Right on schedule: CEO option grants and opportunism*

Robert M. Daines[a]

Grant R. McQueen[b]

Robert J. Schonlau[b]

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Corresponding author. Tel.: +1 650 736 2684; fax: +1 650 725-0253.
E-mail addresses: daines@stanford.edu (R. Daines), mcqueen@byu.edu (G. McQueen), robert.schonlau@byu.edu (R. Schonlau).
[a] *Stanford Law School, Stanford University, Stanford, California 94305*
[b] *Marriott School, Department of Finance, Brigham Young University, Provo, Utah 84602*

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Abstract

In the wake of the backdating scandal, many firms began awarding options at scheduled times each year. These scheduled option grants eliminate backdating, but create other agency problems. CEOs that know the dates of upcoming scheduled option grants have an incentive to temporarily depress stock prices before the grant dates to obtain options with lower strike prices. We provide evidence that CEOs respond to this incentive and document negative abnormal returns before scheduled option grants and positive abnormal returns after the grants. These returns are explained by measures of a CEO's incentive and ability to influence stock price. We document several mechanisms CEOs use to lower the strike price, including changing the substance and timing of the firm's disclosures.

1. Introduction

Prior research shows that it is difficult to align managers' and shareholders' incentives. Boards often award stock options that tie the CEOs' future wealth to the firm's stock price, but CEOs may attempt to manipulate the dates of the option grants, committee meetings or the release of information about the firm's performance in order to secure options with low strike prices and thereby increase their compensation. Yermack (1997) suggests that managers accelerate the date of option grants when the company is about to release good news. Aboody and Kasznik (2000) and Chauvin and Shenoy (2001) provide evidence that managers release information around option grant dates to maximize the value of their grants. McAnally, Srivastava, and Weaver (2008), Cohen, Dey, and Lys (2008), and Baker, Collins, and Reitenga (2009) show that executives are more likely to make accounting adjustments favorable to the CEO before option grant dates.

The backdating scandal is perhaps the best example of the misuse of stock option grants. Lie (2005), Heron and Lie (2007, 2009), and Narayanan and Seyhun (2008) show that managers lied about grant dates in order to receive options with lower strike prices. Consequently, the stock price of backdating firms regularly appeared to decline before the grants and then increase after the grant, producing the now familiar and tell-tale V-shaped pattern of abnormal returns centered on the grant date. Heron and Lie (2007, p. 294) argue that "most, if not all of the pattern" of the V-shaped abnormal returns was due to backdating.

Extensive academic and press coverage of the backdating scandal led to new legislation, criminal prosecutions, unprecedented turnover among CEOs and CFOs, Securities and Exchange Commission (SEC) and Justice Department investigations, and a flood of shareholder litigation, board investigations, and reform proposals. To eliminate backdating, in 2006 the SEC began

requiring firms to report the grant date, the grant's fair value, the date the compensation committee met, and the closing market price on the grant date.[1]

These reporting changes, the Sarbanes-Oxley Act of 2002, and increased public scrutiny effectively ended backdating, leading researchers to conclude that executives' manipulation of option grants was no longer a problem. Heron and Lie (2007, 2009) confirm that backdating was effectively eliminated after the Sarbanes-Oxley mandated reporting improvements. Similarly, Narayanan and Seyhun (2008, p. 1944) note that the new rules the SEC adopted in 2006 made it even more "…difficult to conceal dating games" and Sen (2009, abstract) reports that, given the new regulations and public scrutiny, it was "no longer possible to spring-load grants in a clandestine fashion, [and] this practice stopped." Once revealed, the problem was considered solved.

We are not so certain. In this paper, we show that CEO opportunism around option grants has simply shifted to another front. The backdating scandal focused on unscheduled grants—grants made at irregular intervals throughout the year, which gave executives discretion over reported award dates. To eliminate this risk, academics, lawyers and governance advisors recommended that boards abandon unscheduled grants and instead rely on scheduled grants given at a set time each year (e.g., on February 10th or the second Monday in March). For instance, Bebchuck and Fried (2010) urged that the "timing of equity awards to executives

[1] See SEC Press Release July 26, 2006–123, *SEC Votes to Adopt Changes to Disclosure Requirements Concerning Executive Compensation and Related Matters*. The enhanced SEC requirements took effect on December 15, 2006. Enhancements to the annual proxy statement's Compensation Discussion and Analysis section included "the reasons a company selects particular grant dates for awards or the methods a company uses to select the terms of awards, such as the exercise prices of stock options." Furthermore, the enhancement required that, "companies…be called upon in the guidance to answer questions such as: Does a company have any program, plan or practice to time option grants to its executives in coordination with the release of material non-public information?"

should not be discretionary. Rather, such grants should be made only on prespecified dates."[2] Practitioners concurred; the Public Company Accounting Oversight Board counseled auditors to watch for "highly variable grant dates"[3] and Institutional Shareholder Services, the largest and perhaps most influential proxy advisor, began recommending in 2006 that shareholders oppose directors who did not react proactively to backdating by among other things adopting a fixed-schedule for option grants.[4] Consequently many firms moved to scheduled option grants and now roughly 60% of all CEO option grants are scheduled.

But scheduled grants introduce another set of distortions. When managers know in advance when they will receive option grants, they have an incentive to temporarily reduce (or delay increases in) the firm's stock price as the grant date approaches. A lower stock price typically results in a lower strike price, which (other things equal) increases the CEO's option-related compensation. Thus, although scheduled options may eliminate backdating, they also reduce managers' incentives to maximize share price at the time of the scheduled grant.

A CEO that wanted the firm's stock price to decline before a grant (or not increase until after the grant) has several possible approaches. First, an executive may simply accelerate the release of bad news so that the price declines before the options are granted (bullet dodging) or delay the release of good news until after the grant is made (spring loading). Second, and more seriously, executives could change the timing of the firm's investments – delaying valuable projects until after the grant. Third, an executive might manufacture news by changing the firm's forecasts or accounting choices to move earnings from the pre-grant period to the post-

[2] See also Narayanan, Schipani, and Seyhun (2007, p. 1605) who point out that "When grants are scheduled during certain days of the year (the day of the board meeting to ratify the annual report, for example), and these days are public knowledge, the probability of backdating is likely to be lower."
[3] Public Company Accounting Oversight Board Staff Audit Practice Alert No. 1, 2006, p. 6.
[4] http://va.issproxy.com/resourcecenter/publications/Governance_Weekly/2006-Dec-1.htm

grant period. In each method, the executive alters the firm's disclosure, investment, or accounting choices with the goal of gaining options with a lower exercise price, rather than making decisions solely on the basis of shareholder interests. These actions may increase compensation and transfer wealth from shareholders who sell their shares while the stock is lower than it would otherwise be. Managers' actions may also affect firm value by affecting investment choices. We use the term manipulation to cover each of these behaviors.

This paper makes four important contributions. First, we provide evidence of abnormal price movements before and after scheduled CEO stock option grants consistent with the predictions of a simple model we develop of CEO opportunism and stock price manipulation. When CEOs receive scheduled options, we find negative abnormal stock returns in the months before an option grant and positive abnormal returns after the grant. Figure 1 shows the cumulative abnormal returns surrounding CEO scheduled option grants. In the absence of opportunistic behavior, the cumulative abnormal returns should randomly move around 0; clearly, they do not. As a group, firms that rely on scheduled options show the same V-shaped pattern in abnormal returns produced by backdating. Thus, in spite of all the public scrutiny and regulatory changes triggered by the backdating scandal (Bernile and Jarrell, 2009), the same abnormal return pattern continues—this time for scheduled option grants, rather than unscheduled. This pattern is not found in stock grants made before the SEC's new regulations (e.g., Heron and Lie, 2007).[5]

[Insert Figure 1 here]

[5] Lie (2005) and Lie and Heron (2007, p. 291) showed that most of the abnormal return pattern around grants from 1992-2002 was explained by backdating and any remaining abnormal return patterns around scheduled grants after 2002 were so weak as to be possibly "attributable to imperfect classification of scheduled versus unscheduled grants."

Second, as predicted by the model, we find that the abnormal returns around grant dates are larger when managerial manipulation would be more beneficial and less costly. For example, CEOs that receive more scheduled options have stronger incentives to reduce the firm's stock price in advance of the grant because they profit more from pre-grant declines or post-grant increases. Consistent with this prediction, the V-shaped pattern is deeper for CEOs granted the most options (the dashed line in Figure 1) than for the group of all CEOs (the top line in Figure 1). CEOs awarded the most options experience, on average, favorable 3% abnormal returns around the grant.

While CEOs who receive scheduled options prefer, other things equal, temporarily low stock prices on grant dates, CEOs who plan to sell their own shares on the open market around the grant date prefer higher stock prices. Consistent with this, the third deepest V-shaped line in Figure 1 is for CEOs who receive the most scheduled options and do not sell any shares within 30 days of the grant date. Presumably, a CEO's influence over investors' expectations, the price impact of disclosures, and the CEO's ability to affect the price, is greater if the firm is hard to value. Consistent with this, the deepest V-shape in Figure 1 (dotted line) is for the subset of motivated CEOs (high number of stock options and not selling shares) who also manage companies that are hard to value.

Third, we document several mechanisms CEOs might use to generate abnormal returns around the grant. We find evidence consistent with the idea that managers accelerate bad news before and delay good news until after the grant. For example, abnormal stock returns surrounding SEC Form 8-K filings (which report material corporate events) tend to be negative in the months immediately before a scheduled CEO option grant and then positive in the months after the grant. Executives also appear to manufacture news by changing the firm's accounting

choices (e.g., accruals management) and perhaps even by timing investments (e.g., real earnings management) to move earnings from the pre-grant period to the post grant period. Our findings suggest that scheduled options lead executives to make disclosure, accounting or investment choices that are driven, in part, by the CEO's self-interest rather than the goal of maximizing shareholder value. We also specifically link these mechanisms to post-grant returns.

Fourth, our results highlight some unintended consequences of reform. Following the backdating scandal, firms moved away from unscheduled options and instead awarded options on an annual schedule because scheduled options were less subject to the risk of backdating. This move to scheduled options did eliminate backdating, but it created other problems. Scheduled grant dates, known in advance, give managers a predictable time each year when it is not in their interest to increase the firm's stock price. Managers appear to respond to this incentive. Moreover, this form of opportunism may be worse than backdating. While backdating simply increased CEO compensation, the opportunism we document also distorts stock prices and may dissipate firm value if executives, for example, postpone valuable projects.

Our findings are related to Aboody and Kasznik's (2000) evidence of post-grant abnormal positive returns following scheduled grants between 1992 and 1996. We extend their work by (a) also documenting negative abnormal returns before the grant, (b) finding abnormal returns around scheduled grants even after the significant regulatory changes made in 2002 and 2006 associated with Sarbanes-Oxley and the backdating scandal, and (c) documenting additional mechanisms used by CEOs to enhance their compensation. Our use of post-2006 data is important because recent literature has focused on backdating around unscheduled grants after

Lie and Heron (2007) found post-grant returns for scheduled grants were insignificant using data from 2000-2004.[6]

Before describing our results, we note that the V pattern in Figure 1 is the average of abnormal returns for many firms. With backdating, both the average and the individual company returns tended to have V-shaped price patterns since each firm could look back and pick the date of the firm's lowest price as the exercise price. This is not the case for firms in our sample of scheduled grants. For example, some firms could accelerate the announcement of legitimate bad news before the scheduled grant date. These firms' stock prices would show a one-time pre-grant price drop, followed by a random walk. Other firms could postpone the announcement of good news resulting in a one-time abnormal stock price increase sometime in the weeks following the option grant. Alternatively, the CEO could "manufacture" some bad news by using discretionary accruals to miss an earnings target before the grant and then beat the next quarter's target in the months after receiving options with artificially low exercise prices. Or, a firm could do some combination of the above. These actions would produce a V shape in the aggregate sample portfolio return, but not for each individual firm. The manipulation we document results in a detectable V pattern over the full sample even if individual stocks might have only poor performance before the grant or good performance after the grant.

The paper is organized as follows. Section 2 develops a model of the CEO's manipulation choice, derives the model's predictions, and describes the data used to test these predictions. Section 3 discusses various univariate and multivariate tests, considers two alternative explanations of the results, and discusses robustness tests. Section 4 investigates

[6] Sen (2009), using data between September 2002 and October 2007, documents that firms spring-loaded *unscheduled* option grants prior to the backdating scandal and that "After March 2006, … this practice stopped." In contrast, we find evidence of springloading of *scheduled* option grants in our 2007 to 2011 period.

potential mechanisms managers could use to depress the stock price in advance of stock grants, and Section 5 concludes.

2. Empirical predictions and data

In this section we use a simple partial equilibrium model to generate empirical predictions and then describe the data used in the empirical analysis.

2.1. Empirical predictions

In the model the CEO chooses the optimal amount of stock price manipulation (M) around the grant date to maximize profits. The optimal M is found by maximizing the CEO profit function, $\text{profit}(\text{M}) = \text{benefits}(\text{M}) - \text{costs}(\text{M})$, where both the benefits and costs to the CEO for manipulation are a function of M. We describe the benefits and costs in the next several paragraphs.

