*, although positive, is only 0.148 (significant at the 1% level, untabulated). Thus, consistent with the analysis of specific provisions reported in Table VI, the evidence in Table XI implies that the effects of say on pay were not confined solely to a simple ex post response in high dissent firms, but extended to firms with controversial practices (e.g., excess pay) that may have avoided voting dissent by committing to strengthen the pay for performance link. This finding highlights the importance of performing a pre vs. post analysis to capture the full effect of say on pay regulation.²⁵

²⁵ In additional tests (untabulated), we examine whether the change in the sensitivity of CEO pay to its economic determinants after the introduction of say on pay depends on the level of monitoring already in place. To the extent that say on pay serves as a substitute (complementary) monitoring mechanism, one would expect a stronger effect in firms in which the current level of monitoring is low (high). Using the concentration of institutional ownership as a

Collectively, these tests indicate the increase in sensitivity of pay for poor performance to be more pronounced in firms with controversial pay practices.

5. Conclusion

This paper examines the effects of regulation introduced in the UK in 2002 mandating an advisory (non-binding) shareholder vote on the executive remuneration report (known as a say on pay). We document a positive market reaction to the announcement of say on pay regulation for firms with controversial CEO pay practices and, more specifically, weak penalties for poor performance, consistent with shareholders perceiving say on pay as a value enhancing monitoring mechanism. We also find that firms respond to high voting dissent by removing controversial provisions criticized as rewards for failure, such as long notice periods and retesting provisions for option grants. Finally, we find a significant increase in the sensitivity of CEO pay to poor performance, particularly among firms that experience high dissent at the first vote and firms with excess CEO pay before the regulation. Our study contributes to the literature on executive compensation and shareholder voting, at a time when policy reforms are increasing the role of shareholder voice in corporate governance.

proxy for monitoring (e.g., Hartzell and Starks, 2003; Dikolli et al., 2009), we find an increase in the sensitivity of cash and total CEO pay to poor performance in firms with high and low concentration of institutional ownership, and the increase does not differ significantly based on the level of monitoring. We find similar results when we use board independence and size as proxies for monitoring. Hence, we cannot determine whether say on pay acts as a substitute or complement, which suggests that its interaction with other monitoring mechanisms may be more nuanced.

REFERENCES

- Agrawal, A. and Nasser, T. (2010) Blockholders on boards and CEO compensation, turnover, and firm valuation, University of Alabama, Working Paper.
- Almazan, A., Hartzell, J., and Starks, L. (2005) Active institutional shareholders and managerial compensation, *Financial Management* **34**, 5–34.
- Associated Press (2007) Administration opposes say on pay bill, April 19, (<http://www.msnbc.msn.com/id/18203381/>).
- Baber, W., Janakiraman, S., and Kang, S. (1996) Investment opportunities and the structure of executive compensation, *Journal of Accounting & Economics* **21**, 297–318.
- Baber, W., Kang, S., and Kumar, K. (1998) Accounting earnings and executive compensation: The role of earnings persistence, *Journal of Accounting & Economics* **25**, 169–193.
- Bainbridge, S. (2008) Remarks on say on pay: An unjustified incursion on director authority, UCLA School of Law, Research Paper No. 08-06.
- Baird, J. and Stowasser, P. (2002) Executive compensation disclosure requirements: The German, UK, and US approaches, PracticalLaw.com, PLC Document 4-101-7960, September 23.
- BBC News (2003) Glaxo defeated by shareholders, May 19, <http://news.bbc.co.uk/1/hi/business/3038381.stm>.
- Bebchuk, L. (2007) Written testimony submitted before the Committee on Financial Services, United States House of Representatives, Hearing on Empowering Shareholders on Executive Compensation, March 8.
- Bebchuk, L. and Fried, J. (2004) *Pay without Performance: The Unfulfilled Promise of Executive Compensation*, Harvard University Press, Cambridge, Massachusetts.
- Becht, M., Franks, J., Mayer, C., and Rossi, S. (2008) Returns to shareholder activism: Evidence from a clinical study of the Hermes UK Focus Fund, *Review of Financial Studies* **22**, 3093–3129.
- Bertrand, M. and Mullainathan, S. (2001) Are executives paid for luck? The ones without principals are, *Quarterly Journal of Economics* **116**, 901–932.
- Black, B. and Coffee, J. (1994) Hail Britannia? Institutional investor behavior under limited regulation, *Michigan Law Review* **92**, 1997–2087.
- Brav, A., Jiang, W., Partnoy, F., and Thomas, R. (2008) Hedge fund activism, corporate governance, and firm performance, *Journal of Finance* **63**, 1729–1775.

Bushman, R. and Smith, A. (2001) Financial accounting information and corporate governance, *Journal of Accounting & Economics* **32**, 237–333.

Cai, J., Garner, J., and Walkling, R. (2009) Electing directors, *Journal of Finance* **64**, 2389–2421.

Cai, J. and Walkling, R. (2011) Shareholders' say on pay: Does it create value? *Journal of Financial and Quantitative Analysis* **46**, 299–339.

Carter, M., Ittner, C., and Zechman, S. (2009) Explicit relative performance evaluation in performance-vested equity grants, *Review of Accounting Studies* **14**, 269–306.

Carter, M., Lynch, L. J., and Tuna, I. (2007) The role of accounting in the design of CEO equity compensation, *The Accounting Review* **82**, 327–357.

Carter, M. and Zamora, V. (2009) Shareholder remuneration votes and CEO compensation design, Boston College, Working Paper.

Chari, A., Chen, W., and Dominguez, K. (2009). Foreign ownership and firm performance: Emerging-market acquisitions in the United States. National Bureau of Economic Research, Working Paper 14786.

Cheffins, B. and Thomas, R. (2001) Should shareholders have a greater say over executive pay? Learning from the US experience, Vanderbilt University Law School, Working Paper.

Chhaochharia, V. and Grinstein, Y. (2009) CEO compensation and board structure, *Journal of Finance* **64**, 231–261.

Cochran, W. (1968) The effectiveness of adjustment by subclassification in removing bias in observational studies. *Biometrics* **24**, 295–313.

Comprix, J. and Muller, K. (2006) Asymmetric treatment of reported pension expense and income amounts in CEO cash compensation calculations, *Journal of Accounting & Economics* **42**, 385–416.

Canyon, M., Core, J., and Guay, W. (2011) Are US CEOs paid more than UK CEOs? Inferences from risk-adjusted pay, *Review of Financial Studies* **24**, 402–438.

Canyon, M. and Murphy, K. (2000) The Prince and the pauper? CEO pay in the United States and United Kingdom, *Economic Journal* **110**, 640–671.

Core, J. and Guay, W. (1999) The use of equity grants to manage optimal equity incentive levels, *Journal of Accounting & Economics* **28**, 151–184.

Core, J., Guay, W., and Larcker, D. (2003a) Executive equity compensation and incentives: A survey, *Economic Policy Review* **9**, 27–50.

Core, J., Guay, W., and Larcker, D. (2008) The power of the pen and executive compensation, *Journal of Financial Economics* **88**, 1-25.

Core, J., Guay, W., and Verrecchia, R. (2003b) Price versus non-price performance measures in optimal CEO compensation contracts, *The Accounting Review* **78**, 957–981.

Core, J., Holthausen, R., and Larcker, D. (1999) Corporate governance, chief executive officer compensation, and firm performance, *Journal of Financial Economics* **51**, 371–406.

Cronqvist, H. and Fahlenbrach, R. (2011) CEO contract design: How do strong principals do it? Claremont McKenna College, Working Paper.

Dechow, P., Huson, M., and Sloan, R. (1994) The effect of restructuring charges on executives' cash compensation, *The Accounting Review* **69**, 138–156.

Del Guercio, D., Wallis, L., and Woidtke, T. (2008) Do boards pay attention when institutional investor activists “just vote no”? *Journal of Financial Economics* **90**, 84–103.

Deloitte (2004) Report on the impact of the Directors' Remuneration Report Regulations: A report for the Department of Trade and Industry.

Department of Trade and Industry (DTI) (2003) Rewards for failure, directors' remuneration – Contracts, performance & severance, June.

Dikolli, S., Kulp, S., and Sedatole, K. (2009) Transient institutional ownership and CEO contracting, *The Accounting Review* **84**, 737–770.

Directors Remuneration Report Regulations (DRRR) (2002) Office of Public Sector Information, <http://www.opsi.gov.uk/si/si2002/20021986.htm>.

Dyck, A. and Zingales, L. (2002) The corporate governance role of the media, in: Islam, R. (ed.), *The Right to Tell: The Role of the Media in Development*, The World Bank, Washington, D.C.

Ertimur, Y., Ferri, F., and Muslu, V. (2011) Shareholder activism and CEO pay, *Review of Financial Studies* **24**, 535–592.

Ertimur, Y., Ferri, F., and Stubben, S. (2010) Board of directors' responsiveness to shareholders: Evidence from shareholder proposals, *Journal of Corporate Finance* **16**, 53–72.

Ferri, F. and Sandino, T. (2009) The impact of shareholder activism on financial reporting and compensation: The case of employee stock options expensing, *The Accounting Review* **84**, 433–466.

Financial News (2002) UK fast tracks pay regulations, June 30.

Financial Times (1995) Financial fat cats or tigers, January 28/29.

Financial Times (1998) The fat cats keep getting fatter, August 1.

Gabaix, X. and Landier, A. (2008) Why has CEO pay increased so much? *Quarterly Journal of Economics* **123**, 49–100.

Gao, H., Li, K., and Lemmon, M. (2011) A comparison of CEO pay in public and private US firms, University of Utah, Working Paper.

Garvey, G. and Milbourn, T. (2006) Asymmetric benchmarking in compensation: Executives are rewarded for good luck but not penalized for bad, *Journal of Financial Economics* **82**, 197–225.

Gaver, J. and Gaver, K. (1998) The relation between nonrecurring accounting charges and CEO cash compensation, *The Accounting Review* **73**, 235–253.

Gopalan, R., Milbourn, T., and Song, F. (2010) Strategic flexibility and the optimality of pay for sector performance, *Review of Financial Studies* **23**, 2060–2098.

Gordon, J. (2009) “Say on pay”: Cautionary notes on the UK experience and the case for shareholders opt-in, *Harvard Journal on Legislation* **46**, Spring.

Göx, R., (2008) Tax incentives for inefficient executive pay and reward for luck, *Review of Accounting Studies* **13**, 452–478.

Grinstein, Y., Weinbaum, D., and Yehuda, N. (2009) Perks and excess: Evidence from the new executive compensation disclosure rules, Cornell University, Working Paper.

Guthrie, K., Sokolowsky, J., and Wan, K. (2010) CEO compensation and board structure revisited, *Journal of Finance* forthcoming.

Hall, B. (1998) The pay to performance incentives of executive stock options, National Bureau of Economic Research, Working Paper No. 6674.

Harris, D. and Livingstone, J. (2002) Federal tax legislation as an implicit contracting cost benchmark: The definition of excessive executive compensation, *The Accounting Review* **77**, 997–1018.

Hartzell, J. and Starks, L. (2003) Institutional investors and executive compensation, *Journal of Finance* **58**, 2351–2375.

