

Stockholder and Bondholder Wealth Effects of CEO Incentive Grants

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Abstract

We examine stock and bond price reactions to CEO equity compensation in a sample of firms where ExecuComp reports the first appearance of CEO stock option and/or restricted stock grants. For these grants, we find positive stock price reactions and negative bond price reactions. To examine the link between security holder wealth and managerial incentives, we compute the effect of these grants on the pay-performance (delta) and stock volatility (vega) sensitivities of the CEO's wealth. We find that stock price reactions are decreasing in the change in delta and increasing in the change in vega, while bond price reactions are increasing in the change in delta and decreasing in the change in vega. These relations, however, depend on the CEO's equity ownership prior to the grant. Consistent with the notion that equity-based compensation aggravates risk-shifting incentives, we find a strong negative relation between stockholder and bondholder wealth effects for grants that induce a large change in the vega of the CEO's wealth.

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1. Introduction

The goal of equity-based compensation is to provide managers with incentives to maximize shareholder wealth. Starting with the seminal work of Jensen and Meckling (1976), however, it is clear that equity compensation can result in a variety of unintended incentives. On the one hand, Jensen and Meckling (1976), Brander and Poitevin (1992), and John and John (1993) argue that equity-based compensation and especially stock options may encourage managers to adopt risky policy choices, because their compensation will be more sensitive to stock price volatility. This risk-shifting incentive presumably exacerbates stockholder-bondholder conflicts. On the other hand, Lambert, Larcker and Verrecchia (1991), Carpenter (2000), and Ross (2004) argue that a risk-averse and under-diversified manager has a strong incentive to adopt risk-reducing policy choices if her compensation has high pay-performance sensitivity. This incentive to manage too conservatively is expected to exacerbate manager-stockholder conflicts.

These contrasting incentive effects of equity compensation raise a number of important questions. First, how do stockholders and bondholders react to new information about executive equity-based compensation? Although stockholder reactions to all manner of executive compensation events have been documented in the literature, there is not recent or large sample evidence on bondholder reactions.¹ Second, how do stockholder and bondholder reactions depend on the change in pay-performance and volatility incentives induced by grants? In particular, as the theoretical literature suggests, is higher pay-performance sensitivity associated with more negative stockholder reactions and more positive bondholder reactions, and is higher volatility sensitivity associated with more positive stockholder reactions and more negative bondholder reactions? Finally, what is the relation between stockholder and bondholder reactions to compensation events? Is there any evidence that changes in risk-taking incentives

¹ We discuss this literature below.

induced by executive compensation results in wealth transfers between stockholders and bondholders?

We use the ExecuComp database to identify 1,083 instances where a firm's CEO starts receiving option and/or restricted stock grants during the period from 1992 to 2005. Our methods (discussed below) identify new equity compensation for the CEO position and not simply for a new person in the CEO position. Thus, our compensation event sample only includes proxy statement years where the CEO position receives option and/or restricted stock grants, and where there are no such grants to the CEO position in prior years. For this sample, we compute stock price reactions to the new compensation event, and examine how the stock price reactions are related to the change in the pay-performance (delta) and volatility (vega) sensitivities induced by the new compensation. For a subsample of 287 events we collect bond price data from Moody's Manuals, which allows for an examination of the joint stock and bond price reactions to the new equity compensation.

Consistent with the notion that equity-based incentive compensation aligns the interests of managers and stockholders, we find positive stock price reactions surrounding the proxy filing dates for these grants. For the entire sample of 1,083 compensation events, we find mean (median) cumulative excess stock returns of 2.82% (2.15%) in the days following the proxy filing date. Importantly, we find similarly large positive excess stock returns after excluding compensation events with significant other proxy statement items and/or with significant earnings, payout, or restructuring news surrounding the proxy statement date. In sharp contrast with the positive excess stock returns, we find a negative mean (median) excess bond return of -1.12% (-0.88%) in the proxy filing period for the 287 firms for which bond prices are available. The negative bondholder reaction suggests that new managerial incentive compensation is anticipated to aggravate stockholder-bondholder conflicts. Overall, these security price reactions are consistent with previous findings in the literature.

We then examine the important and as yet unexamined relation between these excess stock and bond returns and the change in the CEO's incentives induced by the option and/or

restricted stock grants. Using the methods of Core and Guay (2002) and compensation information supplied by ExecuComp, we compute the change in the sensitivity of the CEO's wealth to stock price (delta) and stock volatility (vega) from before to after the new grants.² Consistent with the idea that higher pay-performance sensitivity may encourage risk-averse and under-diversified managers to forgo riskier policy choices that benefit equity, we find a negative relation between excess stock returns and the change in the delta of the CEO's wealth. This result, however, is much stronger for the subsample with bond price data (i.e., the subsample of larger firms with public debt), which suggests that the incentive to reduce risk transfers value from equity to debt. In contrast, we find a robust positive relation between excess stock returns and the change in the vega of the CEO's wealth. Interestingly, these incentive effects influence excess bond returns only when the CEO has low equity ownership prior to the new grants (i.e., when the change in delta and change in vega as a percentage of the CEO's wealth in the firm is largest). For these cases, we find that excess bond returns are increasing in the change in delta and decreasing in the change in vega.

Lastly, we examine the relation between excess stock and bond returns for evidence that incentive compensation either mitigates or, more likely, aggravates the likelihood of stockholder-bondholder conflicts. Consistent with the view that equity-based compensation aggravates risk-shifting incentives, we find a negative relation between stockholder and bondholder wealth effects when the new grants result in a large (e.g., above median) change in the vega of the CEO's wealth.

There is a substantial literature that examines security holder reactions to compensation events. For example, Brickley, Bhagat, and Lease (1985) and DeFusco, Johnson, and Zorn (1990), and more recently Morgan and Poulsen (2001) and Martin and Thomas (2005) all find positive stock price reactions at the adoption of equity-based compensation plans. To our knowledge, however, only the DeFusco, Johnson, and Zorn (1990) paper examines bond price

² Note that by wealth we mean the fraction of the CEO's wealth that is tied up in the company (i.e., shareholdings, stock appreciation rights, and unexercised options).

reactions to compensation events.³ In a small sample of NYSE firms adopting executive stock option plans during the period 1978 to 1982, they find a small negative abnormal bond return around the SEC stamp date.⁴ There is also a large literature that examines the feedback between managerial compensation incentives and corporate policy decisions. For example, Coles, Daniel, and Naveen (2006) examine the causal links between CEO compensation incentives and investment, leverage, and diversification, while Sundaram and Yermack (2007) examine how the mix of CEO compensation between debt-like and equity components (e.g., pensions versus stock options) influences the CEO's incentive to make conservative policy choices.

Our study makes several contributions to this literature. First, this is the first study to document the relations between security holder reactions to compensation events and the pay-performance (delta) and volatility (vega) incentives induced by the compensation. These links are important, because it has never been shown that stockholder and bondholder reactions to compensation events are associated with the specific incentives provided by the compensation. Second, this is the first study to provide evidence that the differential reactions of stockholders and bondholders to compensation events are associated with the exacerbated risk-shifting incentives induced by high-vega compensation. Finally, our study updates and provides large sample evidence of bondholder reactions to compensation events.

The remainder of the paper is organized as follows. Section 2 develops testable predictions. We discuss our data in Section 3 and our results in Section 4. Section 5 concludes.

2. Predictions

In general, we expect stockholders to react positively to information about new executive compensation that aligns manager-shareholder interests. We therefore expect positive stock

³ There is some recent empirical work that documents a positive relation between bond credit spreads and managerial stock ownership (see Ortiz-Molina (2006)), and between bond credit spreads and the incentive characteristics (delta and vega) of CEO compensation contracts (see Daniel, Martin, and Naveen (2004)).

⁴ Prior to electronic filing, the SEC stamp date was the date when the SEC mailroom opened the proxy and marked it received. The average abnormal bond return for 26 firms with debt traded on the SEC stamp day and the day before are -0.38% and -0.40% , respectively.

price reactions surrounding compensation events where the CEO position receives significant and new equity-based compensation. In contrast, it is perhaps less clear how bondholders will react to new managerial equity compensation. On the one hand, enhanced manager-shareholder alignment may increase stockholder-bondholder conflicts. Specifically, since equity has limited liability, it is well known that stockholders have an incentive to risk-shift at the expense of bondholders. Since managers control the day-to-day decisions of the firm, this risk-shifting problem is kept in check when their compensation is relatively insensitive to the stock price. As managerial compensation is tilted more toward equity, it is easy to see that maximizing shareholder wealth can lead to enhanced risk-shifting incentives. As such, rational bondholders should price these incentive effects into the firm's debt, and we would therefore predict a negative bondholder reaction. On the other hand, this negative effect could be offset if the anticipated riskier policy choices also increase expected cash flows. Since risky debt will benefit from higher expected cash flows, the resulting net bondholder reaction could be positive.

