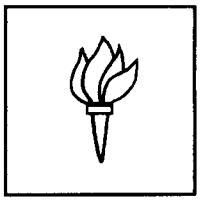

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Good Timing: CEO Stock Option Awards and Company News Announcements

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Abstract

This paper proposes and implements a new method for investigating whether CEOs influence the terms of their own compensation. I analyze the dates of 591 stock option awards to CEOs of *Fortune 500* companies in 1992 and 1993, finding that the timing of awards coincides with favorable movements in companies' stock prices even though the awards remain secret for many months. Patterns of corporate earnings and dividend announcements suggest strongly that CEOs receive stock option awards shortly before favorable corporate news and that awards are delayed until after the release of adverse news. Analysis of abnormal volume data does not support the possibility that insider trading based on knowledge of the option awards can explain the stock price gains. The findings imply that top managers can affect their companies' processes for awarding stock options and exploit this influence in order to increase compensation.

Good Timing: CEO Stock Option Awards and Company News Announcements

By David Yermack*

1. Introduction

Many executive compensation studies have found links between the introduction of long-term incentive plans and changes in company performance. See, for example, Larcker (1983) (accounting-based performance plans) and DeFusco, Johnson and Zorn (1990) (stock options). However, nearly all of the evidence in such studies would support either of two theories: that incentive compensation motivates managers to make superior decisions, or that managers influence the terms of their own compensation and seek to receive more incentive pay in advance of planned operating improvements.

Until recently, the limited nature of public information about executive compensation has hindered research into these alternative hypotheses. This paper introduces a new method for investigating whether managers influence the terms of their own compensation, based upon the dates of stock option awards received by CEOs of major U.S. companies. All U.S. public corporations began reporting this information in late 1992 pursuant to reformed Securities and Exchange Commission regulations for executive compensation disclosure.

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If managers influence the structure of their compensation contracts, I expect to observe an association between the timing of stock option awards and the disclosure of important corporate news which should be expected to move stock prices. I conjecture that executives will receive stock option awards shortly in advance of favorable news, and that stock option awards will be delayed until after the disclosure of adverse news.

Results presented herein strongly support these predictions, and data displayed in Figure 1 provides a summary of the findings (calculation details appear in Section 2 below). The figure shows average risk-adjusted, net-of-market cumulative abnormal stock returns (CARs) around the dates of 591 stock option awards to *Fortune 500* CEOs in 1992 and 1993. An average CAR on the order of 1.5% cumulates during the period beginning on the day of CEO stock option awards and lasting approximately four weeks (20 trading days).

The cumulative abnormal returns occur even though news of CEO stock option awards remains secret until filings of corporate proxy statements approximately three months after the end of companies' fiscal years[1] -- three to fifteen months after the dates of awards. This long delay in reporting the changes in managers' compensation appears to preclude the possibility that stock prices rise in approval of stronger managerial incentives. Instead, the pattern of abnormal returns implies that CEOs receive stock option awards shortly in advance of unrelated favorable news, or not until after the release of unfavorable news. Detailed analysis in Section 3 of companies' quarterly dividend and earnings announcements provides ample support for this

[1] There are two narrow exceptions. Occasionally, news reports describe the compensation packages used to entice sought-after executives to leave one company for another (for example, see news reports of CEO George Fisher's move from Motorola to Kodak in late 1993). Also, companies proposing new stock option plans for shareholder approval will sometimes describe proposed awards under those plans in documents filed with the SEC. More often, no detailed information is given or awards are approved by shareholders retroactively.

interpretation.

The findings appear to belie corporations' frequent explanations of stock options as instruments for motivating managers to maximize stockholder value over long time horizons. Instead, managers appear to influence their boards of directors to award stock options shortly before unrelated news moves stock prices higher, making the options look like low-risk devices for increasing managerial wealth. Alternatively, managers might obtain knowledge of impending stock option awards and manipulate the timing of news announcement in order to increase the options' value. These findings are especially surprising because either type of behavior could be largely avoided by trivial changes in the rules of most firms' stock option plans. For example, plans could stipulate that stock options be awarded on fixed dates each year (a constraint which appears frequently in option plans for boards of directors).

Other investigators have found evidence of opportunistic behavior by managers in response to the structure of their compensation contracts. Healy (1985) shows that companies are more likely to accrue discretionary expenses during years in which their operating income exceeds the upper limits or falls below the lower limits in managers' accounting-based bonus plans. Lambert, Lanen and Larcker (1989) find that firms pay lower dividends than expected after the adoption of executive stock option plans. To the extent that such practices deviate from stockholders' interests, agency theorists would likely argue that the costs of writing and enforcing contracts to prohibit the behavior would exceed the residual losses incurred by stockholders (Jensen and Meckling, 1976).

The findings of this paper raise more serious issues about compensation contracts. The studies cited above (and other similar research) have treated executive pay arrangements as the

outcomes of arms' length negotiations between managers and firms, under a normative assumption that stockholders establish compensation parameters in order to maximize total equity value. The results herein suggest otherwise, since they imply that managers manipulate the compensation contracting process as a means of appropriating wealth from stockholders. This conclusion is similar to that of Blanchard, Lopez-de-Silanes and Shleifer (1994), who study the dispositions of cash windfalls realized by eleven companies and find that large fractions of the gains are diverted to increased managerial compensation. The authors argue that failings of corporate governance systems often lead to compensation systems in which "managers grab whatever profits they can get away with."

The remainder of this paper is organized as follows. Section 2 presents the basic results showing an association between stock option award dates and favorable movements in companies' stock prices. Section 3 contains an analysis of the timing of corporate earnings and dividend announcements. Data about these announcements accords strongly with the hypothesis that managers receive stock option awards shortly before the release of favorable news or not until after the publication of adverse news. Section 4 presents a discussion of the results, with close attention to their relationship to the empirical and theoretical literature on insider trading. Section 5 contains a brief conclusion.

2. Stock Option Awards and Movements in Companies' Stock Prices

Over the last decade leading U.S. executives have received stock option awards with increasing frequency. Approximately two-thirds of all CEOs now receive stock option awards in a given year, and the estimated award-date value of these options represents about one-third of

total CEO compensation (Yermack, 1994). Stock options provide the lion's share of performance-based compensation incentives received by CEOs (Jensen and Murphy, 1990).

To study the association between the timing of stock option awards and movements in companies' stock prices, I obtain data from the first two proxy statements filed by *Fortune 500* companies in compliance with the SEC's reformed rules on executive compensation disclosure, implemented in late 1992 (I use the *Fortune 500* rankings published in April 1993 as the basis for the sample). For each company, I collect information about stock options awarded to the CEO; when more than one person holds the CEO position during a fiscal year, I collect data for the person in office the longest. Excluding a handful of observations with data problems,[2] the sample includes 591 CEO stock option awards made in 1992 and 1993, with some companies accounting for multiple awards. Although corporations are not specifically required to disclose dates of stock option awards, many report the information voluntarily and it can always be inferred from required disclosures of awards' expiration dates and durations.