House of Commons Trade and Industry Committee (HCTIC) (2003) Rewards for failure, Sixteenth report of session 2002–2003,
<http://www.publications.parliament.uk/pa/cm200203/cmselect/cmtrdind/914/914.pdf>.

Institutional Shareholder Services (ISS) (2007) What international markets say on pay: An

investor perspective, Research Report, Rockville, Maryland, April.

Jensen, M. and Murphy, K. (1990) Performance pay and top-management incentives, *Journal of Political Economy* **98**, 225–264.

Kaplan, S. (2007) Testimony of Steven N. Kaplan on Empowering Shareholders on Executive Compensation and H.R. 1257, the Shareholder Vote on Executive Compensation Act, before the Committee on Financial Services, United States House of Representatives, March 8.

Karpoff, J. (2001) The impact of shareholder activism on target companies: A survey of empirical findings, University of Washington, Working Paper.

Klein, A. and Zur, E. (2009) Entrepreneurial shareholder activism: Hedge funds and other private investors, *Journal of Finance* **64**, 187–229.

Larcker, D., Ormazabal, G., and Taylor, D. (2011) The market reaction to corporate governance regulation, *Journal of Financial Economics* **101**, 431–448.

Lechner, M. (2002) Program heterogeneity and propensity score matching: An application to the evaluation of active labor market policies, *The Review of Economics and Statistics* **84**, 205–220.

Levit, D. and Malenko, N. (2011) Non-binding voting for shareholder proposals, *Journal of Finance* **66**, 1579–1614.

Listokin, Y. (2008) Management Always Wins the Close Ones, *American Law and Economics Review* **10**, 159–184.

Mola, S., Rau, R., and Khorana, A. (2010) Is there life after loss of analyst coverage?, Arizona State University, Working Paper.

Morgan, A. and Poulsen, A. (2001) Linking pay to performance – compensation proposals in the S&P 500, *Journal of Financial Economics* **62**, 489–523.

Morgan, A., Poulsen, A. and Wolf, J. (2006) The evolution of shareholder voting for executive compensation schemes, *Journal of Corporate Finance* **12**, 715–737.

Murphy, K. (1985) Corporate performance and managerial remuneration: An empirical analysis, *Journal of Accounting & Economics* **7**, 11– 42.

Murphy, K. (1999) Executive compensation, in: Ashenfelter, O. and Card, D. (eds.), *Handbook of Labor Economics*, vol. 3, North-Holland, Amsterdam, The Netherlands.

Murphy, K. and Oyer, P. (2004) Discretion in executive incentive contracts, University of Southern California, Working Paper.

New York Times (2007) House votes to give investors say on executive pay, April 21.

Oyer, P. (2004) Why do firms use incentives that have no incentive effects? *Journal of Finance* **59**, 1619–1649.

Oyer, P. and Schaefer, S. (2005) Why do some firms give stock options to all employees? An empirical examination of alternative theories, *Journal of Financial Economics* **76**, 99–133.

Rajgopal, S., Shevlin, T., and Zamora, V. (2006) CEOs' outside employment opportunities and the lack of relative performance evaluation in compensation contracts, *Journal of Finance* **61**, 1813–1844.

Roberts, M. R. and Whited, T. M. (2011) Endogeneity in empirical corporate finance, Working Paper (for Handbook of the Economics of Finance), The University of Pennsylvania.

Romano, R. (2001) Less is more: Making institutional investor activism a valuable mechanism of corporate governance, *Yale Journal of Regulation* **18**, 174–252.

Rosen, S. (1992) Contracts and the market for executives, in: Werin, L. and Wijkander, H. (eds.), *Contract Economics*, Blackwell, Cambridge, Massachusetts.

Rosenbaum, P. and Rubin, D. B. (1985) Constructing a control group using multivariate matched sampling methods that incorporate the propensity score, *The American Statistician* **39**, 33–38.

Rubin, D. B. (1980) Bias reduction using Mahalanobis metric matching. *Biometrics* **36**, 293–298.

SABMiller plc (2003) Annual Report, [London](#).

Scottish Radio Holdings Ltd. ((2003) Annual Report and Accounts, Glasgow.

Shaw, K. and Zhang, M. (2010) Is CEO cash compensation punished for poor firm performance? *The Accounting Review* **85**, 1065–1093.

Sheehan, K. (2007) Is the outrage constraint an effective constraint on executive remuneration? Evidence from the UK and preliminary results from Australia, University of Melbourne, Working Paper.

Sloan, R. (1993) Accounting earnings and top executive compensation, *Journal of Accounting & Economics* **16**, 55–100.

Smith, C. and Watts, R. (1992) The investment opportunity set and corporate financing, dividend and compensation policies, *Journal of Financial Economics* **32**, 263–292.

Thomas, R. and Cotter, J. (2007) Shareholder proposals in the new millennium: Shareholder support, board response and market reaction, *Journal of Corporate Finance* **13**, 368–391.

Thomas, R. and Martin, K. (1999) The effect of shareholder proposals on executive

compensation, *University of Cincinnati Law Review* **67**, 1021–1081.

Thomas, R. and Martin, K. (2000) The determinants of shareholder voting on stock option plans, *Wake Forest Law Review* **35**, 31–82.

Yermack, D. (1995) Do corporations award CEO stock options effectively? *Journal of Financial Economics* **39**, 237–269.

Table I. Market Reaction to the June 25, 2002 Announcement of Say on Pay Regulation

Regression Coefficients: Event Day Market-Adjusted Returns (p-Values)							
Model	Notice Period > 12 Months	Excess Pay	Excess pay × Bottom Quartile ROA	Bottom Quartile ROA	Size	BM	Momentum
Panel A: Excess Pay							
[A]		0.40% ** (0.023)			0.17% *** (0.007)	0.00% (0.931)	0.14% (0.741)
Panel B: Excess Pay Decomposition							
[B]		0.15% (0.489)	0.80% ** (0.030)	-0.08% (0.739)	0.18% *** (0.005)	0.00% (0.950)	0.23% (0.601)
Panel C: Long Notice Periods							
[C]	0.53% ** (0.017)				0.19% *** (0.002)	-0.01% (0.757)	0.03% (0.953)
[C _A]	0.49% ** (0.026)	0.37% ** (0.035)			0.17% *** (0.008)	0.00% (0.909)	0.04% (0.921)
[C _B]	0.50% ** (0.023)	0.11% (0.592)	0.81% ** (0.027)	-0.02% (0.929)	0.17% *** (0.007)	0.00% (0.958)	0.14% (0.741)

This table reports results from estimating the following cross-sectional regression: $Abnormal\ Returns_i = \delta_0 + \delta_1 Controversial\ Pay_i + \delta_2 Size_i + \delta_3 BM_i + \delta_4 Momentum_i + \varepsilon_i$ where i denotes firm i . The sample consists of 301 firms with fiscal 2001 annual reports filed before June 1, 2002 and data from BoardEx, Datastream, Manifest and Worldscope. *Abnormal Returns* is the abnormal event-day return relative to an equally-weighted market index of all firms in our sample (source: Datastream). *Size* is the natural logarithm of market value (in millions) measured 6 months prior to the event date (source: Datastream). *BM* is the ratio of book value to market value measured 6 months prior to the event date (source: Datastream). *Momentum* is the market-adjusted return over the six months before the event date (source: Datastream). In Panel A, *Controversial Pay* is measured using *Excess Pay*, defined as the residual from an annual cross-sectional regression of the natural log of total compensation on size (the natural log of sales), performance (ROA and 1-year stock returns), market-to-book, and industry dummies (source: BoardEx, Datastream, Worldscope). In Panel B, *Controversial Pay* is measured as $Excess\ Pay \times Bottom\ Quartile\ ROA$. Thus, Panel B investigates whether the association documented in Panel A is concentrated among firms where excess pay is likely due (at least in part) to weak penalties for poor performance. For Model C, *Controversial Pay* is measured using an indicator coded one for firms with notice periods greater than 12 months (and zero otherwise) (source: Manifest and annual reports collected from CreditGate, Mergent, Mint Global, OneSource, and company websites). Model C_A (C_B) examines the *Controversial Pay* proxies from Models C and A (Models C and B) simultaneously. P-values are based on two-tailed heteroskedastic-robust t -statistics (Larcker et al., 2011). *, **, *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

Table II. Voting Outcomes for Proposals to Approve the Directors' Remuneration Report

	Proxy Season 2003 (FY 2002)	Proxy Season 2004 (FY 2003)
Mean Voting Dissent (VD)	14.0%	10.9%
Median VD	11.0%	6.4%
Number (%) of Firms with VD > 50%	6 (2.1%)	5 (1.8%)
Among Firms with VD > 50%:		
<i># of Firms with decrease in VD next year</i>	6 out of 6	N/A
<i>Mean decrease in VD next year</i>	43.7% (from 63.1% to 19.4%)	N/A
<i># of Firms with VD >50% next year</i>	0 out of 6	N/A
Number (%) of Firms with VD > 20%	75 (26.5%)	44 (15.5%)
Among Firms with VD > 20%:		
<i># of Firms with decrease in VD next year</i>	69 out of 75	N/A
<i>Mean decrease in VD next year</i>	18.0% (from 31.6% to 13.6%)	N/A
<i># of Firms with VD >20% next year</i>	17 out of 75	N/A

This table reports summary statistics on voting dissent for UK firms in the years 2003 and 2004 (source: Manifest). Following the practices of UK proxy voting services, voting dissent is defined as the sum of votes against and abstention votes, divided by votes cast (in the UK, institutional investors use abstention votes to signal dissent and indicate that, in the absence of action, they will vote against the remuneration report at subsequent meetings). To facilitate comparisons across time, we present statistics for a constant sample of 283 firms with data in both years.

Table III. High Dissent Firms vs. Other FTSE 350 Firms: A Comparison

	Means:		Medians:		Analysis of differences in distributions:		
	75 high dissent firms	Other FTSE 350 firms	75 high dissent firms	Other FTSE 350 firms	Standardized differences (%)	p-values	
						Two sample <i>t</i> test	Two sample Wilcoxon test
<u>Performance</u>							
<i>Raw returns</i>	-21.7%	-9.8%	-17.5%	-13.3%	-33.89	0.007 ***	0.045 **
<i>ROA</i>	8.8%	7.8%	7.1%	7.9%	12.04	0.378	0.824
<i>ROE</i>	25.2%	26.2%	19.3%	19.2%	-2.48	0.868	0.844
<u>Size</u>							
<i>Ln(Mkt Val. Equity)</i>	6.52	5.97	6.28	5.83	31.17	0.022 **	0.017 **
<i>Ln(Assets)</i>	6.76	6.33	6.79	6.25	26.28	0.065 *	0.040 **
<i>Ln(Sales)</i>	6.26	6.06	6.30	5.92	11.02	0.426	0.231
<u>Valuation and Leverage</u>							
<i>Market-to-book ratio</i>	3.37	2.81	2.17	1.68	12.61	0.344	0.321
<i>Debt-to-equity ratio</i>	0.53	0.67	0.42	0.32	-12.25	0.443	0.333
<u>Governance</u>							
<i>Board independence</i>	53%	52%	55%	50%	6.58	0.626	0.570
<i>Inst. ownership conc.</i>	26%	29%	22%	27%	-16.08	0.234	0.167
<i>CEO Ownership</i>	2.7%	3.2%	0.2%	0.2%	-4.52	0.742	0.238

This table compares the financial and governance characteristics of high dissent firms (defined as firms with at least 20% voting dissent at the first say on pay vote) to those of other FTSE 350 firms as of the end of the fiscal year before the first say on pay vote. Differences in the distributions of characteristics are assessed using standardized differences and two-sample tests (parametric *t* tests and non-parametric Wilcoxon tests). The standardized difference in percent is

$100 \left(\bar{x}_{HD} - \bar{x}_{OtherFTSE} \right) / \sqrt{\frac{s_{HD}^2 + s_{OtherFTSE}^2}{2}}$, where \bar{x}_{HD} (s_{HD}^2) is the sample mean (variance) of the 75 high dissent firms and $\bar{x}_{OtherFTSE}$ ($s_{OtherFTSE}^2$) is the sample mean (variance) of the other FTSE 350 firms. Standardized differences below 20 or 25 are commonly viewed as small (e.g., Cochran, 1968; Chari et al., 2009).