Importantly, however, stockholder and bondholder reactions should depend on how the new compensation influences a CEO's incentives. The heightened incentive to pursue risky policies is predicated on the assumption that the new compensation significantly increases the sensitivity of the CEO's overall wealth to own-firm stock price volatility. Obviously, this is more likely if the CEO receives a significant amount of at-the-money stock option grants, but is much less likely if the new compensation is restricted stock. Indeed, as originally illustrated by Lambert, Larcker, and Verrecchia (1991), a risk-averse manager with a large proportion of her wealth tied up in the equity of the firm may actually eschew risk. Subsequent analysis by Carpenter (2000) and Ross (2004) illustrates this same risk-avoidance incentive when the pay-performance sensitivity of the manager's compensation is high (e.g., when the manager has deep-in-the-money options).

We therefore compute how new CEO equity compensation changes the pay-performance (delta) and volatility (vega) sensitivities of a CEO's wealth, and then relate these sensitivities to the security price reactions to the compensation. We assume that the larger the change in vega,

the more likely the CEO will pursue riskier policy choices; and that the larger the change in delta, the more likely the CEO will pursue more conservative policy choices. To link these compensation incentives to security price reactions, we adopt the contingent-claims view of equity and debt that all else being equal, equity value is increasing in risk and risky debt value is decreasing in risk. We therefore predict that the stock price reaction to new CEO equity compensation will be increasing in the change in vega of the CEO's wealth and decreasing in the change in the delta of the CEO's wealth. In contrast, we predict that the bond price reaction to an increase in vega will be negative, whereas the bond price reaction to an increase in delta will be positive. We note, however, that these predictions implicitly assume that risk-changing policy choices are not also accompanied by significant changes in expected cash flow; otherwise, for example, it could be possible that risky policy choices benefit both equity and debt if they result in higher expected cash flows. We also note that these predictions may depend on the size of the CEO's portfolio of own-firm stock prior to the new equity compensation event. For example, new equity compensation that induces a large change in the vega of the CEO's portfolio holdings may have more (or less) impact depending on whether the CEO has small or large own-firm equity holdings prior to the compensation event. We investigate this possibility in our empirical analysis.

Lastly, we examine the relation between the stock and bond price reactions to new CEO equity compensation events. If high vega compensation encourages the CEO to adopt riskier policy choices, then part of the gains to stockholders may be attributable to a wealth transfer from bondholders. Alternatively, if high delta compensation encourages the CEO to pursue more conservative policy choices, then all else being equal, we might expect a wealth transfer from stockholders to bondholders. Thus, regardless of the direction of the CEO risk incentives induced by the compensation, we would expect a negative relation between the stock and bond price reactions to the compensation.⁵

⁵ A caveat, as noted earlier, is that if risk changes are accompanied by changes in expected cash flows of the same direction, then the relation between stock and bond price reactions could be positive.

An important issue for any study on the valuation consequences of equity compensation is the phenomenon of stock option back-dating documented by Lie (2005). For a large proportion of CEO option grants, Lie finds that the actual grant dates are prior to the proxy filing dates where the grants are first publicly disclosed.⁶ More troublesome, the actual grant dates tend to coincide with low points in firms' recent stock price histories, so that proxy filing dates tend to be preceded by superior risk-adjusted stock price performance and the stock options are in-the-money when publicly disclosed.⁷ This suggests that stock price reactions around proxy filing dates may be positive regardless of whether the disclosed CEO equity compensation has any real influence on corporate policy choices. Furthermore, CEO option grants will tend to have larger deltas and smaller vegas, because the stock options will be in-the-money when viewed at the proxy filing date.

Although positive stock price bias induced by back-dating is an important caveat for our analysis, back-dating works against our predictions for the relation between stock price reactions and the associated changes in the delta and vega of the CEO's wealth. The reason is that back-dating appears to hard-wire a positive relation between the stock price reaction and the change in delta and hard-wire a negative relation between the stock price reaction and the change in vega. However, the compensation incentive story predicts the opposite (i.e., a negative relation for delta and a positive relation for vega), and so any hard-wire bias will work against our predictions. In contrast, it is somewhat ambiguous how back-dating influences bondholder outcomes, since it is far less clear whether stock option back-dating will produce a pattern of subsequent superior risk-adjusted performance for a firm's bonds. If it did, contrary to predictions, we would anticipate finding a positive relation between bond and stock price reactions to new CEO compensation disclosed on proxy filing dates.

⁶ Option back-dating is not a problem for grants awarded after August 2002. As discussed by Heron and Lie (2007), effective August 29, 2002 the SEC requires executives to report option grants on Form 4 within 2 business days after they are granted.

⁷ Note that stock options are virtually always granted at-the-money. Since stock option grants are back-dated to a low point in a firm's stock price, they will tend to be in-the-money when the public learns about the options at the proxy filing date.

3. Data and Descriptive Statistics

3.1 Sample Construction

We use the ExecuComp database to construct a sample of firms reporting grants of stock options and/or restricted stock for the first time to the CEO position over the period from 1992 to 2005. The ExecuComp database provides yearly data on salary, bonus, stock option and restricted stock grants, and managerial stock and option holdings for the top executives of firms in the S&P 500, S&P Midcap 400, and S&P Smallcap 600.⁸ Although we focus our analysis on the CEO position, as noted below, the results are similar if we use compensation data for all of a firm's executives covered by ExecuComp.

Starting with 32,082 CEO firm-years over the period from 1992 to 2005, we search for years where ExecuComp reports the first appearance of stock option and/or restricted stock grants to the CEO position.⁹ For a firm, we identify the first appearance of an option grant to the CEO by requiring that the first time ExecuComp reports an option grant, it coincides with either zero holdings of unexercised options (vested and not vested) or that the number of unexercised options is less than or equal to the number of options in the grant.¹⁰ Similarly, we identify the first appearance of a restricted stock grant to the CEO position by requiring that it coincides with either zero restricted stock holdings or with restricted stock holdings less than or equal to the value of the grant divided by the stock price at the end of the fiscal year.¹¹ Note that our sample selection criteria require that the grants be new to the CEO position and not simply new to the

⁸ Note that the ExecuComp database starts in 1992, and although its company coverage is not comprehensive, it does include a broad range of company sizes.

⁹ For a firm-year we assume the executive with the highest cash compensation (salary plus bonus) is the CEO when ExecuComp does not identify the CEO, or one cannot be determined based on dates reported in ExecuComp for when the CEO assumed office and left office.

¹⁰ Note that the option grant for a given year is typically included in what ExecuComp calls unexercisable options (i.e., not vested), or in the handful of cases where the option grant has no vesting period, part or all of the grant can be included in what ExecuComp calls exercisable unexercised options. To be considered a first time grant (i.e., no options granted to the CEO in earlier years), the sum of unexercisable and exercisable unexercised options must be less than or equal to the option grant.

¹¹ Companies are not required to report the number of restricted shares awarded, so we follow ExecuComp's recommendation and estimate the number by dividing the dollar value of the restricted stock grant by the company's stock price at the end of the fiscal year.

person who happens to hold the CEO position, since we require no option and/or restricted stock grants to whomever holds the title of CEO in prior years. Our methods yield a sample of 1,686 CEO firm-years with a first appearance of stock option and/or restricted stock grants.

It is important to note that our sample selection procedures do not rule out CEO stock holdings prior to these grants, nor do they rule out cases where the CEO position has been receiving other equity-based grants. For example, our sample can include the first time that a firm compensates the CEO position with restricted stock, despite having a long history of giving option grants to their top executives. Thus, as we note below, the CEOs in our sample have a nontrivial amount of own-firm equity holdings prior to these grants. Nevertheless, the primary benefit of our approach is that it increases the chances of identifying significant CEO ‘compensation events’ for a large sample of firms.

From the initial sample of 1,686 CEO firm-years, we lose 261 observations because they have a missing proxy filing date on ExecuComp. In addition, we lose another 152 observations because of missing data on ExecuComp necessary to compute the pay-performance (delta) and volatility sensitivity (vega) measures that we use in our analysis. We also lose 147 observations because the firm does not have accounting data on Compustat around the proxy filing date reporting the grant. Lastly, we lose 43 observations because of missing daily stock return data on CRSP around the proxy filing date, and for grants after August 2002, the Form 4 date.¹² This leaves us with a final sample of 1,083 CEO firm-years for which we can compute stock price reactions to the equity compensation and relate those reactions to the change in the CEO incentives induced by the compensation.

Since we are also interested in bondholder reactions to the grants, we identify the subsample of the 1,083 event sample that has bond price data. We start by requiring that in the year of the proxy filing date, the sum of the firm’s long-term debt plus debt in current liabilities

¹² The Form 4 date is a potentially important date for grants after August 2002, since effective August 29, 2002, executives are required to report grants to the SEC on Form 4 within 2 business days, and the SEC publicly discloses this information one day later (see, e.g., Heron and Lie (2007)). We gather Form 4 filing dates from the SEC’s online Edgar database.

is nonzero and that the firm has a bond rating. These restrictions reduce the sample to 566 observations. For this subsample, we then hand collect monthly bond price data from *Moody's/Mergent Bond Record*.¹³ We require that Moody's/Mergent reports bid or sale prices for at least one nonconvertible note or debenture for the three-month period from one month before to one month after the proxy filing month, and for a similar three-month period around the Form 4 filing month for grants after August 2002 when the Form 4 date is before the proxy filing date. Since we only use one debt instrument per firm, if Moody's/Mergent reports bid/sale prices for multiple debt instruments we choose the nonconvertible note or debenture with a remaining maturity of at least 5 years and with a reasonable amount outstanding.¹⁴ This bond price data requirement gives us a subsample of 287 observations where we can compute both stock *and* bond price reactions to the new CEO equity compensation.

