The Returns to Spring-loading

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ABSTRACT

Abnormal returns following public disclosures of unscheduled grants to CEOs are positive and highly significant in the post Sarbanes Oxley period. This implies widespread spring-loading (awarding options ahead of good news releases), as backdating cannot affect abnormal returns after the disclosure date. Between September 2002 and March 2006, a trading strategy that buys stocks after news of unscheduled option grants to CEOs become public earns 1.1% monthly abnormal returns, implying the market did not realize that grants were spring-loaded. After March 2006, when it was no longer possible to spring-load grants in a clandestine fashion, this practice stopped. This suggests spring-loading was a means of providing secret compensation rather than prudent pay practice.

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"*[A] board may approve an options grant for senior management ahead of what is expected to be a positive quarterly earnings report. In approving the grant, the directors may determine that they can grant fewer options to get the same economic effect because they anticipate that the share price will rise. Who are we to second-guess that decision? Why isn't that decision in the best interests of the shareholders?*"

Commissioner Paul S. Atkins, US Securities and Exchange Commission[1]

I. Introduction

Option grant timing practices have attracted a lot of attention from the media, the regulators and academia. There is considerable evidence that some firms backdated option grants i.e. set the grant date retroactively to coincide with a date when the stock price was low. The exercise price of the option is usually set to be equal to the stock price on the grant date. As a result the options were in-the-money when they were actually granted, while the firms recognized them as at-the-money grants for accounting, tax and disclosure purposes. This violated tax and accounting laws.

A different strategy that might achieve a similar goal, without violating tax and accounting laws, is to grant options before the release of favorable corporate news. This is called spring-loading. The exercise price of a spring-loaded option is based on the stock price before the announcement of good news, and therefore will move in-the-money following the stock price rise in response to the good news. While backdating is illegal from a tax and accounting perspective, spring-loading does not suffer from these concerns. It may therefore be used as a legitimate strategy to increase the efficiency of compensation packages of top executives. On the other hand, spring-loading of option grants might be a means of providing higher compensation to executives in a covert fashion.

The academic literature on the timing of option grants begins with the seminal work by Yermack (1997), who showed that, on an average, option grant dates are followed by positive abnormal stock returns. Yermack (1997), Kasznik (2000) and Chauvin and Shenoy (2001) hypothesized that stock option grants are timed with respect to news releases.

[1] Excerpt from a speech at the International Corporate Governance Network 11th Annual Conference, July 2006. The text of the speech is available at http://www.sec.gov/news/speech/2006/spch070606psa.htm

However, the abnormal return patterns around the grant date of options which support their hypotheses can also arise from backdating of grant dates. Lie (2005), Heron and Lie (2007) and Narayanan and Seyhun (2008) find evidence of widespread backdating of grant dates. In fact, Heron and Lie (2007) say "most, if not all, of the (abnormal return) pattern before August 29, 2002 is attributable to the effects of backdating." The current literature, therefore, does not show any clear evidence of spring-loading.

Effective August 29, 2002 the SEC began requiring stock option grant recipients to report them on form 4 within two business days. Our study exploits this change in reporting requirements to devise a sharper test of the spring-loading hypothesis. Unlike previous studies that look at abnormal returns around the option grant date (which can be backdated), we focus on abnormal returns following the date on which the form 4 report for the grant is received by the SEC. Since the receipt date of form 4 cannot be backdated, the abnormal returns following it cannot be affected by backdating. With the two business day reporting requirement, it is much more likely that the good news which is timed (for the spring-loaded grants) will be released after the filing of form 4. Positive abnormal returns following the filing date of form 4 would indicate that option grants are spring-loaded, independent of any tendency to backdate.

Some option awards are given around the same time every year according to a predetermined schedule. Options grants that are not given according to a schedule should be easier to spring-load. We classify option grants that occur within 15 days before or after a grant date in the previous year as *expected*. The remaining grants are classified as *unexpected*.

Filings of unexpected grants are followed by an average cumulative abnormal return of 1.79% over 50 trading days (10 weeks), which is highly statistically significant. This suggests that unexpected option awards are spring-loaded. The average cumulative abnormal return over 50 trading days following the filing of expected option awards is 0.56% which is also statistically significant. The lower abnormal return following expected awards suggest that they are more difficult to time with respect to future news releases. The subsample of unexpected award filings that are in the month preceding an earnings announcement is followed by an average cumulative abnormal return of about 3% over 30 trading days. This

suggests that these option awards were timed with respect to positive earnings announcement, providing further support for the spring-loading hypothesis.

Grants of in-the-money options might be a more efficient way of compensating executives. However, options that are in-the-money at the time of the grant suffer from tax and accounting disadvantages. Therefore, corporate boards and compensation committees, acting in the best interest of the firm and its shareholders, might attempt strategies that effectively grant in-the-money options but are considered to be at-the-money for accounting and tax purposes e.g., granting spring-loaded at-the-money options. Other arguments have been proposed (e.g., Atkins (2006)) suggesting spring-loading of option grants can be in the best interest of the shareholders. We will collectively refer to such arguments as the "efficient compensation" hypothesis for spring-loading. On the other hand, spring-loading might be a result of managers influencing the boards and obtaining excess compensation in a clandestine manner, without the explicit knowledge of shareholders. We will call this the "secret compensation" hypothesis.

In this paper we argue that spring-loading can be better explained by secret compensation than efficient compensation hypothesis. The secret compensation hypothesis implies that investors were not aware of it when option grants were spring-loaded. On the other hand, if boards chose to spring-load option grants because the practice was in the best interest of the shareholders, there is no reason why they would need to hide it from them. Therefore, the efficient compensation hypothesis implies that the investors might have been aware that option grants were spring-loaded.

If unexpected option grants are spring-loaded, their public disclosure ought to convey information to the market about pending good news releases. If the market was aware of spring-loading of option grants, prices should have reacted to unexpected option grant filings. We find that prices do not seem to react to filings of unexpected option grants. Instead, they go up later in response to the good news which was timed. This pattern is in sharp contrast to the market reaction to filings of stock purchases, where prices respond immediately and incorporate almost all of the positive information within one week. A trading strategy that buys stocks after the news of the option award filing becomes public

and keeps it in the portfolio for about a month would earn an annualized abnormal return of 9.12%, which is statistically and economically significant. This suggests that investors were not aware of the practice of spring-loading and did not pay attention to option award filings, supporting the secret compensation hypothesis.

Under the secret compensation hypothesis, if shareholders accurately estimate the value of spring-loaded option awards, there is no benefit to spring-loading. This implies that the practice of spring-loading would cease if it were not possible to do so in a covert fashion. On the other hand, under the efficient compensation hypothesis, having to do so in an overt fashion should have no effect on the willingness to spring-load.

Articles in the media that appeared in late 2005 and early 2006 contributed to increasing the awareness of option grant timing practices of firms within the investment community. In particular, a one-page article in *The Wall Street Journal* on 18th March 2006 is considered to be the trigger for a deluge of articles in the media on backdating and similar practices. Presumably, this awareness increased the likelihood that investors would notice if grants were spring-loaded. Around the same time the SEC was preparing to come out with new guidelines for executive compensation disclosure. The final rules, which were put out in August 2006, required firms to disclose in the proxy statement if they followed a practice of coordinating the timing of option grants with news releases. These developments made it difficult to spring-load option grants in a covert fashion. Under the efficient compensation hypothesis this should not have affected the willingness of firms to spring-load.

We find a striking difference in abnormal return patterns following the filing of unexpected option awards before and after March 2006. Average cumulative abnormal return over 50 days following filings of unexpected option awards is 2.35% before March 2006 and only 0.32% after. The cumulative abnormal return profile increases slowly for around 10 weeks following filings of unexpected awards for the first subsample, while it is almost flat for the second subsample. This implies that unexpected option grants were not spring-loaded after March 2006. Further tests confirm this. This also suggests the practice of spring-loading is better explained by the secret compensation hypothesis than the efficient compensation hypothesis.

We also investigate the timing of option exercises. Cicero (2007) provides evidence supporting backdating of exercise dates. We find CEOs time option exercises that are not accompanied by disposition of shares prior to good news releases, independent of any tendency to backdate them. The market does not seem to realize this and fails to react to the information in the filing of these exercises. These exercises continue to be well timed even after March 2006, which helps us eliminate an alternative explanation for the drop in timing of unexpected grants based on a change in the ability to time news releases.

The rest of the paper is organized as follows. The next section reviews the relevant literature. Section III explores some legal issues related to spring-loading. Section IV describes the data. Section V presents evidence of spring-loading. Section VI shows that the market did not realize that option grants were spring-loaded. Section VII explores whether option exercises were timed with respect to news releases. Section VIII looks at how spring-loading tendency has changed over time. Section IX explores the extent of spring-loading in different subsamples. Section X concludes the paper.

II. Previous literature

The spring-loading hypothesis assumes that managers or boards are sometimes able to predict the direction of movement of stock prices over a short horizon. Timing ability of insiders has mainly been explored in the context of purchase and sale of stock. Early studies focusing on abnormal returns around insider purchases and sales found that they were informed transactions (Seyhun (1986, 1992, 1998)). Later studies that controlled return on stocks with similar characteristics found that informed transactions seem limited to insider purchases at small firms (Jeng, Metrick and Zeckhauser (2003), Lakonishok and Lee (2001)). Jenter, Lewellen and Warner (2007) show that managers have the ability to time the market by looking at evidence from the timing of put option sales by 137 large firms. We add to the above literature by showing that stock price grants and exercises are well timed, independent of any tendency to backdate them.