The dollar benefit to the CEO for manipulating the price (P) down to a lower price (P_m) at the time of the grant is positively correlated with, and approximately equal to the product, NMP, where N is defined as the number of options being awarded, M is the percent change in stock price due to manipulation, $(P - P_m)/P$, and P is the non-manipulated price. The product of M and P is the per share dollar amount the price has decreased due to manipulation.

We assume that the number of scheduled options, N, the board grants the CEO is a function of the stock price. This assumption is consistent with the idea that the board has a target dollar value for the CEO's stock option grant award, perhaps based on peer comparison and incentive considerations, and then selects the number of options to create this award. If the stock price is low, other things equal, the board needs to grant more options to reach the target

amount.[7] Hence in the model $\frac{\partial N}{\partial P} < 0$.

The cost to the CEO for manipulation is a function of the how much the price is manipulated (M), how hard the firm is to value (H), and whether the CEO is selling shares (S) on the open market around the time of the grant. With regard to the first cost component, we assume the general costs of manipulation (e.g., costs associated with effort or associated with the likelihood of discovery and negative press) increase with each percentage change in the stock price (M) rather than the price level, since it is easier, for example, to move the stock price down by $3 if the price is $100 (a 3% drop) than if the price is $10 (a 30% drop). We assume that the cost function is convex; that is, moving a stock price down the first 1 percent is easier than moving it down the second percent. Hence, in the model $\frac{\partial C(M,H,S)}{\partial M} > 0$ and $\frac{\partial^2 C(M,H,S)}{\partial M^2} > 0$.

With regard to H, if investors are perfectly informed, CEOs cannot manipulate the stock price, but where investors already disagree about firm value, a CEO may be more able to move prices with a small change in accruals or a slight adjustment to company-issued earnings guidance. When firm value is opaque, detection is difficult which also lowers a CEO's cost. We identify firms that have potentially low manipulation costs using proxies from the literature for hard-to-value firms. In the model, $\frac{\partial C(M,H,S)}{\partial H} < 0$ consistent with the cost of manipulation being less for hard-to-value firms.

With regard to the last component of cost, S, CEOs often set up safe harbor (SEC Rule

[7] As noted in Hall (1999), some firms award the same number options each year for several years in a row rather than target a specific dollar award each year (i.e., "fixed number plans" vs "fixed value plans"). Even in the fixed number cases, we assume that the number of options being awarded is a function of the stock price at the time the award number was determined. Empirically, we find supporting evidence of this assumption given that the correlation coefficient between the observed number of options awarded and the stock price is negative and statistically significant at the 1% level. For example, using the sample of scheduled CEO grants between 2007-2011 and regressing the number of CEO options on the stock price and a measure of firm size indicates that on average a $50 increase in stock price is associated with approximately 98,000 fewer options in the cross section.

10b5-1) plans that automate the selling process and hence do not always have flexibility about when they can sell shares. Alternatively, CEOs also have consumption and diversification considerations that lead them to sell shares during their tenure. If shares are sold and the stock price is manipulated around the option grant date, the CEO loses SMP dollars where S is the number of shares sold and the product MP equals the dollar amount the share price is decreased due to manipulation.

Hence the profit function that the CEO maximizes when choosing M can be written as

$$\pi(M) = N(P)MP - C(M, H, S). \quad (1)$$

Differentiating with respect to M and then setting the first-order condition equal to zero shows that a CEO will try to manipulate the stock price until the marginal benefit equals the marginal cost:

$$\frac{\partial \pi(M)}{\partial M} = N(P)P - \frac{\partial C(M, H, S)}{\partial M} = 0. \quad (2)$$

The first-order condition is an implicit choice function where the M that satisfies the condition is a function of the primitive variables N, H, S, and P. Replacing the M in the first-order condition with its optimal value, M^*, yields the following identity:

$$N(P)P - \frac{\partial C(M^*[N(P), H, S, P], H, S)}{\partial M^*} \equiv 0. \quad (3)$$

Differentiating the identity (3) with respect to N, H, S, and P yields the following four comparative statics $\frac{\partial M^*}{\partial N} > 0$, $\frac{\partial M^*}{\partial H} > 0$, $\frac{\partial M^*}{\partial S} < 0$, and $\frac{\partial M^*}{\partial P} \lessgtr 0$, where the signs shown here are derived in the appendix.

Thus, the model makes three empirical predictions. Among firms that grant CEO options, we expect manipulation to be (1) more prevalent when the number of options granted is large,

(2) more prevalent when the firm is hard to value, and (3) less prevalent if the CEO is selling shares around the grant date. In the empirical analysis we test these predictions.

2.2. Variable descriptions

In our empirical tests we measure the number of options in two ways. The first, *N,* is calculated as ln(1 + the number of CEO options). It is standardized such that a one unit increase is associated with a standard deviation increase in the logged underlying variable. A second measure of CEO incentive, *Terciles of N*, reflects whether the number of options awarded is in the bottom, middle, or top tercile compared to all CEO option grants awarded that year.

We combine two approaches to identify hard-to-value firms in which information asymmetries may give CEOs more short-term influence over the firm's stock price: (1) the standard deviation of daily raw returns over the 365-day period ending on the day of the grant similar to Berkman, Koch, Tuttle, and Zhang (2012); and (2) the dispersion of analysts' earnings forecasts similar to Zhang (2006). We consider a firm to be hard to value if it is in the top half of option-granting firms in either of these dimensions in a given year. In the empirical tests we control for the CEO selling shares using a binary variable set to one if the CEO sells personally-owned shares within 30 days of the option grant date.

We also condition on whether the CFO or other officers and directors received stock option grants at the same time as the CEO. On one hand, grants to other directors and officers increase management's collective benefit from manipulation, increasing the collective N. Alternatively, one cost of CEO manipulation is detection, which may decrease if other officers and directors are complicit, lowering the CEO's cost, C. In some tests, we therefore condition on whether the CFO or other officers and directors received stock option grants at the same time as the CEO.

2.3. Data sources and measures

Our empirical tests focus on CEOs receiving scheduled stock option grants as reported by Equilar. Several prior studies of CEO option grants use ExecuComp or insider filings data from Thomson Reuters. ExecuComp provides compensation and other CEO information but focuses on S&P 1500 firms. The data from Thomson Reuters has broader coverage but lacks some of the information about CEOs and boards that we use in the analysis. Hence, we use Equilar data because of its relative broad coverage (e.g., Equilar covers approximately 4,000 firms each year during our sample period) and its detailed information about CEO tenure, CEO ownership, percent of insiders on the board, and CEO options. In the analysis, our sample is limited to around 1,500 of these 4,000 firms because many firms do not grant CEO options and some firms covered by Equilar are not covered by the Center for Research in Security Prices (CRSP). Our sample starts with the intersection of firm years in Equilar and CRSP for the firms that award options to their CEOs.[8]

Each month we identify the CEO using the titles, resignation dates, and tenure information provided in Equilar. If we cannot identify the CEO using this information, we assume the highest paid individual at the firm is the CEO. If a CEO received more than one option grant on the same day (for example, several grants with varying vesting periods), we consider them as one event and sum the number of grants.[9] CEOs can, and some do, receive multiple grants within a year.

[8] We eliminate firms acquired or merged in the year following the option grant because Fich, Cai, and Tran (2011) show that stock options granted to CEOs in advance of acquisitions can be related to upcoming acquisition activity.

[9] Due to possible backdating, researchers using pre-2007 data allow for the actual grant date to differ from the stated grant date. For the grant data in our 2007–2011 sample, we accept the reported grant date as the actual date because our study focuses on grants made during years when firms were required to report option grants to the SEC within two business days. For example, in 2011 over 95% of scheduled grants were reported on time and approximately 97% within 3 business days. Many of the apparently late reports were either (a) contingent grants, grants conditionally promised but earned and then awarded in the future or (b) amendments to a timely SEC filing correcting, for example, a vesting period.

Following Aboody and Kasznik (2000), we consider a grant to be scheduled if it occurs within seven days of the prior year's grant anniversary.[10] For robustness, in the empirical tests we also consider grants within one business day (as in Heron and Lie, 2007 and 2009) and within 15 days of the anniversary (similar to Fich, et al., 2011 and Sen, 2009) as scheduled. Unscheduled grants occur outside the 15-day anniversary window and are dispersed throughout the year. To ensure the analysis is based on typical public firms, we also require that as of 90 days before the grant the stock price is at least $5. Our results are qualitatively similar if we instead require a stock price of at least $1.

We focus on option grants made after the backdating scandal, the subsequent enhanced SEC reporting requirements, and the requirement to expense options in the income statement at their fair value (FASB 123(R) codified as ASC Topic 718). Thus, our primary dataset runs from January 2007 to December 2011 and we consider pre-2007 data for comparison purposes.[11] Table 1 reports the number of firms making CEO option grants as well as the number of CEO option grants awarded each year that are categorized as scheduled (within +/- 7 days of anniversary) and unscheduled (more than +/- 15 days from anniversary).

Two trends deserve comment. First, the proportion of grants that are scheduled has grown significantly since the 2005 backdating scandal—from 44.3% in 2005 to 62.2% in 2010.[12] The

[10] Most of the grants in our sample are categorized as scheduled based on the anniversary of a grant from the prior year. This approach, however, miscategorizes a grant in the first year that a firm adopts a scheduled approach to awarding option grants. For this reason, we follow Heron and Lie (2009) and also categorize a grant as scheduled if it falls within 7 days of the anniversary of the grant from the next year.

[11] Our early sample period starts January 2003. The Sarbanes-Oxley Act of 2002 materially changed the requirements surrounding the issuing and reporting of option grants.

[12] The increase in scheduled grants is primarily driven by firms switching from unscheduled to scheduled grants and not from firms initiating option grants. For example, of the firms only using unscheduled grants in 2005, 343 eventually used scheduled grants by the end of 2011. The number of scheduled grants for 2011 is likely higher than reported in Table 1 because for the 2011 grants we can only identify them as scheduled by looking back to 2010 but not forward to 2012 since the 2012 Equilar data is not available to us.

growth in scheduled option grants reflects the advice of many governance advisors and the Public Company Accounting Board that unscheduled options create the risk of backdating.

The second trend worth noting in Table 1 is a decreasing overall reliance on CEO stock option grants since 2004. This trend is consistent with Hayes, Lemmon, and Qiu (2012) who find that the adoption of FAS 123(R) in 2005 increased the cost of option grants. Some firms have replaced stock option grants with stock grants (typically time restricted or performance based) as documented by Frydman and Jenter (2010).

Stock option grants occur across all months in our sample with approximately 44% occurring in January or February. Our main sample is described in Panel B and consists of 6,901 firm-years with CEO stock option grants, and 4,860 *scheduled* option grants since the required reporting changes at the end of 2006. In our subsequent regressions, the sample size is smaller depending on the availability of control variables such as analysts' earnings forecasts.

To test whether CEOs depress stock prices before the option grant date, we look for evidence of abnormal returns around the grant date using cumulative abnormal returns (CAR) as our dependent variable—measured as the cumulative difference between actual daily returns and the predictions of a Fama and French four-factor model that includes momentum (Fama and French, 1993; Carhart, 1997). The parameters of the four-factor model are estimated over the year ending 120 days before the scheduled grant date.[13] Our results are similar using cumulative raw returns.

[13] We winsorize the estimated four-factor coefficients at the 1st and 99th percentiles to mitigate potential outlier parameters sometimes associated with daily expected-return models. Raw returns, as opposed to abnormal returns, are appropriate evidence for backdating; with hindsight, a CEO appears to "control" both the market's as well as the firm's influence on the stock price by picking the lowest observed price during the year. In contrast, the stock price manipulation we document assumes that CEOs' actions can influence idiosyncratic, but not systematic, price movements.

In the empirical tests we use data from Equilar on CEO tenure, ownership, and the percent of the board that are insiders. Stock prices and returns are based on information from CRSP. The number of analysts and expected earnings per share come from IBES. Firm assets, net income, operating cash flow, R&D and SG&A expenditures, and actual earnings per share and earnings announcement dates are from the Compustat database.

Data on management's earnings guidance comes from Thomson Reuters' First Call's Company Issued Guidance (GIC) database. We gather Form 8-K filing dates from the SEC's Edgar website. We use Thomson Reuters' SDC data to identify and eliminate firms involved with a merger or acquisition following an option grant. Thomson Reuters' Insider Filings and 13F Institutions data sets provide data on CEOs that sell shares in the open market and the presence of a large stockholder (defined as one controlling 30% of the shares or more). We obtain similar results when we use the number of blockholders with 5% or more of the shares.

3. CEO opportunism

In this section we discuss evidence of abnormal returns using univariate and multivariate tests and then consider alternative explanations and the robustness of our main findings.

3.1. Univariate cumulative abnormal returns

Panel A of Table 2 documents the statistical significance of the V-shaped CARs in Figure 1. In the absence of price manipulation, the CARs should not be significantly different from 0. We report CARs for a variety of event horizons to show that the abnormal negative returns before (and positive returns after) a scheduled CEO option grant are not limited to a few days around the grant, but are spread out over several months. We also show that this effect tends to

be larger when CEOs are in a position to profit more from pre-grant declines in stock prices or post-grant increases (i.e., higher N and H and lower S).