For this subsample of 287 first time option and/or restricted stock grants, we use the SEC's *Edgar* database and *LexisNexis* to collect the proxy statements containing the first appearance of option and/or restricted stock grants. We read the proxy statements in search of annual meeting agenda items, which along with the new equity compensation, may similarly influence security returns. Among the standard items (e.g., election of directors and appointment of auditor), we identify four that may reasonably impact security returns. These include management proposals to change the structure of the board of directors, change the number of authorized shares, change from single-class to dual-class shares, and change the voting procedures. We code a firm as having (significant other) proxy statement news if the firm's proxy statement contains any of these items.

We also use *Factiva* (a Dow Jones & Reuters news database) to collect information on earnings, payout, and restructuring news in the proxy filing month and the following month. A firm is coded as having positive earnings news if there is an earnings announcement during this

¹³ Unfortunately, as discussed in Billett, King, and Mauer (2004), reliable daily bond price data is not available for our sample period. We discuss below how we use the monthly bond price data to compute excess bond returns.

¹⁴ Obviously, "reasonable amount outstanding" is subjective, but our objective is to avoid debt instruments that have a relatively short remaining maturity and have little principal amount outstanding due to partial calls, tender offers, or more likely sinking fund payments.

time period that is above consensus estimates, and negative earnings news if there is an earnings announcement that is below consensus estimates. A firm is coded as having positive payout news if it announces an increase in dividends or share repurchases during this time period, and negative payout news if it announces a decrease in dividends. Finally, a firm is coded as having restructuring news if it announces any type of restructuring event during this time period. We use these codes to check the robustness of our results by filtering out the influence of these information events on security holder reactions to compensation events.

Table 1 provides the distribution of the compensation events by sample year for the 287 cases with stock and bond returns, the 796 cases with only stock returns, and the combined sample of 1,083 events. For each sample, the table reports the number of grants in a sample year and the percentage of these grants that include options and restricted stock. Note that the percentages in a given year may sum to greater than 100 percent, because there are cases where the CEO position receives new option and restricted stock grants. For comparison, the table also reports the distribution of option and restricted stock grants by sample year for the entire ExecuComp database.¹⁵

Observe in Table 1 that the sample is fairly evenly distributed over the sample period, although there is clearly a downward trend in the number of new option and/or restricted stock grants from the 1990s to the 2000s. This most likely reflects the trend to compensate top executives with some form of equity (i.e., as more firms use equity compensation, the incidence of *new* equity compensation should be declining). Notice that the percentage of new option grants is decreasing, while the percentage of new restricted stock grants is increasing. This may reflect a movement away from options to restricted stock, but also could reflect a saturation of the use of option compensation for top executives. Indeed, notice for the entire ExecuComp database – the All ExecuComp Firm-Years columns in Table 1 – that the percentage of CEO

¹⁵ Note that this much larger sample of 18,321 CEO firm-years is derived from the sample of 32,082 CEO firm-years after eliminating observations with a missing proxy filing date (9,649), incomplete and/or missing compensation data (2,905), and missing data on Compustat (701) and CRSP (506).

firm-years with option grants increases from 50% at the beginning of the sample period to over 80% by the end of the sample period. Note also that the incidence of restricted stock, although less frequent than that of options, has almost tripled over the sample period (from 15% to 43%).

3.2 Descriptive Statistics

Panel A of Table 2 reports descriptive statistics for the three event samples (Stock and Bond, Stock Only, and Combined), and for the overall ExecuComp sample after removing the Combined Event Sample (All Other ExecuComp). Except where noted below, all variables are computed using data from the fiscal year-end prior to the proxy filing date (or the Form 4 date for grants after August 2002), dollar variables are CPI-adjusted to 2004, and continuous variables are winsorized at the 1st and 99th percentiles. Finally, note that we report significance levels on the means and medians of variables in the event samples, which are from difference tests between the respective event samples and the All Other ExecuComp Sample.

As seen in Panel A, the Stock and Bond Event Sample (N = 287) is larger (as measured by assets), has a smaller market-to-book ratio, and has a higher market leverage ratio than either the Stock Only Event Sample (N = 796) or the All Other ExecuComp Sample (N = 17,238). This is not surprising given that the Stock and Bond Event Sample is comprised of firms with public debt outstanding. There is no difference, however, in the return on assets for the various samples. When the event samples are grouped by type of new equity compensation (not reported in the table), we find little difference between firms adopting option grants and firms adopting restricted stock grants. Although restricted stock firms tend to be larger (significantly so at the median), they are not significantly different from option granting firms on any other firm characteristic.

The remainder of Panel A reports descriptive statistics for the CEO's cash compensation (salary plus bonus), pay-performance (delta) and volatility (vega) incentives, and the pre-grant value of her stock holdings, for the various samples. Delta grant is the change in the value of the CEO's option and/or restricted stock grants for a 1% change in the stock price. Vega grant is the

change in the value of the option component of the grants for a 0.01 change in the annualized standard deviation of stock returns. The delta and vega computations follow the methods in Core and Guay (2002), who use the dividend-adjusted version of the Black-Scholes model to compute the value of executive stock options.¹⁶ We also follow Coles, Daniel, and Naveen (2006) in assuming that the vega of any stockholdings, including restricted stock, is zero. Finally, note that the delta grant and vega grant calculations include all of the CEO's option and/or restricted stock grants reported in the proxy statement. Thus, as noted earlier, a CEO receiving restricted stock for the first time could also receive an options grant from an ongoing executive stock options program, and the computation of delta grant and vega grant reported in Panel B would reflect both the new restricted stock grant and the options grant.

Note that it might be possible for a CEO receiving a new option and/or restricted stock grant to alter or even undo the delta and vega incentives of the grant by decreasing any pre-grant holdings of the firm's stock. Therefore, to capture the marginal effect of the new grant on CEO incentives we compute the change in the delta and vega of the CEO's *wealth* from the year prior to the grant to the year of the grant.¹⁷ The change in delta is computed as the delta of the CEO's wealth in the year of the grant minus the delta of the CEO's wealth in the year prior to the grant, where the delta of the CEO's wealth is the change in the value of the option and/or restricted stock grants, share holdings, and any pre-grant restricted stock or option holdings for a 1% change in the stock price. The change in vega is computed as the vega of the CEO's wealth in the year of the grant minus the vega of the CEO's wealth in the year prior to the grant, where the vega of the CEO's wealth is the change in the value of the option grant and any pre-grant option

¹⁶ Numerous authors note that the Black-Scholes model overvalues executive stock options since it does not account for the fact that such options are non-tradable and are held by under-diversified and risk-averse executives. Our results, however, are robust when we calculate delta and vega using the certainty-equivalence framework of Lambert, Larcker, and Verrecchia (1991), Hall and Murphy (2002), and Cai and Vijh (2005), or the marginal value framework of Ingersoll (2006).

¹⁷ Note that these delta and vega changes are computed for the CEO *position*, and so the change in the delta and the vega of a CEO's wealth can be based on two different individuals if the CEO in the year prior to the grant is different from the CEO in the year of the grant. However, this occurs relatively infrequently in our event samples. For example, in the Combined Event Sample of 1,083 CEO firm-years, only 20% of the observations have a different CEO in the year of the grant and the year prior to the grant. The corresponding percentages for the Stock and Bond Event Sample and the Stock Only Event Sample are 19% and 20%, respectively.

holdings for a 0.01 change in the annualized standard deviation of stock returns.

The CEOs in the Stock and Bond Event Sample receive roughly twice the cash compensation as the CEOs in the Stock Only Event Sample. Interestingly, however, the mean and median delta grant and vega grant measures also are roughly twice as large for the Stock and Bond Event Sample in comparison to the Stock Only Event Sample, despite the fact that the mean and median pre-grant dollar values of the CEOs stock holding are roughly equal for the two samples. This suggests that the change in CEO incentives induced by new equity compensation is relatively larger in our Stock and Bond Event Sample. Importantly, note also that for all event samples, the mean and median values for delta grant and change in delta, and vega grant and change in vega are very similar. This suggests that CEOs did not (or could not because of various constraints) undo the delta and vega incentives of the new grants by selling some of their pre-grant stock holdings in their firms. Finally, Panel A reports statistics for CEO pre-grant stock holdings, which include the dollar value of restricted and unrestricted stock, plus the value of any options. As expected, note that CEOs in the event samples tend to have significantly smaller pre-grant equity holdings than the CEOs in the All Other ExecuComp Sample.

Finally, Panel B reports descriptive statistics for variables specific to the Stock and Bond Event Sample. As seen there, the average/median maturity of the debt instrument used to measure the bondholder reaction to the new compensation is around 10 years, and a nontrivial fraction (37%) are below investment grade. Also note that a nontrivial proportion of the sample has other information events in the time period immediately surrounding the proxy filing date. Thus, for example, 20% have positive earnings news, 8% have major restructuring news, and 13% have significant other proxy statement items in addition to the new equity compensation. We can check the robustness of our results by controlling for these news events.