For each stock option award, I use daily stock return data from the CRSP database to estimate abnormal stock returns around the award date. I use the market model event study methodology described by Dodd and Warner (1983), defining each day's abnormal return *(AR)* as the raw stock return (R) minus a predicted return:

$$AR_{it} = R_{it} - \hat{\alpha}_i - \hat{\beta}_i Market_t \qquad (1)$$

I define *Market* as the yield on CRSP's dividend-inclusive, value-weighted index for the

[2] A small number of companies reported only the month and not the exact date of stock options' expirations, technically violating the SEC's rules. A few other firms made option awards during periods when their stock was not traded, such as initial public offerings, reorganizations, and switches between stock exchanges.

NASDAQ or NYSE/AMEX file. All returns are compounded continuously. The subscripts i and t indicate companies and days, respectively. The α_i and β_i market model parameters are estimated from regressions of R_{it} against *Market*$_t$ over the 120 trading days prior to the event period surrounding each stock option award.[3]

I use daily abnormal returns to form cumulative abnormal returns (CARs) over an event period beginning five trading days prior to each stock option award and lasting until fifty trading days thereafter. The five-day lead time is used only to illustrate that no abnormal returns occur prior to the award date; if the lead time is shortened to zero days or lengthened by an arbitrary amount, the results do not change. The end of the event period is truncated for awards made in late 1993, since the CRSP database does not yet include 1994 daily trading data. For the sample of 591 stock option awards, I average together the CARs for each day of the event period. Z-statistics calculated from standardized prediction errors following Dodd and Warner (1983) test the significance of these average CARs.

Table 1 presents average CARs over the course of the event period; the same data are displayed in Figure 1 above. Abnormal returns are virtually zero up to the day of CEO stock option awards, and positive abnormal returns begin to cumulate immediately thereafter. According to two-tailed hypothesis tests, the average CAR is significantly greater than zero at the 10% level after five trading days, at the 5% level after seven trading days, and at the 1% level after fifteen trading days or three weeks. After twenty trading days or four weeks, the average CAR levels off around 1.5%.

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[3] Some investigators estimate market model parameters with data obtained both before and after the event period. That approach would be problematic with this paper because many awards occurred late in 1993, and the CRSP database does not yet include the necessary 1994 data.

This increase in companies' stock prices almost certainly does not result from news of the stock option awards, since these remain secret until the filing of proxy statements several months after each fiscal year. It is possible that buying occurs by insiders, such as members of boards of directors, who have immediate knowledge that CEOs have received stock option awards, but this conjecture is not supported by an analysis of trading volume presented in Section 4 below. Moreover, the pattern of abnormal returns is not consistent with the results of most event studies -- especially those of insider trading such as Meulbroek (1992) -- which typically show stock prices experiencing a "run-up" in advance, and not after, important corporate events. If insiders did attempt to exploit information about CEO option awards, one would expect many to know of the awards in advance and to buy stock before the award dates.

The data are consistent with the hypothesis that managers receive stock option awards at opportune times, either in advance of "good news" which results in upward movements of stock prices, or not until after "bad news" which pushes stock prices down.[4] Equivalently, one could argue that CEOs know in advance when they will receive stock options (without necessarily controlling the choice of dates) and are able to manipulate the release of significant corporate news around the award date in order to increase the options' value.

The rate of appreciation of options' in-the-money values in the period just after their award is far greater than their appreciation over longer horizons. Table 2 presents data about the book value appreciation of options, defined as the excess of companies' stock prices over options'

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[4] Interestingly, CEOs' receipt of stock option awards within four weeks of significant moves in stock prices closely resembles the pattern of typical insider trading cases in Meulbroek's (1992) study of SEC prosecutions. In Meulbroek's sample of 183 episodes, the illegal trades occurred an average of 13.2 days (median 6 days) in advance of important public news announcements.

exercise prices. One month after their award, 59.2% of the 591 CEO options studied for this paper are "in-the-money" with stock prices above exercise prices. One year after award the percentage of in-the-money options is virtually unchanged at 59.7%. (Only a small fraction of awards were made with exercise prices either in- or out-of-the-money on their award dates.) The average appreciation of in-the-money options over their first month is 8.2%, meaning that on average stock prices rest at 108.2% of the exercise prices for that sub-set of awards. Multiplied by the 59.2% fraction of options with nonzero book value, the typical CEO option award is in-the-money by approximately 5% just a month after its award date. Since the average 1992-93 award represented stock with a face value of approximately $2.75 million (number of shares times price on award date), a typical CEO who received a stock option award realized a paper profit above $130,000 during the first month.

Options' book values rise far more slowly over the remaining eleven months of their first year. As shown by Table 2, the average in-the-money option after one year has a stock price 27.2% above exercise price, implying that the average CEO who receives options has paper profits of 16.2% above his award's face value. Thus 30% of the first year's appreciation in option book values takes place during the first month after award, meaning that options' book values rise five times faster during the first month after an award than during the remaining eleven months of the first year.

3. Stock Option Awards and Corporate Announcements of Earnings and Dividends

Quarterly earnings and dividend announcements provide convenient data for further testing the hypothesis that CEO stock option awards are timed to anticipate important, unrelated

news. Data about earnings and dividends are readily available for all companies in my sample. Unlike some corporate news which might take executives by surprise (such as tender offers or management changes), earnings and dividend news is almost certainly known by CEOs well before its announcement, which would appear to be a necessary condition for opportunistically timing stock option awards. Moreover, it is hard to suggest how earnings announcements could allow investors to infer contemporaneous changes in managerial incentives, sine earnings data primarily conveys information about past company performance. (Conceivably, dividend announcements could be affected if CEOs receive stock options contemporaneously, since managers holding options have incentives to reduce dividends.)

For each CEO stock option award I obtain data about the earnings per share and dividend per share announcements which occur before and after the option award date. Bloomberg Financial Markets and The Wall Street Journal Index serve as sources for earnings announcement dates, while dividend declaration dates are reported by CRSP and Bloomberg. The same sources, as well as Compustat, provide data about the size of each quarterly dividend and EPS (net of extraordinary items). I primarily examine changes in earnings and dividends per share compared to prior announcements.

Figure 2 illustrates the timing of CEO stock option awards relative to companies' announcements of quarterly EPS. Strikingly, the most frequent day for CEOs to receive stock option awards occurs one day in advance of quarterly earnings announcements, and the next-most popular day is the exact date of EPS announcements. A significant cluster of option awards appears to occur within a week of earnings announcements, matched by a marked dearth of awards approximately two weeks before earnings are released. This data may be partly

explained by the requirement that boards of directors (or their compensation committees) approve awards of CEO stock options, as many companies might have unofficial practices of announcing earnings results just after board meetings. However, the data are also consistent with some coordination between option awards and the release of earnings news. As noted above, an alternative interpretation of the findings in this section is that CEOs know in advance when they will receive stock options (without necessarily controlling the choice of dates) and manipulate the timing of news releases in order to increase the options' value.