There is a sizable literature on opportunistic timing of option grants. Yermack (1997) finds that stock option grants to CEOs from 1992 to 1994 were followed by abnormal stock returns of more than 2% over 50 trading days. He concludes that these patterns support a hypothesis that the option grants are timed before the release of good news. Aboody and Kasznik (2000) identify stock price patterns consistent with both the timing of unscheduled option grant dates around the scheduled release of corporate information, and the timing of information release around scheduled grant dates. They conclude that the patterns are supportive of a hypothesis that the flow of information is managed around stock option grants to achieve a low price on the day of the grant. However, in light of findings of more recent papers, the abnormal return patterns used to support the above hypotheses could have been due to backdating of grant dates. Our study conducts a test for timing of option grants with respect to future release of good news that is immune to backdating of the grant date.

Lie (2005) shows that the pattern of abnormal returns around option grants intensified from 1992 to 2002. Option grants in his sample were well-timed relative to market-predicted returns, which he argues is unlikely unless grant dates were selected ex post. Heron and Lie (2007) and Narayanan and Seyhun (2008) provide evidence that the patterns around option grant dates arose due to backdating of grant dates. Bebchuk, Grinstein and Peyer (2006) provide further evidence of backdating of option grants. Further, they link the probability of grant backdating to firms with less independent boards and more entrenched CEOs. Collins, Gong and Li (2007) show that firms with weaker corporate governance were more likely to backdate option grants. The latter two studies suggest that backdating reflects managerial rent-seeking behavior by correlating the tendency to backdate with governance characteristics of the firm. We provide evidence that the practice of spring-loading was also a result of managerial rent-seeking behavior rather than prudent pay practices by looking at change in tendency to spring-load in response to events that made it difficult to do so in a covert manner.

Cicero (2007) looks for evidence for backdating and timing of option exercises. He separates exercises into three subsamples – (i) those accompanied by same day private or market sale of shares, (ii) those accompanied by a same day disposition of shares to the company only,

and (iii) those not associated with share disposition – and finds patterns consistent with exercise date backdating and timing for each subsample. We show that the third subsample is also timed with respect to good news, independent of any tendency to backdate the exercise date.

III. Spring-loading and legal issues

A. Accounting and taxation issues

The valuation of option grants from an accounting and taxation perspective is based on the stock price on the grant date. As a result, exercise prices of options are often set to equal the stock price on the grant date, or based on it in some way. When firms backdated the grant date, the options were in-the-money when they were actually granted, while the firms recognized them as having been granted at-the-money for accounting and taxation purposes. This violated tax and accounting laws. Spring-loading does not violate these laws as the options are truly at-the-money on the grant date.

While the practice of backdating has been widely condemned, the opinion on whether spring-loading is unethical is mixed. There might be valid reasons for the board to grant spring-loaded options. In-the-money options might be more efficient from the perspective of providing optimal incentives. However, in-the-money options get unfavorable treatment under Section 162(m) of the Internal Revenue Code, which does not allow firms to deduct for federal income tax purposes non-performance-based annual compensation to top executives in excess of $1 million. Further, incentive stock options qualify for a more favorable tax treatment only if they are not in-the-money on the grant date. Accounting expense on an option grant is based on the price of the stock on the grant date. Spring-loading could be a way of granting options that are likely to become in-the-money, without the costs associated with grants of in-the-money options.

B. Insider trading concerns

One of the earliest cases of spring-loading was back in the 1960s. A firm called Texas Gulf Sulphur, made a spectacular mineral find in 1963 on property it owned in Canada. Executives wanted to keep the discovery quiet while the company bought up land around

the site, and were afraid outside board members would leak the news. In the meantime, these executives accepted options grants from the board. In a 1968 ruling, a federal appeals court agreed with the SEC that this spring-loading violated insider trading laws.

In the Texas Gulf Sulphur case the board was not aware of the mineral find. When the managers accepted options while they were in the possession of material non-public information, it was viewed by the courts as a violation of insider trading laws. However, if the board is aware of some material non-public information and chooses to grant options to executives, this would not violate insider trading laws. Furthermore, Anabtawi (2004) points out that in recent times courts have been reluctant to accept that a stock option grant is a transaction to which insider trading laws can apply. Atkins (2006) argues that boards, in the exercise of their business judgment, should use all the information that they have at hand to make option grant decisions. If the option grants are timed to benefit the shareholders, there is no counter-party that is harmed by it. Therefore there is no case for insider trading allegations. Therefore, the current legal view is that spring-loading does not violate insider trading laws if the board is aware of the news that is being timed.

C. Disclosure to shareholders

One possible legal concern regarding spring-loading arises from not disclosing the practice in proxy statements. This might be construed as a deliberate attempt to mislead shareholders regarding the value of the options granted. In his opinion,[2] Chancellor Chandler of the Delaware Court of Chancery, said "It is difficult to conceive of an instance, consistent with the concept of loyalty and good faith, in which a fiduciary may declare that an option is granted at market rate and simultaneously withhold that both the fiduciary and the recipient knew at the time that those options would quickly be worth much more." This suggests that courts may view the failure to disclose spring-loading of option grants unfavorably. However, if the practice of spring-loading is disclosed in the proxy statements then it would be legal.

[2] The full text of the opinion is available at http://www.delawarelitigation.com/TYSON_OPINION.pdf

In August 2006, the SEC released new rules related to compensation disclosure. The following excerpt is from the final rules on Executive Compensation and Related Person Disclosure put out by the SEC.[3]

> "We understand that some companies grant options in coordination with the release of material non-public information. […] The Commission does not express a view as to whether or not a company may or may not have valid and sufficient reasons for such timing of option grants, consistent with a company's own business purposes. Some commentators have expressed the view that following these practices may enable a company to receive more benefit from the incentive or retention effect of options […] Regardless of the reasons a company or its board may have, the Commission believes that in many circumstances the existence of a program, plan or practice to time the grant of stock options to executives in coordination with material non-public information would be material to investors and thus should be fully disclosed."

The guidelines clearly state that the SEC is not against the practice of spring-loading. However, firms are required to disclose in their proxy statements as to whether they have any policy of coordinating option grants with news releases.

IV. Data

We obtain our sample of insider purchases, insider sales, stock option grants and exercises from the Thomson Financials Insider Filing database. The database captures insider transactions reported on SEC forms 3, 4, 5, and 144. Stock prices, returns and number of shares outstanding are obtained from the Center for Research in Security Prices database (CRSP). Earnings announcement dates and information to compute book value of assets are obtained from Standard and Poor's Compustat database.

Our sample of option grants and exercises is restricted to those that occur after August 29, 2002, the date on which insiders began having to file a report with the SEC within two days, and ends in October 2007. This ensures that there are two months of returns data following all events in our sample. CEOs sometimes identify themselves as a chairman or president in

[3] Available at http://www.sec.gov/rules/final/2006/33-8732a.pdf

their SEC filings. To account for this, we include grants to the CEO, president, or chairman of the board in our sample. We drop option awards and exercises which are reported more than 10 days late. We match this sample with CRSP and drop those events that do not have the required returns data to conduct our event studies. Next we match this sample with Compustat and drop firms that do not satisfy data requirements for computing size, book-to-market and momentum portfolio assignment, which are required to calculate abnormal returns. After dropping multiple events of the same type that occur on the same day, we are left with 15,774 option awards and 23,926 exercises in our sample.

V. Evidence of spring-loading

The literature on option grant timing has focused on abnormal return patterns around the grant date. If the grant date was backdated to coincide with a date on which the price was low, we would see positive abnormal returns following it. However, backdating of the grant date cannot affect the returns after the date on which the CEO files a form 4 report with the SEC. Before Sarbanes Oxley came into effect, option grants were reported in proxy statements and in form 5 filings with the SEC, which were required to be made within 45 days after the end of the fiscal year. Option exercises were required to be filed with the SEC before the 10^{th} day of the next calendar month. After Sarbanes Oxley, both option grants and exercises are to be filed within two business days. In the post Sarbanes Oxley period, abnormal returns following the filing date ought to capture most of the impact of spring-loading while not being affected by backdating. Significant positive abnormal returns following the filing date of option grants would indicate that option grants are spring-loaded.

Some option awards are given according to a predetermined schedule. These would typically be around the same time every calendar year. Such grants can be timed with respect to good news releases only by withholding the news until the grant is given. However, option awards that are unscheduled would be easier to time with respect to news releases as they provide the additional flexibility of choosing the timing of the award. We classify option grants that occur within 15 days before or after a grant date in the previous year as *expected*. The remaining grants are classified as *unexpected*. If option grants are spring-loaded we expect to see greater positive abnormal returns after the filing date for unexpected grants.

A. Event study methodology

We define abnormal returns as the excess returns of the stock over a portfolio of matched stocks with similar size, book-to-market and momentum characteristics. The matching is done as of the filing date. The matching procedure is described in Appendix A.

Since option awards are frequent events, post-event periods overlap in calendar time. Therefore a cross-sectional t-statistic that treats post-event abnormal returns as independent is inappropriate. We test for statistical significance of abnormal returns based on a calendar time portfolio method recommended by Lyon, Barber and Tsai (1999) and used by Carpenter and Remmers (2001) and Jeng et al. (2003). We create a daily calendar time portfolio of firms whose post-event window includes the calendar day. We then compute the (equally weighted) portfolio abnormal return for each calendar day. From this calendar-time series of returns we compute the mean abnormal return, its standard error and a t-statistic. This method eliminates issues arising from cross sectional correlation between abnormal returns.