Variable Definitions:

Raw Returns = fiscal year stock return (source: Datastream);

ROA = net operating income, deflated by lagged total assets (source: Worldscope);

ROE = net operating income, deflated by lagged book value of equity (source: Worldscope);

Ln(Mkt Val. Equity) = the natural logarithm of lagged market value of equity, reported in millions of nominal UK pounds (source: Datastream);

Ln(Assets) = the natural logarithm of lagged total assets, reported in millions of nominal UK pounds (source: Worldscope);

Ln(Sales) = the natural logarithm of lagged annual revenues, reported in millions of nominal UK pounds (source: Worldscope);

Market-to-book ratio = the lagged ratio of market to the book value of equity (source: Datastream, Worldscope);

Debt-to-equity ratio = the lagged ratio of long-term debt to the book value of equity (source: Worldscope);

Board independence = the lagged percentage of board members classified as independent (source: BoardEx);

Inst. ownership conc = the lagged cumulative percentage ownership by institutional investors holding more than 3% of the firm's equity (source: BoardEx);

CEO Ownership = the lagged percentage of the firm's equity held by the CEO (source: BoardEx).

Table IV. Changes to Compensation Practices: The Ex Post Effect of Say on Pay Votes

75 High Dissent (HD) Firms	Number of HD firms reporting changes to pay practices after the first say on pay vote
...changes to severance contracts	
...reduction of notice period to 12 months	16
...reduction of notice period upon change in control to 12 months	4
...changes to performance-based vesting conditions in equity plans	
...elimination (reduction) of retesting provisions	27 (2)
... <i>elimination (reduction) of 3-year rolling retesting</i>	15 (1)
... <i>elimination (reduction) of fixed point year 4 & 5 retesting</i>	11 (1)
... <i>other</i>	1
...'tougher' performance-based vesting conditions	11
... <i>more challenging targets</i>	9
... <i>more challenging comparator group</i>	2
...initiatives to increase executive ownership	
...introduced deferred share bonus plan	5
...introduced minimum ownership requirements	4
...imposed minimum holding period for stock	3
...shift from option plans to restricted stock plans	
...replacement of options plan with restricted stock plan	2
...shift of equity mix from options to restricted stock	1
...changes to annual bonus plan	
...tougher performance targets in bonus plan	3
...reduced maximum bonus as % of salary	4
...increased maximum bonus as % of salary	3
...other changes	
...salary freeze	2
...reduced maximum equity award as % of salary	2
...created separate remuneration committee	1
...introduced performance vesting conditions in matching shares plan	1
...greater % of performance-based pay	1
...changes agreed upon with shareholders	23
... <i>as a % of 75 firms</i>	31%

This table reports the frequency of post-vote compensation changes for 75 high dissent firms, defined as firms with at least 20% voting dissent at the first say on pay vote. At the time of the first say on pay vote, 55 of these firms had an option plan and 38 allowed retesting (19 had fixed point retesting, 18 had rolling retesting, and one had another form of retesting) (sources: CreditGate, Mergent, Mint Global, OneSource, company websites).

Table V. High Dissent Firms vs. Low Dissent Firms: A Comparison

	Means:		Medians:		Analysis of differences in distributions:				
	75 high dissent firms	75 low dissent firms	75 high dissent firms	75 low dissent firms	Standardized differences (%)	p-values:			
						Two sample tests:		Paired tests:	
						<i>t</i>	Wilcoxon	<i>t</i>	Wilcoxon
<u>Performance</u>									
<i>Raw returns</i>	-21.7%	-21.6%	-17.5%	-19.6%	-0.50	0.976	0.909	0.939	0.706
<i>ROA</i>	8.8%	7.2%	7.1%	7.4%	16.72	0.317	0.588	0.307	0.401
<i>ROE</i>	25.2%	27.5%	19.3%	22.9%	-4.98	0.766	0.673	0.758	0.885
<u>Size</u>									
<i>Ln(Mkt Val. Equity)</i>	6.52	6.41	6.28	6.19	6.39	0.702	0.613	0.170	0.324
<i>Ln(Assets)</i>	6.76	6.60	6.79	6.25	9.54	0.568	0.407	0.260	0.217
<i>Ln(Sales)</i>	6.26	6.59	6.30	6.54	-17.89	0.285	0.425	0.121	0.171
<u>Valuation and Leverage</u>									
<i>Market-to-book ratio</i>	3.37	3.92	2.17	2.05	-10.66	0.524	0.212	0.528	0.258
<i>Debt-to-equity ratio</i>	0.53	0.63	0.42	0.41	-13.38	0.424	0.396	0.438	0.760
<u>Governance</u>									
<i>Board independence</i>	52.8%	53.3%	54.5%	56%	-4.15	0.804	0.837	0.794	0.643
<i>Inst. ownership conc.</i>	25.8%	27.4%	22.1%	22.0%	-8.04	0.630	0.860	0.466	0.938
<i>CEO Ownership</i>	2.7%	2.2%	0.2%	0.2%	5.99	0.720	0.774	0.728	0.356

This table examines the quality of our matching algorithm by comparing 75 high dissent firms to a matched sample of 75 low dissent firms. Following Rosenbaum and Rubin (1985) and Lechner (2002), we assess match quality using two sample and matched pair tests (parametric *t* tests and non-parametric Wilcoxon tests) and standardized differences. Two-sample tests are relevant for comparing the distributions of covariates in the high- and low-dissent samples, whereas the paired tests are relevant for detecting residual biases within the matched pairs. The standardized difference in percent is

$100 \left(\bar{x}_{HD} - \bar{x}_{LD} \right) / \sqrt{\frac{s_{HD}^2 + s_{LD}^2}{2}}$, where \bar{x}_{HD} and \bar{x}_{LD} (s_{HD}^2 and s_{LD}^2) are the sample means (variances) in the high- and low- dissent groups. Standardized differences

below 20 or 25 commonly viewed as indicating a good match (e.g., Cochran, 1968; Chari et al., 2009).

All variables are defined at the bottom of Table III.

**Table VI. The Relationship between Voting Dissent and Controversial Compensation Provisions:
Evidence from and Ex Ante and Ex Post Changes in Severance and Retesting Provisions**

Panel A: The Effect of Voting Dissent on the Removal of Controversial Compensation Practices: Evidence From Severance Contracts

	(i)	(ii)	(iii)
	Sample of Firms With High Dissent at First Vote	Comparison Sample of Firms With Low Dissent at First Vote	Difference: High Dissent vs. Low Dissent
[A]: % of Firms with Notice Period > 12 months One Year Before the First Say on Pay Vote	33.3% (25/75)	13.3% (10/75)	20.0% ^{***}
[B]: % of Firms Removing Notice Period > 12 months during the year <i>before</i> the First Say on Pay Vote	20.0% (5/25)	70.0% (7/10)	-50.0% ^{**}
[C]: % of Firms with Notice Period > 12 months at the Time of the First Say on Pay Vote	26.7% (20/75)	4.0% (3/75)	22.7% ^{***}
[D]: % of Firms Removing Notice Period > 12 months during the year <i>after</i> the First Say on Pay Vote	80.0% (16/20)	33.3% (1/3)	46.7% ^{**}
[E]: % of Firms with Notice Period > 12 months One Year After the First Say on Pay Vote	5.3% (4/75)	2.7% (2/75)	2.6%
[F]: Change in the Rate of Removal: After the Vote vs. Before the Vote ([D] - [B])	60.0% ^{***}	-36.7%	96.7% ^{***}

Panel B: The Effect of Removing Controversial Compensation Practices on Voting Dissent: Evidence from Severance Contracts

	(i)	(ii)	(iii)
	High Dissent Firms Removing Notice Period > 12 Months After the First Say on Pay Vote	High Dissent Firms Not Removing Notice Period > 12 Months After the First Say on Pay Vote	Difference: Firms that Remove Provision vs. Firms that do not Remove Provision
[A]: Average Δ in Voting Dissent between 1 st and 2 nd Say on Pay Vote	-23.9%	12.2%	-36.1% ^{***}
[B]: Average Δ in Voting Dissent between 1 st and 2 nd Vote, <i>excluding firms removing retesting</i>	-26.9%	25.0%	-51.9% ^{***}

Panel C: The Effect of Voting Dissent on the Removal of Controversial Compensation Practices: Evidence From Retesting Provisions in Option Plans

	(i)	(ii)	(iii)
	Sample of Firms With High Dissent at First Vote	Comparison Sample of Firms With Low Dissent at First Vote	Difference: High Dissent vs. Low Dissent
[A]: % of Firms Allowing Retesting One Year Before the First Say on Pay Vote	74.1% (40/54)	51.6% (32/62)	22.5%**
[B]: % of Firms Removing/Reducing Retesting during the year <i>before</i> the First Say on Pay Vote	5.0% (2/40)	25.0% (8/32)	-20.0%**
[C]: % of Firms Allowing Retesting at the Time of the First Say on Pay Vote	69.1% (38/55)	43.1% (25/58)	26.0%***
[D]: % of Firms Removing/Reducing Retesting during the year <i>after</i> the First Say on Pay Vote	76.3% (29/38)	28.0% (7/25)	48.3%***
[E]: % of Firms Allowing Retesting One Year After the First Say on Pay Vote	20.0% (11/55)	39.7% (23/58)	-19.7%**
[F]: Change in the Rate of Removal/Reduction: After the Vote vs. Before the Vote ([D] - [B])	71.3%***	3.0%	68.3%***

Panel D: The Effect of Removing Controversial Compensation Practices on Voting Dissent: Evidence from Retesting Provisions in Option Plans

	(i)	(ii)	(iii)
	High Dissent Firms Removing/Reducing Retesting After the First Say on Pay Vote	High Dissent Firms not Removing/Reducing Retesting After the First Say on Pay Vote	Difference: Firms that Remove Provision vs. Firms that do not Remove Provision
[A]: Average Δ in Voting Dissent between the 1 st and 2 nd Say on Pay Vote	-21.6%	-9.1%	-12.5%**
[B]: Average Δ in Voting Dissent between 1 st and 2 nd Vote, <i>excluding firms removing Notice Period > 12 months</i>	-22.1%	-3.4%	-18.7%***

This table reports information on voting and compensation provisions for two samples of FTSE 350 firms. The first sample is the 75 high dissent firms from Tables III-V. The second sample is a matched group of firms with low dissent (i.e., below 5%) at the first say on pay vote (source: Manifest). For each firm, we record the prevalence of, pre-vote change in, and post-vote change in severance and retesting provisions (the two most controversial provisions based on the results in Table IV) using hand-collected data from annual reports (source: CreditGate, Mergent, Mint Global, OneSource, company websites). Panel A (Panel C) reports univariate tests comparing the prevalence of severance (retesting) and its ex ante and ex post likelihood of removal across the high and low dissent samples. Panel B (Panel D) splits the high dissent sample into two subsamples – firms that make changes to severance (retesting) in response to the first vote and firms that do not make such changes – and reports univariate tests comparing changes in voting dissent across the two subsamples of firms. *, **, *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively (based on two-tailed exact tests).