Column 1 of Table 2, Panel A, reports the statistical significance of abnormal returns for the CEOs receiving the fewest options (lowest tercile of N) and Column 2 reports results for those receiving the most options (highest tercile of N). Clearly, the CEOs with the most options experience negative abnormal returns before the grant and positive abnormal returns after the grant. For example, the CAR(-90,0) for the highest tercile is a negative 2.5%, whereas the post-grant CAR(1,90) is a positive 2.1%. Both CARs are statistically significant with *p*-values less than 0.01. Furthermore, for all eight event windows in Panel A, the CAR is larger (more negative in the pre-grant period and more positive in the post-grant period) for the CEOs receiving the highest number of grants (Column 2) than for the less-motivated CEOs receiving relatively few grants (Column 1). Abnormal returns are thus greater for CEOs with the most to gain from pre-grant declines or post-grant increases in stock price.

Columns 3 and 4 split the data on whether or not the firm is hard to value. The hard-to-value firms exhibit both significant negative CARs before the grant date and positive CARs after. Columns 5 and 6 also show abnormal returns consistent with price manipulation around grant dates if CEOs are not selling personal shares. In contrast, there are no abnormal returns documented around option grant dates if the CEOs sell shares around the same time. The final column of Table 2 reports pre- and post-grant CARs for the subset of firms with CEOs that receive a high number of options, do not sell shares, and are at hard-to-value firms. This is the subset that our model predicts will show the most manipulation and corresponds to the firms with the deepest V-shaped pattern of abnormal returns in Figure 1. Clearly, among this subset of firms with the most to gain and low manipulation costs, the returns support the model's

prediction. For example, in Column 7 the CAR(-120,0) is a negative 4.1% and the CAR(1, 120) is 5.7%.

Panel B provides evidence of manipulation in non-overlapping event windows. For the motivated subsets (Columns 2, 4, 6, and 7), the month-long horizon CARs are always negative before the grant date and positive after the grant date and are often statistically significant. The results in Panel B show that the statistically-significant abnormal returns occur over several months both before and after the grant. In the multivariate tests that follow, we focus on returns over the 90 days before and after the grant dates but obtain qualitatively similar results in untabulated tests using 60 or 120 day horizons.

In Panels C and D, we present evidence that returns are lower before scheduled grants than they are after, as would be expected if CEOs depress the stock price in advance of the scheduled grant. For instance, we find that for the most motivated CEOs (Column 7) the difference between CAR(1,90) and CAR(-90,0) = 0.049 - (-0.032) = 0.081 and this 8.1% swing in abnormal returns is statistically significant with a one-sided *p*-value less than 0.01.

In unreported tests, we examine the returns when both the CEO and the CFO or other directors or officers also receive grants at the same time. CEOs are likely better able to influence stock prices when other senior executives are on board and have similar incentives. Consistent with this idea, we find a significant post-grant CAR(1,90) of 8.4% following scheduled grant dates at hard-to-value firms when the CEO is receiving a high number of option grants, the CEO is not selling shares in the market, and the CFO is also receiving option grants in the same week.

Although not shown in Table 2, the results for scheduled grants in the earlier 2003–2006 period and for unscheduled grants since 2006 make for interesting comparisons. Table 2 shows that in our sample period, CEOs in the highest tercile of option grants experience a 2.1%

abnormal return in the 90 days following the grant (significant at the 1% level). In contrast, between 2003 and 2006 when backdating was more common (and perhaps used in lieu of price manipulation), this same group of CEOs experienced an insignificant -1.0% CAR(1,90) after scheduled grants. Similarly, we examine returns around unscheduled CEO option grants after 2006 for this same group of CEOs and find no statistically significant post-grant CARs. This is consistent with the idea that scheduled grants create incentives that unscheduled grants do not and that this behavior became relatively more attractive when backdating was prohibited.

As documented by Fama (1998) and Mitchell and Stafford (2000), asset-pricing model errors are compounded in long-horizon returns and cross-sectional dependence of event-firm abnormal returns that overlap in calendar time can result in overstated test statistics. Thus, Fama (1998) recommends a monthly calendar-time portfolio approach when horizons are long. Although our longest return horizon is only 4 months, we nevertheless check our results using monthly calendar-time portfolios. Firms enter our portfolio on the first day of each month if they had a scheduled CEO stock option grant in the prior month, and then stay in the portfolio for three months. Having the stock enter the portfolio at the start of the following month eliminates within-month turnover but does not capture any abnormal returns that occur over the weeks immediately following the grant date prior to the start of the next month. We regress the excess monthly returns for our portfolio on four factors (Fama and French (1993), Carhart (1997)) and test whether the intercept, which measures average calendar-month abnormal returns, is significant after using White's correction for heteroskedasticity.

We calculate the average abnormal calendar-month returns (intercepts) using a sample of

all firms with scheduled CEO options and then for subsamples of firms with motivated CEOs.[14] In all cases the intercept is positive. The average monthly abnormal return for the equally-weighted portfolio of firms in the top tercile of number of options is 0.6% (p-value = 0.058). The value-weighted results are similar. Creating portfolios based on high numbers of CEO options and the additional condition that the CEO not sell shares around the grant date results in slightly larger but similar results. Further conditioning on the firm being hard to value results in positive but insignificant intercepts.

In short, the abnormal returns in Figure 1 are striking and consistent with self-interested, rather than value-maximizing, disclosure choices. Table 2, along with the calendar-time portfolio results, confirms that these returns are statistically significant, show a distinct inflection point around the grant date, and are greater when managers have greater incentive and ability to manipulate firm disclosures and to reduce stock price before the grant date.

3.2. Multivariate cumulative abnormal returns

We now test whether these results remain significant using multivariate analysis. Following Heron and Lie (2009) and Gao and Mahmudi (2008), our dependent variable is the "round trip" return or depth of the V, as measured by CAR(1,90) - CAR(-90,0). This measure captures both the decrease in price before the grant and the increase in price afterwards. If CEOs delay good news or effectively manufacture pre-grant bad news, their stock will exhibit positive abnormal cumulative returns following the grant. However, if CEOs simply accelerate the reporting of legitimate bad news, their stock prices will fall before the grant but will not

[14] The scheduled grants in our sample occur from January 2007 to December 2011. Hence, in the calendar-time portfolio regressions we have 62 monthly rebalanced portfolio returns starting in February 2007 and ending in March 2012.

necessarily exhibit positive cumulative abnormal returns after the grant. Thus, in testing for the "round trip" abnormal return, we account for both scenarios.

The basic form of the regression is:

$$CAR_i = \alpha + \beta_1(CEO\ options_i) + \beta_2(Hard\ to\ value_i) + \beta_3(Shares\ sold_i) + \sum_{k=4}^{9} \beta_k x_{i,k} + \sum_{l=2}^{48} \delta_l Ind_{i,l} + \sum_{y=2}^{4} \gamma_y Y_{i,y} + \varepsilon_i, \quad (4)$$

Our focus is on the first three variables (*CEO options, Hard to value,* and *Shares sold*) with the null hypotheses that β_1, β_2, and β_3 equal 0 in the absence of price manipulation around option grants.[15]

CEO options in Equation 4 is measured using one of two alternative proxies for a CEO's benefit from acting opportunistically: (1) *CEO options* is the natural log of 1 plus the number of options awarded to the CEO, standardized such that a one unit increase is associated with a standard deviation increase in the underlying variable, and (2) *CEO options* (*terciles*) assigns each CEO option grant to tercile 0, 1, or 2 based on a comparison of the number of CEO option grants across firms in the same year.

Hard to value and *Shares sold* are indicator variables described earlier and x_i represents six control variables that may affect a CEO's ability to engage in self-interested behavior (% of insiders on the board, number of analysts, presence of a large shareholder, CEO tenure, CEO ownership, and firm size). We are agnostic about the expected sign and significance of the governance and monitoring control variables included in the regressions. First, governance and monitoring efforts often focus on keeping managers from reporting inflated measures of firm

[15] The alternative hypothesis of $\beta_2 > 0$ does not imply that all hard-to-value firms have high abnormal returns. Rather, only when the CEO receives scheduled stock option grants—which is the case of all firms in our sample—and only for a few months around the grant.

performance whereas in our application, managers have the incentive to deflate earnings and to be conservative around the grant date. An independent board and analysts may actually look favorably on managers who report conservatively. Second, analysts may serve to dissuade CEOs from such strategic disclosures or alternatively may unwittingly help propagate whatever news and information the CEO strategically releases across time. Third, CEO ownership is often equated with aligned incentives, but for a brief time each year, the incentives may be misaligned. *Ind* and *Y* are a series of indicator variables that control for industry and year fixed effects, respectively.[16]

The results in Column 1 of Table 3 are consistent with our model's first prediction, that CEOs granted more options, and in fact, experience larger abnormal returns around scheduled grants. For example, a one standard deviation increase in the underlying variable for *CEO options* is associated with a statistically significant 3.1% larger swing in cumulative abnormal returns. To facilitate the interpretation of the relation between higher numbers of options and abnormal returns, in Column 2 we re-estimate the regression using terciles of CEO options. Hence, moving, say, from the second to the third tercile in the number of options granted is also associated with a 3.1% increase in the round trip CAR.

The results in Columns 3, 4, and 5 provide support for our model's prediction that increasing manipulation costs discourage manipulation. Our model's second comparative static indicates that the abnormal returns will be larger if the firm is hard to value since a CEO's manipulation costs decrease with the ease of influencing the firm's stock price. The *Hard to value* coefficient indicates that CEOs at hard-to-value firms experience greater abnormal returns

[16] We allow for industry and year fixed effects in case some unobserved variable related to the industry or year contributes to a firm's abnormal returns surrounding the option grant date. We use Fama-French's 48 industry classifications.

around grant dates. The results show that in our sample the average round-trip abnormal return around the grant date increases by 1.7% for CEOs that lead hard-to-value firms.

Our model's third comparative static predicts that when CEOs anticipate selling stock the cost of manipulation increases since pre-grant stock price declines decrease proceeds from the sale. Consistent with this prediction, the coefficient on *Shares sold* in Column 4 is negative and statistically significant (*p*-value less than 0.001). In Column 5, when we include both of our cost proxies, the hard to value coefficient loses its statistical significant (p-value increases to 0.109). However, when using a longer return horizon of 120 days (Column 6), all three of our model's predictions receive statistically significant support. Consistent with the idea of managerial manipulation, abnormal returns increase with N and H, and decrease with S as predicted by the model.[17]

To estimate the magnitude and wealth impact of these effects, we take the mean number of CEO options in our sample for the CEOs in the top tercile of options (414,836 options) and multiply this number by the product of the mean share price of firms in the sample ($32 per share) and a reasonable estimate of the abnormal returns observed immediately surrounding the options grant date (3% based on Figure 1 and the discussion of results in Table 2). This rough calculation suggests that the mean CEO in the top tercile of our sample stands to increase their compensation each year by $398,242 by achieving relatively low strike prices on their options. If we look at the subset of CEOs of hard-to-value firms who do not sell stock, the abnormal returns are in the 4-5% range corresponding with around $600,000 of extra annual compensation.

[17] In untabulated tests, we add indicator variables to these regressions for firms that previously backdated options and for firms that switched from scheduled to unscheduled stock grants and find that neither of these variables are significant. In other untabulated regressions we also look at the interaction of the number of options and the indicator variables for a firm being hard to value and for the CEO selling shares. We find that the interaction of N and H is positive and significant and the interaction of N and S is not significant in explaining abnormal returns.

This profit range is conservative because it assumes all CEOs in this tercile manipulate their stock price. Heron and Lie (2009) estimate that around 20% of unscheduled option grants were backdated between 1996 and 2005. If a similar small fraction of scheduled option grants since 2006 involve stock price manipulation, then the subset of CEOs that engage in this strategy would annually earn a multiple of the amount we estimate above using an average of all CEOs in our sample.

Some may object that this gain is not large enough to lead CEOs astray. However, in other settings, some CEOs have been willing to violate the law for relatively small gains, especially when the probability of detection seemed low. For example, Martha Stewart was ousted and convicted for her role in alleged insider trading that would have netted her at most $45,673 or 1.7% of her annual compensation (Bhattacharya and Marshall, 2011). Moreover, although backdating often produced relatively small gains, the practice was apparently widespread.

Table 3 provides some evidence that the round-trip abnormal returns are decreasing in the number of investment analysts that follow the firm. The other control variables are not significant in explaining returns. Collectively, the independent variables, all of which are publically known at time zero, explain 3–4% of the variation in cumulative abnormal returns around stock grants.

3.3. Alternative explanations and robustness tests

The average abnormal returns shown in Figure 1 are visually striking, statistically significant, and consistent with managerial opportunism. Table 3 demonstrates that abnormal returns are higher when CEOs can anticipate upcoming grants and have greater incentives and

ability to temporarily reduce stock price before the grant date. In this section, we consider two other possible explanations for the results as well as some robustness tests.

