

Stock Option Grants: Opportunistic Timing or Efficient Contracting? *

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Abstract

This study examines how the Sarbanes-Oxley Act of 2002 and the compensation disclosure rules of 2006 affect the timing of stock options granted to executives and directors. We find that in the post-disclosure-regulation period, opportunistic timing behaviour persists for executive grants but not for director grants. Investors can earn abnormal returns of 6%, 2.4%, and 1.2% within 30 days following executive option grants in the pre-SOX, post-SOX, and post-disclosure-regulation periods, respectively. The significant economic gain suggests that executives benefit from the flexibility of timing option grants. We also find that the degree of timing behaviour is negatively associated with the level of executive total compensation and equity compensation. The evidence suggests that boards of directors are aware of timing behaviour but add no restrictions, consistent with the argument that timing option grants is part of efficient contracting.

Keywords: Stock Options, Disclosures, Regulations, Sarbanes-Oxley Act, Compensation

JEL classification: M41, M52, K22, G38

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股票期权授予：机会主义择时或有效契约？

摘要

本文研究 2002 年萨班斯-奥克斯利法案（简称《SOX 法案》）和 2006 年薪酬披露规则如何影响股票期权授予高管人员和董事的时机。本研究发现在披露规则实施后期间，高管人员的期权授予持续存在机会主义择时行为，但董事的期权授予则没有这类行为。在《SOX 法案》实施前、实施后，以及披露规则实施后的期间，投资者能在高管人员获期权授予后的 30 日内分别赚取 6%、2.4%，以及 1.2% 的异常收益。这种显著的经济利益显示高管人员可从期权授予时机的灵活性中获益。此外，本研究亦发现择时行为的程度与高管总薪酬和股权薪酬水平呈负相关。证据表明董事会意识到择时行为，但没有施加限制，符合有论据指期权授予择时行为是有效契约的一部分。

关键词：股票期权、披露、规例、萨班斯-奥克斯利法案、薪酬

I. Introduction

Opportunistic option-timing behaviour has attracted a great deal of interest from academics, regulators, and practitioners. Timing news events against option grants and backdating option grants were popular practices in the past (Yermack, 1997; Aboody and Kasznik, 2000; Lie, 2005). While it is widely accepted that retroactively altering the option grant date to an earlier date when the stock price was lower than that on the actual grant date without proper disclosure and accounting recognition (backdating) is fraudulent and illegal, the propriety of other alternative timing strategies has sparked debates in the accounting, finance, and law community. For example, there are mixed views on spring-loading, a practice whereby firms time stock option awards just before positive news announcements.² Opponents criticise spring-loading because it benefits the executive option recipients but not shareholders, and hence they characterise it as a form of insider trading that impairs investors' confidence. Defenders of spring-loading, however, argue that it can be considered as discounted options and that it is a legitimate, and even an efficient, means of executive compensation. The Sarbanes-Oxley Act of 2002 (hereinafter SOX) and the 2006 executive compensation disclosure rules may effectively eliminate option backdating, but neither prohibits timing news events or option grants. In its news release regarding the 2006 compensation disclosure rules, the Securities and Exchange Commission (SEC) states: "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."

Without strict regulations from the SEC, firms can play opportunistic timing games that involve timing option grant dates when news announcement dates are fixed but option grant dates are variable or timing news releases when option grant dates are fixed but news announcement dates are variable. In this paper, we examine the timing behaviour for both scheduled and unscheduled option grants to executives and directors. Specifically, we answer the following research questions. First, do the regulations effectively discipline timing behaviour? If not, do managers time news events or time grant dates or do both? Since many corporate events, such as earnings announcements, are fixed, separating option grants that are scheduled from those that are unscheduled would provide insights into which timing practices managers have been engaging in. Second, are directors aware of timing behaviour? Is the likelihood of timing behaviour associated with the level of total compensation and equity compensation? If timing behaviour is viewed as a form of insider trading that serves as a substitute for executive compensation, boards of directors have

² Bullet-dodging, the practice whereby negative news is announced before option grants, is also questioned. However, this practice is less popular compared to spring-loading because negative news announced before option grants would increase the scrutiny from investors. Earlier studies show that returns are relatively flat before scheduled option grants (e.g. Aboody and Kasznik, 2000). Thus, in this study, we focus on spring-loading to examine timing behaviour.

to give executives latitude in timing option grants, and such flexibility would reduce the total and equity compensation paid to executives. In that regard, option timing practice can be viewed as part of efficient contracting. Prior studies report that option backdating occurs in both executive and director groups (e.g. Bebchuk *et al.* 2010); if timing behaviour is part of efficient contracting, it should not be associated with directors' option grants.