Table VII. The Level and Composition of CEO Pay in UK Firms

Panel A: Level and Composition of CEO Pay (£ thousands)														
Year	Mean							Median						
	2000	2001	2002	2003	2004	2005	All	2000	2001	2002	2003	2004	2005	All
N	473	558	611	602	566	495	3,305	473	558	611	602	566	495	3,305
<i>Salary</i>	281	290	302	318	331	366	314	250	245	256	272	285	325	270
<i>Bonus</i>	149	127	144	181	208	256	176	56	46	60	94	107	141	78
<i>Cash Pay</i>	430	417	446	499	538	622	491	310	314	335	378	404	484	363
<i>Stock Options</i>	216	250	174	198	159	143	190	0	6	3	4	0	0	0
<i>Restricted Stock</i>	121	103	144	228	312	447	223	0	0	0	0	0	82	0
<i>Equity Pay</i>	338	355	321	434	481	610	420	72	82	48	121	136	214	100
<i>Other Pay</i>	60	64	68	67	86	91	73	28	29	33	34	39	44	34
<i>Total Pay</i>	828	836	835	1,000	1,105	1,323	984	468	478	467	585	622	820	549

Panel B: Composition of CEO Pay (as a % of <i>Total Pay</i>)														
Year	Mean							Median						
	2000	2001	2002	2003	2004	2005	All	2000	2001	2002	2003	2004	2005	All
<i>Salary</i>	53%	54%	56%	50%	48%	44%	51%	50%	54%	55%	46%	44%	40%	48%
<i>Bonus</i>	14%	13%	15%	16%	17%	18%	16%	11%	10%	13%	14%	16%	17%	14%
<i>Cash Pay</i>	67%	67%	70%	66%	65%	63%	67%	69%	69%	73%	68%	67%	60%	68%
<i>Stock Options</i>	16%	16%	11%	14%	11%	8%	13%	0%	1%	1%	0%	0%	0%	0%
<i>Restricted Stock</i>	8%	7%	7%	11%	14%	20%	11%	0%	0%	0%	0%	0%	12%	0%
<i>Equity Pay</i>	23%	23%	19%	25%	25%	29%	24%	19%	20%	13%	23%	23%	31%	21%
<i>Other Pay</i>	9%	10%	11%	9%	10%	9%	10%	7%	7%	9%	7%	7%	6%	7%
<i>Total Pay</i>	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

This table reports summary statistics for CEO compensation. The variables in Panel A, which were obtained from BoardEx, are reported in thousands of UK pounds (nominal) and are defined as follows: *Salary* equals annual salary; *Bonus* equals the annual performance bonus. *Cash Pay* equals the sum of *Salary* and *Bonus*; *Stock Options* equals the Black-Scholes value of stock options granted during the year; *Restricted Stock* equals the value of the restricted stock granted during the year; *Equity Pay* equals the value of all equity awards (stock options, restricted stock, and other equity awards) granted during the year; *Other Pay* equals the value of other remuneration not included in *Cash Pay* and *Equity Pay* (e.g., pension contributions); *Total Pay* is the sum of *Cash Pay*, *Equity Pay*, and *Other Pay*. The variables in Panel B were constructed by dividing each variable in Panel A by *Total Pay*. Means and medians are based on these proportions. For example, *Salary* is the sample mean (or median) of the ratio of *Salary* to *Total Pay*.

Table VIII. Descriptive Statistics for the Regression Sample

	Pre Period (2000-2002) (N = 1,642)				Post Period (2003-2005) (N = 1,663)				2000-2005 (N= 3,305)	
	Q1	Median	Mean	Q3	Q1	Median	Mean	Q3	Median	Mean
<i>CEO Cash Pay (thousands)</i>	210	320	432	499	257	413	549	672	363	491
<i>CEO Total Pay (thousands)</i>	283	470	833	881	370	658	1132	1225	549	984
<i>Raw Returns</i>	-31.3%	-3.5%	-2.6%	18.0%	5.3%	24.2%	32.6%	47.4%	11.6%	15.2%
<i>Industry Returns</i>	-18.4%	-3.1%	-4.5%	10.6%	17.0%	27.8%	32.8%	46.0%	13.2%	14.3%
<i>Industry-Adjusted Returns</i>	-21.9%	-1.8%	1.9%	20.0%	-24.9%	-5.1%	-0.1%	16.4%	-3.5%	0.9%
<i>ROA</i>	2.4%	7.0%	6.5%	12.2%	3.0%	7.2%	7.1%	12.1%	7.1%	6.8%
<i>Industry ROA</i>	2.3%	5.9%	5.0%	10.6%	2.9%	6.4%	5.6%	9.0%	6.3%	5.3%
<i>Industry-Adjusted ROA</i>	-2.8%	0.9%	1.5%	6.5%	-2.8%	0.6%	1.5%	6.0%	0.8%	1.5%
<i>Sales (millions)</i>	64	220	2496	730	74	237	2669	831	227	2583
<i>Market-to-Book Ratio</i>	1.1	1.8	3.5	3.6	1.2	1.9	2.7	3.0	1.8	3.1
<i>CEO Ownership</i>	0.0%	0.2%	2.7%	1.1%	0.1%	0.4%	2.5%	1.3%	0.3%	2.6%

This table reports summary statistics for the main variables in our regression analyses. The sample consists of 3,305 UK firm-year observations with the necessary data on BoardEx, Worldscope, and Datastream. To ensure consistency in the sample composition over time, each firm must have complete data in at least one year in both the pre- (2000-2002) and post- (2003-2005) say on pay periods.

Variable Definitions:

CEO Cash Pay = the sum of *Salary* and *Bonus*, reported in thousands of nominal UK pounds (source: BoardEx);
CEO Total Pay = the sum of *Cash Pay*, *Equity Pay*, and *Other Pay*, reported in thousands of nominal UK pounds (source: BoardEx);
Raw Returns = fiscal year stock return (source: Datastream);
Industry Returns = mean *Raw Returns* for all firms in the same BoardEx industry code (source: Datastream, BoardEx);
Industry-Adjusted Returns = the difference between *Raw Returns* and *Industry Returns*;
ROA = net operating income, deflated by lagged total assets (source: Worldscope);
Industry ROA = mean *ROA* for all firms in the same BoardEx industry code (source: Worldscope, BoardEx);
Industry-Adjusted ROA = the difference between *ROA* and *Industry ROA*;
Sales = lagged annual revenues, reported in millions of nominal UK pounds (source: Worldscope);
Market-to-Book Ratio = the lagged ratio of market to the book value of equity (source: Datastream, Worldscope);
CEO Ownership = the lagged percentage of the firm's equity held by the CEO (source: BoardEx).

Table IX. Determinants of CEO Pay in the UK Pre- and Post- Say on Pay Regulation

Variable	Panel A						Panel B					
	Y = Ln (CEO Cash Pay)						Y = Ln (CEO Total Pay)					
	Pre Period		Post Period		Difference Post - Pre		Pre Period		Post Period		Difference Post - Pre	
	Coeff.	P val	Coeff.	P val	Coeff.	P val	Coeff.	P val	Coeff.	P val	Coeff.	P val
<i>Post Period</i>			0.12	0.35	0.12	0.35			0.18	0.36	0.18	0.36
<i>Trend</i>	0.09 ***	0.00	0.08 ***	0.00	0.00	0.80	0.06 ***	0.00	0.08 ***	0.00	0.01	0.63
<i>Industry-Adjusted Returns</i> ⁺	0.04	0.22	0.04	0.20	-0.01	0.87	0.16 *	0.05	0.08 **	0.03	-0.07	0.39
<i>Industry-Adjusted Returns</i> ⁻	0.09	0.14	0.25 ***	0.00	0.16 *	0.05	0.15 *	0.08	0.44 ***	0.00	0.29 ***	0.01
<i>Industry Returns</i>	0.01	0.89	0.10 **	0.05	0.09	0.29	0.14 *	0.10	0.29 ***	0.00	0.15	0.16
<i>Industry-Adjusted ROA</i> ⁺	0.94 ***	0.00	1.06 ***	0.00	0.12	0.63	1.14 ***	0.00	1.12 ***	0.00	-0.01	0.97
<i>Industry-Adjusted ROA</i> ⁻	-0.26	0.24	0.69 **	0.02	0.95 ***	0.00	-0.26	0.41	0.75 *	0.09	1.01 **	0.01
<i>Industry ROA</i>	0.91 ***	0.01	1.07 ***	0.00	0.16	0.55	0.27	0.55	0.61	0.16	0.34	0.31
<i>Ln Sales</i>	0.08 ***	0.00	0.06 **	0.03	-0.02	0.13	0.10 ***	0.01	0.11 ***	0.01	0.00	0.68
<i>Market-to-Book Ratio</i>	0.00 **	0.05	0.01 *	0.07	0.00	0.48	0.00	0.32	0.01	0.18	0.00	0.43
<i>CEO Ownership</i>	0.06	0.66	0.08	0.70	0.02	0.93	-0.12	0.61	-0.17	0.47	-0.05	0.85

This table reports results from estimating the following OLS panel regression on a sample of 3,305 firm-year observations over the period 2000-2005:

$$\text{Ln(CEO Compensation)}_{it} = \delta_i + (1 - \text{Post}_{it}) \left[\sum_{j=1}^{10} \alpha_j \times \text{Pay Determinants}_{j,it} \right] + \gamma \text{Post}_{it} + \text{Post}_{it} \left[\sum_{j=1}^{10} \beta_j \times \text{Pay Determinants}_{j,it} \right] + \varepsilon_{it}.$$

In Panel A (B), the dependent variable is the natural logarithm of *CEO Cash Pay* (*CEO Total Pay*). *Post* is an indicator variable equal to 1 (0) for observations occurring in the 2003-2005 (2000-2002) period. The set of *Pay Determinants* are defined as follows: *Trend* = fiscal year minus 1999 (2002) in the pre- (post) period; *Industry-Adjusted Returns*^{+(·)} = the difference between *Raw Returns* and *Industry Returns* if positive (negative), and 0 otherwise; *Industry Returns* = mean *Raw Returns* for all firms in the same BoardEx industry code; *Industry-Adjusted ROA*^{+(·)} = the difference between *ROA* and *Industry ROA* if positive (negative), and 0 otherwise; *Industry ROA* = mean *ROA* for all firms in the same BoardEx industry code; *Ln Sales* = the natural logarithm of lagged annual revenues; *Market-to-Book Ratio* = the lagged ratio of the market to the book value of equity; *CEO Ownership* = the lagged percentage of the firm's equity held by the CEO. The coefficients α (β) measure associations between CEO pay and its economic determinants for the pre- (post-) say on pay observations. The coefficients δ_i are firm fixed effects and the coefficient γ detects whether say on pay resulted in a one- time, performance independent shift in the average level of CEO pay. *, **, *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively (based on a two-tailed test). Reported P-values are based on heteroskedasticity-adjusted standard errors clustered by firm.