3.3.1. Earnings announcements as a possible explanation

Many firms grant options near the time they announce earnings. For example, 30% of the scheduled stock grants in our sample occur within 1 week (before or after) of a quarterly earnings announcement and almost 60% within 3 weeks. Thus, an alternative explanation for the observed abnormal returns is that prices may decline in advance of material news announcements (like quarterly earnings) due to uncertainty of the content of the news and then rise afterwards when the uncertainty is resolved. Figure 2 shows the distribution of option grant dates relative to the closest earnings announcement date. Many firms grant options to their CEOs after earnings announcements to minimize information asymmetry and resulting opportunism. However, these announcements also offer a convenient opportunity for CEOs to temporarily lower expectations in order to obtain a favorable exercise price on the subsequently granted stock options. Regardless of the motivation, the frequent proximity of earnings announcements and CEO option grant dates allows for the possibility that the pattern of returns in Figure 1 is somehow driven by earnings announcements rather than scheduled grants.

[Insert Figure 2]

To eliminate potential confounding influences from earnings announcements, in untabulated tests we recreate Figure 1 and re-estimate the results of Table 3 after eliminating grants within 7 days of an earnings announcement. Eliminating confounding earnings announcements does not affect the V pattern of returns around scheduled grants and has little effect on the results in Table 3. The β_1, β_2, and β_3, coefficients from Equation 1, as tabulated in

the robustness tests in Section 3.4, do not materially change when we eliminate nearby earnings announcements. Also in Section 3.4, we document that the same firms that experience abnormal returns around scheduled option grant dates do not experience abnormal returns around "pseudo-grant-dates" 6 months after the scheduled grant dates. The pseudo-dates would occur just as close to quarterly earnings announcements as did the actual grant dates, further showing that the abnormal returns are not being driven by the proximity to the quarterly earnings dates.

Additionally, our results are not related to the post earnings announcement drift anomaly since, (1) we measure abnormal returns around the option grant, not after the earnings announcement, and (2) as described below, conditional on CEOs receiving stock options, we find that negative earnings surprises lead to positive abnormal post-grant returns, in contrast to the negative drift after weak earnings announcements. Moreover, returns are larger for scheduled grants than unscheduled grants, are strongest after 2006, and have a clear inflection point around the grant date, which is all consistent with stock price manipulation but not with the earnings announcement story.

3.3.2. Optimal contracting as a possible explanation

Another possible explanation for our results involves the alignment of CEO incentives via option grants. For example if CEO incentives and effort were suboptimal and the new stock option grants corrected this problem, then the stock returns following a grant would be positive as market participants priced the improved incentives and anticipated effort and performance.

This explanation seems unlikely for scheduled option grants because it presupposes that compensation packages become suboptimal (and that firms correct them) at the same time every year. The contracting explanation requires that the market annually penalizes firms for bad incentives, but only in the few months leading up to the scheduled grant and then, when the

option grants are made, rewards firms for having better incentives. This annual pattern seems unlikely. Additionally, in the improved contracting story, firms that grant CEOs too many options should be able to add value by reducing grants. Thus, stock prices should immediately and completely increase when the number of options changes, up or down, to the optimal level. But this isn't the case: abnormal returns (1) occur gradually across months instead of immediately, and (2) increase in the relative number of options. Also, both unscheduled and scheduled grants would incentivize CEOs, but as shown in Table 4 we observe larger round-trip abnormal returns for the scheduled options group. Taken together, the evidence is not consistent with an optimal contracting story and instead seems more consistent with CEO decisions about disclosures or investments based on CEO self-interest rather than maximizing firm value.

Alternatively, boards may have private information about the firm's future performance and grant more options when the firm is undervalued. This would lead to superior post-grant returns. However, it seems unlikely that this would explain the persistent V-shaped pattern for scheduled grants because this explanation would require that firms regularly became undervalued (and then later correctly valued) at the same time each year. Nevertheless, we examine this possibility by excluding firms that increase the options awarded to the CEO from the prior year as they might if the firm is undervalued. Even among the firms that do not increase N, greater CEO option profit potential is positively correlated with abnormal returns; β_1 and β_3 are statistically significant (Row 12, Table 4). We therefore conclude that this pattern is not simply driven by firms that increase option grants when the stock is undervalued.

3.4. Robustness tests

In Table 4, we examine the robustness of our three key results to alternative samples and measurement choices. Most of the results in Table 4, unless otherwise noted, come from

regressions like the ones in Table 3's Column 5, but in each case with a change to one of the assumptions. The results in the first row of Table 4 are from Table 3's Column 5 and are included for comparison purposes. Due to space limitations, we only report the coefficients directly related to our empirical predictions involving the proxies related to the costs and benefits to the CEO for manipulation (i.e., β_1, β_2, and β_3).

Our analysis has focused on CEOs. However, other executives receive scheduled options and may also have the incentive and ability to influence stock prices. In Row 2, we limit the sample to the 2,556 observations where the CFO also receives stock options in the same week as the CEO. With the CFO on board, all three of the key coefficients increase. The Row 3 subsample consists of CEO grant dates where at least one other executive (an officer or director) receives options with little change to the base-case results.

In our base case, we define scheduled grants as grants that occur within +/- 7 days from the prior year's grant, and we eliminate stocks with a price below 5 dollars 90 days prior to the CEO option grant. In Rows 4 and 5, we define scheduled grants as being within +/- 1 and +/-15 days from the anniversary. Using these alternative definitions results in qualitatively similar conclusions: the coefficients for N and S both remain statistically significant and the coefficient for H becomes significant when using the larger sample in Row 5. Our conclusions remain unchanged after decreasing the stock price cutoff to $1, rather than $5, and when we exclude stock prices greater than $100 (see Rows 6 and 7).

If we limit the results to S&P 1500 firms (Row 8), our basic finding with regard to N and H are stronger. Over 70% of our firm year observations are from S&P 1500 firms. Opportunistic use of option grants is not just a small stock phenomenon.

We also confirm that our three key results are not attributable to continued backdating. In our analysis, we treat the stated grant date as the actual grant date under the assumption that the grant was promptly reported to the SEC. However, in some cases the firm took more than the mandated 2 days to report to the SEC as documented using Thomson Reuter's data. In these cases, the firms could still be backdating, and thus backdating, rather than price manipulation, could be causing part of the V pattern. In Row 9, we eliminate all late filers, thus removing the possibility of backdating, without materially affecting the main results.[18] The Internal Revenue Code Section 162(m) encourages the issuance of at-the-money option grants (see, Heron and Lie, 2007). Hence, in Row 10 we limit our sample to the options where the strike price is within 1 percent of the closing price on the grant date, within 1 percent of the closing price on any of the prior 5 days, or within 1 percent of the average closing price over the prior week and continue to find results consistent with our main specification.

When we eliminate stock option grants that occur within one week of an earnings announcement (see Row 11) our results remain unchanged. Our model shows that as the number of options increases so does the optimal amount of manipulation, thus linking abnormal returns with the number of options. An alternative explanation is that when the stock appears undervalued, boards grant more stock options to the CEO. In Row 12, we eliminate this possibility by focusing on cases where the number of options granted did not increase. In this subset we still find a statistically significant link between N and S and evidence of abnormal returns around scheduled option grants.

[18] In order to condition on the number of days between the grant date and the reporting date we merged the Equilar data with the Thomson Reuters data. Some of the reduction in sample size for this test is due to not being able to match some of the firms in the Equilar sample with the firm identifiers provided in the Thomson Reuters data.

In Rows 13-16, we use CEO option grant information from Thomson Reuters and ExecuComp rather than Equilar.[19] In the Thomson Reuter's sample we do not have information on CEO tenure, ownership, or board insiders and so these controls are dropped from the regressions. For the ExecuComp sample we use ExecuComp information to identify the CEO, the grant dates, CEO ownership, and tenure. As with the base case, our results regarding N and S are statistically significant in explaining abnormal returns. Our main findings are consistent using data from Equilar, Thomson Reuters, or ExecuComp.

The results in Rows 17 and 18 of Table 4 are consistent with idea that manipulation costs and benefits are associated with both pre-grant declines and post-grant increases, although the pre-grant decrease is not significantly correlated with H. In Row 19, we cumulate raw returns rather than abnormal returns and obtain slightly larger coefficients for our three key variables; our basic result is not an artifact of risk-adjusted returns.

Whereas in Rows 1 to 19 of Table 4 we expect to find a significant link between CEO motivation and the round-trip abnormal return, Rows 20 to 22 test for the relationship when it could be weaker or nonexistent. In Row 20 we consider scheduled grants in the 2002 to 2006 period. In the pre-2007 period, when backdating was more prevalent, estimated coefficients on N are smaller (0.006) and its significance level drops from 1 to 10 percent. In this early sample the coefficient for H (insignificant) has an unexpected sign. These results could be consistent with the interpretation that CEOs did less of the type of manipulation we document in this paper prior to 2007, perhaps because backdating was an acceptable alternative then. In Row 21 we consider

[19] As with the Equilar data, when we use the Thomson Reuters and Execucomp data, we require that each firm be identified in CRSP, Compustat, and IBES and that information regarding the prior quarter's earnings surprise is available. The data filters we use with the Thomson Reuters data are similar to earlier backdating papers (e.g., see Heron and Lie, 2007, and Narayanan and Seyhum, 2008). We use the following filters when using the Thomson Reuters Insider Filings dataset: (1) rolecode equal to ceo, (2) cleanse indicator equal to R, H, C, or L, (3) either the acquisition disposition flag or the transaction code equal to A, (4) derivative type equal to call, direo, diro, empo, optns, iso, nonq, or sar, and (5) the form type equal to 3, 4, 5, or 144.

unscheduled grants and find that the number of options is positively correlated with abnormal returns, although the coefficient is smaller than for scheduled grants. It is unclear when working with unscheduled grants whether abnormal returns around the grant dates indicate that the timing of the grants was chosen to take advantage of temporarily low stock prices or whether lower prices were achieved via managerial disclosure, accounting, or investment decisions specifically to increase the option compensation.

In Row 22 we re-estimate the base-case regression from Row 1 using pseudo-grant dates that occur 6 months after the actual scheduled grant dates. That is, we use t =180 rather than t = 0. This is a placebo regression as we would expect no abnormal returns on an arbitrary date. As expected, the coefficients for N and S are not significant on the pseudo-grant dates; CEOs have no monetary reason to manipulate around non-grant dates. One advantage of using t = 180 is that the pseudo-date is generally as close to a quarterly earnings date as the actual grant date. Hence, these results corroborate the results from Row 11 showing that it is not proximity to earnings dates that is driving the results. The results in Rows 20 to 22 are generally consistent with the idea that the elimination of backdating, the scheduling of grants, and the grants themselves created conditions more conducive to price manipulation around scheduled grants in the 2007-2011 period.

In untabulated tests we also repeat the main analysis using two alternative variables that are related to the costs and benefits to the CEO for manipulation. First, the standard deviation of the firm's idiosyncratic return times the share price and number of options [(std)(P)(N)], and second, the difference between the high and low closing price at the firm times the number of options $(P_H - P_L)(N)$. Both of these proxies are intuitive measures of how far the stock price can move based on recent price changes and are likely correlated with how far a motivated CEO

could feasibly affect prices around grant dates. The standard deviation and price range information are measured using data from the 6-month period ending 90 days before the grant. The standard deviation of the firm's idiosyncratic risk was estimated using the residuals from a four-factor model including momentum estimated over this period using daily data. Using either of these alternative proxies for the costs and benefits of manipulation yield similar results to those reported in Tables 2, 3, and 4.

4. Mechanisms

In the prior section, we document evidence of abnormal returns around scheduled option grants that are related to the CEO's incentive to temporarily reduce (or delay gains in) the firm's stock price. In this section, we investigate several possible mechanisms that CEOs could use to achieve these abnormal returns. Prior research suggests that managers can influence their firm's stock price through the timing of business decisions or their announcement and through accounting accruals, management guidance, and real earnings management. We test whether CEOs are more likely to use these methods if they anticipate large option grants in the near future.

4.1. Accelerating bad news and delaying good news or valuable investments

One mechanism that could allow CEOs to realize positive abnormal returns following grant dates is to delay a positive NPV project (or its announcement) until after the option grant. Another method would be to accelerate the reporting of bad news so that the firm's stock price declines before the grant is made. Note that firms do not need to adopt both approaches. If some firms engage in spring loading, while others utilize bullet dodging, the resulting aggregate sample returns would still be V-shaped.

Public firms are required to file annual (Form 10-K) and quarterly (Form 10-Q) reports. In between these regular reports, firms have some discretion about the timing and announcement of new developments disclosed using Form 8-K. Panel A of Figure 3 shows the mean 3–day abnormal announcement returns (vertical axis) for 8-K filings made in the three months before and after (horizontal axis) scheduled option grants for CEOs who are granted the most (top tercile) and the fewest options (bottom tercile). The announcement returns are calculated as cumulative abnormal returns, CAR(-1, 1), from one business day before the 8-K filing date to one day following the filing, using a 4–factor model that includes momentum. As shown in Figure 3 Panel A, the 8-Ks for the motivated CEOs (high N, left column) in the three months before the option grants tend to contain negative news, on average, whereas after the grant the news is, on average, positive. This pattern is not found when CEOs receive few options (right column).

[Insert Figure 3]

In Table 5 Panel A we report the mean 3-day abnormal returns around 8-K filing dates both before and after scheduled grant dates. On average, announcements by firms with CEO's receiving the most options have negative market reactions in the months before the grant and positive reactions in the months afterwards, consistent with the idea of opportunistic disclosures or investments. For example, for firms with CEOs receiving the most options (Row 3), the average three-day cumulative abnormal event return is -0.25% in the three months before a CEO grant and a positive 0.32% after. This 0.56% difference is statistically significant with a *p*-value less than 0.001. Interestingly, there is no statistically significant difference between pre- and post-grant announcement returns when CEOs receive few scheduled options (Row 2), consistent

with the idea that a high number of scheduled options motivates CEOs and affects voluntary disclosures.