If CEOs could control the timing of these events, one would expect significant differences in the patterns of earnings announced before and after stock option awards. In particular, favorable earnings announcements should occur after stock option awards are made, and adverse announcements should occur in advance of option awards. Table 3 presents data summarizing all earnings announcements before and after CEO stock option awards. I calculate mean and median changes in earnings per share relative to immediately prior quarterly announcements,[5] truncating outlier values to plus or minus 200%. I also calculate CARs around earnings announcements using the market model methodology described in Section 2. The event period for these abnormal returns runs from the day before to the day after the announcement date; this three-day window seems necessary because of the possibility of advance "leakage" of some earnings news, as well as the practice by some companies of releasing earnings after the stock market closes on the announcement day.

Summary statistics in Table 3 provide extremely clear evidence that CEOs receive stock

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[5] A more complex analysis would calculate changes in EPS relative to the predictions of an expectations model. However, since the summary statistics in Table 3 rely on first differences, any expected earnings component would be "differenced out" of the analysis.

option awards after poor earnings announcements and in advance of strong earnings news (the table excludes 31 cases in which CEOs receive stock option awards exactly on the day of earnings announcements). Mean and median changes in EPS relative to prior announcements are negative for the earnings announcements before stock option awards and positive for the succeeding announcements. Differences in both means and medians are extremely large and significant. The frequency of earnings increases is just 45% for EPS announcements before stock option awards and 58% for EPS announcements following awards.

Abnormal stock returns, which reflect investors' reactions to earnings news, follow essentially the same pattern. Average abnormal returns are positive but insignificant for all EPS announcements before stock option awards, and three times larger and significant at the 1% level for EPS announcements after awards. The difference in average abnormal returns is also positive and significant.

A similar type of analysis appears in Table 4, which examines the abnormal returns for earnings announcements occurring within a specific interval around stock option awards. The first segment of the table shows that in the 35 cases when CEOs received stock options one day prior to earnings announcements, those announcements were accompanied by average abnormal returns of 2.56%, significant at the 1% level. For the 14 option awards which occurred one day after earnings releases, the corresponding average abnormal returns were an insignificant 0.49%. Very similar patterns of abnormal returns occurred for option awards within five days, ten days, and twenty days of earnings announcements, as shown in the next three segments of Table 4. Differences in abnormal returns are significant across three out of four sub-samples, and differences in the frequency of earnings increases are also significant in two out of four sub-

samples.

Another measure of CEOs' success in timing stock option awards should come from comparing the importance of earnings announcements (as measured by abnormal stock returns) with the time elapsed between each option award and the nearest announcement. Managers should want to receive options just before especially good "surprises" in earnings, and should feel increasingly indifferent about awards' timing if earnings news is fully expected by investors. I therefore predict that for awards occurring before EPS announcements, a negative association will exist between the size of announcement CARs and the number of days between awards and announcements. Conversely, managers may want to receive option awards soon after negative surprises in earnings, although this conjecture depends on a hypothesis that investors will over-react to the bad news. Therefore I expect a positive association may emerge between announcement CARs and the number of days after announcements which option awards occur, although I have less confidence a priori in the strength of this association.

Table 5 presents an OLS regression analysis, with the number of trading days (absolute value) between stock option awards and the nearest earnings announcement serving as the dependent variable, and the size of EPS announcement abnormal returns as the explanatory variable. The sample is partitioned based on whether awards occur most closely to a prior or succeeding earnings announcement. Awards are excluded if they occur equidistant between two announcements or exactly on the date of an announcement, or if the nearest earnings announcement occurred in 1994 (because of CRSP data limitations).

Results of the regression analysis are consistent with both hypotheses. Stock option awards made before earnings announcements occur closer to the announcement day when the

earnings news contains a large positive surprise. When awards are made after earnings announcements, the awards occur closer to the announcement day if the abnormal return is especially negative, although the relevant coefficient for this hypothesis test is significant at only the 12% level, and the magnitude of the coefficient estimate is smaller than the estimate for the counterpart hypothesis. I conclude that CEO stock option awards not only occur in advance of favorable EPS announcements and after unfavorable ones, but also that the strength of this pattern increases with the importance of the news contained in each announcement.

I study dividend announcements by repeating the analysis used for EPS announcements. A priori, I expect to find less dramatic results because about one-sixth of my sample companies do not pay dividends, and because the large majority of dividend announcements reflect zero change from the prior announcement.

Figure 3 illustrates the timing between stock option awards and dividend announcements. The coordination between dividend declarations and stock option awards is extremely close, since both events usually require meetings of boards of directors. Other clusters of option awards occur approximately one month (20 trading days) before and one month after dividend declarations, a pattern which appears to reflect many companies' monthly board meeting schedules. However, one surprising characteristic of Figure 3 is the high concentration of option awards around the board meetings at which dividends are declared; there is no obvious reason why most boards would make CEO stock option awards at the same meetings at which dividend decisions are made, instead of the prior or succeeding meetings. Also, a dramatic difference exists between the number of option awards made one day before dividend announcements (77) and the number made one day later (9).

Though not as strong as the results for earnings announcements, data about dividend announcements follow the same patterns and are generally consistent with the conclusion that opportunistic timing occurs between CEO stock option awards and company news releases. Summary statistics about mean changes in dividends, the frequency of dividend increases, and abnormal returns surrounding dividend announcements appear in Table 6. Differences for announcements before and after stock option awards are generally not significant, although abnormal returns are higher for dividends declared after CEOs receive stock option awards (significance level = .17). Table 7 presents an analysis of abnormal returns for dividend announcements within specific periods around the dates of stock option awards. Average abnormal returns are consistently higher for dividend announcements after option awards compared to announcements before awards, but significance levels are marginal. Similarly, the frequency of dividend increases is consistently higher after stock option awards compared to before, but the difference is significant only for dividend announcements within one day of option awards.

4. Discussion

The results developed in sections 2 and 3 suggest that CEOs benefit from favorable positioning of stock option awards relative to significant news announcements. These findings appear more surprising when compared to investigations of legal insider stock trades. Several studies have found that executives have little success timing stock trades to exploit contemporaneous news. Givoly and Palmon (1984) examine insider trading around significant news announcements by 68 American Stock Exchange companies and find no evidence of

greater inside purchases before favorable news or greater selling in advance of adverse news. Elliott, Morse and Richardson (1985) study insider trading around nearly 4,000 announcements of earnings, dividends, bond rating changes, mergers and bankruptcies by New York and American Stock Exchange firms. They also find no consistent evidence that executives trade opportunistically in advance of public announcements. In contrast, CEOs in my sample clearly appear to receive stock option awards before positive earnings announcements and not until after negative earnings announcements, with weaker evidence suggesting that the same pattern holds with respect to dividend announcements.

One obvious way to rationalize these results is to conjecture that news of CEO stock option awards leaks to certain investors around the award dates; certainly the directors of each company represent plausible sources of such leaks. If informed investors believed that greater CEO incentives would lead to better management, they would attempt to capitalize on news of CEO stock option awards by purchasing stock (whether legally or illegally), thereby pushing prices higher. Such a scenario would cast CEOs in the roles of innocent bystanders.