4. Results

We report results for the sample of CEO firm-years with bond price data (i.e. the Stock

and Bond Event Sample) and for the larger sample of CEO firm-years with only stock return data. The key limitation of the Stock and Bond Event Sample is that reliable bond price data is only available at a monthly frequency. Thus, we initially report stockholder and bondholder reactions to compensation events using monthly excess returns. We then examine stockholder reactions for all event samples using daily excess stock returns. This is followed by an examination of how the change in CEO delta and vega incentives induced by the new grants influence excess stock returns, and for the subsample with bond prices, excess bond returns. Lastly, we examine the relation between the excess stock and bond returns.

4.1 Excess Returns

We first compute monthly stock and bond excess returns for each firm in the Stock and Bond Event Sample around the proxy statement month containing the first appearance of the CEO option and/or restricted stock grants. For 21 grants where the proxy filing date is after August 2002 and where the Form 4 filing month is prior to the proxy filing month, we also compute monthly stock and bond excess returns around the Form 4 filing month. Following Billett, King, and Mauer (2004), excess bond returns are computed as the difference between a bond's monthly total return (change in price plus accrued interest) and the monthly total return on an index of bonds with matching rating and maturity. These bond indices are constructed by Lehman Brothers and are available from *Datastream*. There are nine Standard and Poor's bond rating categories (AAA, AA, A, BBB, BB, B, CCC, CC, and D) in each of two maturity categories (long-term and intermediate-term), resulting in 18 different bond indices. Monthly excess stock returns are computed as the difference between the stock's monthly return and the monthly return on the CRSP value-weighted market portfolio.¹⁸

Each row of Table 3 reports excess stock and bond returns for the two-month period 0 and +1, where month 0 is the proxy filing month. For 21 grants after August 2002 where the

¹⁸ We examine daily excess stock returns for this sample, and for the larger sample with only equity price reactions, below.

Form 4 date is before the proxy filing date, excess returns are the sum of the monthly excess returns on the Form 4 date and the proxy filing date.¹⁹ If the Form 4 date is at least two months prior to the proxy filing date (11 grants), the excess return is the sum of the four monthly excess returns around the Form 4 date (months 0 and +1) and the proxy filing date (months 0 and +1); and if the Form 4 date is one month prior to the proxy filing date (10 grants), the excess return is the sum of the three monthly excess returns around the Form 4 date (month 0) and the excess returns around the proxy filing date (months 0 and +1).

We include the month following the proxy filing month (and where possible the Form 4 month) in our reported excess returns for several reasons. First, announcement dates for executive compensation grants are ambiguous (see, e.g., Murphy (1999)). Indeed, as noted by Brickley (1986), Murphy (1999) and Chance, Kumar, and Todd (2000), the appropriate event “date” is probably not the proxy filing date, but rather the date well after the filing date when the proxy is actually delivered to shareholders and the media. Second, if proxy statements are filed late in the month, then it is possible that the effect is picked up in next month’s prices. This is especially true for bond prices, since bonds trade infrequently and so the bid or sale price that we record from *Moody’s/Mergent Bond Record* for month 0 may not be from an end-of-month-trade. Finally, consistent with the aforementioned points, we do tend to find excess stock and bond returns in both months 0 and +1.²⁰ Although we do not report excess returns separately for months 0 and +1, our results are not qualitatively different if instead we use only month 0.²¹

Panel A of Table 3 reports excess returns for the Stock and Bond Event Sample (N = 287) prior to screening out firms with possible other contemporaneous information events. As seen there, for the combined option and restricted stock grants sample, stockholders earn a significantly positive mean (median) excess return of 2.56% (2.51%), while bondholders experience a significantly negative mean (median) excess return of -1.12% (-0.88%). Also

¹⁹ Since it is not clear whether the market reacts to the Form 4 filing or the proxy filing, we sum the excess returns on both dates. Our results are robust, however, if instead we only use the Form 4 date excess returns for these 21 compensation events.

²⁰ Results reported below using daily excess stock returns support the use of a two-month event window.

²¹ These results are available upon request.

observe that when the sample is grouped into below investment grade and investment grade firms, bondholder excess returns are more negative in the below investment grade group, but the mean and median differences between the two groups are not statistically significant. The positive stockholder reaction suggests that significant new option and/or restricted stock compensation helps to focus the CEO on equity value maximization, whereas the negative bondholder reaction suggests that bondholders anticipate greater agency conflicts. Note that although the positive stock price reaction could have been anticipated given prior event study evidence, the only other evidence on bondholder reactions to compensation events is the negative average reaction of 26 bonds to executive stock option plans during 1978-1982 documented in DeFusco, Johnson, and Zorn (1990). It is interesting to note that bondholders' negative perception of executive equity compensation has not changed over the last 30 years.

Although not reported in the table, we also compute the combined excess stock and bond return to estimate the influence of new executive equity compensation on overall firm value. The combined excess return is computed as a weighted average, where the weights are based on the market value of equity and the book value of long-term debt. For the option and restricted stock sample, the mean (median) combined excess stock and bond return is 1.05% (1.41%), which is significant at the 10 percent level (1 percent level). Thus, despite the losses to bondholders that we document, the overall effect of incentive compensation on firm value is positive.

Notice in Panel A that there is little difference in the excess stock and bond returns when the sample is grouped by first appearance of CEO option grants and first appearance of CEO restricted stock grants.²² The mean excess stock and bond returns for the option grant group are 2.49% and -1.31%, and the mean excess stock and bond returns for the restricted stock grant group are 2.56% and -1.02%. This symmetry in stock and bond reactions is perhaps unexpected, since one might expect that the convex structure of option compensation engenders

²² We include 9 observations where the CEO receives option and restricted stock grants in both partitions of the sample. Our conclusions are the same if instead we exclude these overlapping observations.

greater risk-shifting incentives, which therefore induces greater stockholder and bondholder reactions. There is evidence to support this intuition when the option and restricted stock groups are split by whether the firm is below investment grade. Observe in the table that below investment grade option granters have more positive excess stock returns and more negative excess bond returns than the corresponding reactions to below investment grade restricted stock granters. For example, the mean excess stock return comparison is 3.93% versus 1.73%, and the mean excess bond return comparison is -2.21% versus -1.13% . Neither difference, however, is statistically significant. Nevertheless, a much more powerful test of the CEO risk-taking prediction is to relate stockholder and bondholder reactions to the change in the vega of the CEO's wealth induced by the grant. We implement these tests in the next subsection.

Panel B of Table 3 repeats the excess return analysis in Panel A after excluding 137 firms with potentially contaminating earnings, payout, or restructuring information, or with significant other management proposals in the proxy statement. Remarkably, all of the findings in the full sample continue to hold in this clean sample. The only difference is that statistical significance is mildly degraded for some groupings due to the smaller sample sizes. The important takeaway from a careful comparison of Panel A and Panel B results is that the stock and bond price reactions to the first appearance of CEO option and/or restricted stock grants are not driven by contemporaneous earnings, payout, restructuring, or other proxy statement news.²³

Table 4 reports daily excess stock returns for the Stock and Bond Event Sample ($N = 287$), the Stock Only Event Sample ($N = 796$), and the Combined Event Sample ($N = 1,083$) for various windows around the proxy filing date (day zero). A quick perusal of the table reveals that there is very little reaction in any of the samples in the days immediately surrounding the proxy filing date. We observe significantly positive reactions in all samples, however, over

²³ We also compute excess stock and bond returns for all categories in Table 3 for a subset of 184 firms where ExecuComp reports the first appearance of option and/or restricted stock grants for all of a firm's top executives. The excess stock and bond returns for these firms (not reported) are similar to those reported in Table 3. The only noticeable difference is that the excess returns when all top executives receive new equity compensation tend to be larger in absolute value than when only the CEO receives new equity compensation. These differences, however, do not appear to be economically significant and are not statistically significant.

longer time horizons after the proxy date. For example, over the period $[0, +30]$, the median cumulative daily excess stock returns are 2.31%, 2.71%, and 2.47% for the stock and bond, stock only, and combined samples, respectively. This finding of positive excess stock returns over fairly long time horizons after the proxy date is consistent with the arguments in the literature (e.g., Murphy (1999)) that it is hard to pin down the precise date(s) when the market learns the specifics about new managerial compensation.

4.2 Excess Returns and CEO Delta and Vega Incentives

Table 5 reports regressions of excess stock and bond returns on the change in the CEO's pay-performance (delta) and risk (vega) incentives for the Stock and Bond Event Sample. In the regressions, ΔDelta and ΔVega are the change in the delta and the change in the vega of the CEO's wealth from the year before to the year of the proxy statement reporting the new grants. The other variables included in the regressions control for news around the proxy filing date and firm characteristics. Thus, earnings news equals 1 for earnings announcements around the proxy filing month that are above consensus estimates, -1 for earnings announcements below consensus estimates, and 0 otherwise; payout news equals 1 if the firm announces a dividend increase or share repurchase around the proxy filing month, -1 if the firm announces a dividend decrease, and 0 otherwise; restructuring news is a dummy variable equal to 1 if there is a restructuring event around the proxy filing month, and 0 otherwise; and proxy news is a dummy variable equal to 1 if there are significant other management proposals in the proxy statement, and 0 otherwise. The firm characteristic variables included in the regressions are defined in Table 2. All continuous independent variables are winsorized at the 1st and 99th percentiles, and all dollar values are CPI-adjusted to 2004 dollars. Finally, t-statistics are computed using robust standard errors.