Furthermore, as predicted by our model, this return difference increases when the cost of CEO opportunism is low. The first row includes all scheduled grants and the difference is only 0.19% (Row 1). For grants with a high number of options, at hard-to-value firms, and with no CEO shares being sold (Row 6), the difference increases to 0.95% (p-value < 0.001).

These 8-K findings suggest that CEOs change the timing of either important voluntary disclosures or the timing of the firm's investments and actions. For instance, a CEO could delay the announcement of a valuable joint venture or could delay the joint venture or investment itself until after the option grant.

Figure 3 Panel B and Table 5 Panel B report the three-day abnormal returns surrounding quarterly earnings announcements that occur within three months of a CEO option grant. The average event returns for motivated CEOs (left column) in the two months prior to the grant are negative. In the three months after the grant the abnormal returns are positive, benefiting CEOs in the top tercile of options. Pre- and post-returns are not statistically different when N is low (Panel B, Row 2). Panel B in Table 5 confirms that for CEOs with the most options, average abnormal returns around earnings events are negative prior to the grant, positive after the grant, and that the difference is statistically significant and, as predicted by the model, increases when no CEO shares are sold and when the firm is hard to value. Row 6 of Panel B indicates that CEOs with the highest number of options at hard-to-value firms that do not sell shares have negative pre-grant earnings-announcement abnormal returns (-1.06%) and positive post-grant earnings-announcement abnormal returns (0.61%), a highly significant difference of 1.67%. Again, we see no such difference when CEOs receive few scheduled options (Panel C, Row 2).

Panel C in both Figure 3 and Table 5 report similar findings for company-issued guidance that tends to be associated with negative event returns before the grant date and positive returns after, particularly when the number of options is high, the firm is hard to value, and CEOs are not selling shares. As before, there are no significant differences for CEOs who receive few scheduled options (Row 2).

The pattern is consistent: CEOs motivated by high numbers of scheduled options tend to release bad news before the scheduled grant and good news afterwards, but we find no evidence of this when CEOs receive few scheduled options. This effect tends to be larger when CEOs face lower manipulation costs (the firm is hard to value and the CEO is not selling shares).

The patterns shown in Figure 3 and Table 5 are based on the average of individual companies in our sample. CEOs cannot turn their firms' stock price on a dime; rather, the aggregate pattern we find is more likely the result of the average firm in our sample experiencing one or more extra bad return days before the scheduled grant or one or more extra good return days after.

4.2. Manufacturing bad news

Not only can CEOs influence the timing of news, but in some instances CEOs can also manufacture bad news using accruals, company-issued guidance, and real earnings management. In Columns 1–8 of Table 6, we estimate logistic regressions where the dependent variables are proxies for actions that CEOs might take in the quarter before the scheduled grant that could feasibly result in lower prices. In Columns 9 and 10 of Table 6 we estimate ordinary least squares regressions where the dependent variable is correlated with evidence that CEOs use real

earnings management to signal poor performance.[20] The logistic and OLS regressions include fixed effects for year, industry, and fiscal quarter. The five dependent variables used in Table 6 are described in order below:

Emgt: accruals (-) is an indicator variable for firms with evidence of negative accruals management in the quarter immediately before the scheduled option grant. McAnally, et al. (2008) find that firms with upcoming CEO option grants are more likely to be in the bottom quartile of accruals using an annual measure based on the difference between earnings and cash flow. We use Collins and Hribar's (2000) quarterly version of this measure to identify firms in the bottom quartile of abnormal industry-adjusted total accruals measured as (net income – operating cash flows) / assets, where we subtract the industry median total accrual from the firm's total accrual measure.

Guidance(-) is an indicator variable for firms with negative company-issued earnings guidance revisions in the three months prior to the scheduled options grant. Negative earnings guidance events are identified using managerial guidance releases recorded in First Call's Company Issued Guidance (CIG) and are identified as any management guidance event that results in the consensus First Call earnings estimate being lowered.[21]

Esurprise(-) is an indicator variable for firms that have a negative quarterly earnings surprise in the earnings quarter before the scheduled option grant. Following the general approaches in Hirshleifer, Lim, and Teoh (2009) and Dellavigna and Pollet (2009), we identify negative earnings surprises as quarterly earnings where the (actual quarterly EPS - expected quarterly EPS) is negative.[22]

[20] Cohen, et al. (2008) show that real earnings management began to partially replace accruals management after the passage of SOX and that the prevalence of earnings management is associated with managements' stock option incentives.

[21] See Chuk, Matsumoto, and Miller (2012) for a description of the First Call's CIG data including coverage limitations. This dataset was discontinued in December 2011.

[22] Following Hirshleifer, et al. (2009) and Dellavigna and Pollet (2009), we use the following steps for this measure: (1) First we identify all IBES analyst forecasts made by analysts over the prior year for a given firm and a given quarter. (2) Of these forecasts, we limit the sample to those that were made or revised (or confirmed) within the 90 days preceding the quarterly announcement. (3) We then merge the IBES data with Compustat data to verify the actual dates of the earnings announcements. We delete any forecasts where the IBES stated date for the earnings announcement is more than five days different than the date stated in Compustat. For the remaining sample (which is the vast majority of the original sample) we select the earlier of the two dates as the earnings announcement date if there is a difference. (4) To eliminate likely data errors, we delete observations where (a) the share price is less than $1, (b) the consensus forecasted EPS for the quarter exceeds the underlying share price, or (c) the actual earnings per share value exceeds the underlying share price. The "expected quarterly earnings" for a firm in a given quarter is calculated as the mean earnings forecast using the observations that pass all of the above criteria for that

8-K CARs is an indicator variable for firms that release bad news before the scheduled grant date and is equal to one for firms with negative mean 3-day cumulative abnormal returns around 8-K filing dates that occur within the three-month period prior to the grant date. The CARs are measured from one day before to one day following the filing dates.

Real Emgt is a continuous measure of real earnings management. Firms can show low quarterly earnings by temporarily spiking R&D and SG&A or lowering production to increase costs per unit. Following Gunny (2010), but at the quarterly level, we estimate separate regression models for normal levels of R&D, SG&A, and production, all scaled by assets. We add fiscal quarter controls to these models and then use the residuals from the regressions as measures of abnormal levels of each of these items. Following Gunny (2010), we sum the residuals from these three models to form an aggregate measure of real earnings management. See Gunny (2010) for a detailed description of these models.

For our purposes, the key independent variables in Table 6 are the proxies related to the costs and benefits for manipulation reported in the first three rows. The approximate date of the option grant is known (scheduled) a year in advance and we assume that the CEOs anticipate the approximate number of options that will be granted. If more motivated CEOs are more likely to attempt to drive down their stock price in the months just before the grant, then we would expect to find that the five outcomes used as dependent variables in Table 6 will be more likely with high N and H and low S. For example, absent price manipulation, there is no other obvious ex ante reason to expect that the number of upcoming CEO options would be statistically related to these five indicators of possible manipulation all of which are associated with negative news.

The coefficients in the first row of Table 6 provide evidence that pre-grant negative guidance (Columns 3 and 4) and real earnings management (Columns 9 and 10) are more likely when CEOs would gain more from pre-grant stock price declines. For example, the 0.180 coefficient in Column 3 indicates that the relative likelihood of a firm issuing negative earnings

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firm for that quarter. The "actual quarterly earnings" is the value recorded in IBES for what the firm actually reported at the announcement.

guidance (to look less profitable) increases by a factor of ($e^{0.180} - 1$) = 19.7%, when the number of options granted the CEO increases by one standard deviation. Column 9 of Table 6 shows that the amount of apparent real earnings management also increases with the number of pending CEO options. Increasing numbers of pending CEO options is correlated with abnormal quarterly levels of R&D, SG&A, or production costs. These unusually high expenses make the firm appear less profitable in the months just before the exercise price is set. The estimated coefficients for the likelihood of accruals management (Column 1), a negative earnings surprise (Column 5), and negative 8-K news before a scheduled grant (Column 7) are positive but the coefficients are not statistically significant (e.g., the *p*-value on earnings management in Column 1 is 0.117). [23]

In Columns 2, 4, 6, 8, and 10 we also include controls variables for H and S in addition to N consistent with the predictions of the model. We are cautious in our interpretation of these results inasmuch as (1) the decision to sell shares need not be pre-determined and in some cases may be made after a firm experiences any of the outcomes we use as dependent variables in Table 6, and (2) our proxies for a firm being hard to value may themselves be affected by the same events we are tracking as dependent variables in Table 6. With that caution in mind, the results for H and S are not as uniform as for N. Hard-to-value firms are significantly more likely to have negative accruals and negative earnings surprises (Columns 2 and 6). However, they also seem to decrease the likelihood of negative guidance and real earnings management. When CEO's expect to be selling shares, as predicted, their firms are less likely to use negative guidance, negative earnings surprises, and 8-K announcements in an attempt to lower the stock

[23] In untabulated tests we repeat the logit model in Columns 5 and 6 of Table 6 using an alternative definition of negative earnings surprise based on whether the actual earnings were negative or not. Using this alternative measure, the coefficient on CEO options is positive and significant. In untabulated tests we also repeat the logit models in Columns 1 and 2 using a measure of discretionary accruals based on a modified Jones model rather than the Collins and Hribar (2000) measure and do not find a relation between the number of upcoming CEO options and the likelihood of discretionary accruals management.

price. Inconsistent with our predictions, the results in Table 6 suggest that CEO's who plan to sell shares also appear to use real earnings management that could result in a lower stock price.

Not every CEO would necessarily use the same mechanisms, so in the full sample each of these relations is measured with noise. Furthermore, some of the mechanisms work at odds with each other. For example, if some CEOs reduce their pre-grant stock price by issuing negative earnings guidance (as appears to be the case in Columns 3 and 4) resulting in lower analysts' expectations, then these CEOs would have a harder time surprising the market with pre-grant earnings that come in below expectations (Columns 5 and 6).[24]

Thus, there is some evidence that CEOs motivated by upcoming large scheduled grants are more likely to take actions that can lead to pre-grant declines in the stock price.

4.3. Opportunism and Abnormal Returns

The positive correlation between the number of pending CEO options and the likelihood or magnitude of actions that would produce a decline in stock price prior to the option grants confirms findings by McAnally, et al. (2008) and Baker, et al. (2009) who used earlier data. In this section, we also test whether these actions actually result in a payoff to the CEO by empirically linking pre-grant suspicions of manipulation to post-grant abnormal stock returns. That is, the results in Table 6 indicate that some CEOs *try* to increase compensation; we now ask whether they succeed or whether markets are efficient with respect to the misaligned incentives around option grant anniversaries. Specifically, we test whether our proxies for manipulation-related activities result in higher post-grant abnormal returns.

[24] Although our primary concern is how pending CEO option grants increase the likelihood of manipulation, several of the corporate governance control measures in Table 6 are significant, albeit with conflicting results. For example, more analysts appear to be associated with a higher likelihood of accrual and real earnings management, but these same extra analysts make negative earnings surprises less likely. Also, a large shareholder significantly lowers the probability that management will offer negative earnings guidance prior to a CEO stock grant, and larger firms are generally less likely to exhibit evidence of pre-grant manipulation.

Column 1 of Table 7 shows evidence consistent with CEOs "getting away with" their efforts to manipulate prices using accruals, guidance, missing earnings, and real earnings management. Each coefficient is positive and statistically significant at the 10 percent level or stronger. CEOs earn higher post-grant stock returns when one or more of these price-reducing events occur before the scheduled option grant. For example, the 0.028 coefficient at the top of Column 1 indicates that the 90-day post grant CAR increases by 2.8% on average for CEOs with scheduled options when the firm is in the bottom quartile of accruals in a given industry for its preceding quarterly earnings report.[25] Likewise lowering guidance and missing earnings expectations are associated with post-grant CARs(1,90) that are 1.5% and 2.0% higher than otherwise, respectively. The correlation between real earnings management and post-grant returns indicates that when a firm's R&D, SG&A, and production costs are unusually high and hence earnings appear down, the CEO's options become more valuable as the stock experiences abnormally high returns over the subsequent 90 days.

Table 5 and Figure 3 indicate that 8-K news before grants are perceived as negative on average, yet, Table 7 indicates that the pre-grant 8-Ks on average do not lead to post-grant payoffs; in fact the insignificant coefficient has a negative sign. Whereas the other four mechanisms can be designed to yield a post-grant price jump—legitimate negative 8-K news may be useful to the CEO in avoiding a post-grant price drop. That is, releasing negative news prior to the grant may be designed to "dodge a bullet" with no expectation of a subsequent rebound.

[25] Coles, Hertzel, and Kalpathy (2006) study several hundred reissued and repriced options from 1999-2002 and, like us, find evidence of negative discretionary accruals in the period before the grant date. In their paper, they do not find that negative accruals are related to stock returns around the reissue date whereas we do find positive CARs after grant dates.