One could not reliably test this hypothesis with data about officer and director stock purchases around the dates of CEO stock option awards. The analysis above shows that corporations often release significant news (such as earnings and dividend changes) very close to the days on which CEOs receive options. Since insiders have at least a ten-day grace period in which to report stock purchases, any significant pattern of insider purchases near the dates of CEO stock option awards could easily be attributed to these other news announcements.

An alternative method of testing for the presence of increased trading around the days of CEO stock option awards has been developed by Meulbroek (1992) in her market model for

abnormal trading volume. Most usefully for this study, the market volume model differentiates abnormal volume around events which occur close to one another in time.

In her study of 131 episodes of insider trading, Meulbroek finds that volume in a firm's stock is 93% higher than expected on days with insider trading. She estimates that abnormal volume of 100% ordinarily leads to expected abnormal stock returns (absolute value) of 0.55%, and that abnormal volume of 100% on days with insider trading leads to expected abnormal returns of 1.38%, implying that other market participants successfully recognize trades by insiders and bid stock prices higher in response.

I analyze trading in the stocks of companies awarding CEO stock options to see if changes in volume on the order of those found by Meulbroek might account for the abnormal stock returns around the dates of option awards. The volume market model, which represents an extension of work by Ajinkya and Jain (1989), is similar to the market model for abnormal stock returns described above:

$$\begin{aligned} \log(v_{it}) = {} & \alpha_i + \beta_i \log(v_{mkt}) + \lambda_1 \log(v_{it-1}) + \lambda_2 \log(v_{it-2}) \\ & + \eta_1 Mon_{it} + \eta_2 Tue_{it} + \eta_3 Wed_{it} + \eta_4 Thu_{it} + \phi_1 Holiday_{it} + \phi_2 Holiday_{it-1} \\ & + \rho_i Earnings_{it} + \delta_i Dividend_{it} + \gamma_i Option\ Award_{it} + \epsilon_{it} \end{aligned} \qquad (2)$$

In the specification of the model, v_{it} represents daily trading volume in a company's stock, while v_{it-1} and v_{it-2} are lags added to the model to reduce serial correlation of the residuals.[6] The v_{mkt} term is total volume for the New York, American or NASDAQ exchange, as appropriate. *Mon,*

[6] Because the model is estimated separately for each CEO stock option award, it is not straightforward to conduct a hypothesis test for serial correlation. However, it is highly suggestive to observe that in the basic specification of the model, the average estimated first-order residual autocorrelation rises from +.01 to +.32 if the two lagged volume terms are excluded.

Tue, Wed and *Thu* are day-of-the week dummies, and *Holiday* is a dummy variable equal to one for days preceding three-day holiday weekends and Fridays following Thanksgivings. *Earnings, Dividend,* and *Option Award* are dummy variables equal to one during the event periods surrounding earnings announcements, dividend announcements, and CEO stock option awards, respectively.

I estimate the model separately for each of the 591 CEO stock option awards, using daily volume data from 50 trading days before until 50 days after each award date. This yields 591 estimates of the ρ, δ and γ parameters, which measure the abnormal trading volume on days around earnings announcements, dividend announcements, and CEO stock option awards, respectively. The arithmetic mean of the individual estimates serves as the overall estimate of each parameter. Standard errors are calculated following Dodd and Warner's (1983) method of aggregating standardized prediction errors.

Table 8 presents results of estimating the model with five alternative specifications of the event periods around earnings announcements, dividend announcements, and CEO stock option awards. When each event period is restricted to a single day, abnormal volume is estimated at 38.7% on days with earnings announcements, 6.4% on days with dividend announcements, and 1.1% on days with CEO stock option awards. Only the earnings and dividend announcement abnormal volumes are statistically significant. When the window is widened to include the day before and after each event, abnormal volume is estimated as 21.9%, 0.9%, and 0.6% per day, respectively, with only the earnings volume having statistical significance. Other estimates are shown with increasingly wider event periods surrounding CEO stock option awards; all of these imply abnormal volume on the order of 0.5% to 1.5% per day.

Recall that Meulbroek found that abnormal trading volume of 100% led to expected abnormal daily stock returns of 1.38% on days with insider trading and 0.55% on other days. To explain the cumulative abnormal stock returns of approximately 1.5% which follow CEO stock option awards, one would require cumulative abnormal trading volume well above 100%. Estimates for abnormal volume surrounding CEO stock option awards do not begin to approach this level. In the widest window studied, shown in the bottom row of Table 8, abnormal daily volume of 0.50% per day is estimated to occur in the 26-day event window around CEO stock option awards during which the 1.5% CARs arise. The cumulative abnormal volume of 13.0% over this period comes nowhere close to the level needed to explain the magnitude of abnormal returns. I conclude that volume evidence does not support conjectures that insider trading around the dates of CEO stock option awards accounts for the abnormal stock returns observed during these periods.

Nevertheless, the favorable timing of CEO stock option awards makes the awards look like a surrogate form of insider trading by CEOs, with neither the ordinary requirements of disclosure nor the risk of detection and prosecution. Some scholars have suggested that stockholders may tolerate or even encourage such behavior by top managers, because it represents an efficient method of compensation. Manne (1966) and Carlton and Fischel (1983) represent the leading expositions of this controversial theory, which rests upon assumptions about managerial risk-bearing and the costs of renegotiating compensation contracts. The theory states that allowing managers to choose secretly when to buy and sell stock will increase their incentives to pursue valuable corporate opportunities. Such arrangements could reduce the costs of writing compensation contracts and protect managers against unfairness in the "ex-post

settling up" renegotiation process. Further, the willingness of managers to work under such a regime might serve as a valuable signal about managerial risk tolerance.

Many writers have attacked these theories, arguing that permitting insider trading would allow executives to subvert market mechanisms which set wages competitively (Ross, 1979), encourage destructive managerial behavior tied to short-selling, and reward persons who fortuitously gain access to certain information. The results of this study have some relevance for this latter argument, since CEOs appear to receive stock-based compensation shortly in advance of stock price increases tied to earnings announcements. To the extent that stockholders intend other compensation arrangements to reward managers for the effort which produced the positive earnings news, the resulting "bounce" in stock option values appears to represent a windfall obtained only through advance knowledge of announcements' contents and timing.

Stockholders may acquiesce in the opportunisitic timing of CEO stock option awards, considering it an implicit form of compensation. However, such arrangements would contravene the spirit if not the letter of the federal securities laws' increasing opposition to insider trading. Congressional legislation in 1984 and 1988 substantially increased the penalties for insider trading, and Meulbroek (1992) documents the increased frequency of civil prosecutions by the SEC over the last two decades. Ross (1979) interprets the federal proscription of insider trading as a public good which facilitates arms'-length negotiation of compensation by limiting managers' ability to alter their pay unilaterally.

CEO control over stock option award dates would also conflict with recent regulatory moves designed to limit managerial influence in companies' compensation contracting procedures. The SEC since 1992 has required companies to include in proxy statements a report

explaining the structure of top managers' compensation contracts, alongside a disclosure of any conflicts-of-interest held by compensation committee members. The regulations reflect "the SEC's view that a compensation committee should be composed entirely of independent directors" (Karmel, 1994). Congress pursued similar goals in 1993 by enacting section 162(m) of the Internal Revenue Code. This provision limits the tax deductibility of managerial compensation to $1 million per executive per year, unless the compensation is derived from a performance-based plan established by independent directors and approved by a vote of stockholders (Bachelder, 1994).