Recall the predictions that excess stock returns should be negatively related to ΔDelta and positively related to ΔVega . The reason is that an increase in delta should encourage risk-averse and under-diversified CEOs to implement lower risk policies, and an increase in vega should

encourage riskier policies. All else being equal, equityholders are expected to react more favorably to incentive compensation that encourages riskier policies. In contrast, bondholders should react favorably to high delta compensation that encourages more conservative policies and negatively to high vega compensation that encourages greater risk-taking, but as we noted earlier, these predictions assume that any change in risk is not accompanied by a change in expected cash flows. Thus, it is less certain whether excess bond returns should be positively related to ΔDelta and negatively related to ΔVega .

Consistent with the predictions for equity, observe in specification (1) that excess stock returns are significantly decreasing in ΔDelta and significantly increasing in ΔVega . Importantly, these results document a direct link between the value of equity and the change in both the CEO's pay-performance and risk incentives induced by the new equity grants. These effects are highly economically significant. Using the coefficient estimates in (1), a one standard deviation increase in ΔDelta decreases excess stock returns by 2.69 percentage points (i.e., from a mean of 2.56% to -0.13%), and a one standard deviation increase in ΔVega increases excess stock returns by 2.39 percentage points (i.e., from a mean of 2.56% to 4.95%).²⁴

Notice in specification (2) that excess bond returns are not related to either ΔDelta or ΔVega . This finding, however, depends on the pre-grant own-firm stock holdings of the CEO. Defining LOW as a dummy variable equal to one if the pre-grant value of the CEO's stock holdings is in the lowest quartile of the sample and zero otherwise, specifications (3) and (4) in Table 5 report excess stock and bond return regressions that include the interacted variables $\Delta\text{Delta} \times \text{LOW}$ and $\Delta\text{Vega} \times \text{LOW}$. We also report stock and bond specifications in (5) and (6) where we replace ΔDelta with $\Delta\text{Delta} \times \text{LOW}$ and $\Delta\text{Delta} \times (1 - \text{LOW})$, and ΔVega with $\Delta\text{Vega} \times \text{LOW}$ and $\Delta\text{Vega} \times (1 - \text{LOW})$.²⁵

²⁴ Note in the regressions that the excess stock and bond returns are in percent, and ΔDelta and ΔVega are in millions.

²⁵ The regression results are similar but less significant if instead we use the median of the CEOs' pre-grant stock holdings to define LOW . Note in specifications (3)-(6) that we do not separately include LOW in the regressions, which imposes the restriction of a common intercept for $\text{LOW} = 1$ and $\text{LOW} = 0$ groups. Our results are unchanged if instead we include LOW as a separate regressor (i.e., allow the two groups to have different intercepts).

Observe in specification (4) that ΔDelta has a significantly more positive effect on excess bond returns and ΔVega has a significantly more negative effect on excess bond returns when the CEO has little or no pre-grant equity ownership (i.e., the coefficient on $\Delta\text{Delta} \times \text{LOW}$ is positive and the coefficient on $\Delta\text{Vega} \times \text{LOW}$ is negative). Indeed, note in specification (6) that ΔDelta and ΔVega only influence excess bond returns when $\text{LOW} = 1$, and for these firms the effect of ΔDelta on excess bond returns is positive while the effect of ΔVega on excess bond returns is negative. The economic significance of these relations can be illustrated using the coefficients on $\Delta\text{Delta} \times \text{LOW}$ and $\Delta\text{Vega} \times \text{LOW}$ in specification (6). Thus for CEOs with little or no pre-grant equity ownership, a one standard deviation increase in ΔDelta increases excess bond returns by 3.14 percentage points and a one standard deviation increase in ΔVega decreases excess bond returns by 2.98 percentage points. Overall, it appears that bondholders are quite sensitive to the change in CEO pay-performance and risk-taking incentives when the CEO has little or no equity ownership prior to the new equity grants.

Note in specifications (3) and (5) that the negative effect of ΔDelta on excess stock returns and the positive effect of ΔVega on excess stock returns are not true for firms where the CEO has little or no pre-grant equity ownership (i.e., $\text{LOW} = 1$). For these firms (the quartile of the sample with the lowest CEO pre-grant stock ownership), ΔDelta has a positive effect on excess stock returns and ΔVega has a negative effect on excess stock returns. Although it would be tempting to tell stories about why these relations are not consistent with the predicted effects documented for the full sample in specification (1), the coefficients on ΔDelta and ΔVega for the observations where $\text{LOW} = 1$ are not statistically different from zero.

Panel A of Table 6 reports regressions of daily excess stock returns on ΔDelta and ΔVega for the Stock and Bond Event Sample ($N = 287$), the Stock Only Event Sample ($N = 796$), and the Combined Event Sample ($N = 1,083$). The dependent variable in the regressions is either the cumulative daily excess return from day 0 to day +22 or from day 0 to day +30. To investigate the reliability of the regression results, we also report regressions using matched control samples where the CEO did not receive new equity compensation. The control samples are generated by

matching each firm in the Combined Event Sample (287 + 796) to a size- and industry-matched firm in the population of 17,238 firm-years where the CEO does not receive new equity compensation. The size match is based on assets and the industry match is based on the narrowest SIC code (starting with four digits) that yields a match. Although we only report the coefficients on ΔDelta and ΔVega , the regressions are estimated with all of the firm control variables used in Table 5.

As seen in Panel A of Table 6, the results using daily excess stock returns and much larger samples of first time compensation events are quite similar to those reported in Table 5 for the monthly excess returns of the Stock and Bond Event Sample. In particular, five of the six coefficients on ΔVega are significantly positive and all of the coefficients on ΔDelta are negative, though they are not statistically significant.²⁶ In contrast, the signs of the coefficients on ΔDelta and ΔVega in the control sample regressions vary and are never statistically significant. Finally, note in Panel B of Table 6 that the coefficients on ΔDelta and ΔVega in the event samples tend to be economically significant. For example, in the Combined Event Sample and using a daily excess stock return window of [0, +22], a one standard deviation increase in ΔDelta decreases excess stock returns by 0.67 percentage points, and a one standard deviation increase in ΔVega increases excess stock returns by 1.11 percentage points.

4.3 Relation between Stock and Bond Price Reactions to Incentive Compensation

Lastly, we examine the relation between the excess returns to stockholders and bondholders. Our results suggest that at least part of the gains to stockholders from new equity-based CEO incentive compensation may come at the expense of bondholders. If true, this would be consistent with the agency theoretic analyses in Brander and Poitevan (1992) and John and John (1993), which predict a negative relation between the change in the market value of equity and the change in the market value of debt when the CEO's compensation tilts toward equity-

²⁶ Similar to the results in Table 5, the negative effect of ΔDelta on excess stock returns and the positive effect of ΔVega on excess stock returns are generally not true for firms where the CEO has little or no pre-grant equity ownership (not reported in Table 6).

based incentive compensation. Importantly, the strength of this relation should be sensitive to the change in the vega of the CEO's wealth induced by the new grant, since vega can be viewed as a proxy for potential stockholder-bondholder conflicts to the extent that higher vega compensation encourages the CEO to pursue riskier policies.²⁷

Table 7 reports regressions of excess stock dollar returns on excess bond dollar returns for the Stock and Bond Event Sample (N = 287) with and without conditioning on the change in the vega of the CEO's wealth.²⁸ The excess stock and bond dollar returns are computed by multiplying the monthly excess stock and bond returns by the market value of equity and the book value of long-term debt, respectively.²⁹ We use the market value of equity one month prior to the proxy filing month, and the book value of long-term debt at the fiscal year end immediately prior to the proxy filing month.³⁰ Although we do not report the coefficient estimates, all of the regressions include the information and accounting controls used in the regressions reported in Table 5. The regression coefficient t-statistics are computed using heteroskedasticity-consistent standard errors.

Specification (1) in Table 7 estimates the unconditional relation between the excess stock and bond dollar returns. As seen in the table, the coefficient on the excess bond dollar return is significantly negative, which is consistent with the prediction that part of the gains to stockholders from new CEO equity compensation are transfers of wealth from bondholders.

²⁷ Note that the relation between stockholder and bondholder excess returns could also be influenced by the change in the delta of the CEO's wealth induced by the new grant. In unreported analysis, however, we find no evidence that the change in delta influences the relation between stockholder and bondholder excess returns.