One could argue that negative events are often followed by high returns if market participants overreact to bad news (Veronesi (2000)) or are averse to ambiguity (Epstein and Schneider (2008)). However, as documented in Column 2 of Table 7, negative accruals, negative guidance, earnings news, and real earnings management are not followed by positive abnormal returns when the CEO options are not scheduled. Overall, the evidence from Table 7 indicates that several of the mechanisms that CEOs could plausibly use to try to reduce stock prices before option grants are indeed associated with higher abnormal returns to the CEO after the grant.

5. Conclusions

The recent backdating scandal provided a well-publicized example of CEOs' misuse of stock option grants. The negative publicity led to greater public scrutiny of CEO pay, new regulations governing the reporting of option grants, a host of law suits, criminal prosecutions, governance changes, and the forced turnover of dozens of CEOs and CFOs. Encouraged by policy makers and academics, firms eliminated unscheduled option grants because the irregular grant dates created the risk of backdating. The majority of firms that use options now award them on a fixed annual schedule, granting options at the same time each year.

While the move to scheduled options may eliminate the risk of backdating, it does not eliminate the risk of managerial opportunism and strategic behavior around stock option grants. In fact, the move to scheduled options may actually increase the risk of some opportunistic behavior. For instance, when CEOs know in advance when they will be granted options, they have an incentive to temporarily depress stock prices before the grant date to receive options with lower exercise prices. They can do this by either creating bad news (e.g., providing

investors with conservative forecasts of the firm's future performance) or by accelerating the release of existing bad news so that any upcoming stock drop occurs before the grant date. They also have an incentive to temporarily delay good news or valuable investments until after the option grants are made. If such manipulation is widespread, we would observe a V-shaped pattern of abnormal returns centered on the annual grant date for the overall sample—similar to the pattern of returns created by options backdating and which the regulations and governance changes were meant to correct.

We first develop a simple partial-equilibrium model. The model predicts that CEOs will manipulate more when the costs are low and the benefits are high. The model yields three predictions; manipulation will increase with the number of stock options granted, the difficulty of valuing the firm and when CEOs are not selling personally owned shares.

Consistent with our model, we provide evidence of strategic disclosures or stock price manipulation in the post-backdating and enhanced-reporting period of 2007 to 2011. We document significant negative abnormal returns before scheduled option grants and significant positive abnormal returns after the grants, creating the familiar V shape in the overall sample. The size and pattern of these abnormal returns are partially explained by the incentives created by scheduled grants. The abnormal returns increase in measures of the CEOs' benefits to manipulation and decrease in measures of cost. For instance, where managers have poor incentives to increase the firm's current stock price (because are going to receive a large number of scheduled options) and where the costs of manipulation is low (because the firm is hard to value and the CEOs are not selling any of the firm's stock around the grant date), firms experience on average a 3-4% negative abnormal return in the months leading up to the CEO option grant. Following the grant, there is large and statistically significant positive abnormal

return. These returns are higher when other officers or directors at the firm receive options at the same time as the CEO. These abnormal returns are not explained by confounding earnings announcements, optimal incentive explanations, or backdating.

This evidence suggests that CEOs given scheduled options may change the firm's disclosure, accounting, or investment choices in order to increase their compensation rather than maximize firm value at the time of the grant. We also find that more motivated CEOs are more likely to use such mechanisms that would increase their compensation. Furthermore, we find that the post-grant abnormal returns (correlated with the CEO's payoff) increase when evidence of manipulation (accruals and real earnings management, negative guidance, and negative earnings surprises) is present prior to the scheduled grants.

Our findings highlight an unintended consequence of reform. While backdating may have opaquely transferred wealth from stockholders to CEOs, the returns and mechanisms we document may be worse: they not only transfer wealth, but also distort stock prices and may dissipate firm value if managers delay valuable projects for their own benefit. The distortions in stock price we observe in the portfolio persist for months. Moreover, existing federal rules intended to discourage such behavior are apparently ineffective. Firms must now disclose their policy about how they release news before or after grant dates, but when CEOs have the motivation and ability to manipulate the stock prices, we continue to observe a pronounced V-shaped pattern in abnormal returns.

One obstacle to eliminating this behavior is that it is difficult to detect in individual firms, even if clear in the aggregate. Executives might use one mechanism one year (e.g., strategic disclosures), a different mechanism the following year (e.g., earnings guidance), and may do

nothing when simple opportunities are not available (e.g., no pending good or bad news and missing an earnings expectation is difficult because the quarter results are unusually strong).

Moreover, CEOs can plausibly rationalize the behavior as simple prudence and caution so that it need not even feel like manipulation or require explicit conspiracy: isn't it best to quickly alert investors about potential risks? Isn't it better to wait and confirm possible good news before releasing it? Thus, highly-motivated CEOs as a group may respond to the incentives created by scheduled options by periodically being more conservative than usual as the grant date approaches. This would create a V pattern in abnormal returns even without a conscious conspiracy to manipulate stock price.

Legal remedies may prove difficult. The timing of disclosure or investment decisions can be driven by many entirely legitimate subjective factors and absent email traffic or testimony establishing that senior managers consciously and willfully changed the contents or timing of disclosures for the purpose of influencing grant prices, it will be difficult for plaintiffs to prove that defendants intended to deceive, which is required under Section 10(b) of the Securities and Exchange Act of 1934. The timing and substance of any one decision is likely easy to defend; only in the aggregate is it difficult to defend a pattern of abnormal returns that dovetail so neatly with self-interest.

Given this, what can directors, shareholders and other monitors do to reduce the risk of this type of distortion in executive pay or stock price? The first response may be for board members and analysts to be alert to the incentives created by scheduled options and to carefully monitor disclosures before and after scheduled grant dates. Disclosure strategies that sound like caution may simply be self-interest.

Second, boards can reduce executives' incentives to engage in this behavior. As suggested by Bebchuk and Fried (2010), boards can decouple the stock and exercise prices. Since most firms issue at-the-money options, boards might also stagger at-the-money option grants over several months so that the CEO receives a series of small scheduled periodic grants rather than one large grant. This would reduce the incentive to try to reduce the firm's stock price before an option grant. Alternatively, the board could set the strike price equal to an average of stock prices over some longer period, allow executives to sell stock only in the month when options are granted.

Appendix

As explained in the body of the paper the CEO selects the optimal amount of manipulation by maximizing the profit function:

$$\pi(M) = N(P)MP - C(M, H, S). \tag{A1}$$

The first order condition for this function,

$$\frac{\partial \pi(M)}{\partial M} = N(P)P - \frac{\partial C(M, H, S)}{\partial M} = 0 \tag{A2}$$

is an implicit choice function where the M that satisfies the condition is a function of the primitive variables N, H, S, and P. Replacing the M in the first-order condition with its optimal value, M^*, yields the following identity:

$$N(P)P - \frac{\partial C(M^*[N(P), H, S, P], H, S)}{\partial M^*} \equiv 0. \tag{A3}$$

Differentiating the identity with respect to N, H, S, and P yields the comparative statics used in the paper.

Differentiating the identity with respect to N yields $P - C_{MM}(\cdot)\frac{\partial M^*}{\partial N} = 0$, where $C_{MM}(\cdot)$ represents the second derivative of the cost function, $\frac{\partial \frac{\partial C(\cdot)}{\partial M}}{\partial M}$. Consistent with the second-order condition of a maximum, as well as increasing marginal manipulation costs, $C_{MM}(\cdot) > 0$. Rearranging terms leads to $\frac{\partial M^*}{\partial N} = \frac{P}{C_{MM}(\cdot)} > 0$ since both P and $C_{MM}(\cdot)$ are positive. Thus, our first testable implication is that evidence of manipulation is increasing in N.

Differentiating the identity with respect to H yields: $-\frac{dC_M(\cdot)}{dH} = -C_{MM}(\cdot)\frac{\partial M^*}{\partial H} - C_{MH}(\cdot) = 0$, or $\frac{\partial M^*}{\partial H} = \frac{-C_{MH}(\cdot)}{C_{MM}(\cdot)}$, where $C_{MH}(\cdot)$ is the partial derivative of $\frac{\partial C(\cdot)}{\partial M}$ with respect to H. Hence $C_{MH}(\cdot)$ represents the direct effect changes in H have on $\frac{\partial C(\cdot)}{\partial M}$. Since the cost of manipulation is

decreasing in H, $C_{MH}(\cdot) < 0$, implying that $\frac{\partial M^*}{\partial H} > 0$. Thus, our second testable implication is evidence of manipulation is increasing in H.

Differentiating the identity with respect to S yields: $-\frac{dC_M(\cdot)}{dS} = -C_{MM}(\cdot)\frac{\partial M^*}{\partial S} - C_{MS}(\cdot) = 0$, which leads to $\frac{\partial M^*}{\partial S} = \frac{-C_{MS}(\cdot)}{C_{MM}(\cdot)} < 0$ since both $C_{MM}(\cdot)$ and $C_{MS}(\cdot)$ are positive. Thus, our third testable implication is that evidence of manipulation is decreasing in S.

Differentiating the identity with respect to P yields: $\frac{\partial N}{\partial P}P + N - C_{MM}(\cdot)\frac{dM^*}{dP} = 0$,

where $\frac{dM^*}{dP} = \left(M_N^* \frac{\partial N}{\partial P} + M_P^*\right)$, which leads to $\frac{dM^*}{dP} = \frac{\frac{\partial N}{\partial P}P + N}{C_{MM}(\cdot)}$. $C_{MM}(\cdot)$ is positive but depending on the relative size of $\frac{\partial N}{\partial P}P$ and N the numerator in this expression could be positive or negative ($\frac{\partial N}{\partial P}P$ is negative, N is positive). Hence the sign of $\frac{dM^*}{dP}$ is indeterminate.

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Table 1 – Number of CEO option grants by year and type (scheduled vs. unscheduled)

The sample is the intersection of firm years in Equilar and CRSP where the CEO received stock options between January 2003 and December 2011. Column 2 reports the number of firms making CEO options grants. Columns 3 and 5 report the number of scheduled and unscheduled CEO option grants (some firms make more than one grant to the CEO each year). Scheduled grants are identified relative to the anniversary dates of grants to CEOs at the same firm in the prior/following year. Scheduled grants are within 7 days and unscheduled grants occur more than 15 days from the anniversary date.

Year	# of firms granting CEO options	# of option grants scheduled within +/- 7 days of anniversary	% of option grants that are scheduled within +/- 7 days	# of unscheduled option grants
Panel A				
2003	1,598	1,061	49.1%	883
2004	1,784	1,138	47.2%	1,028
2005	1,583	913	44.3%	974
2006	1,399	812	47.9%	699
	6,364	3,924		3,584
Panel B				
2007	1,499	944	51.6%	674
2008	1,571	1,015	55.3%	645
2009	1,315	960	62.1%	448
2010	1,347	1,030	62.2%	480
2011	1,169	911	59.2%	524
	6,901	4,860		2,771

Table 2 – Statistical tests of CARs for various event windows around scheduled CEO option grants

The numbers shown in Columns 1-7 are mean cumulative abnormal returns (CAR) in Panels A and B, and are the mean differences between pre- and post-grant CARs in Panels C and D for stocks of firms with scheduled CEO stock option grants between January 2007 and December 2011. Event windows are defined relative to the scheduled CEO option grant date. Columns 1 and 2 are for firms in the bottom and top terciles in number of CEO options, respectively, based on a comparison of all CEO option grants across firms in the same year. Columns 3 and 4 separate hard-to-value (HTV) firms from non-HTV firms. Hard-to-value firms are those firms in the top half of grant-giving firms in terms of standard deviation of daily returns over the prior year or the standard deviation in analyst EPS forecasts. Columns 5 and 6 separate firms where CEOs sold personal shares on the open market within one month of the grant date from those firms with no sales of CEO shares. Column 7 is for firms with option awards in the top tercile, that are hard to value, where the CEO did not sell shares within a month of the grant date. In Panels A and B, astericks are used to show the significance from t-tests of whether the mean CARs are equal to zero. In Panels C and D astericks are used to show the significance of t-tests for whether the differences in mean CARs (post-grant returns minus pre-grant returns) are equal to zero. All *p*-values are one sided. In Panels A and B the null hypothesis is that the CARs equal 0. In Panels C and D the null hypothesis is that the post and pre-grant returns are equal. Each CAR for each event window is calculated using a 4–factor model including momentum where the model parameters are estimated over the year ending 120 days before the option grant date. Significance is shown at the 10%, 5%, and 1% levels, respectively, with *, **, and ***.