B. Price patterns around the filing date of option awards

Figure 1 shows cumulative abnormal returns around the filing date of option grants for expected and unexpected grants. The cumulative abnormal return profile increases slowly for a little more than 50 days after the filing of option grants. This is true for both expected and unexpected awards. The increase in the CAR is higher for unexpected grants. Table 1 quantifies these patterns. Unexpected awards filings are followed by abnormal returns of 1.79% over 50 trading days, 1.09% over 22 trading days and 0.22% over two days. These are all highly statistically significant.

Cumulative abnormal returns following expected award filings are also positive but lower in comparison. The average cumulative abnormal return over 50 days following the filing of an expected option award is only 0.56%. The above results support the hypothesis that unexpected option grants in the post Sarbanes Oxley period were spring-loaded. A higher abnormal return following unexpected grants is consistent with greater spring-loading of these grants. Our results seem to suggest that expected option grants are also spring-loaded,

albeit to a lower extent. Our classification method of option grants into expected and unexpected is imperfect. It is possible that some of the option grants that we classified as expected were in fact not so, resulting in the positive abnormal returns that we observe.

C. Unexpected option awards before earnings announcements

The previous results do not directly link the price increase following option award filings to news releases. We provide evidence of this link by examining unexpected option award filings before earnings announcements. Significant news related to past and future performance about the company is released around the earnings announcement date, typically resulting in a large movement in stock prices. If option grants to CEOs are spring-loaded, unexpected grants before earnings announcements should be followed by a positive surprise during the announcement. We look at a subsample of 2388 unexpected awards which were filed between 3 and 25 trading days prior to an earnings announcement. The cumulative abnormal returns around the filing date of the grants are plotted in Figure 2. There is a striking pattern of increasing cumulative abnormal returns up to around 30 trading days after the filing and then it becomes flat. Table 2 shows that the cumulative abnormal returns for this subsample over 22 days following the filing date is 2.12%, which is close to double the abnormal return over this window for the entire sample. This shows that unexpected option grants before earnings announcements are an indicator of expected positive earnings surprises, thereby providing a more direct link between the price increase following filings and news releases.

VI. Missed signals: market reaction to filings of unexpected grants

We explore if the market was aware of the practice of spring-loading option grants. The SEC posts form 4 filings on its EDGAR website[4] within one day of receiving them. Companies are required to post filings on their corporate websites no later than the end of next business day. Since unexpected option awards are spring-loaded, the news of such an award should indicate that some good news is likely to come out in the near future. If markets realized this and were efficient, the positive abnormal returns following unexpected grant filings should have been concentrated within two business days of the filing date.

[4] http://www.sec.gov/edgar.shtml

A. Reaction over a two-day window after filings

Table 1 shows that abnormal returns over the two day window following unexpected option award filings is 0.22%, which is quite small in comparison to the 50-day abnormal return of 1.79%. In some cases the news with respect to which the grant was spring-loaded would be released within two days of the filing. Therefore we expect to see some positive abnormal returns for the two day window simply from the reaction to the good news releases.

Cumulative abnormal returns following filings of unexpected option awards in the month before earnings announcement (Figure 2) do not show any jump right after the filing. The abnormal return in the two day window following the filings is 0.24%, which is almost the same as the reaction over this window for the entire sample of unexpected awards. Earnings announcement dates are typically known in advance. Once the news of the filing becomes public, the market has the information that the CEO has received an unexpected option award right before an earnings announcement. Given that these stocks subsequently have abnormal returns of about 3% over the next 30 days, the market should have reacted to the news of grant filing. However we do not see a significant reaction to this news. The reaction seems to come at the time of the actual earnings announcement. This strongly suggests that the market did not realize that option grants were being spring-loaded.

B. Comparison with market reaction for purchases

Figure 3 contrasts the abnormal return patterns following form 4 filings of share purchases by CEOs with that following filing of unexpected awards. Both share purchases and option awards are subject to the same reporting requirements and the time for the information to become public is the same. Although the average cumulative abnormal returns over 100 days following the two filings are comparable, there is a sharp difference in the speed at which the prices move after the filing. In case of stock purchases, the prices seem to jump sharply over the two days following the filing date, the period during which this information becomes public. Almost the entire price reaction is within one week of the filing, after which the CAR profile is almost horizontal. In contrast, the CAR profile following unexpected option award filings show a slowly increasing pattern for more than 50 days following the filing date.

This difference in the CAR profiles provides further support to the hypothesis that the market did not pay attention to the filings of unexpected option awards and did not seem to be aware of the information that it conveyed in terms of the likelihood of good news releases in the near future.

C. Trading strategy

If the market does not realize that option grants are spring-loaded, a trading strategy based on publicly available information, which buys stocks after the CEO receives an unexpected option grant should be profitable. We examine the performance of a hypothetical trading strategy that purchases stocks two days after the filing of an unexpected option award to the CEO. By this time the news of the filing ought to be public. The trading strategies keep the stock in the portfolio for either 22 or 50 days after the filing date. The performances of the trading strategies are evaluated as follows.

For each calendar day during our sample period, we include those stocks in the hypothetical portfolio that had an unexpected award filing between the previous 22 days and 3 days. If a firm has multiple filings within this period, we include it only once in the portfolio. The abnormal return for each stock is calculated as the excess returns over that of a matched portfolio of stocks with similar size, book-to-market and momentum characteristics. The matching procedure is described in Appendix A. The abnormal return for the hypothetical portfolio for each calendar day is obtained as the equally weighted average of the abnormal returns of the stocks in the portfolio for that day. Days on which the hypothetical portfolio has less than 10 stocks are considered to have zero abnormal returns. This is done to reduce the noise in returns on the trading strategy due to days on which there are very few stocks in the portfolio. We compute the average daily abnormal returns on the hypothetical portfolio and multiply it by 250 to obtain the annualized abnormal return for the trading strategy. The t-statistic is computed using the time series standard deviation of daily returns on the hypothetical portfolio.

The trading strategy that keeps stocks in the portfolio for 22 days after the filing date yields an annualized abnormal return of 9.12% (t-stat = 4.39), while the strategy that keeps stocks for 50 days after the filing date yields 7.29% (t-stat = 5.03). The large magnitude of abnormal

returns on these hypothetical trading strategies based on publicly available information of unexpected option grant filings reiterate that the market was not aware that these filings had information about short-term future returns and that option grants were spring-loaded.

VII. More missed signals: option exercises

We further explore if option exercises are also timed with respect to news releases. The incentives to time news releases vary depending on whether the executive intends to sell the shares obtained from exercise or hold on to them. Following Cicero (2007) we classify exercises into three categories – (i) those accompanied by private or market sale of shares on the same day (market sale exercises), (ii) those accompanied by a same day disposition of shares to the company only (company disposition exercises) and (iii) those not accompanied by share disposition on the same day (no disposition exercises). Cicero (2007) finds that the first and second subsamples are associated with a peak in the price path, while the third subsample is associated with a trough. He finds evidence consistent with both backdating of the exercise date and timing with respect to news releases. However, he is unable to clearly identify the extent to which the timing of exercises contributes to the observed price patterns around exercise dates. We are able to clearly identify the extent of timing of exercises with respect to future news releases, independent of any tendency of backdating the grant date, by looking at abnormal returns following the day on which CEOs file form 4 reports with the SEC. Like in the case of option grants, abnormal returns following the filing date of option exercises cannot be affected by backdating of the exercise date. Therefore after August 29, 2002, when executives were required to report option exercises to the SEC within two days, abnormal returns following the filing date should capture most of the impact of timing of exercises with respect to news.

CEOs would benefit from timing option exercises that are accompanied by disposition of shares before stock price declines. However, if the stocks are sold in the market, they might face insider trading allegations. Such concerns might be lower when the stocks are sold back to the company. On the other hand CEOs might time their exercise-to-hold decisions before stock price increases in an attempt to minimize the tax burden associated with option exercise and share disposition. When a non-qualified option is exercised, the difference

between the market value of the underlying share and the exercise price is taxable at the ordinary income tax rate at the time of exercise. Subsequent increase in share value realized upon eventual sale of the shares is taxed at capital gains rates if the shares are held for at least one year. Carpenter and Remmers (2001) and McDonald (2003) show that if the marginal personal income tax rate is expected to be the same in the future, some strategies that invest in the underlying stock and a risk-free bond while holding on to the option dominate the exercise-to-hold strategy. However, McDonald (2003) shows that the exercise-to-hold strategy could be optimal if the CEO anticipates an increase in her marginal ordinary income tax rate. Therefore, exercises not associated with disposition of shares might be timed before anticipated stock price increases.

Table 1 presents abnormal returns following the filing date of no disposition exercises, company disposition exercises and market sale exercises. Abnormal returns following filing of company disposition exercises are close to zero. Filings of market sale exercises are followed by abnormal return of -0.36% over 50 days, which is not statistically significant. Abnormal returns over 2 days and 22 days following market sale exercises are statistically significant, but economically small and could just reflect the market reaction to the news of stock sale by the CEO. Filings of no disposition exercises are followed by a positive abnormal return of 0.96% over 50 trading days and 0.17% over 2 days, which are highly statistically significant. Similar to the case of filings of unexpected awards, we see that the market does not seem to react to the information in no disposition exercise filings.