5. Conclusion

This paper proposes and implements a new method for investigating corporate managers' influence over the terms of their own compensation. In analyzing the dates of 591 stock option awards to CEOs of *Fortune 500* companies in 1992 and 1993, I find that the timing of awards has significant associations with contemporaneous movements in companies' stock prices. Stocks experience an average abnormal return of approximately 1.5% in the month following CEO option awards, even though news of the awards is kept secret until several months after a fiscal year ends. The book value of CEO stock options increases in the first month at rate five times faster than during the remainder of the first year. Analysis of corporate earnings and dividend announcements supports an interpretation that CEOs receive stock option awards shortly in advance of favorable corporate news and delay the receipt of awards until after the release of adverse news. Equivalently, CEOs may obtain advance knowledge of option award dates and manipulate news disclosures around those dates in order to increase options' values.

The timing of CEO stock option awards appears even more successful than the timing of ordinary stock trades by corporate insiders as analyzed in past studies. Analysis of daily trading volume around the dates of CEO stock option awards gives no support for the possibility that trading by other insiders is responsible for the abnormal stock returns.

These findings have great relevance for the interpretation of executive compensation studies which find a connection between the introduction of long-term compensation plans and improvements in corporate operating policies. While many have concluded that these studies illustrate a cause-and-effect relationship between incentive compensation and superior managerial decisions, this research supports an opposite view. Managers who become aware of impending improvements in corporate performance may seek more incentive pay in order to capitalize on investors' reactions to announcements of these improvements. Under this interpretation, stock options appear to serve as low-risk devices for increasing managerial wealth instead of incentives for encourage managerial risk-taking over long time horizons.

The possibility that CEOs have some control over the terms of their own stock option awards would make the awards resemble a surrogate form of insider trading. Some theorists have argued that permitting insider trading by top managers could represent an efficient form of executive compensation. However, such schemes would contravene the federal government's increasing efforts to subject executive compensation to the review of stockholders and independent directors.

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FIGURE 1
Cumulative Abnormal Stock Returns Following Receipt of Stock Option Awards by CEOs

The figure shows average cumulative abnormal stock returns (CARs) for Fortune 500 companies making stock option awards to their CEOs during 1992 and 1993. CARs are calculated for the period around the date of each CEO stock option award as reported in proxy statements filed approximately three months after the end of each fiscal year. It is important to recognize that news of CEO stock option awards almost never becomes public until the time of these proxy filings, usually many months after the award date. Sample selection and CAR calculations are described more fully in the text, and Table 1 reproduces the data shown in this figure.

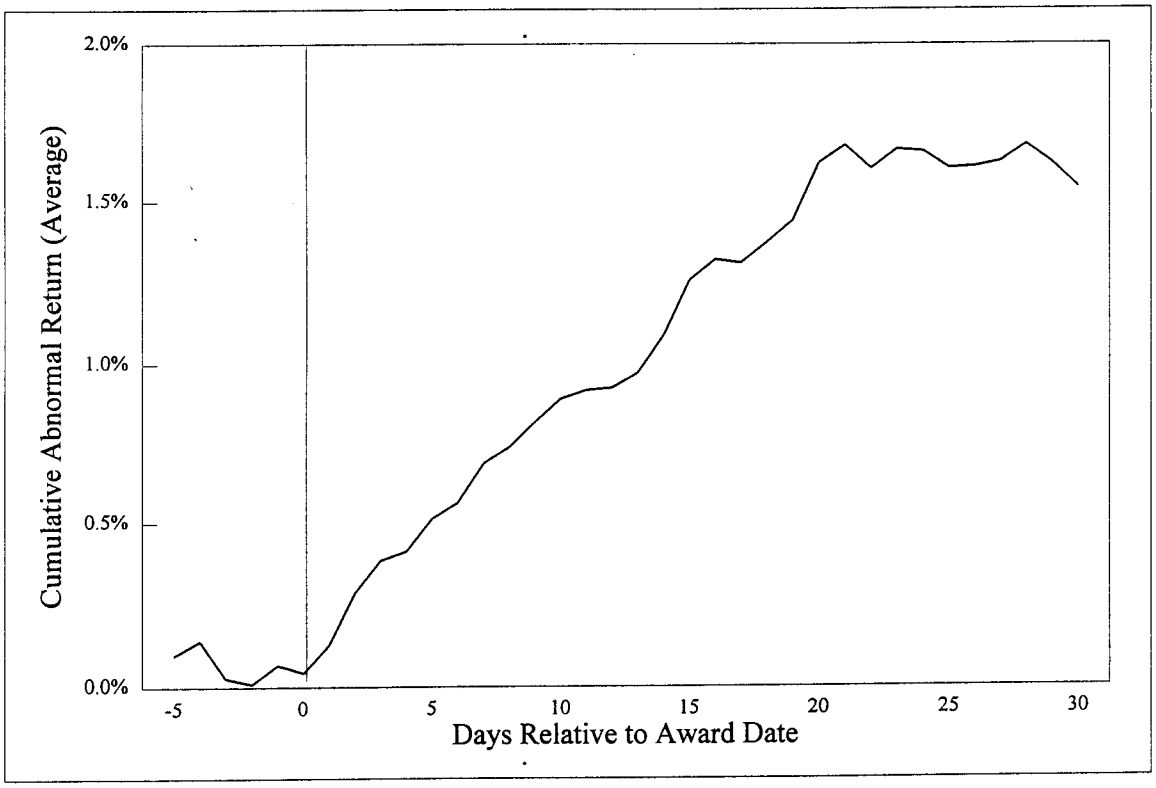

TABLE 1
Cumulative Abnormal Stock Returns Following Receipt of Stock Option Awards by CEOs

The table shows average cumulative abnormal stock returns (CARs) for a sample of companies making stock option awards to their CEOs during 1992 and 1993. CARs are calculated for the period around the date of each CEO stock option award, as reported in proxy statements filed approximately three months after the end of each fiscal year. It is important to recognize that news of CEO stock option awards almost never becomes public until proxy statements are filed, usually many months after the award date. CARs and Z-statistics are calculated from Dodd and Warner's (1983) market model procedure, assumptions for which are given in the text. The data also appear in Figure 1.

The sample includes all firms listed in the 1993 Fortune 500 ranking of U.S. manufacturing and mining companies. Dates for CEO stock option awards were obtained from the first two proxy statements filed by each firm in compliance with the SEC's reformed rules for executive compensation disclosure, which became effective in late 1992. Sample sizes decline over the period following the award date because CRSP daily trading data was available only through the end of 1993 at the time of this draft; this affected the size of the event period for stock option awards made after mid-November 1993.