Table X. Determinants of CEO Pay in the UK Pre- and Post- Say on Pay Regulation: the Effect of Voting Dissent

Variable	Panel A						Panel B					
	Y = Ln (CEO Cash Pay)						Y = Ln (CEO Total Pay)					
	Low Voting Dissent		High Voting Dissent		High - Low		Low Voting Dissent		High Voting Dissent		High - Low	
	Difference Post - Pre		Difference Post - Pre		Difference in Difference		Difference Post - Pre		Difference Post - Pre		Difference in Difference	
	Coeff.	P val	Coeff.	P val	Coeff.	P val	Coeff.	P val	Coeff.	P val	Coeff.	P val
<i>Post Period</i>	0.15	0.32	0.22	0.19	0.07	0.65	0.15	0.29	0.29	0.14	0.14	0.61
<i>Trend</i>	-0.02	0.59	0.03	0.49	0.05	0.38	-0.01	0.78	0.05	0.37	0.06	0.44
<i>Industry-Adjusted Returns</i> ⁺	-0.06	0.38	-0.17	0.32	-0.11	0.54	-0.09	0.38	-0.41	0.21	-0.32	0.35
<i>Industry-Adjusted Returns</i> ⁻	0.20	0.15	0.22	0.18	0.02	0.83	0.30	0.11	0.77	0.02 **	0.47	0.21
<i>Industry Returns</i>	-0.01	0.95	0.02	0.91	0.02	0.91	0.10	0.54	0.17	0.51	0.07	0.81
<i>Industry-Adjusted ROA</i> ⁺	0.24	0.26	0.33	0.57	0.09	0.48	0.79	0.15	-0.27	0.74	-1.06	0.28
<i>Industry-Adjusted ROA</i> ⁻	-0.20	0.61	2.23 **	0.03	2.43 ***	0.01	-0.04	0.97	1.82	0.05 **	1.86 **	0.02
<i>Industry ROA</i>	0.42	0.41	0.76	0.31	0.33	0.71	0.53	0.36	0.04	0.96	-0.49	0.65
<i>Ln Sales</i>	-0.01	0.38	0.01	0.77	0.02	0.45	0.00	0.93	0.01	0.73	0.01	0.79
<i>Market-to-Book Ratio</i>	0.00	0.77	0.00	0.60	-0.01	0.57	0.00	0.98	0.01	0.59	0.01	0.74
<i>CEO Ownership</i>	0.06	0.35	0.04	0.86	-0.02	0.53	-0.05	0.44	-0.58	0.74	-0.53	0.43

This table reports results from estimating the following OLS panel regression on a sample of 1,564 FTSE 350 firm-year observations over the period 2000-2005:

$$\begin{aligned} \text{Ln(CEO Compensation)}_{it} = & \delta_i + (1-\text{HD}_i) \times [(1-\text{Post}_{it}) \times (\sum_{j=1}^{10} \alpha_j \times \text{Pay-Determinants}_{j,it}) + \gamma \text{Post}_{it} + \text{Post}_{it} \times (\sum_{j=1}^{10} \beta_j \times \text{Pay-Determinants}_{j,it})] + \\ & + \text{HD}_i \times [(1-\text{Post}_{it}) \times (\sum_{j=1}^{10} \varphi_j \times \text{Pay-Determinants}_{j,it}) + \lambda \text{Post}_{it} + \text{Post}_{it} \times (\sum_{j=1}^{10} \theta_j \times \text{Pay-Determinants}_{j,it})] + \varepsilon_{it} \end{aligned}$$

In Panel A (B), the dependent variable is the natural logarithm of *CEO Cash Pay* (*CEO Total Pay*). *HD* is an indicator variable equal to 1 for firms with more than 20% of votes cast against the approval of the remuneration report at the 2003 annual meeting, and 0 otherwise. All other variables are defined in Tables VIII and IX.

*, **, *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively (based on a two-tailed test). Reported P-values are based on heteroskedasticity-adjusted standard errors clustered by firm.

Table XI. Determinants of CEO Pay in the UK Pre- and Post- Say on Pay Regulation: the Effect of Excess CEO Pay

Variable	Panel A						Panel B					
	Y = Ln (CEO Cash Pay)						Y = Ln (CEO Total Pay)					
	No Excess CEO Pay Firms		Excess CEO Pay Firms		Excess Pay - No Excess Pay		No Excess CEO Pay Firms		Excess CEO Pay Firms		Excess Pay - No Excess Pay	
	Difference Post - Pre		Difference Post - Pre		Difference in Difference		Difference Post - Pre		Difference Post - Pre		Difference in Difference	
	Coeff.	P val	Coeff.	P val	Coeff.	P val	Coeff.	P val	Coeff.	P val	Coeff.	P val
<i>Post Period</i>	0.13	0.24	0.17	0.28	0.04	0.77	0.11	0.31	0.20	0.23	0.09	0.70
<i>Trend</i>	-0.01	0.73	0.01	0.77	0.02	0.69	0.00	0.77	-0.03	0.48	-0.03	0.63
<i>Industry-Adjusted Returns</i> ⁺	0.00	0.93	-0.09	0.28	-0.10	0.32	0.02	0.46	-0.12	0.31	-0.14	0.53
<i>Industry-Adjusted Returns</i> ⁻	0.14 *	0.09	0.38 *	0.09	0.24	0.33	0.18 *	0.08	0.66 *	0.07	0.48	0.11
<i>Industry Returns</i>	0.03	0.73	0.35 *	0.09	0.32	0.16	0.05	0.51	0.29	0.11	0.24	0.38
<i>Industry-Adjusted ROA</i> ⁺	0.43 *	0.10	0.14	0.40	-0.29	0.63	1.01 **	0.04	0.44 *	0.09	-0.57	0.40
<i>Industry-Adjusted ROA</i> ⁻	0.49	0.12	1.60 ***	0.00	1.11 **	0.04	0.37	0.21	1.17 ***	0.01	0.80 *	0.07
<i>Industry ROA</i>	0.21	0.46	0.14	0.68	-0.06	0.70	0.40	0.36	-0.15	0.63	-0.55	0.18
<i>Ln Sales</i>	-0.01	0.50	0.00	0.79	0.00	0.64	0.01	0.58	-0.02	0.49	-0.03	0.36
<i>Market-to-Book Ratio</i>	0.00	0.95	0.02	0.12	0.02	0.15	0.00	0.89	0.01	0.21	0.01	0.55
<i>CEO Ownership</i>	-0.10	0.57	0.29	0.70	0.39	0.61	0.46	0.44	-1.04	0.23	-1.50	0.14

This table reports results from estimating the following OLS panel regression on a sample of 3,305 firm-year observations over the period 2000-2005:

$$\begin{aligned} \text{Ln}(\text{CEO Compensation}_{it}) = & \delta_i + (1 - \text{Excess-CEO-Pay}_i) \times [(1 - \text{Post}_{it}) \times (\sum_{j=1}^{10} \alpha_j \times \text{Pay-Determinants}_{j,it}) + \gamma \text{Post}_{it} + \text{Post}_{it} \times (\sum_{j=1}^{10} \beta_j \times \text{Pay-Determinants}_{j,it})] + \\ & + \text{Excess-CEO-Pay}_i \times [(1 - \text{Post}_{it}) \times (\sum_{j=1}^{10} \varphi_j \times \text{Pay-Determinants}_{j,it}) + \lambda \text{Post}_{it} + \text{Post}_{it} \times (\sum_{j=1}^{10} \theta_j \times \text{Pay-Determinants}_{j,it})] + \varepsilon_{it} \end{aligned}$$

In Panel A (B), the dependent variable is the natural logarithm of *CEO Cash Pay* (*CEO Total Pay*). *Excess CEO Pay* is an indicator variable equal to 1 for firms with average ‘excess CEO pay’ (defined as the residual from a yearly regression of total CEO pay on its economic determinants) in the top 25% of the sample distribution over the pre period (2000-2002), and 0 otherwise. All other variables are defined in Tables VIII and IX.

*, **, *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively (based on a two-tailed test). Reported P-values are based on heteroskedasticity-adjusted standard errors clustered by firm.

Online Supplementary Appendix for Say on Pay Votes and CEO Compensation: Evidence from the UK

Section A1: Additional Market Reaction Tests

Since it was largely unexpected and it represented a substantial increase in the probability of say on pay regulation, the June 25, 2002 event is an ideal setting for an event study. In this appendix, we also examine four prior events that either increased or decreased (arguably to a lesser extent) the probability of say on pay regulation as well as one subsequent event (Parliament's approval of say on pay on July 25, 2002). These events (identified through a search of Lexis-Nexis) and a list of coincident and potentially confounding events are described in Panel A of Appendix Table I.

Following Cai and Walkling (2011) and Larcker et al. (2011), we investigate whether the market reaction to these events is associated with excess CEO pay. Consistent with Core et al. (1999) and subsequent research, we compute excess pay as the residual from annual cross-sectional regressions of the natural log of total compensation on key economic determinants – namely, size (the natural log of sales), performance (ROA and annual stock returns), the market-to-book ratio, and industry indicators. Event-day abnormal returns are computed relative to an equally-weighted market index of all UK firms in our sample.

Similar to Cai and Walkling (2011), in Panel B we compare the event-day raw and abnormal returns of firms in the top and bottom quartiles of excess CEO pay. We find that, for events 5 and 6 (i.e., submission of say on pay to Parliament and subsequent Parliamentary approval), firms in the top quartile of excess CEO pay experience significantly positive raw and abnormal returns that are 0.69% (event 5) and 0.93% (event 6) higher than those experienced by firms in the bottom excess CEO pay quartile (both differences significant at the 1% level).¹ No abnormal returns are observed on the other event dates.

The analyses reported in Panel C are similar to those in Larcker et al. (2011). First, we present cross-sectional regressions of abnormal returns on excess CEO pay, size, momentum, and book-to-market. These analyses confirm the significant positive association between excess CEO pay and abnormal returns for event 5 (June 25, 2002), while the positive coefficient on excess CEO pay for event 6 is no longer significant at conventional levels (p-value = 0.19). As in Panel A, no abnormal returns are observed on the other event dates. Second, in the last row of Panel B, we report the results of a single pooled-multi-event regression, where we multiply abnormal returns by negative one for events associated with a decrease in the probability of regulation (Events 2 and 3) and we cluster the standard errors by date to correct for cross-sectional dependence (Larcker et al., 2011). We continue to find a positive association between excess CEO pay and abnormal returns (p-value = 0.029).