	Number of Options		Hard-to-value		CEO share sales		High #, HTV, and
Sample:	Low #	High #	Not HTV	HTV	Sales	No Sales	No Sales
Event Window	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A							
(-120,0)	-0.010*	-0.029***	-0.015***	-0.012**	0.020	-0.020***	-0.041***
(-90,0)	-0.010**	-0.025***	-0.015***	-0.011**	0.012	-0.018***	-0.032***
(-60,0)	-0.010***	-0.021***	-0.014***	-0.010**	0.005	-0.015***	-0.025***
(-30,0)	-0.002	-0.016***	-0.003**	-0.009***	0.008	-0.009***	-0.024***
(+1,+30)	-0.005	0.006**	-0.004	0.006**	-0.004	0.002*	0.016***
(+1,+60)	-0.010	0.013***	-0.005	0.006*	-0.015	0.004*	0.033***
(+1,+90)	-0.010	0.021***	-0.007	0.014***	-0.022	0.009***	0.049***
(+1,+120)	-0.010	0.025***	-0.009	0.021***	-0.025	0.013***	0.057***
Panel B							
(-120,-90)	-0.001	-0.005*	-0.001	-0.003	0.006	-0.004**	-0.010**
(-90,-60)	-0.001	-0.004	-0.001	-0.003	0.005	-0.004**	-0.007
(-60,-30)	-0.008***	-0.007***	-0.011***	-0.003	-0.003	-0.007***	-0.005
(-30,0)	-0.002	-0.016***	-0.003**	-0.009***	0.008	-0.009***	-0.024***
(+1,+30)	-0.005	0.006**	-0.004	0.006**	-0.004	0.002*	0.016***
(+30,+60)	-0.005	0.007**	-0.002	0.000	-0.012	0.001	0.019***
(+60,+90)	-0.004	0.005*	-0.003	0.003	-0.012	0.003	0.011**
(+90,+120)	-0.002	0.002	-0.004	0.004	-0.008	0.002	0.008
Panel C							
Ha: CAR(1,120) > CAR(-120,0)	-0.001	0.053***	0.005	0.033***	-0.045	0.033***	0.098***
Ha: CAR(1,90) > CAR(-90,0)	-0.001	0.046***	0.008**	0.025***	-0.034	0.027***	0.081***
Ha: CAR(1,60) > CAR(-60,0)	-0.001	0.034***	0.009***	0.015***	-0.020	0.019***	0.058***
Ha: CAR(1,30) > CAR(-30,0)	-0.003	0.022***	0.000	0.015***	-0.012	0.012***	0.041***
Panel D							
Ha: CAR(90,120) > CAR(-120,-90)	-0.001	0.007*	-0.003	0.007**	-0.014	0.005**	0.018**
Ha: CAR(60,90) > CAR(-90,-60)	-0.003	0.009**	-0.002	0.006*	-0.018	0.006**	0.019**
Ha: CAR(30,60) > CAR(-60,-30)	0.003	0.015***	0.009***	0.003	-0.009	0.009***	0.024***
Ha: CAR(1,30) > CAR(-30,0)	-0.003	0.022***	0.000	0.015***	-0.012	0.012***	0.041***

Table 3 – Regression of round-trip (post-grant less pre-grant) abnormal returns around scheduled CEO option grants on control variables

The sample focuses on firms with scheduled CEO stock option grants from 2007 to 2011. Coefficients are from ordinary least squares regressions where the dependent variable in Columns 1-5 is the cumulative abnormal return for the 90–day period after the scheduled CEO option grant date minus the cumulative abnormal return in the 90 days before the grant (the "round-trip return"). The dependent variable in Column 6 uses 120 instead of 90 days. The CARs are calculated using a 4–factor model including momentum, where the model parameters are estimated over the year ending 120 days before the option grant date. *CEO options* is the natural log of 1 + the number of options awarded to the CEO standardized such that a one unit increase is associated with a standard deviation increase in the underlying variable. *CEO options* (*terciles*) assigns each CEO option grant to tercile 0, 1, or 2 based on a comparison of the number of CEO option grants across firms in the same year. *Hard-to-value* firms are those firms in the top half of grant-giving firms in terms of standard deviation of daily returns over the prior year or the standard deviation in analyst EPS forecasts. *Shares sold* equals 1 if the CEO sold personal shares within a month of the scheduled option grant dates. *%Insider* is the percent of the directors on the board identified as insiders by Equilar. *#Analysts* is the number of analysts following the firm as measured by IBES using the statistical period ending closest to the middle of the calendar year in which the option grant was awarded. *Large shareholder* indicates the presence of a shareholder with 30% or more of the stock. *CEO tenure* is the number of years the CEO has been in office. *CEO ownership* is the percent of outstanding shares owned by the CEO. *Firm size* is the natural logarithm of 1 + total assets. Significance shown at the 10, 5 and 1 percent levels using *, **, and *** respectively. Errors are clustered by firm. *P*-values appear in parenthesis below coefficients.

	(1)	(2)	(3)	(4)	(5)	(6)
CEO options (N)	0.031***		0.030***	0.029***	0.028***	0.033***
	(<0.001)		(<0.001)	(<0.001)	(<0.001)	(<0.001)
CEO options (terciles)		0.031***				
		(<0.001)				
Hard to value (H)			0.017*		0.015	0.023**
			(0.070)		(0.109)	(0.046)
Shares sold (S)				-0.054***	-0.053***	-0.070***
				(<0.001)	(<0.001)	(<0.001)
%Insider	0.001	0.001	0.000	-0.001	-0.001	-0.005
	(0.929)	(0.913)	(0.956)	(0.860)	(0.839)	(0.547)
#Analysts	-0.002*	-0.002*	-0.002*	-0.001	-0.001	-0.001
	(0.063)	(0.053)	(0.077)	(0.136)	(0.157)	(0.568)
Large shareholder	-0.005	-0.006	-0.007	-0.004	-0.006	-0.020
	(0.899)	(0.873)	(0.843)	(0.915)	(0.866)	(0.667)
CEO tenure	0.001	0.001	0.001	0.001	0.001	0.001
	(0.435)	(0.462)	(0.441)	(0.211)	(0.217)	(0.251)
CEO ownership	0.008	0.009	0.008	0.006	0.005	0.011
	(0.594)	(0.573)	(0.617)	(0.706)	(0.728)	(0.427)
Firm size	0.001	0.001	0.003	0.001	0.002	-0.002
	(0.791)	(0.749)	(0.571)	(0.884)	(0.678)	(0.756)
Constant	-0.033	-0.068	-0.052	-0.027	-0.044	-0.038
	(0.508)	(0.151)	(0.304)	(0.585)	(0.380)	(0.548)
Year controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,060	4,060	4,060	4,060	4,060	4,060
R-squared	0.032	0.032	0.032	0.037	0.037	0.042

Table 4 – Robustness of key coefficients from a regression of CEO option grant abnormal returns on control variables

The coefficients shown below are from regressions of abnormal returns on measures related to the benefits and costs to the CEO for manipulating the stock price around the grant dates as well as the control variables used in Table 3. We report only the coefficients for three key predictions regarding N, H, and S. Row 1 shows the same coefficients as in Column 5 from Table 3 and is shown for comparison purposes. In Rows 2-22, we perturb one aspect of the base-case regression as noted in the last column. The dependent variable is the "round trip return" (post-grant CAR minus pre-grant CAR), except where noted otherwise. Significance shown at the 10, 5 and 1 percent levels using *, **, and *** respectively. Errors clustered by firm.

	Coefficient for CEO options (N)	Coefficient for hard-to-value (H)	Coefficient for CEO shares sold (S)	# of obs	Description of Robustness Test
1	0.028***	0.015	-0.053***	4,060	Base model - Column 5 Table 3
2	0.035***	0.033**	-0.058***	2,556	CFO receives options in same week
3	0.032***	0.014	-0.050***	3,706	Other directors or officers receive grants in same week
4	0.026***	-0.006	-0.045***	2,436	Grants scheduled within +/- 1 day
5	0.030***	0.016*	-0.048***	4,720	Grants scheduled within +/- 15 days
6	0.034***	0.017*	-0.054***	4,435	Stock price required to be at least $1
7	0.028***	0.017*	-0.051***	3,988	Stock price required to less than $100
8	0.034***	0.023**	-0.051***	2,854	Sample limited to S&P 1500 firms
9	0.032***	0.015	-0.053***	3,514	Form 4 filed within 2 days of grant
10	0.032***	0.015	-0.058***	3,719	Strike price is set close to market price
11	0.027***	0.018*	-0.050***	2,868	Grant date is not close to quarterly earnings announcement
12	0.023***	-0.003	-0.040***	2,098	Number of options granted <= prior year's number
13	0.030***	-0.008	-0.057***	1,419	Base model - Column 5 Table 3 using ExecuComp sample
14	0.038***	0.007	-0.050**	890	Base model - Column 5 Table 3 using ExecuComp sample, form 4 filed within 2 days
15	0.028***	0.011	-0.052***	4,145	Base model - Column 5 Table 3 using Thomson Reuters sample
16	0.027***	0.013	-0.048***	3,905	Base model - Column 5 Table 3 using Thomson Reuters sample, form 4 filed within 2 days
17	0.014**	0.024***	-0.029***	4,060	New dependent variable: CAR(1,90)
18	-0.014***	0.009	0.023***	4,060	New dependent variable: CAR(-90,0)
19	0.037***	0.030***	-0.073***	4,060	New dependent variable: Cumulative round-trip raw returns
20	0.006*	-0.002	-0.047***	3,908	New sample: 2002 - 2006 period
21	0.018*	0.030*	-0.073***	2,010	Unscheduled grants
22	0.003	-0.023**	0.002	4,053	6 months after scheduled grant dates (pseudo-grant date test)

Table 5 – CARs(-1,1) around 8-K filings, quarterly earnings announcements, and company-issued guidance in the 3 months before and after scheduled CEO stock option grants

The table reports the number of events, the mean 3–day announcement abnormal returns around the event, and the difference between the returns for events occurring in the three months before and after scheduled CEO options grants. Three events are considered: 8-K filings in Panel A, quarterly earnings announcements in Panel B, and First Call's company issued guidance in Panel C. The 3–day announcement returns are calculated as cumulative abnormal returns [CAR(-1,1)] from one business day before the event date to one day after using a 4–factor model that includes momentum. Hard-to-value firms are those firms in the top half of grant-giving firms in terms of standard deviation of daily returns over the prior year or terms of the standard deviation in analyst EPS forecasts. The one-sided *p*-values in the last column are for *t*-tests where the null hypothesis is that the mean CAR before the grant equals the mean CAR after the grant. Significance is shown at the 10%, 5%, and 1% levels, respectively, with *, **, and ***. Announcement returns are winsorized at the 1% level.

Sample	# of event dates before grant	# of event dates after grant	mean CAR before	mean CAR after	difference (after-before)	*p*-value
Panel A: CARs measured around 8-K filing dates for the following samples:						
(1) All scheduled CEO options	14,748	13,495	0.0003	0.0022	0.0019***	0.005
(2) Low number of options (N)	4,188	3,879	0.0020	0.0016	-0.0003	0.596
(3) High number of options (N)	4,880	4,554	-0.0025	0.0032	0.0056***	<0.001
(4) High number of options and hard-to-value (N, H)	2,715	2,564	-0.0038	0.0044	0.0082***	<0.001
(5) High number of options and no shares sold (N, S)	4,192	3,941	-0.0033	0.0037	0.0070***	<0.001
(6) High number of options, hard-to-value, and no shares sold (N, H, S)	2,364	2,242	-0.0044	0.0051	0.0095***	<0.001
Panel B: CARs measured around quarterly earnings announcement dates for the following samples:						
(1) All scheduled CEO options	4,389	4,194	0.0014	0.0045	0.0031**	0.038
(2) Low number of options (N)	1,443	1,370	0.0034	0.0017	-0.0017	0.703
(3) High number of options (N)	1,323	1,290	-0.0032	0.0058	0.0090***	0.001
(4) High number of options and hard-to-value (N, H)	707	681	-0.0074	0.0052	0.0126***	0.004
(5) High number of options and no shares sold (N, S)	1,135	1,115	-0.0063	0.0067	0.0130***	<0.001
(6) High number of options, hard-to-value, and no shares sold (N, H, S)	618	599	-0.0106	0.0061	0.0167***	0.001
Panel C: CARs measured around managerial guidance dates for the following samples:						
(1) All scheduled CEO options	2,993	2,975	0.0016	0.0067	0.0051***	0.004
(2) Low number of options (N)	768	761	0.0038	0.0053	0.0015	0.363
(3) High number of options (N)	1,009	1,054	-0.0052	0.0063	0.0115***	<0.001
(4) High number of options and hard-to-value (N, H)	310	307	-0.0106	0.0151	0.0257***	<0.001
(5) High number of options and no shares sold (N, S)	842	898	-0.0067	0.0074	0.0140***	<0.001
(6) High number of options, hard-to-value, and no shares sold (N, H, S)	261	266	-0.0120	0.0173	0.0293***	<0.001

Table 6 – Tests of whether the number of pending CEO stock options explain the likelihood of potentially price-depressing events in the months preceding the scheduled CEO stock option grant

The table reports coefficients from logit models in Columns 1–8 and ordinary least squares regression coefficients in Columns 9 and 10. The dependent variable is shown in each column header. The three main independent variables of interest are proxies related to CEO benefits (N, number of options) and costs (H, hard-to-value firms and S, CEO stock-selling firms) for manipulation. Hard-to-value firms are those firms in the top half of grant-giving firms in terms of standard deviation of daily returns over the prior year or in terms of the standard deviation in analyst EPS forecasts. Shares sold is an indicator variable for the CEO selling shares within 1 month of grant. The dependent variable, *Emgt: accruals (-)*, is set to 1 for firms with evidence of negative accruals management in the quarter immediately before the scheduled option grant. We identify accruals-based negative earnings management as firms in the bottom quartile of industry-adjusted total accruals with accruals measured as (net income – operating cash flows) / assets. The dependent variable, *Guide (-)*, is set to 1 for firms with negative managerial earnings guidance revisions in the three months before the scheduled options grant. Negative earnings guidance events are identified using company-issued guidance releases recorded in the First Call Database. The dependent variable, *Esurprise (-)*, is set to 1 for firms that have a negative quarterly earnings surprise in the earnings quarter immediately before the scheduled option grant. We identify negative earnings surprises as quarterly earnings where the (actual quarterly EPS – expected quarterly EPS) is negative with the expected quarterly EPS calculated using the mean quarterly forecast for the quarter as recorded in IBES. The dependent variable *8-K CAR (-)* is set to 1 for firms that announce bad news (a negative mean CAR(-1,1) around 8-K filing dates) in the three months before the grant date. Following Gunny (2010), the dependent variable *Real Emgt* is a measure of real earnings management and is the sum of residuals from separate models of normal levels of scaled R&D, SG&A, and production. Errors are clustered by firm. Significance is shown at the 10%, 5%, and 1% levels using *, **, and ***, respectively. *P*-values appear in parenthesis below coefficients.