²⁸ We purposely do not scale the excess dollar returns to avoid hard-wiring the relation between the equity and bond price reactions. In particular, scaling the excess dollar returns by an estimate of firm value is tantamount to regressing the excess equity return multiplied by one minus the leverage ratio on the excess bond return multiplied by the leverage ratio, which clearly biases the estimated relation. We recognize, however, that regressing dollar excess stock returns on dollar excess bond returns is likely to produce heteroskedastic regression residuals. As noted below, the regressions reported in Table 7 attempt to correct for this problem.

²⁹ The excess bond dollar return is an approximation of the firm's overall debt reaction, since we only use one of a firm's long-term debt instruments to compute the excess bond return. For the 287 firms in the sample, the mean (median) ratio of the book value of the debt instrument used to compute the excess bond return to the book value of the firm's total long-term debt is 0.69 (0.20), which suggests that the approximation may be reasonable.

³⁰ For the 21 observations after August 2002 where the Form 4 filing month is prior to the proxy filing month, we use the market value of equity one month prior to the Form 4 month and the book value of long-term debt at the fiscal year-end immediately prior to the Form 4 month.

Note that since the absolute value of the coefficient estimate on the excess bond dollar return is less than one, it is clear that factors besides wealth transfers influence the stock and bond excess dollar returns. Thus, the estimated coefficient on excess bond dollar returns in (1) indicates that a \$1 decrease in the excess bond dollar return increases the excess stock dollar return by \$0.25.

Specifications (2) and (3) condition the relation on vega, using a dummy variable, $High\Delta Vega$, that is equal to one if the change in the vega of the CEO's wealth induced by the new grant is above the sample median, and zero otherwise. As seen in specification (2), the coefficient on the interaction of excess bond dollar returns and $High\Delta Vega$ is significantly negative, which indicates that the relation between excess stock and bond dollar returns is significantly more negative when the change in vega is above the sample median. Specification (3) separately estimates the relation between excess stock and bond dollar returns for above and below median change in vega. As seen there, the relation is significantly negative for above median change in vega (coefficient = -0.32), and is significantly positive for below median change in vega (coefficient = 0.17). This illustrates that the negative relation between excess stock and bond dollar returns in (1) is driven by those cases where the new equity compensation is anticipated to have the largest influence on the CEO's incentive to choose risky policies. In contrast, the positive coefficient on excess bond dollar returns for below median change in vega suggests that new equity compensation is anticipated to be beneficial to both equity and debt when CEO incentives to risk-shift are muted.

5. Conclusions

This paper examines stock and bond price reactions to the first appearance of option and/or restricted stock grants to CEOs during the period from 1992 to 2005. We find positive excess stock returns and negative excess bond returns around the proxy filing date reporting the details of the new grants. The divergent stock and bond price reactions are consistent with the notion that equity based compensation helps align manager-shareholder interests, and that doing so aggravates stockholder-bondholder conflicts. We then document the important linkages

between the excess stock and bond returns and the changes in the CEO's pay-performance (delta) and risk-taking (vega) incentives induced by the new grants. Consistent with the predictions that high delta compensation can induce excessive managerial conservatism while high vega compensation can encourage risky policy choices, we find that excess stock returns are decreasing in the change in delta and increasing in the change in vega. In contrast, when the CEO has little or no own-firm stock holdings prior to the grant, we find that excess bond returns are increasing in the change in delta and decreasing in the change in vega. Finally, we document that dollar excess stock and bond returns are negatively related when stockholder-bondholder conflicts are likely to be more severe. Overall, the key contribution of our paper is that we are the first to establish direct links between equity and debt values and the incentives provided by equity based managerial compensation.

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Table 1**First Appearance of Option and Restricted Stock Grants for CEOs in the ExecuComp Database by Proxy Filing Year for Various Samples**

The three event samples are proxy filing years identified as the first appearance of CEO option and/or restricted stock grants over the period from 1992 to 2005. The Stock and Bond Event Sample is the subsample of cases where we have both stock and bond returns at the proxy filing date, the Stock Only Event Sample is the subsample of cases where we only have stock returns on the proxy filing date, and the Combined Event Sample is the sum of the two subsamples. The “All” sample includes firm-years on ExecuComp where the CEO receives new, continuing (i.e., not new) or no option and/or restricted stock grants, and where CEO, stock return and accounting data are available in the ExecuComp, CRSP, and Compustat databases. Note that for a given sample the option and restricted stock percentages in a given year need not sum to 100 percent, because there are cases where a CEO receives both option and restricted stock grants.

Year	Stock and Bond Event Sample (N = 287)			Stock Only Event Sample (N = 796)			Combined Event Sample (N = 1,083)			All ExecuComp CEO Firm-Years (N = 18,321)		
	Percentage of Grants that Include			Percentage of Grants that Include			Percentage of Grants that Include			Percentage of Observations that Include		
	No. of Grants	Options	Restricted Stock	No. of Grants	Options	Restricted Stock	No. of Grants	Options	Restricted Stock	Options	Restricted Stock	No Grants
1992	25	88.0	28.0	79	86.1	26.6	104	86.5	26.9	50.0	15.1	42.5
1993	40	50.0	57.5	125	76.8	28.0	165	70.3	35.2	58.2	15.0	34.8
1994	17	52.9	52.9	80	66.3	36.3	97	63.9	39.2	62.8	15.8	31.1
1995	22	31.8	68.2	63	58.7	42.9	85	51.8	49.4	63.1	16.7	30.3
1996	20	50.0	50.0	71	54.9	46.5	91	53.9	47.3	65.2	18.0	28.4
1997	20	55.0	45.0	71	54.9	50.7	91	55.0	49.5	68.6	20.0	24.8
1998	20	45.0	55.0	53	69.8	34.0	73	63.0	39.7	72.4	18.3	22.6
1999	14	28.6	71.4	53	47.2	58.5	67	43.3	61.2	76.7	18.8	18.5
2000	22	31.8	68.2	58	43.1	58.6	80	40.0	61.3	78.8	19.2	16.1
2001	24	33.3	66.7	36	66.7	47.2	60	53.3	55.0	81.1	19.3	15.1
2002	17	23.5	76.5	30	20.0	80.0	47	21.3	78.7	82.5	21.6	13.8
2003	23	8.7	95.7	29	20.7	79.3	52	15.4	86.5	81.6	24.0	13.3
2004	23	0.0	100.0	26	7.7	92.3	49	4.1	95.9	81.3	31.3	12.7
2005	0	0.0	0.0	22	0.0	100.0	22	0.0	100.0	81.4	42.5	10.4
Total	287	39.4	63.8	796	57.4	47.0	1,083	52.6	51.4	72.5	20.2	21.9

Table 2

Descriptive Statistics of Firm Characteristics and CEO Incentives

The table reports descriptive statistics for the samples described in Table 1. Panel A reports firm characteristics and CEO incentive measures, and Panel B reports variables specific to the Stock and Bond Event Sample. Except where noted below, all variables are measured at the fiscal year-end immediately prior to the proxy filing month, or the Form 4 month for grants after August 2002 when the Form 4 date precedes the proxy filing date. Assets are the book value of assets in millions of dollars (Compustat item [6]). Market-to-book is the market value of assets to the book value of assets (Compustat items $([6] - [60] + [25] \times [199]) / [6]$). Market leverage is long-term debt plus debt in current liabilities divided by the market value of assets (Compustat items $([9] + [34]) / ([6] - [60] + [25] \times [199])$). Return on assets is operating income before depreciation divided by the book value of assets (Compustat items $[13] / [6]$). A CEO's cash compensation (\$ thousands) is computed as salary plus bonus. Delta grant is the dollar change (\$ thousands) in the value of the option and/or restricted stock grants for a 1% change in the stock price. Vega grant is the dollar change (\$ thousands) in the value of the option grant for a 0.01 change in the annualized standard deviation of stock returns. Change in delta (\$ thousands) is the delta of the CEO's wealth in the year of the option and/or restricted stock grants minus the delta of the CEO's wealth in the year prior to the grants, where the delta of the CEO's wealth is the dollar change in the value of the option and/or restricted stock grants, share holdings, and any restricted stock and option holdings for a 1% change in the stock price. Change in vega (\$ thousands) is the vega of the CEO's wealth in the year of the option and/or restricted stock grants minus the vega of the CEO's wealth in the year prior to the grants, where the vega of the CEO's wealth is the dollar change in the value of the option grant and any option holdings for a 0.01 change in the annualized standard deviation of stock returns. Option delta and vega are computed using the dividend-adjusted Black-Scholes model. Pre-grant value of CEO stock holdings (\$ millions) is the dollar value of existing stock holdings (including any restricted stock) plus the dollar value of any options. The Panel B variables are defined as follows. Maturity is the remaining maturity of the firm's bond that is used to compute the bondholder excess return. A firm is below investment grade if its Moody's (S&P) bond rating is below BAA (BBB-). A firm has positive (negative) earnings news if there is an earnings announcement in the proxy month or the month following the proxy month that is above (below) consensus estimates. A firm has positive (negative) payout news if it announces an increase (decrease) in dividends in the proxy filing month or the month following the proxy filing month. A firm has restructuring news if there is any type of restructuring event announced in the proxy filing month or the month following the proxy filing month. A firm has proxy statement news if the proxy statement has any management proposals involving change in board structure, change in authorized shares, allowance for dual-class shares, or change in voting procedures. All continuous variables are winsorized at the 1st and 99th percentiles, and all dollar values are CPI-adjusted to 2004 dollars. We report the significance levels from differences of mean and median tests between the variables for each of the event samples and the All Other ExecuComp sample. The difference in medians is based on a Wilcoxon sum-rank test, and the difference in means t-test assumes unequal variances across groups when a test of equal variances is rejected at the 10% level. We use ^a and ^b to denote significance at the 1% and 5% levels, respectively.