Days Relative to Award Date	Sample Size	Average CAR	Z-Statistic
-5	591	0.10%	0.82
-4	591	0.14%	0.96
-3	591	0.03%	0.11
-2	591	0.01%	-0.10
-1	591	0.07%	0.25
0	591	0.04%	0.22
1	590	0.13%	0.58
2	588	0.29%	1.32
3	588	0.38%	1.57
4	588	0.41%	1.53
5	588	0.51%	1.93 *
6	588	0.56%	1.86 *
7	587	0.69%	2.14 **
8	585	0.74%	2.19 **
9	581	0.82%	2.35 **
10	580	0.89%	2.43 **
11	578	0.92%	2.38 **
12	573	0.92%	2.39 **
13	567	0.97%	2.34 **
14	562	1.09%	2.54 **
15	560	1.26%	2.97 ***
16	557	1.32%	3.05 ***
17	553	1.31%	2.84 ***
18	552	1.37%	2.90 ***
19	552	1.44%	3.11 ***
20	552	1.62%	3.48 ***
.	.	.	.
30	541	1.54%	2.82 ***
.	.	.	.
40	528	1.24%	2.04 **
.	.	.	.
50	513	1.61%	2.54 **

*** Significant at 1% level
** Significant at 5% level
* Significant at 10% level

TABLE 2
Book Value Appreciation of CEO Stock Option Awards After One Month and One Year

The table presents data about the book value, or excess of stock price over exercise price, for a sample of 591 stock option awards to CEOs of Fortune 500 companies in 1992 and 1993. Data is reported for stock options' book values after one month and one year.

The first row of the table shows the fraction of options with positive book values (stock price above exercise price) at each time. The second row shows the percentage excess of stock price above exercise price for those options with positive book values. The third row is the product of the first two rows, which equals the average book value of all CEO stock options in excess of the options' face values, or exercise prices. The dates and exercise prices of CEO stock option awards are obtained from corporate proxy statements, and stock price data is obtained from CRSP and Bloomberg Financial Markets. Note that 10 of the 591 stock option awards were made in-the-money (with lowest exercise prices below stock price on the award date), while 15 awards were made out-of-the money.

	After One Month	After One Year
Fraction of CEO stock options in-the-money (stock price above exercise price)	59.2%	59.7%
Average appreciation of in-the-money options (excess of stock price above exercise price)	8.2%	27.2%
Average book value of all CEO stock options (product of first two rows)	4.9%	16.2%
Fraction of first year's book value appreciation	29.9%	100.0%

FIGURE 2
Timing of CEO Stock Option Awards
Relative to Nearest Quarterly Earnings Announcements

The charts show the frequency distribution of CEO stock option award dates relative to the dates of companies' nearest quarterly earnings per share announcements. The sample consists of 591 stock option awards to CEOs of Fortune 500 companies in 1992 and 1993. Dates for CEO stock option awards appear in company proxy statements. Earnings announcement dates were obtained from Bloomberg Financial Markets, The Wall Street Journal Index, and miscellaneous press sources. The data displayed below reflect only those dates when U.S. stock exchanges are open for trading. A small number of awards which occur more than 40 trading days from any earnings announcement are omitted from the chart.

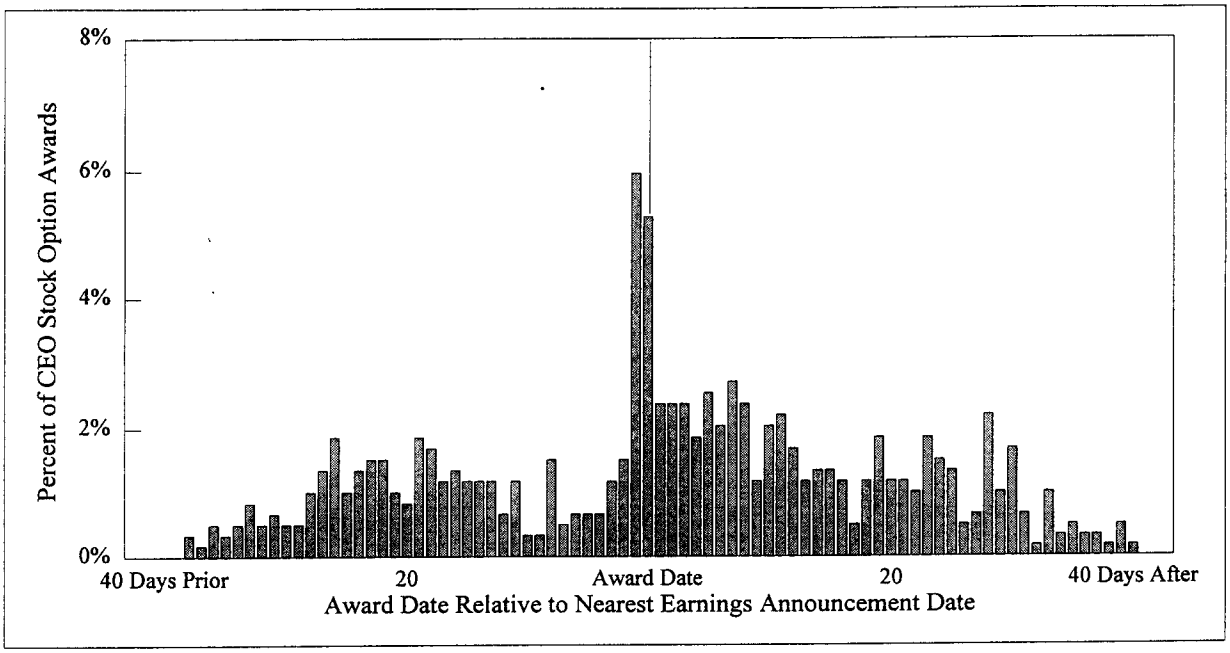

TABLE 3
Corporate Earnings Per Share Announcements Before and After CEOs Receive Stock Option Awards

The table presents descriptive data about companies' announcements of quarterly earnings per share, for the EPS announcements preceding and following the award of stock options to company CEOs. The sample consists of 591 stock option awards to CEOs of Fortune 500 companies in 1992 and 1993. Thirty-one observations are excluded from the table for cases when CEOs received stock option awards exactly on the days of quarterly earnings annoucements.

Changes in EPS are calculated with data obtained from Compustat. Because of the influence of extreme outlier observations, values above 200% and below -200% are truncated when calculating means. Abnormal stock returns are presented on a cumulative basis for the period beginning one trading day before and ending one day after each earnings announcement. A market model methodology, described more fully in the text, is used to calculate abnormal stock returns. T-statistics for abnormal stock returns are based upon the methodology of Dodd and Warner (1983). EPS announcement dates were obtained primarily from Bloomberg Financial Markets and The Wall Street Journal Index, and dates for CEO stock option awards were obtained from corporate proxy statements. Abnormal returns are missing for 74 earnings announcements which took place in 1994, since the CRSP database does not yet include 1994 trading data.