If the market does not realize that no disposition exercises are timed to precede good news releases, a trading strategy based on publicly available information, which buys stocks after the filings of these exercises should be profitable. Similar to the hypothetical trading strategies examined in the case of unexpected option awards, we examine the performance of trading strategies that purchase stocks two days after the filing of no disposition exercises by CEOs and keep it in the portfolio for either 22 or 50 days after the filing date.

Average annualized returns and t-statistics for this hypothetical trading strategy are computed in a manner described in the previous section. The trading strategy that keeps stocks in the portfolio for 22 days after the filing date yields an annualized abnormal return

of 6.90% (t-stat = 2.70), while the strategy that keeps stocks for 50 days after the filing date yields 5.35% (t-stat = 2.80). Although the magnitude of abnormal returns is smaller for these strategies when compared to the strategy based on unexpected option awards, they seem large enough to support the hypothesis that the market was not aware of the value of the information in these filings. This suggests that the market did not realize that option exercises with no associated disposition of shares were timed with respect to future good news releases.

It is widely believed that purchases and sales by corporate insiders in their stock is an important signal that might be useful to investors. Consequently, many websites and some newspapers regularly track them. However, they usually do not track grants of options or even stocks obtained through the exercise of options. For example, the "Insider Spotlight" section of the Wall Street Journal, which tracks insider purchases and sales mention that they leave out "acquisitions through options". This suggests that these transactions are generally considered non-informative at least in comparison to insider purchases and sales. This is consistent with our results showing that the market does not react to the news of filings of unexpected option grants and no disposition exercises, transactions that are not accompanied by a purchase or a sale.

VIII. Timing of option grants and exercises over time

In early 2006 there was widespread awareness of the practice of timing stock option grant dates through backdating and spring-loading. In August 2006, SEC set up new compensation disclosure guidelines which require firms to disclose in their proxy statements if they have any policy of coordinating the timing of option grants with news releases. We examine whether these events had an impact on the practice of spring-loading option grants and on timing of no disposition exercises.

A. Spring-loading patterns over time

Panels A and B of figure 4 plot the mean and median of 50-day cumulative abnormal returns following filings of unexpected option awards by calendar year. Table 3 shows the values and t-statistics. We see a drop in the average and median CAR in years 2006 and 2007. Panel C

of figure 4 shows 50-day cumulative abnormal returns following filings of unexpected option awards averaged by the calendar month of the filing. We note that the average CAR is positive in most months until February 2006. After March 2006, there is a striking change in the pattern of monthly average CARs – positive and negative values seem to occur with similar frequency and magnitudes.

B. Spring-loading before and after March 2006

Although there were a few articles in the media on option grant date timing in late 2005 and early 2006, on March 18th 2006, *The Wall Street Journal* ran a one-page article that led to a widespread awareness of option grant timing practices of firms throughout the investment community. Many consider this article to be the spark that led to the backdating scandal. The timing of the change in pattern observed in panel C of figure 4 seems to roughly coincide with this.

We divide our sample of unexpected option grants into two subsamples: those grants which were filed before March 1st 2006 (pre-scandal subsample), and those that were filed after that date (post-scandal subsample). The first subsample represents the period in which investors were likely to be unaware of the practice of spring-loading, while the second subsample represents the period when there was widespread awareness of this practice. Figure 5 shows the cumulative abnormal return profile around the filing date of unexpected option awards for the pre-scandal and post-scandal subsamples. There is a striking difference in the abnormal returns pattern in the two subsamples. Cumulative abnormal return profile for the pre-scandal subsample slowly increases for more than 50 trading days and flattens out at about 2.5%. On the other hand cumulative abnormal return profile for the post-scandal subsample is almost flat and close to zero.

This shows that firms stopped spring-loading once there was awareness among investors about this practice. If most of the spring-loading in the pre-scandal period was to provide efficient compensation, then there is no reason for boards to discontinue this practice once investors became aware of it or when they were required to reveal this practice to investors. The fact that spring-loading completely disappeared after March 2006 suggests that the practice was to provide excess compensation to managers in a covert fashion.

To rule out the possibility that observed differences in abnormal return patterns across the two periods are due to a change in the ability to time good news, we examine abnormal return patterns following filings of no disposition exercises in the pre-scandal and post-scandal period. Figure 6 shows no drop in the ability of CEOs to time no disposition exercises in the post-scandal period. Furthermore, the slowly increasing cumulative abnormal return profile suggests that the market continues to ignore the signals in no disposition exercises.

Table 5 shows the performance of hypothetical trading strategies based on publicly available information of the form examined earlier, for unexpected option awards and no disposition exercises, in the pre-scandal and post-scandal period. The average abnormal return for the strategy based on unexpected option awards is highly positive (about 1.1% per month) and statistically significant in the pre-scandal period and slightly negative and statistically insignificant in the post-scandal period. The difference in performance across the two periods is statistically significant. In contrast, the performance of the trading strategy based on no disposition exercises is positive and statistically significant (at the 10% level) in both periods. The trading strategy performs a little better in the post-scandal period, though the difference is not significant. This shows that CEOs continue to time no disposition exercises with respect to future good news releases and the market does not realize this.

IX. The extent of spring-loading

We estimate the fraction of unexpected option awards that were spring-loaded in the pre-scandal period and investigate if larger option grants are more likely to be spring-loaded. Finally we investigate if there is evidence of spring-loading and market under-reaction even in large firms.

A. Estimation of the fraction of spring-loaded grants

If none of the option awards were spring-loaded, then the distribution of 50-day abnormal returns following the filing date should be roughly centered at zero. In that case only 50% of the abnormal returns should be positive. Let f be the fraction of grants that are spring-

loaded. Conditional on spring-loading, let *p* be the probability that the post-filing 50-day abnormal return is positive. Then, the expected fraction of positive returns that will be observed in the sample is given by *f*p + (1-f)*50%*. We are interested in estimating the fraction *f*. If we assume that *p* is 1, which implies spring-loaded grants will always be followed by a positive 50-day abnormal return, then we can estimate *f* by solving

*f + (1-f) * 50% = 53.11%* (the observed proportion of positive abnormal returns).

This method of estimation is similar to that used in Heron and Lie (2006). The estimated proportion of spring-loaded grants by this method is 6.22%.[5]

Arguably, the assumption that $p = 1$, i.e. spring-loaded grants will always be followed by positive abnormal returns is not correct. If $p < 1$, the estimate for the proportion of unexpected grants that were spring-loaded would be higher. Therefore 6.22% is likely to be an underestimate for the true fraction of spring-loaded grants.

B. Size of option award and spring-loading

One might expect that larger option awards are more likely to be spring-loaded since the benefit in absolute terms would be greater. We test this hypothesis as follows. Based on the number of options granted, we sort all unexpected option grants in the pre-scandal period within every calendar year into quartiles. We then examine the mean and median of the 50-day abnormal returns following the filing date across the four categories. The results are presented in figure 7. We see a monotonic increase in both the mean and median as we move from the smallest to the largest grants. The mean abnormal return for the smallest quartile is 1.42% and for the largest quartile is 3.14%. The difference is statistically significant at the 5% level. This implies that the larger grants were spring-loaded to a greater extent.

C. Subsample of S&P 500 firms

All our previous results are based on a large sample of firms. It is possible that the spring-loading was prevalent in only smaller firms and therefore did not warrant the attention of

[5] Heron and Lie (2006) estimate that 10% of unscheduled grants that have been backdated or timed after Sarbanes Oxley.

investors. In this section we focus on the subsample of firms that were in the S&P 500 index.

Figure 8 shows the cumulative abnormal return profile around the filings of unexpected option awards for S&P 500 firms and others. The cumulative abnormal returns profiles look quite similar, although the one for the S&P 500 subsample is slightly lower. Table 6 shows the cumulative abnormal returns for various windows for the S&P 500 subsample. In the pre-March 2006 period, unexpected awards filings were followed by a cumulative abnormal return of 1.63% over 50 trading days, which is statistically significant. Further, exercises that are not accompanied by disposition of shares are also followed by significant positive abnormal returns. Abnormal returns following expected awards, however, are not statistically significant.

Cumulative abnormal return profile for the S&P 500 subsample shows a slowly increasing pattern very similar to the non-S&P 500 subsample. This suggests that the market missed the signals in unexpected award filings even in the largest firms. This is further explored in Table 7 which shows the performances of hypothetical trading strategies of the kind considered earlier. The strategy that buys stocks two days after an unexpected award filing and keeps it in the portfolio until 22 days after the filing yields an annualized abnormal return of 8.60%. All the trading strategies based on unexpected awards and exercises with no disposition of shares yield economically significant abnormal returns and are statistically significant at the 10% level. This suggests that the market missed the signals in unexpected award filings and no disposition exercises even for large liquid firms.

X. Conclusion

Spring-loading is the practice of awarding stock options ahead of good news releases. Existing literature on timing of option grants focuses on abnormal returns around option grant dates and is therefore unable to clearly separate the impact of spring-loading from backdating of grant dates. We look at abnormal returns after the filing date instead of the grant date in the post Sarbanes Oxley period, when grants are to be filed with the SEC within two business days of the grant date. The abnormal returns following filing of

unexpected grants to CEOs are positive and highly significant. This is strong evidence in support of spring-loading, since backdating cannot affect abnormal returns after the report for an option award has been filed. We also find evidence of opportunistic timing of stock option exercises that are not accompanied by disposition of shares.

While the market reacts very quickly to the filings of stock purchases, it does not seem to react to option award filings. Abnormal returns following grant filings just before earnings announcement are very strongly positive. However, most of the market reaction is at the time of the earnings announcement and not in response to the news of the grant which precedes the announcement. These results imply that the market did not completely realize that option grants to CEOs were spring-loaded.