¹ For comparison, using a similar design, Cai and Walkling (2011) report a difference of 0.64% around the passage of a say on pay bill by the House of Representatives in the United States.

Section A2: Examples of Changes to Compensation Policies in Response to Shareholder Pressure

A. Changes to severance contracts

Reduction of notice periods to 12 months

“...as requested by some shareholders, Stephen Thomas and the Company agreed an amendment to his contract to reduce the notice period [from 24 months] to 12 months.” *Luminar plc, Annual Report 2004*

“Shareholders should note that...the executive directors have agreed to reduce the notice periods of their contracts to twelve months.” *Whitbread plc, Annual Report 2003/2004*

“Dr Garnier and Mr Coombe have agreed to changes in their own contractual terms without compensation...including the reduction of contractual notice period from 24 to 12 calendar months.” *GlaxoSmithKline plc, Annual Report 2003*

Reduction of notice periods upon change in control to 12 months

“...following consultation with major shareholders, the service contract of Alain Levy, CEO EMI Music, was amended as from 1 April 2004 [to reduce his severance payment upon a change in control to from 24 to 12 months]” *EMI Group plc, Annual Report 2004*

“...following consultation with some of the Company’s major shareholders ... in the event of termination of employment within 12-months of a change of control...the amount payable is reduced from two years’ to one year’s salary and the cash equivalent of one year’s pension, car and other contractual benefits.” *Shire Pharmaceuticals Group plc, Annual Report 2003*

B. Changes to performance-based vesting conditions in equity plans

Elimination/Reduction) of Retesting Provisions

“...The Remuneration Committee has taken into account the wishes of shareholders and this option to the Group Managing Director will not allow re-testing of the performance target.” *Berkeley Group Holdings plc, Annual Report 2004*

“Shareholders should note that... the Remuneration Committee has endorsed the policy that performance conditions applying to executive share options should not be subject to retesting” *Whitbread plc, Annual Report 2003/2004*

“... following consultation with major shareholders...it was agreed that ...options granted from 2004 onwards will not be subject to re-testing...” *Millennium & Copthorne Hotels plc, Annual Report 2003*

“The Remuneration Committee, after consultation with some of its major institutional shareholders in 2003, has decided that, for options granted under the scheme from 2004 onwards, the performance condition should be retested once only, at five years after the grant...Any new option scheme established in the future will not contain a retesting feature.” *Shire Pharmaceuticals Group plc, Annual Report 2003*

“Shareholders' views of the appropriateness of re-testing...have evolved since the plan was approved...in 2001. The Committee is aware of these views and has considered whether the policy of allowing two re-testing opportunities for future grants of options should continue...The conclusion of the review was that

for grants made in 2004, one re-test only will be allowed at the end of year five...A further review...will take place prior to any grant of options in 2005.” *Bae Systems plc, Annual Report 2003*

Introduction of tougher performance-based vesting conditions

“Prior to 2003...in order for the options to vest in full, EPS growth had on average to be at least 3 percentage points per annum more than the increase in the UK Retail Prices Index (RPI) over any 3-year performance period. For the 2003 grant, vesting increases on a straight line basis for EPS performance between the hurdles set out in the table below.

<i>Annualized growth in EPS</i>	<i>Percentage of award vesting</i>
>RPI+5%	100%
RPI+4%	75%
RPI+3%	50%
<RPI + 3%	0%

This performance condition is substantially consistent with UK shareholder guidelines and expectations and is considerably more demanding than any operated by other global pharmaceutical companies.” *GlaxoSmithKline plc, Annual Report 2003*

“Comparative performance was previously measured by reference to the FTSE 100 but the Committee concluded that the measurement of performance against the performance comparator group of [international] pharmaceutical companies...would provide a better assessment of the company's performance.” *GlaxoSmithKline plc, Annual Report 2003*

“Following consultation with principal shareholders... awards were granted to executive directors under the Performance Share Plan for which the eventual quantum capable of exercise will be determined by a TSR ranking relative to a comparator group of 18 other defense and aerospace companies operating in the international arena...Use of a sectoral comparator group was considered by our principal shareholders and institutional investor bodies to be more appropriate than using the FTSE 100 as had been the case historically with awards under this plan.” *Bae Systems plc, Annual Report 2003*

“The committee considered moving from the FTSE Global telecoms Sector Index to the FTSE Index [as comparator to assess relative TSR performance], but during consultations shareholders expressed the view that they would prefer to retain the existing comparator group.” *Cable & Wireless plc, Annual Report 2004*

C. Initiatives to increase executives' ownership

“Following consultation with some of its major shareholders and the subsequent revision of the design of the Plan, the Company asked shareholders in 2003 to approve a Deferred Bonus Plan...This Plan provides for participants to use up to 50% of their annual bonus to buy shares in the company. The company will match any shares bought, but the matched shares will vest for executive directors only if the company's EPS grows more than 15% in excess of RPI over a 3-year period” *Shire Pharmaceuticals Group plc, Annual Report 2003*

“The Committee has consulted with the Company's principal shareholders and, taking into account their views, proposes to make the following changes...awards under the 2002 Cash Plan will, in future, be made in shares, subject to the achievement of TSR performance targets, rather than in cash.” *Wolseley plc, Annual Report 2004*

D. Changes to annual bonus plans

“...the Remuneration Committee has taken into account the concerns of shareholders regarding the uncapped nature of the Executive bonus arrangements and has decided to alter the structure of the bonus to reflect these concerns... In anticipation of the future change in policy, the Executives agreed to the introduction of a retrospective cap on bonuses [equal to] 300% of salary. However, for the year ended 30 April 2004, where the Remuneration Committee did in fact determine a bonus greater than 200% of salary..., they decided of their own volition to cap the bonus payment at 200% of salary.” *Berkeley Group Holdings plc, Annual Report 2004*

“Bonuses for executive directors will in future be based on the out-turn in the Group's profits compared to the budgeted profits approved by the Board at the beginning of the financial year. This replaces the FTSE 100 share index multiplier approach adopted in the past which was criticised during the review process.” *Freeport plc, Annual Report 2004*

E. Consultation/communication with shareholders

“The remuneration policy...was finalised after undertaking an extensive consultation process with shareholders and institutional bodies. During the year the Chairman of GlaxoSmithKline and the Chairman of the Committee met shareholders representing nearly half of [equity] capital...as a result [the Committee] has instigated a major shift in the way GlaxoSmithKline sets the remuneration of its most senior executives...” *GlaxoSmithKline plc, Annual Report 2003*

“This [new] policy was formulated ... in response to concerns raised by shareholders at the 2003 AGM and was only finalised after extensive consultation with the Company's major shareholders and institutional shareholder bodies...” *Berkeley Group Holdings plc, Annual Report 2004*

“On 10 November 2003 the Company announced that it would instigate a review of its remuneration policy...This review has involved communicating with representatives of the Company's leading investors and seeking their views on all aspects of remuneration. Having considered these views, the Company has implemented a number of changes that are described below...The Chairman of the Remuneration Committee will always be available to hear investors' views on remuneration matters and can be contacted via the Company Secretary.” *Freeport plc, Annual Report 2004*

“The chairman of the company ensures that the company, through the committee, maintains contact with its principal shareholders about remuneration matters. To this end, the committee consulted during the year in connection with the introduction of the new executive share option scheme which was duly approved at the 2004 AGM.” *Cobham plc, Annual Report 2004*

“In line with company policy, extensive consultation took place with the company's principal shareholders...as well as institutional investor bodies. Taking on board views expressed during the consultation process, a number of modifications were made to the application of the Executive Share Option Plan and the Performance Share Plan.” *Bae Systems plc, Annual Report 2003*

“As part of its continued review of executive remuneration policy...the Chairman consulted a number of the Company's principal institutional shareholders and other major institutional bodies...” *International Power plc, Annual Report 2003*

“During the year the Committee has undertaken a full review of executive remuneration. To address structural concerns raised by major shareholders changes have been made to certain elements of the package, and these are detailed in this report ... Throughout the process the Committee has consulted with major shareholders to ensure their support for the approach taken.” *Barratt Developments plc, Annual Report 2004/2005*

“During the year, the Remuneration Committee reviewed the current remuneration structure. A number of changes are proposed as a result of this review. These changes have been discussed with leading shareholders and their representative bodies, who have been generally supportive.” *Cable & Wireless plc, Annual Report 2004/2005*

“We plan to seek shareowner approval for a number of changes at our Annual General Meeting in 2004 ... Before finalising the proposals, the Committee sought the views of a number of major shareowners, as well as the Association of British Insurers (ABI) and National Association of Pension Funds (NAPF). Following this consultation the Company took the comments from shareowners and investment committees into account in developing its remuneration arrangements.” *Cadbury Schweppes plc, Annual Report 2003*

“The 2004 LTIP was approved by shareholders at the EGM on 24 February 2004. Prior to the EGM, the Company conducted a full consultation with major shareholders and shareholder bodies which ensured that the terms of the Plan were acceptable to the majority of shareholders by percentage holding and complied with corporate governance best practice.” *Berkeley Group Holdings plc, Annual Report 2004*

“In determining the performance measure for the Executive Share Option Plan, the Committee took the view that our major investors believe EPS to be a key indicator of long-term financial performance...” *Bae Systems plc, Annual Report 2003*

Section A3: Bonus Pay in the UK Pre- and Post- Say on Pay Legislation

Panels A and B of Table VII report the breakdown of pay into its various components and suggest that in our sample salaries are the dominant component of cash pay (about three fourths).

In our regression analysis, similar to other studies (e.g., Dechow et al. 1994; Core et al. 1999), we focus on cash pay (salary plus bonus) to allow for the possibility that salaries, at least to some extent, may be performance-sensitive. CEO salary increases tend to be discretionary (none of 150 UK firms we analyzed links yearly salary increases explicitly to inflation or some other formula) and some firms indicate that firm performance is one of the factors that they take into account when revising the CEO's salary.²

Nevertheless, to ensure that our results are not driven by salaries, we repeat the analysis in Table IX using only bonus pay. As reported in Appendix Table II, we obtain similar results. This is not surprising given that fixed effects absorb cross-sectional, performance insensitive variation in salaries leaving behind what largely amounts to bonuses.

² For example, AMEC plc in its 2002 Annual Report states: "The base salaries...are reviewed annually, having regard to personal performance, company performance and competitive market practice, as determined by external research" (p. 44).

Section A4: Controlling for Unobservable Contemporaneous Changes in the UK Governance Environment

A major challenge in pre-post studies is to attribute the documented effects to the event of interest rather than to other factors that affect all firms. We address this possibility by examining a control sample of UK firms not subject to say on pay because they are traded on the AIM, a sub-market of the London Stock Exchange with a more flexible regulatory system than the Main Market. We obtain from Hemscott/Morningstar a sample of about 900 AIM firms with CEO cash compensation data (the dataset does not contain data on the value of equity compensation) for at least one year between 2000 and 2005. After imposing the condition that firms have the required data in both the pre- and post-periods, we end up with a sample of 243 AIM firms (yielding more than 1,100 observations in the regression analysis).