Panel A. Firm Characteristics and CEO Incentives

Variable	Stock and Bond Event Sample (N = 287)			Stock Only Event Sample (N = 796)			Combined Event Sample (N = 1,083)			All Other ExecuComp CEO Firm-Years (N = 17,238)		
	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.
Assets (\$ millions)	14,367 ^a	4,761 ^a	35,426	2,663 ^a	669 ^a	6,131	5,190 ^a	1,101 ^a	11,942	8,656	1,339	24,618
Market-to-book ratio	1.43 ^a	1.25 ^a	0.60	2.09	1.52	1.58	1.92 ^a	1.41 ^a	1.43	2.04	1.51	1.47
Market leverage ratio	0.27 ^a	0.25 ^a	0.16	0.14 ^a	0.11 ^a	0.14	0.18 ^a	0.14 ^a	0.16	0.16	0.13	0.15
Return on assets	0.12	0.11	0.07	0.13	0.13	0.10	0.13	0.13	0.10	0.13	0.13	0.10
CEO cash comp. (\$000s)	1,810 ^a	1,346 ^a	2,044	926 ^a	745 ^a	678	1,120 ^a	862 ^a	894	1,315	959	1,181
Delta grant (\$000s)	81.78 ^a	34.34 ^a	140.60	42.93	15.17 ^a	77.66	52.55 ^a	18.68 ^a	93.62	43.29	12.64	86.54
Vega grant (\$000s)	49.48 ^a	17.51 ^a	82.01	24.42 ^a	8.37	47.28	30.69	9.64 ^a	56.45	30.26	8.58	59.42

Table 2 continued

Variable	Stock and Bond Event Sample (N = 287)			Stock Only Event Sample (N = 796)			Combined Event Sample (N = 1,083)			All Other ExecuComp CEO Firm-Years (N = 17,238)		
	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.
Change in delta (\$000s)	98.44 ^a	41.10	254.10	56.78 ^a	16.88 ^a	133.20	68.15 ^a	20.76 ^a	161.90	169.10	38.39	849.70
Change in vega (\$000s)	50.96	21.32 ^a	147.20	25.83 ^a	9.31	45.92	33.19 ^a	10.79	72.09	46.27	12.37	103.90
Pre-grant value of CEO stock holdings (\$ millions)	35.87 ^a	6.86 ^a	92.55	34.23 ^a	4.05 ^a	88.01	34.26 ^a	4.79 ^a	86.70	72.36	14.92	205.80
Pre-grant value of CEO stock holdings to market capitalization (%)	1.15 ^a	0.26 ^a	3.02	3.47	0.49 ^a	6.78	2.87 ^a	0.40 ^a	6.12	3.65	1.02	6.78

Panel B. Variables Specific to the Stock and Bond Event Sample (N = 287)

Maturity (years)	11.84	9.00	7.66
Below investment grade (%)	36.59		
Earnings news (%)			
Positive	19.86		
Negative	12.20		
Neutral	67.84		
Payout News (%)			
Increase	3.83		
Decrease	0.70		
No change	95.47		
Restructuring news (%)	8.01		
Proxy statement news (%)	13.24		

Table 3

Excess Stock and Bond Returns around the First Appearance of Option and/or Restricted Stock Grants

Excess returns are reported for the sample of 287 firms with both stock and bond returns around the proxy filing date. Panel A reports results for the full sample, and Panel B reports results after excluding firms with earnings, payout, or restructuring news around the proxy filing month and cases where the proxy statement contains significant other management proposals. Excess returns are the sum of the excess returns for the two-month period 0 and +1, where month 0 is the proxy filing month. For 21 grants after August 2002 where the Form 4 date is before the proxy filing date, excess returns are the sum of the monthly excess returns on the Form 4 date and the proxy filing date. If the Form 4 date is at least two months prior to the proxy filing date (11 grants), the excess return is the sum of the four monthly excess returns around the Form 4 date (months 0 and +1) and the proxy filing date (months 0 and +1); and if the Form 4 date is one month prior to the proxy filing date (10 grants), the excess return is the sum of the three monthly excess returns around the Form 4 date (month 0) and the excess returns around the proxy filing date (months 0 and +1). Excess stock returns are computed as the stock's monthly return minus the monthly total return on the CRSP value-weighted market index. Excess bond returns are computed as the bond's monthly total return minus the monthly return on a similar credit risk and maturity bond index. The significance level of the median is based on a Wilcoxon signed-rank test. The significance level of the difference in medians is based on a Wilcoxon sum-rank test. The difference in means t-test assumes unequal variances across groups when a test of equal variances is rejected at the 10% level. We use ***, **, and * to denote significance at the 1%, 5%, and 10% levels, respectively.

	Excess Stock Returns (%)			Excess Bond Returns (%)		
	Mean	Median	N	Mean	Median	N
Panel A. Full Sample of Option and Restricted Stock Grants						
Option and Restricted Stock Grants	2.56***	2.51***	287	-1.12***	-0.88***	287
<i>Sample Grouped by Bond Rating</i>						
Below investment grade	2.63	2.24	105	-1.53**	-0.94***	105
Investment grade	2.52***	2.83***	182	-0.88***	-0.87***	182
Difference	0.11	-0.59		-0.65	-0.06	
Option Grants	2.49*	2.41**	113	-1.31***	-1.11***	113
<i>Sample Grouped by Bond Rating</i>						
Below investment grade	3.93	2.92	40	-2.21**	-1.62***	40
Investment grade	1.70	1.79	73	-0.82**	-0.87***	73
Difference	2.23	1.14		-1.39	-0.75*	
Restricted Stock Grants	2.56**	2.73**	183	-1.02***	-0.86***	183
<i>Sample Grouped by Bond Rating</i>						
Below investment grade	1.73	0.98	66	-1.13	-0.73**	66
Investment grade	3.03***	3.56***	117	-0.95***	-1.01***	117
Difference	-1.31	-2.58		-0.18	0.28	
Difference between Option and Restricted Stock Grants	-0.07	-0.32		-0.29	-0.25	
<i>Sample Grouped by Bond Rating</i>						
Below investment grade	2.20	1.94		-1.08	-0.88*	
Investment grade	-1.33	-1.78		0.14	0.14	

Table 3 continued

	Excess Stock Returns (%)			Excess Bond Returns (%)		
	Mean	Median	N	Mean	Median	N
<i>Panel B. Sample Excluding Contemporaneous Earnings, Payout, or Restructuring News and Significant Other Management Proposals in the Proxy Statement</i>						
Option and Restricted Stock Grants	2.57**	2.80**	150	-1.17***	-0.87***	150
<i>Sample Grouped by Bond Rating</i>						
Below investment grade	3.67	4.41*	55	-1.90*	-0.83**	55
Investment grade	1.94	2.30*	95	-0.74***	-0.87***	95
Difference	1.73	2.11		-1.16	0.04	
Option Grants	2.90	2.41	59	-1.54**	-1.19***	59
<i>Sample Grouped by Bond Rating</i>						
Below investment grade	6.94	4.42	19	-2.77	-1.78**	19
Investment grade	0.99	0.84	40	-0.95**	-0.97***	40
Difference	5.95	3.58		-1.82	-0.81	
Restricted Stock Grants	2.23*	3.17*	94	-1.00*	-0.71***	94
<i>Sample Grouped by Bond Rating</i>						
Below investment grade	1.74	2.24	37	-1.49	-0.69	37
Investment grade	2.55	3.61*	57	-0.68**	-0.82**	57
Difference	-0.81	-1.37		-0.81	0.13	
Difference between Option and Restricted Stock Grants	0.67	-0.76		-0.54	-0.48	
<i>Difference Grouped by Bond Rating</i>						
Below investment grade	5.20	2.18		-1.28	-1.09	
Investment grade	-1.56	-2.77		-0.27	-0.15	

Table 4**Daily Excess Stock Returns around the First Appearance of Option and/or Restricted Stock Grants**

The table reports daily excess stock returns (%) for various windows around the proxy filing date (day 0). For 21 grants after August 2002 where the Form 4 date is before the proxy filing date, daily excess stock returns are computed around the Form 4 date. Daily excess stock returns are computed as the stock's return minus the return on the CRSP value-weighted market index. The significance level of the median is based on a Wilcoxon signed-rank test. We use ***, **, and * to denote significance at the 1%, 5%, and 10% level, respectively.