In 2006, a change in investor awareness about option grant timing practices coupled with enhanced executive compensation disclosure guidelines, made it difficult for firms to spring-load in a covert manner. In response to this, we find that option grants are no longer spring-loaded. While some have argued that spring-loading could be a means for providing more efficient compensation, our results support the hypothesis that option grants were spring-loaded to provide secret compensation to managers.

We find that the market also ignores the signals in option exercises that are not accompanied by disposition of shares. This suggests that while the market pays attention to purchases and sales by insiders, option awards and exercises that are not accompanied by sales are considered non-informative even when they signal short term overperformance. These results hold even for s subsample of large and liquid firms – those that are a part of the S&P 500 index. This has implications for the study of market efficiency and the ability of corporate insiders to time the market.

Overall, our results support the hypothesis that managers tend to exert influence and increase their compensation in a covert manner and requiring greater disclosure about compensation setting procedures can partially rein in these excesses.

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Appendix A : Construction of benchmark portfolios

This appendix describes the construction of matching portfolios. The method is similar to the one used in Daniel et al. (1997). Stocks in the CRSP-Compustat matched universe are classified every month into 250 bins through dependent 10 × 5 × 5 sorts based on size (market equity value), book-to-market ratio and momentum. Size and book-to-market sorts are performed once a year at the end of June, while the momentum sorts are performed monthly. Therefore stocks can change bins every month. Every June stocks in the CRSP-Compustat universe are first sorted into size deciles based on market equity, the product of number of shares and share price, obtained from CRSP. Then the stocks within each size decile are further sorted into quintiles based on their book-to-market ratio. In calculating the book-to-market ratio, we use the book equity from the previous year and the market equity on the last trading day of the previous year. Book equity is stockholder's equity plus any deferred taxes and any investment tax credit, minus the value of any preferred stock, all obtained from Compustat. To determine the value of preferred stock we use redemption value if this is available, otherwise we use liquidating value if it is available, and if not we use carrying value. The end of June is used as the sorting date because the annual report containing the book-equity value for the preceding year is virtually certain to be public information by that time (Fama and French (1993)). The above procedure sorts stocks into 50 bins based on size and book-to-market ratio at the end of every June which applies to all months from July of the sorting year to June of the subsequent year. Within each of these 50 bins, at the beginning of every month, firms are further sorted into quintiles based on the returns over the 12 months preceding the month before the sorting month. The return over the month preceding the sorting month is not used. This avoids problems associated with bid-ask bounce and monthly reversals (Jegadeesh (1990)). Only those firms, for which book equity data is available from Compustat and is positive, have prices available on CRSP in both December of the previous year and June of the sorting year and have monthly returns data in CRSP for at least six out of the twelve months required for momentum sorting, are classified into bins by the above procedure. The value weighted returns of stock in each of the 250 bins are calculated on each day and used as the return on the matched portfolio for stocks in that bin. The above procedure ensures that the number of firms in the 250 matching portfolios is more or less equal at all times.

Figure 1: **Cumulative abnormal returns around filing dates of option awards**
The figure shows the average cumulative abnormal returns around the filing dates of Form 4 reports of stock option awards by CEOs, Presidents and Chairmen of boards. Abnormal return is calculated as the difference between return on the stock and that on portfolio of stocks with similar size, book-to-market and momentum characteristics. The construction of the matched portfolio is described in Appendix A. Option awards are classified as *expected* if they occur within 15 days before or after a grant date in the previous calendar year. The remaining awards are classified as *unexpected*. Option awards that were granted after 29th August 2002 and filed before 1st November 2007 are included in the sample.

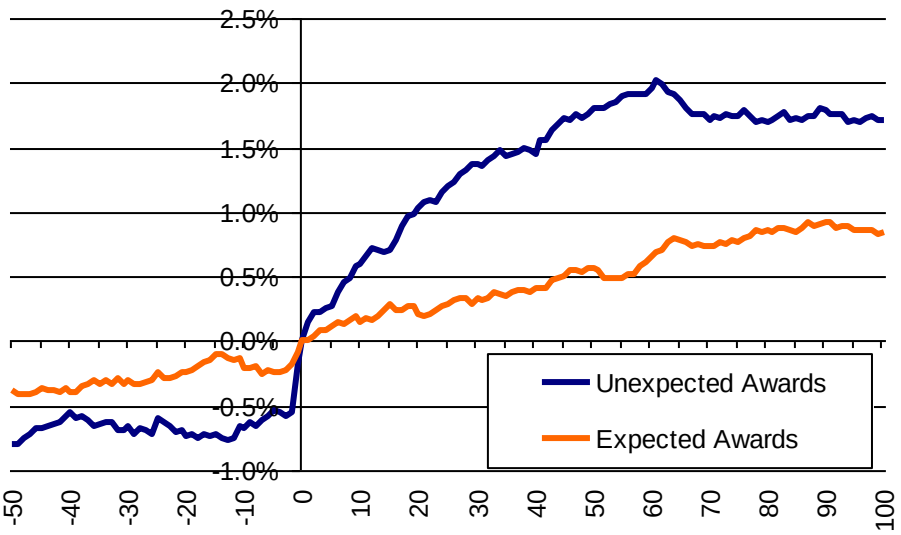


Figure 2: Cumulative abnormal returns around unexpected award filings before earnings announcement

The figure shows the average cumulative abnormal returns around the filing dates of Form 4 reports of unexpected stock option awards by CEOs, Presidents and Chairmen of boards that were filed between 3 and 25 trading days before an earnings announcement. Option awards are classified as unexpected if there are no option awards within 15 days before or after the award date in the previous calendar year. Abnormal return is calculated as the difference between return on the stock and that on portfolio of stocks with similar size, book-to-market and momentum characteristics. The construction of the matched portfolio is described in Appendix A. The sample consists of unexpected option awards that were granted after 29th August 2002 and filed before 1st November 2007.

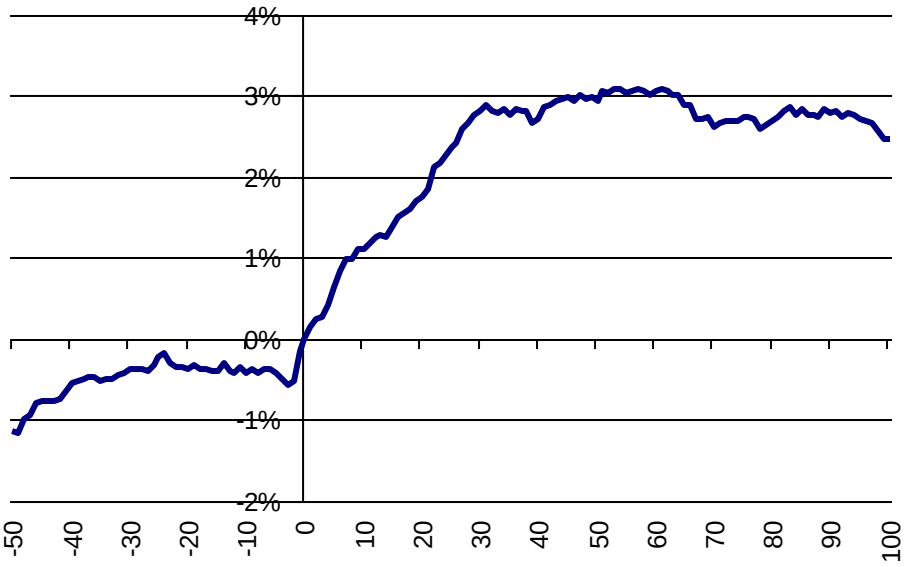


Figure 3: **Cumulative abnormal returns around filing dates of stock purchases and unexpected option awards**

The figure shows the different speeds of stock price reaction to filings of stock purchases and unexpected awards of stock options by CEOs, Presidents and Chairmen of boards. Abnormal return is calculated as the difference between return on the stock and that on portfolio of stocks with similar size, book-to-market and momentum characteristics. The construction of the matched portfolio is described in Appendix A. Option awards are classified as unexpected if there are no option awards within 15 days before or after the award date in the previous calendar year. The sample period is Sept 2002 to Oct 2007.