	Prior EPS Announcements	Subsequent EPS Announcements	Difference
Observations	560	560	
Change in EPS (mean, truncated)	-10.0%	15.8%	25.7%
T-statistic	-2.42 **	3.69 ***	4.34 ***
Change in EPS (median)	-4.1%	7.7%	11.7%
Wilcoxon rank-sum Z-statistic			4.70 ***
Frequency of EPS increases	45.0%	58.4%	13.4%
T-statistic for difference			4.52 ***
Observations	560	486	
Abnormal stock return (mean)	0.20%	0.60%	0.41%
T-statistic (day before to day after earnings announcement)	1.46	4.24 ***	2.08 **

*** Significant at 1% level.
** Significant at 5% level.
Extreme values of changes in EPS are truncated to + or - 200% when calculating means.
Analysis excludes awards made exactly on day of earnings announcements.

TABLE 4
Abnormal Stock Returns for Earnings Announcements In Intervals Around CEO Stock Option Award Dates

The table shows average cumulative abnormal stock returns (CARs) surrounding company announcements of quarterly earnings per share. In each section of the table, the sample includes those companies making EPS announcements within a certain period before and after their CEOs receive stock option awards. The entire sample consists of 591 stock option awards to CEOs of Fortune 500 companies during 1992 and 1993. CARs are not report for all earnings announcements following stock option awards, since some EPS announcements were made in 1994 and the CRSP database has not yet been updated with the relevant stock return data. The analysis excludes 31 stock option awards made exactly on the days of quarterly earnings announcements.

Abnormal stock returns are presented on a cumulative basis for the period beginning one trading day before and ending one day after each earnings announcement. A market model methodology, described more fully in the text, is used to calculate abnormal stock returns. T-statistics are based upon the methodology of Dodd and Warner (1983). Earnings announcement dates were obtained primarily from Bloomberg Financial Markets and The Wall Street Journal Index, and dates for CEO stock option awards were obtained from corporate proxy statements.

EPS announcements within 1 trading day of CEO stock option awards

	Number	CAR	T-Statistic	EPS Increases
Announcements after awards	35	2.56%	4.40 ***	54.3%
Announcements before awards	14	0.49%	0.27	64.3%
Difference		2.07%	1.08	-10.0%

EPS announcements within 5 trading days of CEO stock option awards

	Number	CAR	T-Statistic	EPS Increases
Announcements after awards	59	2.60%	5.38 ***	52.5%
Announcements before awards	68	-0.14%	-0.33	38.2%
Difference		2.74%	4.28 ***	14.3% *

EPS announcements within 10 trading days of CEO stock option awards

	Number	CAR	T-Statistic	EPS Increases
Announcements after awards	79	2.19%	5.13 ***	50.6%
Announcements before awards	129	-0.15%	-0.47	45.0%
Difference		2.34%	4.40 ***	5.7%

EPS announcements within 20 trading days of CEO stock option awards

	Number	CAR	T-Statistic	EPS Increases
Announcements after awards	151	1.47%	4.77 ***	55.3%
Announcements before awards	210	0.52%	2.32 **	44.3%
Difference		0.95%	2.50 **	11.0% **

*** Significant at 1% level
** Significant at 5% level
* Significant at 10% level

TABLE 5
Association Between Timing of CEO Stock Option Awards And Abnormal Stock Retuns Around EPS Announcements

The table presents results of regressions of the number of trading days between CEO stock option awards and the nearest corporate earnings announcements against the abnormal stock returns surrounding those earnings announcements. The full sample consists of 591 stock option awards to CEOs of Fortune 500 companies in 1992 and 1993. The sample is partitioned based upon whether the nearest quarterly EPS announcement occurs prior to or following each stock option award date. Observations are excluded if stock option awards occur exactly on the dates of earnings announcements or equally between two earnings announcements, or if the nearest earnings announcement occurs in 1994 (since the current CRSP database only allows for calculation of abnormal stock returns through the end of 1993).

Abnormal stock returns are calculated on a cumulative basis for the period beginning one trading day before and ending one day after each earnings announcement. A market model methodology, described more fully in the text, is used to calculate abnormal stock returns. Announcement dates were obtained primarily from Bloomberg Finaicial Markets and The Wall Street Journal Index, and dates for CEO stock option awards were obtained from corporate proxy statements.

Dependent variable:
Trading days between stock option award and quarterly EPS announcement

	Nearest EPS announcement occurs BEFORE stock option award			Nearest EPS announcement occurs AFTER stock option award		
	Coefficient	**T-Statistic**		**Coefficient**	**T-Statistic**	
Intercept	15.2	25.21	***	15.4	22.36	***
Abnormal stock return (day before until day after earnings announcement)	19.8	1.54		-30.1	2.19	**
Sample size		312			227	
R-squared		0.0075			0.0208	

*** Significant at 1% level
** Significant at 5% level

FIGURE 3
Timing of CEO Stock Option Awards
Relative to Nearest Quarterly Dividend Announcements

The charts show the frequency distribution of CEO stock option award dates relative to the dates of companies' nearest quarterly dividend announcements. The sample consists of 591 stock option awards to CEOs of Fortune 500 companies in 1992 and 1993, although approximately one-sixth of those observations are for companies which pay zero dividends. Dates for CEO stock option appear in company proxy statements. Dividend announcement dates were obtained from CRSP, Bloomberg Financial Markets and miscellaneous press sources. The data displayed below refelcts only those days when U.S. stock exchanges are open for trading. A small number of awards which occur more than 40 trading days from any dividend announcement are omitted.

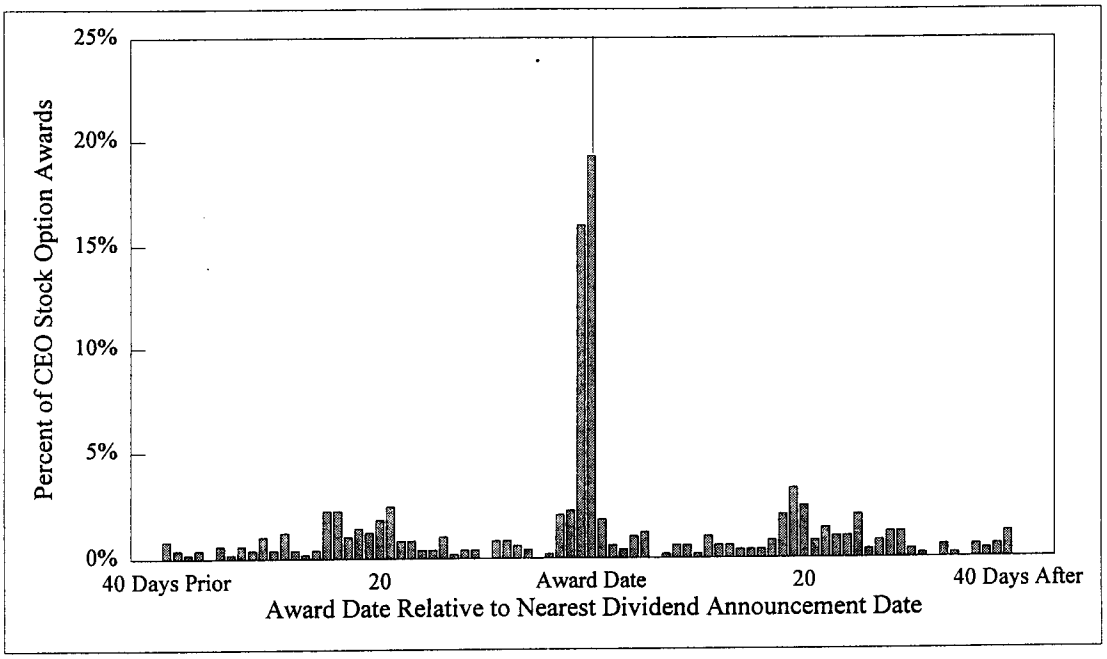

TABLE 6
Corporate Dividend Announcements
Before and After CEOs Receive Stock Option Awards