The evidence presented in Panel A of Appendix Table III indicates that the increased sensitivity of CEO cash compensation to poor operating performance documented in Table IX is observed only for firms subject to say on pay (i.e., Non-AIM UK firms). For AIM firms, the sensitivity of CEO pay to its economic determinants does not change after the introduction of say on pay.

AIM firms, by their very nature, differ systematically from firms traded on the major exchanges.³ In particular, they tend to be substantially smaller and less profitable. In our sample, AIM firms' sales range between 5 and 500 million pounds (with a mean of 36 million) and the mean (median) ROA is -6.7% (1.2%). AIM firms also tend to have higher growth opportunities (mean and median market-to-book ratios are 4.4 and 1.6, respectively) and higher CEO ownership (mean and median of 8.4% and 3.1%, respectively).⁴ However, these differences do not necessarily affect the validity of using AIM firms as a control group. In a differences-in-differences design, the levels of the variables need not be the same across the treated and untreated groups. The key identification assumption is that, in the absence of treatment (i.e., the introduction of say on pay regulation), the coefficients for the treated (i.e., non-AIM UK firms) and the untreated (AIM UK Firms) would have behaved similarly.

Moreover, as discussed in the manuscript (see footnote 25), within the non-AIM sample the effect of say on pay does not depend on institutional ownership, firm size, or board independence, implying that differences in these and other correlated characteristics are unlikely to drive the difference-in-difference result in Panel A of Appendix Table III. Finally, recognizing size to be both a key difference and a proxy for a number of related economic characteristics, we repeat the analysis in Panel A of Appendix Table III, limiting the AIM UK and non-AIM UK samples to the region where the size distributions overlap (i.e., the region of common support, which occurs between 5 and 500 million pounds). The results, reported in Panel B of Appendix Table III, are unchanged. While the AIM sample is admittedly not a perfect control sample, the test is consistent with an increase in the sensitivity of CEO pay to poor operating performance only for firms subject to the say on pay regulation.

³ Mallin, C. and Ow-Yong, K. (2008) Corporate governance in alternative investment market (AIM) companies, The Institute of Chartered Accountants of Scotland, Edinburgh, Scotland.

⁴ We do not have access to governance data for AIM firms, except for 70 AIM firms covered in BoardEx. For these AIM firms, on average, 43% of the directors on the board are independent and institutional blockholders own 28% of equity. Comparative figures of 50% and 28% for UK firms on the Main Market suggest limited differences at least in terms of these two governance characteristics.

Appendix Table I. Additional Market Reaction Tests**Panel A: Events signaling changes in the probability of say on pay regulation***

Event	Description	Date	Effect on Pr(Regulation)
[1]	The press reports that the Department of Trade and Industry (DTI) is considering say on pay regulations.	6/13/1999	Increase
[2]	The DTI announces that it will defer its decision on say on pay until at least October when Parliament re-adjourns.	7/25/2000	Decrease
[3]	Say on pay is dropped from the list of topics for the coming Parliamentary session. According to the press, the government wants to avoid alienating business voters in advance of the May general election.	10/29/2000	Decrease
[4]	The DTI announces a say on pay consultation document inviting comments on the draft regulations.	10/19/2001	Increase
[5]	The DTI submits say on pay regulation to the Parliament (to be debated in July).	6/25/2002	Increase
[6]	The UK Parliament approves say on pay.	7/25/2002	Increase

*Identified by searching Lexis-Nexis using various combinations of the words “remuneration,” “compensation,” “pay,” “government,” “Department of Trade and Industry,” “DTI,” “legislation,” and “regulation.”

Event	Market commentary / Possible confounding events*
[1]	The FTSE 100 falls 54.7 points to 6,430.1. The FTSE 250 edges 0.7 higher to 5,818.2. Wal-Mart makes a surprise bid for Asda.
[2]	The FTSE 100 trades within a narrow range, closing 9.4 higher at 6,390.7 – essentially flat. The FTSE 250 closes down 16.9 at 6,805.
[3]	The London market trades in a narrow range all day with limited volume. Many trading desks are empty as the south of England suffers its worst storm since 1987. The FTSE 100 closes 21.9 ahead at 6,388.4. The FTSE 250 is up 20.8 at 6,589.5.
[4]	The FTSE 100 index falls 98.3, or 1.9 per cent, to 5,017.7. The FTSE 250 loses 66.8, or 1.2 per cent, to 5,391.9. Among the reasons for the market decline are (i) unease with the continuing war on terrorism and (ii) an anthrax scare affecting the UK Parliament. Internationally, the German IFO business climate index comes in much lower than expected, while inflation data from the US come in higher than expected. Domestically, Rolls-Royce announces a largely expected restructuring plan, which includes 5,000 job losses.
[5]	The FTSE 100 falls 3.8 to 5,661.9. The FTSE 250 falls 3.6 to 6,336.9. Media stocks dominate as the worst performers in the FTSE 100, amid renewed concerns about the extent of the downturn in television advertising.
[6]	Investors respond positively, though cautiously, to strong performance on Wall Street. London's initially cautious response is a reflection of the news, announced after US markets closed, that the US Securities and Exchange Commission is investigating accounting procedures at AOL Time Warner's online division. At the end of the session the FTSE 100 is up 188.8, or 5 per cent, at 3,965.9. The FTSE 250 moves up 68.1, or 1.5 per cent, to 4,653.8.

*Identified by searching the "Stock Markets: London Stock Exchange" section of the *Financial Times* for the next day after each event. This section of the newspaper reports the aggregate market activity for the previous day (in our case, the event day) and contains a short commentary, often a single sentence, speculating on the cause of that activity.

Panel B: Raw and Abnormal Event-Day Returns by Excess Pay Quartiles

Event	Effect on Pr(Regulation)	N	Raw Returns (p-values) by Excess Pay Quartile			Abnormal Returns (p-values) by Excess Pay Quartile		
			Q1 (Low)	Q4 (High)	Difference (Q4 - Q1)	Q1 (Low)	Q4 (High)	Difference (Q4 - Q1)
[1]	Increase	343	-0.08% (0.606)	0.09% (0.574)	0.18% (0.446)	-0.03% (0.876)	0.15% (0.356)	0.18% (0.446)
[2]	Decrease	298	-0.09% (0.615)	0.03% (0.858)	0.12% (0.629)	-0.07% (0.709)	0.05% (0.757)	0.12% (0.629)
[3]	Decrease	298	0.04% (0.871)	0.27% (0.215)	0.24% (0.448)	-0.27% (0.216)	-0.04% (0.866)	0.24% (0.448)
[4]	Increase	499	-0.24% (0.320)	-0.51% (0.033)	-0.27% (0.423)	0.19% (0.425)	-0.08% (0.738)	-0.27% (0.423)
[5]	Increase	545	0.00% (0.996)	0.69% (<.001)	0.69% (0.005)	-0.39% (0.023)	0.30% (0.087)	0.69% (0.005)
[6]	Increase	589	1.17% (<.001)	2.09% (<.001)	0.93% (0.003)	-0.48% (0.035)	0.45% (0.047)	0.93% (0.003)

Panel C: Regression of Abnormal Event-Day Returns on Excess Pay and Control Variables

Regression Coefficients (p-values)						
Event	Effect on Pr(Regulation)	N	Excess Pay	Size	BM	Momentum
[1]	Increase	343	0.22% (0.125)	-0.25% (<.001)	0.18% (0.277)	-0.29% (0.282)
[2]	Decrease	298	-0.07% (0.658)	0.05% (0.450)	0.15% (0.355)	0.53% (0.138)
[3]	Decrease	298	0.00% (0.991)	0.00% (0.990)	0.12% (0.503)	0.19% (0.628)
[4]	Increase	499	0.04% 0.836	-0.17% (0.009)	-0.04% (0.026)	-1.01% (0.033)
[5]	Increase	545	0.30% (0.025)	0.17% (<.001)	0.00% (0.943)	0.85% (0.003)
[6]	Increase	589	0.22% (0.197)	0.37% (<.001)	0.05% (0.015)	-0.20% (0.587)
[1 - 6]	N/A	2,572	0.18% (0.029)	0.07% (0.538)	0.00% (0.950)	-0.09% (0.767)

This table presents an event study around six events that (arguably) signaled changes in the probability of say on pay regulation. Since the analyses in this appendix do not utilize severance data, for this test we examine an expanded sample of up to 589 firms (depending on data availability). Panel A provides a description of the six events. Event 5 is the June 25, 2002 announcement examined in the manuscript.

Panel B reports the mean values of *Raw Returns* and *Abnormal Returns* for the highest and lowest *Excess Pay* quartiles. *Raw Returns* is the event-day return (source: Datastream). *Abnormal Returns* is the abnormal event-day return relative to an equally-weighted market index of all firms in our sample (source: Datastream). *Excess Pay* is the residual from annual cross-sectional regressions of the natural log of total compensation on size (the natural log of sales), performance (ROA and 1-year stock returns), market-to-book, and industry dummies. For events 4 – 6, we use BoardEx compensation data for our annual cross-sectional excess pay regressions (all other variables are from Datastream). For event 4, we use observations from fiscal 2000. For event 5, we focus on fiscal 2001 observations with annual reports filed before June 1, 2002. For event 6, we focus on fiscal 2001 observations. Events 1-3 precede the start of the BoardEx database. For these events, we use 1997 data generously supplied by Martin Conyon and Kevin J. Murphy and described in Conyon and Murphy (2000). Data availability differs across the events, explaining the differences in sample size. P-values are based on two-tailed heteroskedastic-robust *t*-statistics. Values that are statistically significant at the 10% level appear in bold.

Panel C reports the results of six cross-sectional regressions and one pooled regression. For the cross sectional regression, we estimate the equation $Abnormal\ Returns_i = \delta_0 + \delta_1 Excess\ Pay_i + \delta_2 Size_i + \delta_3 BM_i + \delta_4 Momentum_i + \varepsilon_i$ where *i* denotes firm *i*. For the pooled regression, we estimate the pooled analog: $Abnormal\ Returns_{i,t} = \delta_0 + \delta_1 Excess\ Pay_{i,t} + \delta_2 Size_{i,t} + \delta_3 BM_{i,t} + \delta_4 Momentum_{i,t} + \varepsilon_{i,t}$ where *i* denotes firm *i* and *t* denotes event 1, 2, 3, 4, 5, or 6. For the pooled regression, when *t* = 2 or 3, *Abnormal Returns_{i,t}* is multiplied by negative one. *Size* is the natural logarithm of market value (in millions) measured 6 months prior to day *t* (source: Datastream). *BM* is the ratio of book value to market value measured 6 months prior to day *t* (source: Datastream). *Momentum* is the market-adjusted return over the prior six months (source: Datastream). For the cross-sectional regressions (pooled regression), we report p-values based on two-tailed heteroskedastic-robust (date-clustered) *t*-statistics (Larcker et al., 2011). Values that are statistically significant at the 10% level appear in bold.