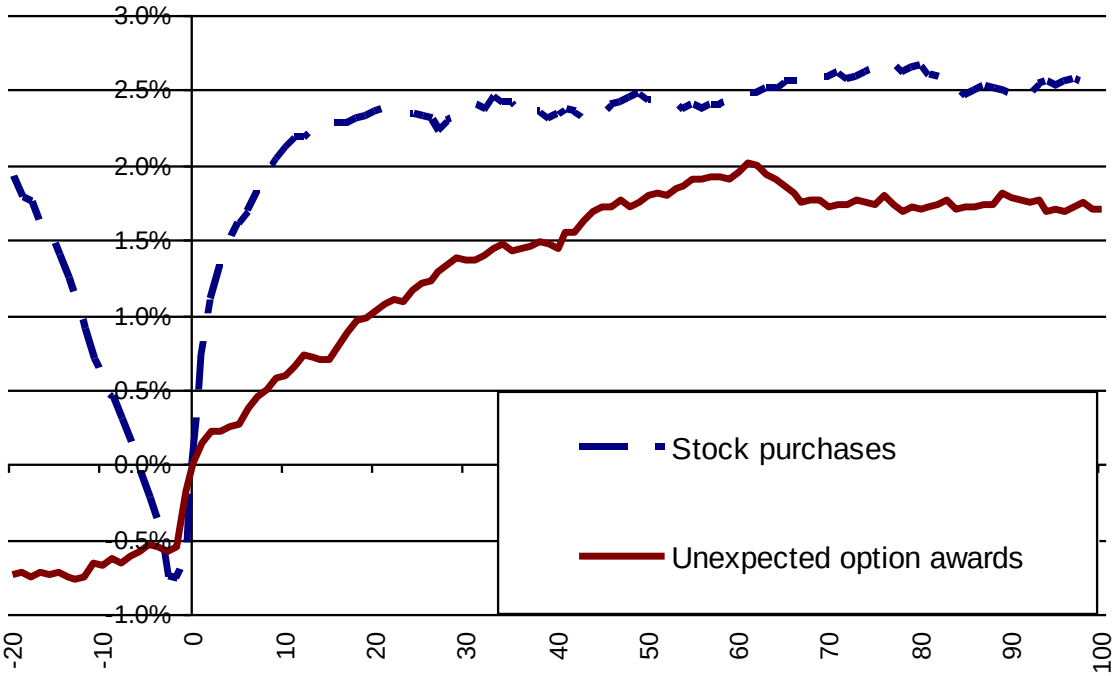
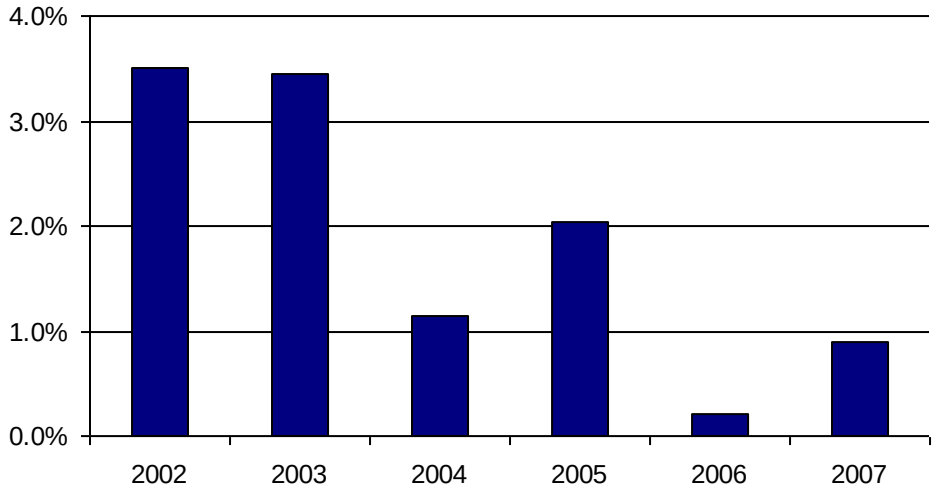
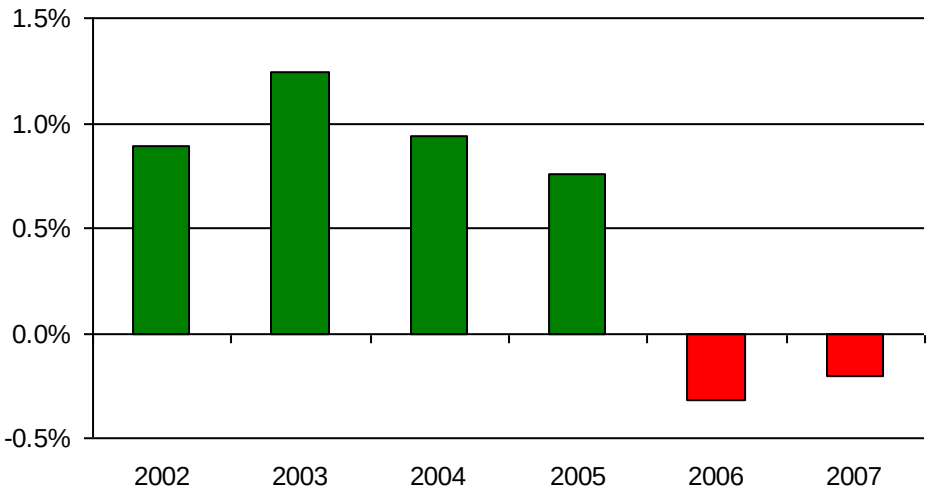


Figure 4: Temporal pattern in 50-day CAR following unexpected option award filing
The figures show the mean and median of the CAR over [+1, +50] window following the filing date of unexpected option awards by CEOs, Presidents and Chairmen of boards. Option awards are classified as unexpected if there are no option awards within 15 days before or after the award date in the previous calendar year. Panels A and B show the mean and median CARs across calendar years respectively. Panels C shows the mean CARs across calendar months. The data for the year 2002 includes only unexpected option grants after 29th August 2002. The data for the year 2007 includes only unexpected option award that were filed with the SEC before 1st November 2007.

Panel A: Mean of 50-day CAR by year



Panel B: Median of 50-day CAR by year



Panel C: Mean of 50-day CAR by month

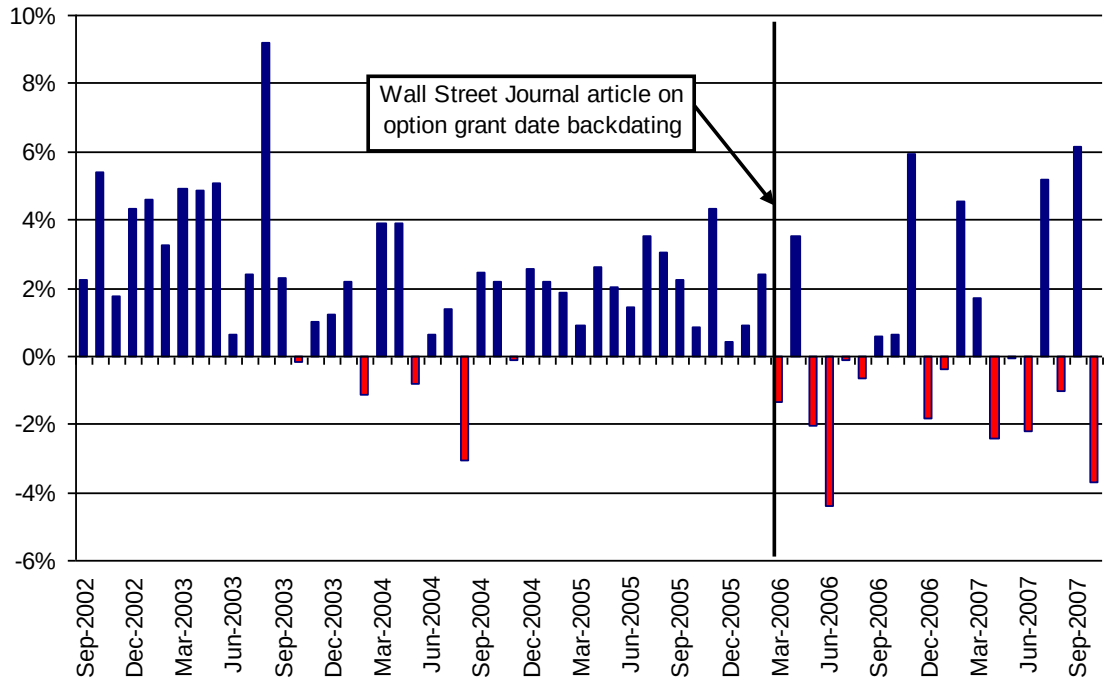


Figure 5: **Cumulative abnormal returns around filing dates of option awards – pre and post backdating scandal**

The figure compares the average cumulative abnormal returns around the filing dates of Form 4 reports of unexpected stock option awards by CEOs, Presidents and Chairmen of boards in the pre-scandal sample with the post scandal sample. Option awards are classified as unexpected if there are no option awards within 15 days before or after the award date in the previous calendar year. Unexpected option awards that were granted after 29th August 2002 and filed before 1st March 2006 are included in the pre scandal sample. The remaining form the post scandal sample. Abnormal return is calculated as the difference between return on the stock and that on portfolio of stocks with similar size, book-to-market and momentum characteristics. The construction of the matched portfolio is described in Appendix A.

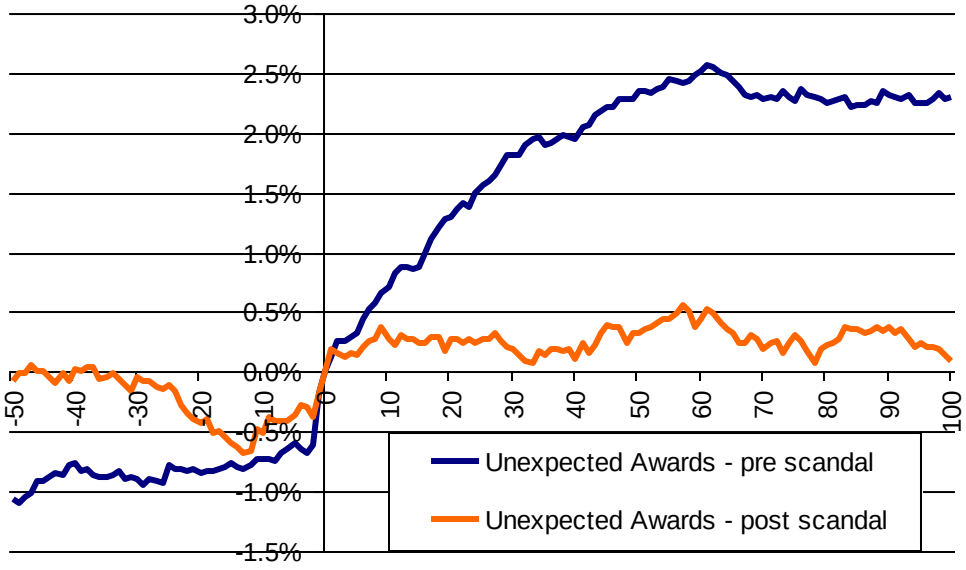


Figure 6: CAR profile around filings of option exercises not accompanied by disposition of shares in the pre and post backdating scandal period

The figure compares the average cumulative abnormal returns around the filing dates of Form 4 reports of stock option exercises by CEOs, Presidents and Chairmen of boards of S&P 500 firms that were not accompanied by disposition of shares in the pre and post backdating scandal period. Option exercises after 29th August 2002 and filed before 1st March 2006 are included in the pre scandal sample. The rest form the post scandal sample. Abnormal return is calculated as the difference between return on the stock and that on portfolio of stocks with similar size, book-to-market and momentum characteristics. The construction of the matched portfolio is described in Appendix A.