Our research questions are motivated by the mixed views on the propriety of firms' option timing practice and whether it is a vehicle for efficient contracting. In contrast to backdating that uses the benefit of hindsight, timing practice involves executives using foreknowledge of firm-specific information before it hits the market to gain an instant paper profit on their option compensation: for example, managers withholding information from the public while granting options on the basis of that very information. Therefore, timing behaviour such as spring-loading is essentially equivalent to insider trading without restrictions. Roulstone (2003) and Denis and Xu (2013) conclude that insider-trading restrictions are a substitute for executive compensation on the basis of the observed positive association between insider-trading restrictions and the level of executive compensation in the US and international settings, respectively. If spring-loading is a common practice even in the post-regulations period and the likelihood of spring-loading is negatively related to the level of executive compensation, we would suggest that timing behaviour in option grants is a type of efficient contracting. The fact that the SEC has not taken any steps to regulate spring-loading beyond requiring more detailed disclosure provides firms with the possibility of continuing the practice.³

We conduct two sets of analyses and document that opportunistic timing persists even after the 2006 compensation disclosure rules. First, we compare the asymmetric pattern of stock returns around option grants to CEOs with that around option grants to independent directors. We find that the asymmetric return pattern around unscheduled option grants to CEOs exists even in the presence of stringent regulations, but the asymmetric pattern does not exist for director grants. If boards' decisions on option grant timing are aimed at motivating executives to work hard, they should act on an informed basis when making such decisions. The difference in timing behaviour between CEO grants and director grants suggests that CEOs are given discretion about decisions on the timing of stock option grants. The findings are consistent with the notion in Roulstone (2003) and Denis and Xu (2013) that the possibility of insider trading may be a vehicle for efficient contracting.

Second, we examine the asymmetric patterns of news releases before and after option grants. We find that favourable news announcements of earnings and management forecasts

³ Spring-loading may not fit into the definition of illegal insider trading, as the former Commissioner Paul Atkins asserted the following: "An insider trading theory falls flat in this context where there is no counterparty who could be harmed by an options grant. The counterparty here is the corporation—and thus the shareholders! They are intended to benefit from the decision." See <http://www.sec.gov/news/speech/2006/spch070606psa.htm>.

tend to be released shortly after CEO grants under all three different regulatory regimes and that the strategic timing leads to significant economic consequences. Specifically, we document abnormal returns of 6%, 2.4%, and 1.2% within one month following option grants in the pre-SOX, post-SOX, and post-disclosure periods, respectively. If directors do not have incentives to give the flexibility of timing option grants to the CEOs, the likelihood of observing good (bad) news after (before) the option grants would be similar for the grants to CEOs and directors. Our finding is quite the contrary: We find that the news disclosure pattern for director grants disappears after the 2006 compensation disclosure rules. In the pre-SOX period, Bebchuk *et al.* (2010) document that backdating exists for option grants to both CEOs and directors. Our finding further confirms the idea that directors are informed about the likelihood of CEOs' timing behaviour in the post-SOX and post-regulation periods.

Furthermore, we examine the relation between option timing and executive compensation. We find that the likelihood of timing option grants is negatively associated with the level of executive compensation. This evidence suggests that firms with low flexibility in timing option grants would increase incentives by paying higher total and equity compensation to executives. The finding provides further support to the conclusion in Roulstone (2003) and Denis and Xu (2013) and is consistent with the argument that allowing executives to time stock options is part of efficient contracting.