Window	Stock and Bond Event Sample (N = 287)		Stock Only Event Sample (N = 796)		Combined Event Sample (N = 1,083)	
	Mean	Median	Mean	Median	Mean	Median
[-5, +5]	0.51	0.33*	0.67**	0.29**	0.63**	0.32***
[-5, 0]	0.10	0.47	0.25	0.14	0.21	0.16
[-1, +1]	-0.03	-0.02	0.08	-0.09	0.05	-0.05
[0, +1]	0.00	0.01	0.07	-0.07	0.05	-0.04
[0, +5]	0.54*	0.26**	0.47*	0.01	0.49**	0.10
[0, +22]	1.82***	2.57***	3.18***	2.07***	2.82***	2.15***
[0, +30]	2.33***	2.31***	4.06***	2.71***	3.61***	2.47***
[0, +45]	2.41***	1.86***	4.17***	3.19***	3.70***	2.93***

Table 5

Regressions of Excess Stock and Bond Returns on CEO Incentives

The regressions are estimated for the Stock and Bond Event Sample of 287 firms where ExecuComp reports the first appearance of option and/or restricted stock grants to their CEOs. The dependent variables are the excess returns of the stock and bonds around the proxy filing month, and around the Form 4 and proxy filing months for 21 firms with option and/or restricted stock grants after August 2002. See Table 3 for computational details. Except where noted below, all independent variables are defined in Table 2. Δ Delta (Δ Vega) is the change in the delta (vega) of the CEO's wealth from the year before to the year of the grant. LOW is a dummy variable equal to 1 if the pre-grant value of the CEO's stock holdings is in the lowest quartile of the sample, and 0 otherwise. Earnings news equals 1 (–1) for earnings announcements in the proxy month or the following month that are above (below) consensus estimates, and 0 for no earnings news. Payout news equals 1 (–1) if the firm announces an increase (decrease) in dividends in the proxy month or the following month, and 0 for no dividend news. Restructuring news is a dummy variable equal to 1 if there is a restructuring event in the proxy month or the following month, and 0 otherwise. Proxy news is a dummy variable equal to 1 if there are significant other management proposals in the proxy statement, and 0 otherwise. All continuous independent variables are winsorized at the 1st and 99th percentiles, and all dollar values are CPI-adjusted to 2004 dollars. Heteroskedasticity consistent t-statistics are reported in parentheses below the parameter estimates. We use ***, **, and * to denote significance at the 1%, 5%, and 10% levels, respectively.

Independent Variables	Dependent Variable: Excess Return of					
	(1) Stock	(2) Bond	(3) Stock	(4) Bond	(5) Stock	(6) Bond
Intercept	5.996 (0.79)	–0.773 (–0.36)	5.051 (0.65)	–1.394 (–0.65)	5.051 (0.65)	–1.394 (–0.65)
Δ Delta	–10.573 (–2.10)**	–0.743 (–0.55)	–11.849 (–2.24)**	–1.587 (–1.26)		
Δ Delta \times LOW			23.572 (1.61)	15.534 (2.01)**	11.722 (0.87)	13.947 (1.95)**
Δ Delta \times (1 – LOW)					–11.849 (–2.24)**	–1.587 (–1.26)
Δ Vega	16.225 (2.03)**	0.917 (0.38)	18.103 (2.17)**	2.089 (0.84)		
Δ Vega \times LOW			–39.128 (–1.58)	–24.722 (–2.06)**	–21.025 (–0.91)	–22.633 (–1.96)**
Δ Vega \times (1 – LOW)					18.104 (2.16)**	2.089 (0.84)
Earnings news	3.834 (2.42)**	0.295 (0.80)	4.027 (2.52)**	0.428 (1.21)	4.027 (2.52)**	0.428 (1.21)
Payout news	6.041 (1.56)	0.637 (0.56)	6.180 (1.61)	0.728 (0.63)	6.180 (1.61)	0.728 (0.63)
Restructuring news	–0.597 (–0.25)	–0.233 (–0.51)	–0.734 (–0.31)	–0.319 (–0.70)	–0.734 (–0.31)	–0.319 (–0.70)
Proxy news	–0.454 (–0.20)	–0.386 (–0.71)	–0.096 (–0.04)	–0.152 (–0.28)	–0.096 (–0.04)	–0.152 (–0.28)
Log(assets)	–0.187 (–0.23)	0.173 (0.70)	–0.146 (–0.18)	0.201 (0.81)	–0.146 (–0.18)	0.201 (0.81)
Market-to-book	–4.332 (–2.10)**	–0.568 (–0.61)	–4.319 (–2.09)**	–0.561 (–0.61)	–4.319 (–2.09)**	–0.561 (–0.61)
Leverage	4.930 (0.67)	–1.241 (–0.49)	4.680 (0.63)	–1.416 (–0.56)	4.680 (0.63)	–1.416 (–0.56)
Return on assets	28.767 (1.40)	6.234 (0.71)	30.614 (1.47)	7.473 (0.85)	30.614 (1.47)	7.473 (0.85)
Log(maturity)	–0.227 (–0.21)	–0.595 (–1.75)*	–0.077 (–0.07)	–0.501 (–1.41)	–0.077 (–0.07)	–0.501 (–1.41)
Adjusted-R ²	0.04	–0.02	0.03	–0.01	0.03	–0.01

Table 6

Regressions of Daily Excess Stock Returns on CEO Incentives for Event and Control Samples

Panel A reports regression coefficients for the Stock and Bond Event Sample (N = 287), the Equity Only Event Sample (N = 796), and the Combined Event Sample (N = 1,083) when the dependent variable is the cumulative daily excess stock return over the window [0, +22] or [0, +30], where day 0 is the proxy filing date. For each event sample, the panel also reports regression coefficients for a matching control sample where CEOs do not receive new equity compensation. The control samples are generated by matching each firm in the event sample (287 + 796) to a size- and industry-matched firm in the sample of 17,238 firm-years where the CEO does not receive new equity compensation. The size match is based on assets and the industry match is based on the narrowest possible SIC code (starting with four digits) that yields a match. Although we only report the coefficients on $\Delta\Delta$ and ΔVega , the regressions are estimated with all of the accounting control variables used in Table 5. Panel B reports the change in the excess stock returns for a one standard deviation increase in $\Delta\Delta$ and ΔVega . We use ***, **, and * to denote significance at the 1%, 5%, and 10% levels, respectively.

Independent Variable	Daily Excess Stock Returns in the Window: [0, +22]						Daily Excess Stock Returns in the Window: [0, +30]					
	Stock and Bond		Stock only		Combined		Stock and Bond		Stock Only		Combined	
	Event Sample	Control Sample	Event Sample	Control Sample	Event Sample	Control Sample	Event Sample	Control Sample	Event Sample	Control Sample	Event Sample	Control Sample
Panel A. Regression Coefficient Estimates												
$\Delta\Delta$	-10.494 (-2.97)***	-0.096 (-0.21)	-0.784 (-0.15)	0.194 (0.22)	-4.161 (-1.20)	0.132 (0.20)	-6.819 (-1.67)*	0.166 (0.29)	-0.930 (-0.18)	0.237 (0.24)	-3.000 (-0.83)	0.247 (0.32)
ΔVega	17.080 (2.98)***	0.532 (0.10)	20.145 (1.54)	1.620 (0.19)	15.444 (2.43)**	1.072 (0.21)	11.343 (1.68)*	-5.119 (-0.87)	29.023 (2.09)**	-2.382 (-0.24)	17.331 (2.64)***	-3.717 (-0.624)
Panel B. Economic Significance of Coefficient Estimates (%)												
$\Delta\Delta$	-2.67	-0.09	-0.10	0.12	-0.67	0.09	-1.73	0.15	-0.12	0.15	-0.49	0.17
ΔVega	2.51	0.06	0.93	0.10	1.11	0.08	1.67	-0.55	1.33	-0.14	1.25	-0.28

Table 7**Regressions of Excess Stock Dollar Returns on Excess Bond Dollar Returns**

The regressions are estimated using excess stock and bond dollar returns (\$ millions) for the sample of 287 firms where ExecuComp reports the first appearance of option and/or restricted stock grants to their CEOs. The excess stock dollar return is computed as the excess stock return multiplied by the market value of equity one month prior to the proxy filing month (or Form 4 month for 21 observations after August 2002 where the Form 4 date is earlier than the proxy filing date). The excess bond dollar return is computed as the excess bond return multiplied by the book value of long-term debt at the fiscal year-end immediately prior to the proxy filing month (or Form 4 month for 21 observations after August 2002 where the Form 4 date is earlier than the proxy filing date). The computation of the excess stock and bond returns are described in Table 3. The variable High Δ Vega is a dummy variable equal to one if the change in the vega of the CEO's wealth (Δ Vega) induced by the new grant is above the sample median, and zero otherwise. Although we only report coefficients on key variables, the regressions are estimated with all of the control variables used in Table 5. Heteroskedasticity consistent t-statistics are reported in parentheses below the parameter estimates. We use ***, **, and * to denote significance at the 1%, 5%, and 10% levels, respectively.

Independent Variables	Dependent Variable: Excess Stock Dollar Return		
	(1)	(2)	(3)
Excess bond dollar return	-0.253 (-1.97)**	0.165 (3.51)***	
Excess bond dollar return \times High Δ Vega		-0.483 (-5.20)***	-0.318 (-3.51)***
Excess bond dollar return \times (1 - High Δ Vega)			0.165 (3.50)***