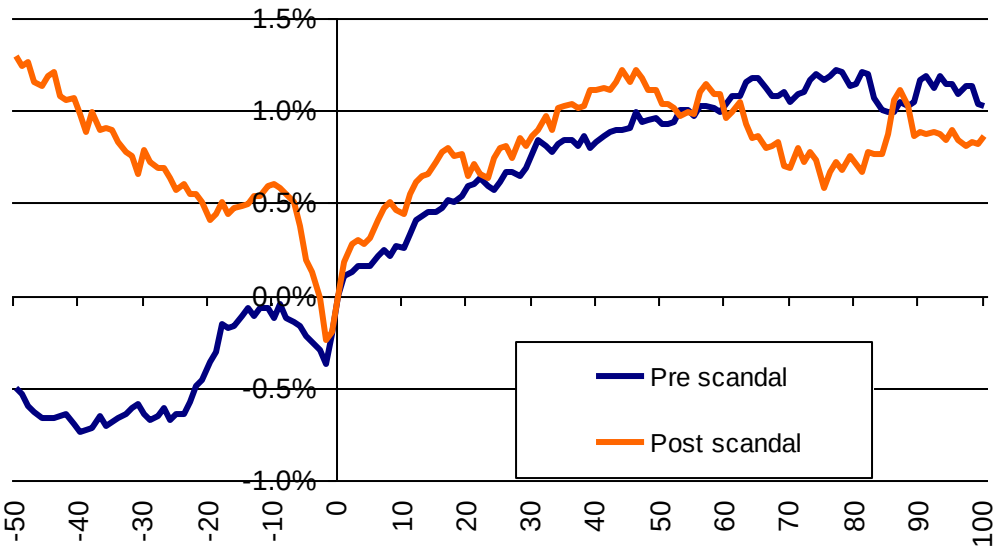


Figure 7: Size of unexpected option award and 50-day CAR following its filing – pre backdating scandal period

Unexpected option awards are categorized into four groups within each calendar year based on the size of the award. The figures show the mean and median of the CAR over [+1, +50] window following the filing date of unexpected option awards by CEOs, Presidents and Chairmen of boards for each group. Option awards are classified as unexpected if there are no option awards within 15 days before or after the award date in the previous calendar year. The figure shows mean and median CARs across groups for the pre backdating scandal period i.e. Sept 2002 to Feb 2006.

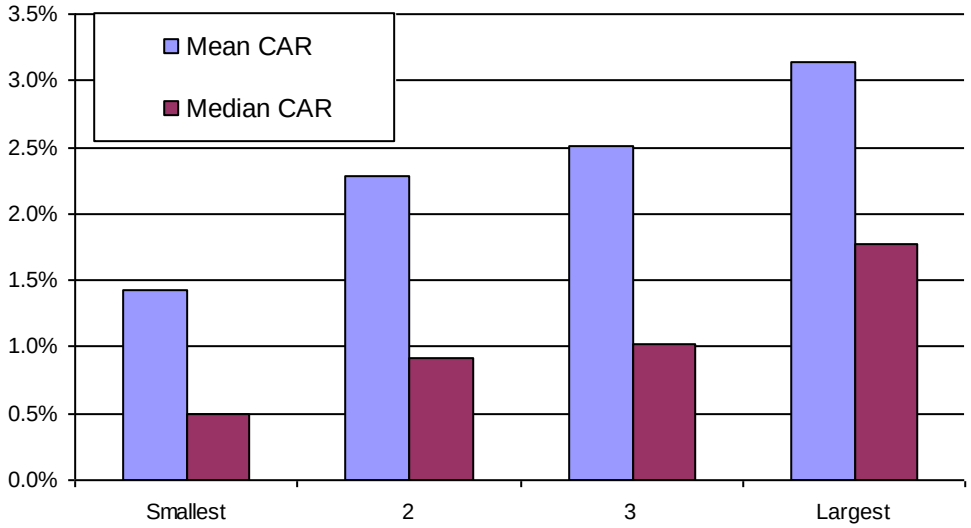


Figure 8: CAR profile around filings of unexpected option awards in the pre backdating scandal period – S&P500 firms and non-S&P500 firms

The figure shows the average cumulative abnormal returns around the filing dates of Form 4 reports of unexpected stock option awards by by CEOs, Presidents and Chairmen of boards of firms in the S&P 500 index and other firms. Abnormal return is calculated as the difference between return on the stock and that on portfolio of stocks with similar size, book-to-market and momentum characteristics. The construction of the matched portfolio is described in Appendix A. Option awards are classified as unexpected if there are no option awards within 15 days before or after the award date in the previous calendar year. The sample consists of unexpected option awards that were granted after 29th August 2002 and filed before 1st March 2006.

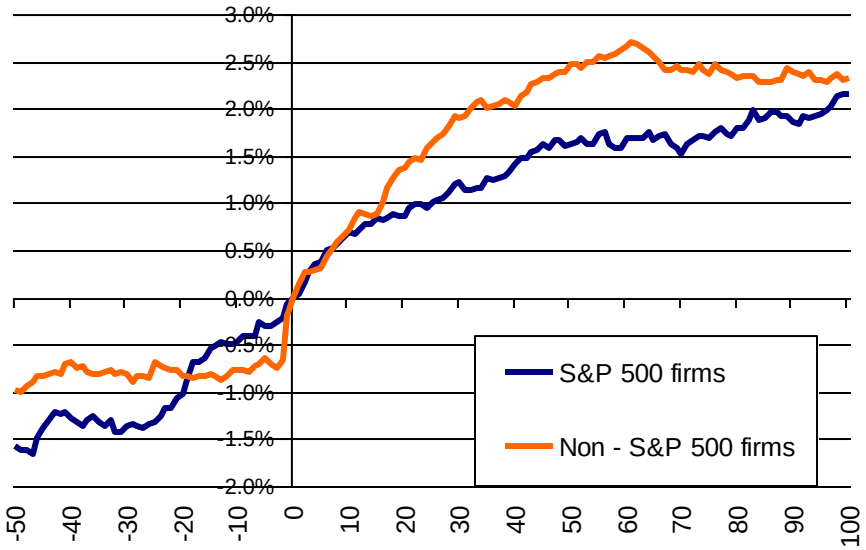


Table 1: Abnormal returns following filing date of stock option awards and exercises

The table shows the cumulative abnormal returns over different windows following filings of stock option awards and exercises by filings by CEOs, Presidents and Chairmen of boards. Abnormal return is calculated as the difference between return on the stock and that on portfolio of stocks with similar size, book-to-market and momentum characteristics. The construction of the matched portfolio is described in Appendix A. Option awards are classified as *expected* if they occur within 15 days before or after a grant date in the previous calendar year. The remaining awards are classified as *unexpected*. The sample consists of expected and unexpected option grants that were given after 29th August 2002 and filed before 1st November 2007. Exercises are classified into three subsamples as follows: Exercises that are not accompanied by any disposition of shares on the exercise date are classified as *no disposition exercises*. Exercises that are accompanied by disposition of shares back to the company only are classified as *Company disposition exercises*. Exercises that are accompanied by open market or private sale of shares on the exercise date are classified as *market sale exercises*. Exercises after 29th August 2002 which were filed before 1st November 2007 are included in the sample. Cumulative abnormal returns over 50 trading days, 22 trading days and 2 trading days following the filing date are presented. Calendar time t-statistics for test of the hypothesis CAR = 0 are shown.

	[+1, +50]		[+1, +22]		[+1, +2]		
Event	**CAR**	**t-stat**	**CAR**	**t-stat**	**CAR**	**t-stat**	**N**
Unexpected Awards	1.79%	**4.83**	1.09%	**4.80**	0.22%	**4.75**	9098
Expected Awards	0.56%	**2.43**	0.21%	1.48	0.03%	1.00	6676
No Disposition Exercises	0.96%	**3.12**	0.64%	**3.30**	0.17%	**3.38**	4812
Company Disposition Exercises	0.13%	-0.40	-0.18%	-1.35	-0.05%	-1.12	2421
Market Sale Exercises	-0.36%	-1.23	-0.35%	**-2.12**	-0.11%	**-4.83**	16693

Table 2: Abnormal returns following option award filings before earnings announcement

The table shows the cumulative abnormal returns over different windows following filings of stock option awards and exercises by CEOs, Presidents and Chairmen of boards that were filed between 3 and 25 trading days before an earnings announcement. Option awards are classified as *expected* if they occur within 15 days before or after a grant date in the previous calendar year. The remaining awards are classified as *unexpected*. Abnormal return is calculated as the difference between return on the stock and that on portfolio of stocks with similar size, book-to-market and momentum characteristics. The construction of the matched portfolio is described in Appendix A. Cumulative abnormal returns over 50 trading days, 22 trading days and 2 trading days following the filing date are presented. Calendar time t-statistics for test of the hypothesis CAR = 0 are shown. Results are shown the full sample period i.e. Sept 2002 to Oct 2007 and for the pre backdating scandal sample period i.e. Sept 2002 to Feb 2006.