The table presents descriptive data about companies' announcements of quarterly dividends, for the dividend announcements preceding and following the award of stock options to company CEOs. The sample consists of 591 stock option awards to CEOs of Fortune 500 companies in 1992 and 1993, but the table excludes observations for companies paying zero dividends and for 94 cases in which CEOs received stock option awards exactly on the days of dividend announcements

Abnormal stock returns are presented on a cumulative basis for the period beginning one trading day before and ending one day after each dividend announcement. A market model methodology, described more fully in the text, is used to calculate abnormal stock returns. T-statistics for abnormal stock returns are based upon the methodology of Dodd and Warner (1983). Dividend dates and data used to calculate changes in dividends per share were obtained primarily from Bloomberg Financial Markets and CRSP, and dates for CEO stock option awards were obtained from corporate proxy statements. Abnormal returns are missing for 35 dividends which were declared in 1994, since the CRSP database does not yet include 1994 trading data.

	Prior Dividend Announcements	Subsequent Dividend Announcements	Difference
Observations	398	399	
Change in DPS (mean)	2.0%	1.0%	-1.0%
T-statistic	1.64 *	2.18 **	-0.74
Frequency of dividend increases	15.2%	16.2%	1.0%
T-statistic			0.37
Observations	401	364	
Abnormal stock return (mean)	0.28%	0.56%	0.28%
T-statistic (day before to day after dividend announcement)	1.91 *	3.82 ***	1.38

*** Significant at 1% level.
** Significant at 5% level.
* Significant at 10% level.
Mean changes in dividends per share (DPS) exclude dividend initiations.
Analysis excludes awards made exactly on day of dividend announcements.

TABLE 7
Abnormal Stock Returns for Dividend Announcements In Intervals Around CEO Stock Option Award Dates

The table shows average cumulative abnormal stock returns (CARs) surrounding company announcements of quarterly dividends. In each section of the table, the sample includes those companies making dividend announcements within a certain period before and after their CEOs receive stock option awards. The entire sample consists of 591 stock option awards to CEOs of Fortune 500 companies during 1992 and 1993. CARs are not reported for all dividend announcements following stock option awards, since some announcements were made in 1994 and the CRSP database has not yet been updated with 1994 data. The analysis excludes 94 stock option awards made exactly on the days of quarterly dividend announcements, as well as those observations associated with companies paying zero dividends.

Abnormal stock returns are presented on a cumulative basis for the period beginning one trading day before and ending one day after each dividend announcement. A market model methodology, described more fully in the text, is used to calculate abnormal stock returns. T-statistics are based upon the methodology of Dodd and Warner (1983). Dividend announcement dates were obtained primarily from Bloomberg Financial Markets and CRSP, and dates for CEO stock option awards were obtained from corporate proxy statements.

Dividend announcements within 1 trading day of CEO stock option awards

	Number	CAR	T-Statistic	Dividend Increases
Announcements after awards	77	0.65%	1.59	20.5%
Announcements before awards	9	0.03%	0.12	0.0%
Difference		0.62%	1.29	20.5% ***

Dividend announcements within 5 trading days of CEO stock option awards

	Number	CAR	T-Statistic	Dividend Increases
Announcements after awards	99	0.59%	1.72 *	19.0%
Announcements before awards	25	0.00%	0.14	16.0%
Difference		0.59%	1.70 *	3.0%

Dividend announcements within 10 trading days of CEO stock option awards

	Number	CAR	T-Statistic	Dividend Increases
Announcements after awards	112	0.78%	2.63 ***	18.6%
Announcements before awards	33	0.47%	1.06	15.2%
Difference		0.31%	0.58	3.4%

Dividend announcements within 20 trading days of CEO stock option awards

	Number	CAR	T-Statistic	Dividend Increases
Announcements after awards	153	0.66%	2.73 ***	21.2%
Announcements before awards	93	0.22%	1.05	16.1%
Difference		0.44%	1.38	5.0%

*** Significant at 1% level
** Significant at 5% level
* Significant at 10% level

TABLE 8
Abnormal Trading Volume Around Dates of Stock Option Awards to CEOs

The table gives estimates of the abnormal trading volume surrounding the dates on which CEOs receive stock option awards. Estimates are from a log market model of trading volume similar to that used by Meulbroek (1992). The model includes controls for market volume, two days of lagged company trading volume, days of the week, and holidays. The sample includes daily volume data for intervals surrounding 591 awards of stock options to CEOs of Fortune 500 companies in 1992 and 1993. The market model regression is estimated separately for each stock option award using 50 trailing and 50 succeeding days of data. Individual coefficient estimates are averaged to produce the estimates reported in the table. Standard errors are obtained from the methodology of Dodd and Warner (1983).

The table gives estimates for abnormal trading volume on three types of days: days surrounding the awards of CEO stock options (for which no public announcements occur), days surrounding quarterly dividend announcements, and days surrounding announcements of quarterly earnings per share. The table shows the event period, estimated abnormal volume, and standard error for each of the three types of dates, and results are presented for five alternative sets of event periods. Event periods represent the number of days before and after the event which are counted as event days in the regression model. Estimates of abnormal trading volume should be interpreted as average percentage deviations from normal trading volume on each day of the event period.

	Type of Event	Event Period	Daily Abnormal Volume	Std. Error	
Model 1	CEO stock option awards	event day only	1.12%	4.48%	
	Dividend announcements	event day only	6.43%	2.81%	**
	Earnings announcements	event day only	38.66%	2.07%	***
Model 2	CEO stock option awards	(-1, 1)	0.58%	0.89%	
	Dividend announcements	(-1, 1)	0.92%	1.53%	
	Earnings announcements	(-1, 1)	21.87%	1.27%	***
Model 3	CEO stock option awards	(-5, 5)	1.66%	0.94%	*
	Dividend announcements	(-1, 1)	2.42%	3.03%	
	Earnings announcements	(-1, 1)	22.44%	1.27%	***
Model 4	CEO stock option awards	(-10, 10)	0.63%	0.55%	
	Dividend announcements	(-1, 1)	0.42%	0.74%	
	Earnings announcements	(-1, 1)	22.42%	1.26%	***
Model 5	CEO stock option awards	(-5, 20)	0.50%	1.19%	
	Dividend announcements	(-1, 1)	1.98%	1.21%	
	Earnings announcements	(-1, 1)	22.62%	1.26%	***

*** Significant at 1% level
** Significant at 5% level
* Significant at 10% level