Appendix Table II. Determinants of CEO Bonus Pay in the UK Pre- and Post- Say on Pay Legislation

Variable	Y = Ln (1 + CEO Bonus)					
	Pre Period		Post Period		Difference Post - Pre	
	Coeff.	P val	Coeff.	P val	Coeff.	P val
<i>Post Period</i>			0.16	0.17	0.16	0.17
<i>Trend</i>	0.29 ***	0.00	0.19 **	0.05	-0.10	0.33
<i>Industry-Adjusted Returns</i> ⁺	0.52 **	0.02	0.09	0.63	-0.43	0.12
<i>Industry-Adjusted Returns</i> ⁻	2.27 ***	0.00	1.77 ***	0.00	-0.50	0.31
<i>Industry Returns</i>	1.43 ***	0.00	0.75 ***	0.00	-0.68	0.15
<i>Industry-Adjusted ROA</i> ⁺	6.96 ***	0.00	5.54 ***	0.00	-1.42	0.29
<i>Industry-Adjusted ROA</i> ⁻	0.16	0.89	6.32 ***	0.00	6.16 ***	0.00
<i>Industry ROA</i>	8.70 ***	0.00	8.13 ***	0.00	-0.57	0.68
<i>Ln Sales</i>	-0.15	0.34	-0.16	0.33	-0.01	0.85
<i>Market-to-Book Ratio</i>	0.03 **	0.02	0.03	0.16	0.00	0.78
<i>CEO Ownership</i>	0.24	0.79	-1.07	0.41	-1.31	0.28

This table reports results from estimating the following OLS panel regression on a sample of 3,305 firm-year observations over the period 2000-2005:

$$\text{Ln}(1 + \text{CEO Bonus}_{it}) = \delta_i + (1 - \text{Post}_{it}) \left[\sum_{j=1}^{10} \alpha_j \times \text{Pay Determinants}_{j,it} \right] + \gamma \text{Post}_{it} + \text{Post}_{it} \left[\sum_{j=1}^{10} \beta_j \times \text{Pay Determinants}_{j,it} \right] + \varepsilon_{it}.$$

The dependent variable is the natural logarithm of 1 + *CEO Bonus*. *Post* is an indicator variable equal to 1 (0) for observations occurring in the 2003-2005 (2000-2002) period. The set of *Pay Determinants* are defined as follows: *Trend* = fiscal year minus 1999 (2002) in the pre- (post) period; *Industry-Adjusted Returns*^{+(·)} = the difference between *Raw Returns* and *Industry Returns* if positive (negative), and 0 otherwise; *Industry Returns* = mean *Raw Returns* for all firms in the same BoardEx industry code; *Industry-Adjusted ROA*^{+(·)} = the difference between *ROA* and *Industry ROA* if positive (negative), and 0 otherwise; *Industry ROA* = mean *ROA* for all firms in the same BoardEx industry code; *Ln Sales* = the natural logarithm of lagged annual revenues; *Market-to-Book Ratio* = the lagged ratio of the market to the book value of equity; *CEO Ownership* = the lagged percentage of the firm's equity held by the CEO. The coefficients α (β) measure associations between CEO bonus pay and its economic determinants for the pre- (post-) say on pay observations. The coefficients δ_i are firm fixed effects and the coefficient γ detects whether say on pay resulted in a one- time, performance independent shift in the average level of CEO bonus pay. *, **, *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively (based on a two-tailed test). Reported P-values are based on heteroskedasticity-adjusted standard errors clustered by firm.

Appendix Table III. Determinants of CEO pay in the UK Pre- and Post- Say on Pay Regulation: AIM UK Firms vs. Non-AIM UK Firms

Panel A: Full Sample

Variable	Y = Ln (CEO Cash Pay)									
	AIM UK Firms				Non-AIM UK Firms				Non-AIM UK Firms – AIM UK Firms	
	Pre Period	Post Period	Difference Post - Pre		Pre Period	Post Period	Difference Post - Pre		Difference in Difference	
	Coeff.	Coeff.	Coeff.	P val	Coeff.	Coeff.	Coeff.	P val	Coeff.	P val
<i>Post Period</i>		0.27 ^{***}	0.27	0.07		0.12	0.12	0.35	-0.15	0.67
<i>Trend</i>	0.10 ^{***}	0.05 ^{***}	-0.06	0.30	0.09 ^{***}	0.08 ^{***}	0.00	0.80	0.05	0.37
<i>Industry-Adjusted Returns⁺</i>	0.08 ^{***}	0.03	-0.05	0.14	0.04	0.04	-0.01	0.87	0.04	0.45
<i>Industry-Adjusted Returns⁻</i>	0.02	0.00	-0.01	0.91	0.09	0.25 ^{***}	0.16 ^{***}	0.05	0.17	0.26
<i>Industry Returns</i>	0.03	-0.05	-0.09	0.51	0.01	0.10 ^{***}	0.09	0.29	0.18	0.26
<i>Industry-Adjusted ROA⁺</i>	0.67 ^{***}	0.99 ^{***}	0.32	0.29	0.94 ^{***}	1.06 ^{***}	0.12	0.63	-0.20	0.61
<i>Industry-Adjusted ROA⁻</i>	0.00	-0.11	-0.11	0.59	-0.26	0.69 ^{***}	0.95 ^{***}	0.00	1.06 ^{***}	0.00
<i>Industry ROA</i>	0.61 ^{***}	1.03 ^{***}	0.42	0.27	0.91 ^{***}	1.07 ^{***}	0.16	0.55	-0.26	0.58
<i>Ln Sales</i>	0.11 ^{***}	0.12 ^{***}	0.02	0.49	0.08 ^{***}	0.06 ^{***}	-0.02	0.13	-0.03	0.23
<i>Market to Book</i>	0.00	0.00	0.00	1.00	0.00 ^{***}	0.01 ^{***}	0.00	0.48	0.00	0.50
<i>CEO Ownership</i>	0.12	0.12	0.00	0.99	0.06	0.08	0.02	0.93	0.02	0.96

This table reports results from estimating the following OLS panel regression on a sample of 4,459 firm-year observations over the period 2000-2005:

$$\begin{aligned} \text{Ln(CEO Cash Pay)}_{it} = & \delta_i + \text{AIM}_i \times [(1-\text{Post}_{it}) \times (\sum_{j=1}^{10} \alpha_j \times \text{Pay-Determinants}_{j,it}) + \gamma \text{Post}_{it} + \text{Post}_{it} \times (\sum_{j=1}^{10} \beta_j \times \text{Pay-Determinants}_{j,it})] + \\ & + (1-\text{AIM}_i) \times [(1-\text{Post}_{it}) \times (\sum_{j=1}^{10} \phi_j \times \text{Pay-Determinants}_{j,it}) + \lambda \text{Post}_{it} + \text{Post}_{it} \times (\sum_{j=1}^{10} \theta_j \times \text{Pay-Determinants}_{j,it})] + \varepsilon_{it} \end{aligned}$$

Ln(CEO Cash Pay) is the natural logarithm of *CEO Cash Pay*. *AIM* is an indicator variable equal to 1 for UK firms traded on the Alternative Investment Market (AIM) and 0 for all non-AIM UK firms. All other variables are defined in Tables VIII and IX of the manuscript. This table reports coefficients, pre-post differences in coefficients, and differences in pre-post differences across the AIM and non-AIM UK subsamples (i.e., “differences-in-differences”).

*, **, *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively (based on a two-tailed test). Reported P-values are based on heteroskedasticity-adjusted standard errors clustered by firm.

Panel B: Common Support Sample

Y = Ln (CEO Cash Pay)

Variable	AIM UK Firms				Non-AIM UK Firms				Non-AIM UK Firms – AIM UK Firms	
	Pre Period	Post Period	Difference Post - Pre		Pre Period	Post Period	Difference Post - Pre		Difference in Difference	
	Coeff.	Coeff.	Coeff.	P val	Coeff.	Coeff.	Coeff.	P val	Coeff.	P val
<i>Post Period</i>		0.28 *	0.28	0.07		0.14	0.14	0.36	-0.14	0.47
<i>Trend</i>	0.10 **	0.05	-0.06	0.30	0.09 ***	0.08 ***	0.00	0.87	0.05	0.38
<i>Industry-Adjusted Returns</i> ⁺	0.08 ***	0.03	-0.05	0.14	0.02	0.04	0.02	0.71	0.07	0.25
<i>Industry-Adjusted Returns</i> ⁻	0.02	0.00	-0.02	0.91	0.10	0.21 ***	0.12 *	0.24	0.13	0.42
<i>Industry Returns</i>	0.03	-0.05	-0.08	0.51	0.00	0.07	0.07	0.49	0.15	0.35
<i>Industry-Adjusted ROA</i> ⁺	0.67 **	0.99 ***	0.32	0.29	0.73 **	1.03 ***	0.30	0.34	-0.02	0.95
<i>Industry-Adjusted ROA</i> ⁻	0.00	-0.11	-0.11	0.60	-0.32	0.67 **	0.99 ***	0.01	1.10 ***	0.01
<i>Industry ROA</i>	0.61 **	1.03 ***	0.42	0.27	0.68 *	1.16 ***	0.48	0.20	0.06	0.91
<i>Ln Sales</i>	0.11 **	0.12 **	0.02	0.51	0.09 ***	0.06 *	-0.03	0.16	-0.05	0.14
<i>Market to Book</i>	0.00	0.00	0.00	0.99	0.00 *	0.01	0.00	0.87	0.00	0.87
<i>CEO Ownership</i>	0.12	0.12	0.00	0.99	0.07	0.00	-0.07	0.74	-0.07	0.83

This table reports results from estimating the following OLS panel regression on a sample of 2,257 firm-year observations over the period 2000-2005:

$$\begin{aligned} \text{Ln(CEO Cash Pay)}_{it} = & \delta_i + \text{AIM}_i \times [(1 - \text{Post}_{it}) \times (\sum_{j=1}^{10} \alpha_j \times \text{Pay-Determinants}_{j,it}) + \gamma \text{Post}_{it} + \text{Post}_{it} \times (\sum_{j=1}^{10} \beta_j \times \text{Pay-Determinants}_{j,it})] + \\ & + (1 - \text{AIM}_i) \times [(1 - \text{Post}_{it}) \times (\sum_{j=1}^{10} \phi_j \times \text{Pay-Determinants}_{j,it}) + \lambda \text{Post}_{it} + \text{Post}_{it} \times (\sum_{j=1}^{10} \theta_j \times \text{Pay-Determinants}_{j,it})] + \varepsilon_{it} \end{aligned}$$

Ln(CEO Cash Pay) is the natural logarithm of *CEO Cash Pay*. *AIM* is an indicator variable equal to 1 for UK firms traded on the Alternative Investment Market (AIM) and 0 for all non-AIM UK firms. All other variables are defined in Tables VIII and IX of the manuscript. This table reports coefficients, pre-post differences in coefficients, and differences in pre-post differences across the AIM and non-AIM UK subsamples (i.e., “differences-in-differences”).

*, **, *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels, respectively (based on a two-tailed test). Reported P-values are based on heteroskedasticity-adjusted standard errors clustered by firm.