		[+1, +50]		[+1, +22]		[+1, +2]		
Period	**Event**	**CAR**	**t-stat**	**CAR**	**t-stat**	**CAR**	**t-stat**	**N**
Full sample period	**Unexpected Awards**	2.94%	**4.84**	2.12%	**4.80**	0.24%	1.61	2388
	Expected Awards	0.87%	1.30	0.54%	0.95	-0.17%	**-2.29**	1573
Pre-scandal period	**Unexpected Awards**	3.63%	**5.48**	2.52%	**4.93**	0.33%	1.67	1776
	Expected Awards	1.07%	1.04	0.77%	0.99	-0.22%	**-2.52**	1167

Table 3: Pattern over time of 50-day CAR following unexpected option award filing
The table shows the mean and median by calendar year of the CAR over [+1, +50] window following the Form 4 filing date of unexpected option awards to CEOs, Presidents and Chairmen of boards. Patell (1976) t-statistics for the test of mean CAR = 0, the proportion of CARs that are positive and z-stat for the test of proportion positive = 50% are presented. Option awards are classified as unexpected if there are no option awards within 15 days before or after the award date in the previous calendar year. The data for the year 2002 only includes exercises after 29th August 2002. The data for the year 2007 only includes exercises that were filed with the SEC before 1st November 2007.

Year	Mean CAR	t-stat	Median CAR	Proportion of +ve CARs	z-stat	N
2002	3.50%	**1.97**	0.89%	52.1%	1.02	601
2003	3.44%	**4.31**	1.24%	53.9%	**3.49**	2050
2004	1.15%	**3.76**	0.94%	53.1%	**2.61**	1807
2005	2.04%	**3.83**	0.76%	53.1%	**2.58**	1785
2006	0.20%	0.64	-0.32%	49.2%	-0.68	1593
2007	0.89%	0.64	-0.21%	49.3%	-0.48	1263

Table 4: Abnormal returns following filing date of stock option awards and exercises in the pre backdating scandal period

This table shows the cumulative abnormal returns over different windows following filings of stock option awards and exercises by CEOs, Presidents and Chairmen of boards. Abnormal return is calculated as the difference between return on the stock and that on portfolio of stocks with similar size, book-to-market and momentum characteristics. The construction of the matched portfolio is described in Appendix A. Option awards are classified as *expected* if they occur within 15 days before or after a grant date in the previous calendar year. The remaining awards are classified as *unexpected*. The sample consists of expected and unexpected option grants that were given after 29th August 2002 and filed before 1st March 2006. Exercises are classified into three subsamples as follows: Exercises that are not accompanied by any disposition of shares on the exercise date are classified as *no disposition exercises*. Exercises that are accompanied by disposition of shares back to the company only are classified as *Company disposition exercises*. Exercises that are accompanied by open market or private sale of shares on the exercise date are classified as *market sale exercises*. Exercises after 29th August 2002 which were filed before 1st March 2006 are included in the sample. Cumulative abnormal returns over 50 trading days, 22 trading days and 2 trading days following the filing date are presented. Calendar time t-statistics for test of the hypothesis CAR = 0 are shown.

	[+1, +50]		[+1, +22]		[+1, +2]		
Event	**CAR**	**t-stat**	**CAR**	**t-stat**	**CAR**	**t-stat**	**N**
Unexpected Awards	2.35%	**5.52**	1.41%	**5.71**	0.25%	**4.28**	6626
Expected Awards	0.66%	**2.52**	0.28%	**2.08**	0.03%	0.31	4802
No Disposition Exercises	0.92%	**2.06**	0.64%	1.86	0.13%	**2.34**	3456
Company Disposition Exercises	0.26%	0.10	-0.08%	-0.66	-0.04%	-0.73	1687
Market Sale Exercises	-0.22%	-1.02	-0.28%	-1.43	-0.11%	**-3.65**	11118

Table 5: Trading strategy abnormal returns: pre-sandal vs post-scandal period
The table below shows the annualized abnormal returns on trading strategies that buy shares of firms 2 days after the filing of an unexpected award or a no-disposition exercise by CEOs, Presidents and Chairmen of boards, and hold them in the portfolio until 22 days after the filing or 50 days the filing. The results are shown for different sample periods: pre-scandal sample (Sept 2002 to Feb 2006) and post-scandal sample (Mar 2006 to Oct 2007). The difference in the performance of the trading strategies between the pre-scandal and post-scandal period is also shown. The abnormal return on these hypothetical portfolios for any day is the equally weighed average of abnormal returns of the stock in the portfolio. Abnormal return for each stock is calculated as the difference between return on the stock and that on a matched portfolio of similar stocks. The construction of the matched portfolio is described in Appendix A. The stocks in the matched portfolio are selected based on the characteristics on the date of the filing. For these results, days on which the hypothetical portfolio has less than ten stocks are not considered and the abnormal return for that day is taken to be zero.

Period	Event	[+3, +22] Abnormal returns (annualized)	t-stat	[+3, +50] Abnormal returns (annualized)	t-stat
Pre-scandal period	**Unexpected Awards**	13.78%	**5.67**	11.04%	**6.31**
	No Disposition Exercises	5.55%	1.70	4.85%	**2.01**
Post-scandal period	**Unexpected Awards**	-1.18%	-0.30	-1.21%	-0.46
	No Disposition Exercises	8.34%	**2.12**	5.50%	1.87
Difference (pre minus post)	**Unexpected Awards**	14.97%	**3.26**	12.25%	**3.85**
	No Disposition Exercises	-2.78%	-0.55	-0.64%	-0.17

Table 6: S&P 500 firms – Abnormal returns following filing date of stock option awards and no-disposition exercises

The table shows the cumulative abnormal returns over different windows following filings of stock option awards and no-disposition exercises by CEOs, Presidents and Chairmen of boards of S&P 500 firms. Exercises that are not accompanied by disposition of shares are classified as no-disposition exercises. Option awards are classified as *expected* if they occur within 15 days before or after a grant date in the previous calendar year. The remaining awards are classified as *unexpected*. Abnormal return is calculated as the difference between return on the stock and that on portfolio of stocks with similar size, book-to-market and momentum characteristics. The construction of the matched portfolio is described in Appendix A. Cumulative abnormal returns over 50 trading days, 22 trading days and 2 trading days following the filing date are presented. Calendar time t-statistics for test of the hypothesis CAR = 0 are shown. Results are shown the full sample period i.e. Sept 2002 to Oct 2007 and for the pre backdating scandal sample period i.e. Sept 2002 to Feb 2006.

		[+1, +50]		[+1, +22]		[+1, +2]		
Period	**Event**	**CAR**	**t-stat**	**CAR**	**t-stat**	**CAR**	**t-stat**	**N**
Full sample period	**Unexpected Awards**	1.23%	**2.13**	0.72%	**2.58**	0.13%	**2.06**	1273
	Expected Awards	0.32%	-0.08	0.08%	-0.54	-0.03%	-0.38	1926
	No Disposition Exercises	1.22%	**2.09**	0.75%	1.76	-0.05%	-0.79	469
Pre-scandal period	**Unexpected Awards**	1.63%	**2.26**	0.99%	**2.90**	0.17%	**2.03**	929
	Expected Awards	0.48%	0.50	0.12%	-0.12	-0.09%	-1.71	1413
	No Disposition Exercises	1.75%	**2.68**	0.81%	**2.41**	0.00%	0.11	341

Table 7: S&P 500 firms – Trading strategy abnormal returns

The table below shows the annualized abnormal returns on trading strategies that buy shares of firms two days after the filing of an unexpected award or a no-disposition exercise by CEOs, Presidents and Chairmen of boards, and hold them in the portfolio until 22 days after the filing or 50 days the filing. Only firms that are in the S&P 500 at the time of the filing are included in the sample. The abnormal return on these hypothetical portfolios for any day is the equally weighed average of abnormal returns of the stock in the portfolio. Abnormal return for each stock is calculated as the difference between return on the stock and that on a matched portfolio of similar stocks. The construction of the matched portfolio is described in Appendix A. The stocks in the matched portfolio are selected based on the characteristics on the date of the filing. Results are presented for the periods Sept 2002 to Dec 2007 (full sample period) and Sept 2002 to Feb 2006 (pre-scandal period). For these results, days on which the hypothetical portfolio has less than five stocks are not considered and the abnormal return for that day is taken to be zero.

Period	Event	[+3, +22] Abnormal returns (annualized)	t-stat	[+3, +50] Abnormal returns (annualized)	t-stat
Full sample period	**Unexpected Awards**	6.46%	**2.47**	4.30%	**2.05**
	No Disposition Exercises	7.57%	**1.96**	6.12%	1.90
Pre-scandal period	**Unexpected Awards**	8.60%	**2.47**	5.84%	**2.21**
	No Disposition Exercises	8.61%	1.82	7.47%	**1.96**