Our paper makes two major contributions. First, we document the evolutionary process of stock option timing behaviour. Whereas backdating has been eliminated due to tightened regulations and public scrutiny, spring-loading as an alternative mechanism to increase compensation persists. Prior studies on the topic of the manipulation of stock option grants focus primarily on the effect of SOX or the pre-2006 period (e.g. Aboody and Kasznik, 2000; Lie, 2005; Narayanan *et al.*, 2007; Narayanan and Seyhun, 2008, etc.), but less is known about how the more stringent compensation disclosure rules of 2006 have affected option timing practices. Daines *et al.* (2018) provide evidence showing that the 2006 compensation disclosure rules have not entirely eliminated the timing game, but they focus on scheduled option grants. Implicitly, their results suggest that the timing game is driven by timing new events. Our study documents that the timing behaviour is more significant for unscheduled option grants, suggesting that timing option grant dates is more important than timing news events in the timing game. A key difference between our study and Daines *et al.* (2018) is that we use a more precise and tightened definition to categorise scheduled grants, and therefore, we find different return patterns around scheduled grants.⁴ Our conclusion is further supported by the fact that the abnormal

⁴ Daines *et al.* (2018) consider a grant to be scheduled if it occurs within +/- one-week window of the prior year's grant anniversary. We classify a grant as scheduled if it is dated within one day of the one-year anniversary of a prior grant or annual board meeting date. Heron and Lie (2007, 2009) provide a detailed explanation for the choice of using +/- one-day instead of +/- one-week window as the classification criteria for scheduled grants.

returns over the 30 trading days following unscheduled option grants associated with fixed and variable earnings announcements are 1.27% and 1.65%, respectively. The comprehensive time-series analyses in this study contribute to our understanding of the mechanism behind stock option timing practice.

Second, our analyses add to the insider trading literature by showing that stock option timing practice contains an element of efficient contracting. Roulstone (2003) and Denis and Xu (2013) find that insider trading restrictions are positively associated with the level of executive compensation, so that firms with more restrictions on insider trading policy have to pay a premium in executive compensation. Our study reaches a similar conclusion in a different setting. We show that the firms with “disappearing” timing behaviour with respect to option grants actually pay higher total and equity compensation. Combined with the finding that the timing behaviour with respect to option grants to executives is different from that with respect to directors, such within-firm analyses provide direct evidence that the economically significant timing behaviour of firms with respect to stock option grants may be part of efficient contracting. The conclusion is also different from the findings in Daines *et al.* (2018) that executives with higher equity compensation are more likely to be engaged in timing behaviour.

The remainder of this paper is structured as follows: Section II summarises the literature and develops the hypotheses, section III describes our data and sample selection, section IV presents the empirical results, section V reports additional analyses, and section VI concludes the paper.

II. Literature Review, Institutional Background, and Hypothesis Development

2.1 Different Types of Opportunistic Timing Practices

Prior studies document three explanations for the abnormal stock return patterns around CEO option grants: (1) the opportunistic timing of option grants (Ali *et al.*, 2011; Devos *et al.*, 2015; Yermack, 1997), (2) the opportunistic timing of corporate news disclosures (Aboody and Kasznik, 2000; Chauvin and Shenoy, 2001), and (3) the backdating of option grants (Bernile and Jarrell, 2009; Bernile *et al.*, 2015; Bizjak *et al.*, 2009; Collins *et al.*, 2009; Ertimur *et al.*, 2012; Lie, 2005; Narayanan *et al.*, 2007; Narayanan and Seyhun, 2008).⁵ The discovery of these equity compensation maximisation channels in the

⁵ In addition to manipulation of stock option grant dates, several other papers examine and find evidence on the manipulation of stock option exercises. For example, Cicero (2009) shows that executives use private information to manipulate option exercises and likely backdated some exercise dates in the pre-SOX period to enhance the profitability of the option exercises. Brockman, Martin, and Puckett (2010) find a significant increase in the frequency and magnitude of good (bad) news announcements in the pre-exercise period when CEOs implement exercise-and-sell (exercise-and-hold) strategies. They provide some evidence that CEOs' propensities for opportunistic disclosures are positively related to the value of their exercised stock options. Moreover, they find that SOX generally reduces, but does not eliminate, this type of managerial opportunism.

literature has been gradual. Yermack (1997) first shows that stock option awards between 1992 and 1994 were followed by positive abnormal returns. He interprets the results as evidence that CEOs opportunistically time option awards before the disclosure of favourable corporate news. Aboody and Kasznik (2000) further investigate voluntary disclosures around scheduled option grants from 1992 to 1996 and find evidence consistent with the notion that managers time their information releases by delaying good news and rushing forward bad news. The backdating hypothesis was later proposed and tested by Lie (2005), who shows that managers retroactively alter the option grant date to an earlier date when the stock price was lower than that on the date when the option was actually awarded.