	(1) Emgt: accruals (-)	(2) Emgt: accruals (-)	(3) Guide(-)	(4) Guide(-)	(5) Esurprise(-)	(6) Esurprise(-)	(7) 8-K CARs(-)	(8) 8-K CARs(-)	(9) Real Emgt	(10) Real Emgt
CEO options (N)	0.116	0.096	0.180**	0.221***	0.071	0.036	0.060	0.040	0.009***	0.010***
	(0.117)	(0.190)	(0.014)	(0.003)	(0.234)	(0.548)	(0.230)	(0.424)	(<0.001)	(<0.001)
Hard to value (H)		0.234**		-0.605***		0.344***		0.110		-0.006*
		(0.036)		(<0.001)		(<0.001)		(0.119)		(0.053)
Shares sold (S)		-0.080		-0.213**		-0.283***		-0.369***		0.007**
		(0.517)		(0.036)		(0.008)		(<0.001)		(0.036)
%Insider	-0.004	-0.009	-0.178***	-0.171***	0.092	0.081	-0.053	-0.065	-0.002	-0.001
	(0.964)	(0.909)	(0.005)	(0.009)	(0.120)	(0.165)	(0.266)	(0.169)	(0.503)	(0.574)
#Analysts	0.024**	0.026**	0.010	0.009	-0.025***	-0.022***	0.009	0.012*	0.002***	0.002***
	(0.026)	(0.016)	(0.277)	(0.362)	(0.001)	(0.003)	(0.167)	(0.067)	(<0.001)	(<0.001)
Large shareholder	-0.396	-0.433	-1.487**	-1.395**	-0.221	-0.283	0.069	0.050	0.013	0.013
	(0.416)	(0.378)	(0.034)	(0.046)	(0.434)	(0.315)	(0.802)	(0.853)	(0.361)	(0.327)
Firm size	-0.335***	-0.318***	0.140***	0.085*	-0.074**	-0.049	-0.026	-0.021	-0.014***	-0.014***
	(<0.001)	(<0.001)	(0.001)	(0.053)	(0.040)	(0.180)	(0.395)	(0.490)	(<0.001)	(<0.001)
Constant	0.138	-0.101	0.568	1.377*	0.230	-0.089	-0.698	-0.739	0.107***	0.112***
	(0.856)	(0.895)	(0.462)	(0.074)	(0.669)	(0.868)	(0.201)	(0.181)	(<0.001)	(<0.001)

Year controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fiscal Qtr Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,062	4,062	4,062	4,062	4,062	4,062	4,062	4,062	4,062	4,062
Pseudo R-Square	0.054	0.056	0.124	0.136	0.04	0.046	0.011	0.015		
R-Square									0.116	0.118

Table 7 – Tests of whether stock price depressing mechanisms before the CEO stock option grant dates explain the CARs following CEO stock option grant dates

The dependent variable is the cumulative abnormal return over the 90 days, CAR(1,90), following the scheduled options grants. *Emgt: accruals (-)*, indicates firms in the bottom quartile of industry-adjusted total accruals with accruals measured as (net income – operating cash flows) / assets. *Guide (-)* is set to 1 for firms with negative managerial earnings guidance revisions in the three months before the scheduled options grant. *Esurprise (-)* is set to 1 for firms that have a negative quarterly earnings surprise in the earnings quarter immediately before the scheduled option grant. *8-K CAR (-)* is set to 1 for firms that announce bad news (a negative mean CAR(-1,1) around 8-K filing dates) in the three months before the grant date. *Real Emgt* is a measure of real earnings management and is the sum of residuals from separate models of normal levels of scaled R&D, SG&A, and production. Other control variable definitions are given in Table 3. Errors are clustered by firm. Significance is shown at the 10%, 5%, and 1% levels using *, **, and ***, respectively. *P*-values appear in parenthesis below coefficients.

	(1) Scheduled Grants	(2) Unscheduled grants
Emgt: accruals (-)	0.028**	0.027
	(0.015)	(0.200)
Guide (-)	0.015*	-0.012
	(0.066)	(0.449)
Esurprise(-)	0.020**	0.016
	(0.021)	(0.281)
Real Emgt	0.106*	0.140
	(0.079)	(0.260)
8-K CARs(-)	-0.010	-0.027**
	(0.188)	(0.046)
%Insider	0.004	0.008
	(0.397)	(0.213)
#Analysts	-0.001	-0.001
	(0.153)	(0.587)
Large shareholder	-0.047	-0.047
	(0.111)	(0.412)
CEO tenure	0.001	0.001
	(0.312)	(0.301)
CEO ownership	-0.012	0.025
	(0.200)	(0.650)
Firm size	0.011***	0.010*
	(0.001)	(0.090)
Constant	-0.099***	-0.052
	(0.003)	(0.364)
Year controls	Yes	Yes
Industry controls	Yes	Yes
Observations	4,060	2,010
R-square	0.059	0.046

Figure 1: Cumulative abnormal returns around scheduled CEO stock option grants

Figure 1 shows the mean cumulative abnormal returns from a Fama-French four-factor model including momentum in the months surrounding scheduled CEO stock option grants from 2007 to 2011. The model was estimated over the year ending four months prior to the option grant dates. CEO identification and grant information are from Equilar. Information about CEO stock sales comes from Thomson Reuters. Scheduled grants are identified as those that occur within +/- 7 days of the anniversary of a grant to the CEO. The mixed line (dashes and dots, shallowest V shape) shows stock returns for all CEOs with scheduled stock option grants. The dashed line is for the CEOs awarded a relatively large number of options (top tercile of number of option grants for that year). The solid line is based on the subset of these CEOs that also did not sell any of their shares on the open market within one month of the scheduled grant date. The dotted line (deepest V shape) is for CEOs of hard-to-value companies who also received a high number of options and did not sell their own stock near the grant date. Hard-to-value firms are those firms in the top half of grant-giving firms in terms of standard deviation of daily returns over the prior year or in terms of the standard deviation in analyst EPS forecasts. Data on executive option grants comes from Equilar.

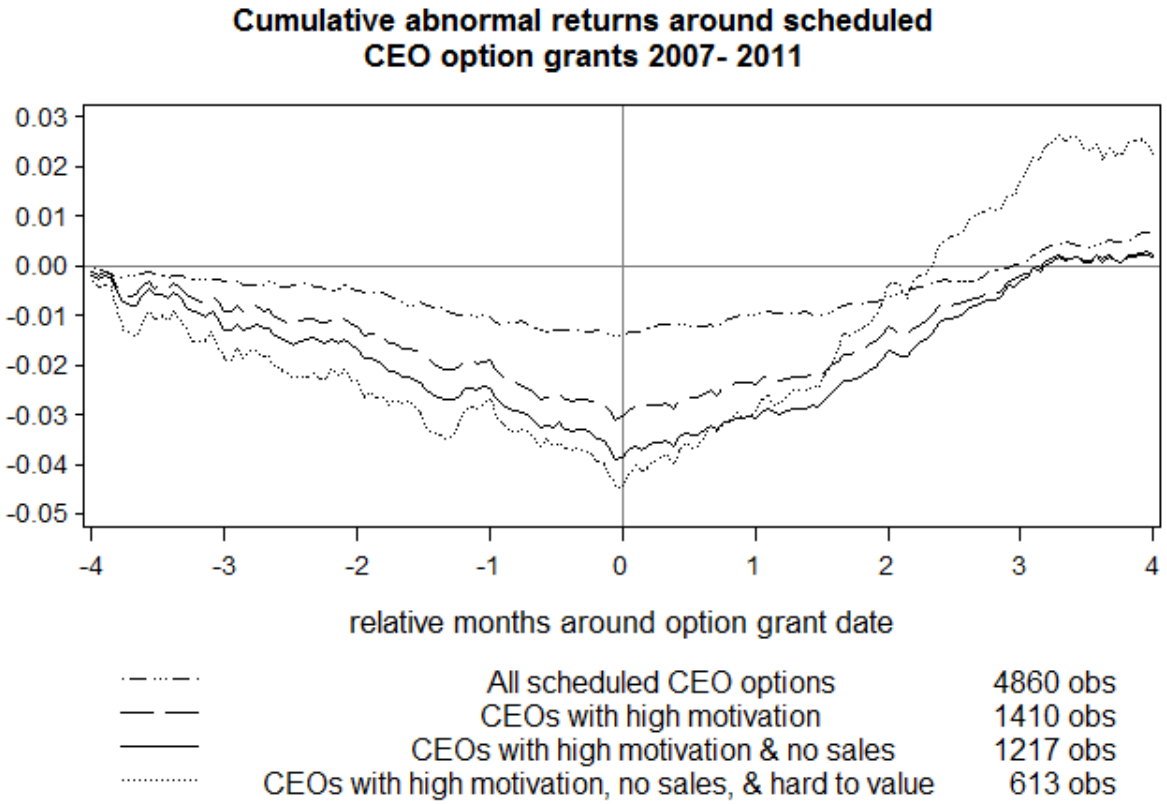

Figure 2: Distribution of scheduled CEO stock option grants relative to the nearest earnings announcement

Figure 2 shows the distribution of scheduled CEO stock option grant dates in time around the nearest quarterly earnings announcement dates. Day 0 represents the date of the earnings announcement. The figure is based on the sample of firms using scheduled CEO grants from 2007 to 2011. Data on executive option grants comes from Equilar and data on earnings come from Compustat.

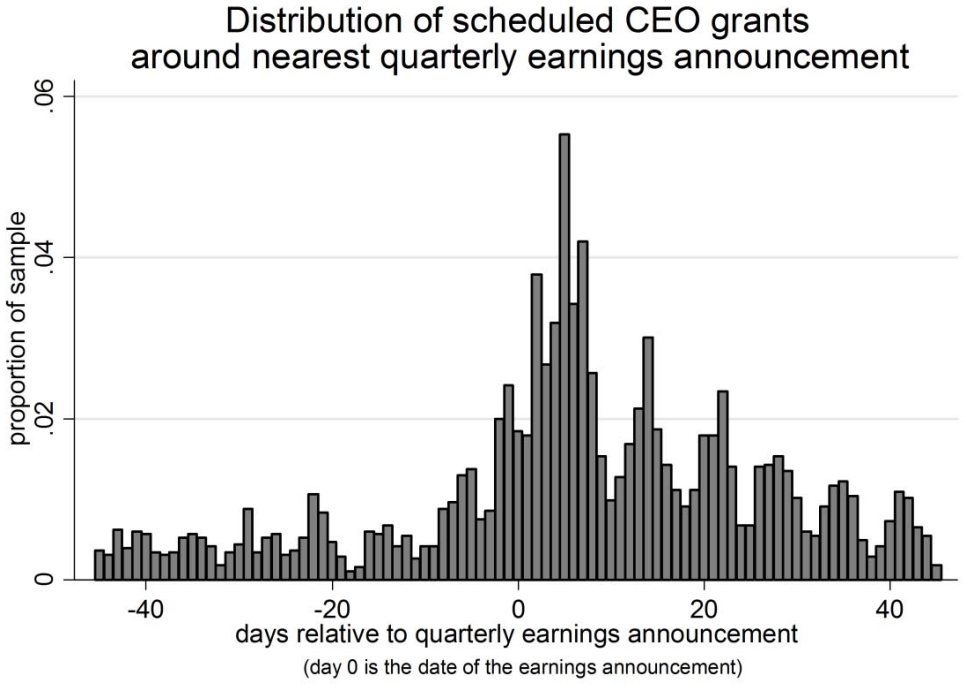

Figure 3: Cumulative abnormal returns around scheduled CEO stock option grants for 8-K filings, quarterly earnings announcements, and company-issued guidance for CEOs in the top and bottom tercile of number of options granted.

Figure 3 illustrates the mean 3–day abnormal announcement returns for: 8-K filings (Panel A), quarterly earnings announcements (Panel B), and company issued guidance (Panel C) made in the three months before and after scheduled option grants for CEOs in the top tercile of CEOs in terms of the number of options awarded (left column) and for CEOs in the lowest tercile (right column). The 3–day announcement returns are calculated as cumulative abnormal returns, CAR(-1,1), from one business day before the event to one day following using a 4–factor model that includes momentum. Data on executive option grants comes from Equilar, data on earnings from Compustat, and data on company issued guidance from First Call.