Among the three timing practices mentioned above, backdating uses the benefit of hindsight, and hence, it appears to be the easiest to execute in the absence of stringent reporting rules. A firm may also coordinate its grant of stock options with the release of material non-public information so that option recipients can profit from a future increase in the stock price. Spring-loading encompasses the opportunistic timing of option grants and the opportunistic timing of corporate news disclosures. It describes the act of granting stock options before the release of favourable corporate news that will boost the stock price. This has the effect of minimising the stock price on the grant date and therefore increasing option compensation. Unlike backdating, spring-loading involves executives using foreknowledge of firm-specific information to gain an instant paper profit on their stock option compensation.

2.2 The Effect of SOX and the 2006 Mandated Compensation Disclosure

In 2002, in line with Section 403 of the SOX Act, the SEC amended the reporting regulations for stock option grants. Prior to SOX, the options were often reported on Form 5, which was only due 45 days after the end of the company's fiscal year, or alternatively were reported on Form 4, which had to be filed within the first 10 days of the month following the month of the grant. After 2002, SOX required grant recipients to report the grants to the SEC on Form 4 within two business days following the execution date of the transaction. The two-business-day reporting requirement substantially limits a firm's ability to backdate option grants because at most only two days of backdating are possible under SOX. Consistent with this notion, Heron and Lie (2007) find that backdating is dramatically curtailed following SOX, although the asymmetric return pattern around option grant dates still exists. The V-shaped abnormal return pattern could be due to the fact that many firms delay the filing of Form 4 or to firms timing option grants in coordination with future anticipated stock returns or timing corporate disclosure around option grants.

In the wake of backdating scandals in 2006, the SEC further amended the executive compensation disclosure rules by providing broader tabular disclosure and improving narrative disclosure. Under the new disclosure rules, a firm is required to disclose (1) grants of stock options in the Summary Compensation Table at their fair value on the date of grant,

as determined under FAS 123R;⁶ (2) the grant date as determined pursuant to FAS 123R in the Grants of Plan-Based Awards Table; (3) the closing price on the grant date if it is greater than the exercise price of the option; and (4) the date the compensation committee or full board of directors took action to grant the option if that date is different from the grant date. In addition to the stringent tabular disclosure, firms are required to address matters relating to the timing and pricing of stock option grants in the new Compensation, Discussion, and Analysis (CD&A) section.⁷ On 16 December 2009, the SEC adopted amendments to the compensation disclosure rules. Effective as of 28 February 2010, the amended rule requires companies to report the value of options when they are awarded to executives (the aggregate grant date fair value), whereas previously they were required to report the annual accounting charge.⁸

Under the new compensation disclosure rules, the SEC does not prohibit spring-loading *per se* as long as firms fully disclose such information to the shareholders. In its release adopting the final rules in August 2006, the SEC states:

“We understand that some companies grant options in coordination with the release of material non-public information. If the company had since the beginning of the last fiscal year, or intends to have during the current fiscal year, a program, plan or practice to select option grant dates for executive officers in coordination with the release of material non-public information, the company should disclose that in the Compensation Discussion and Analysis section.”

In essence, the release clarifies that the SEC does not prohibit spring-loading as long as the firm provides sufficient disclosure when in possession of material non-public information. Therefore, we expect no backdating, but firms may engage in timing practice to increase their stock option compensation with the introduction of the 2006 compensation disclosure rules. We highlight the possibility of each opportunistic behaviour in three different regulatory regimes in Figure 1.

Prior studies have examined the impact of the 2006 compensation disclosure rules. Robinson *et al.* (2011) study the economic forces that influence non-compliance with mandated disclosures and the effect of subsequent SEC enforcement actions. Grinstein *et al.* (2017) investigate the effect of the 2006 rule requiring enhanced disclosure of executive perks. For firms that disclose for the first time in 2006, they predict and find that perks decrease in 2007, reflecting both the costs of increased disclosure and enhanced monitoring. However, this decrease in perks is offset by higher levels of non-perk compensation. Daines *et al.* (2018) find that many firms moved to scheduled option grants after the introduction of the new compensation disclosure rules and that firms influence stock prices around option grants by

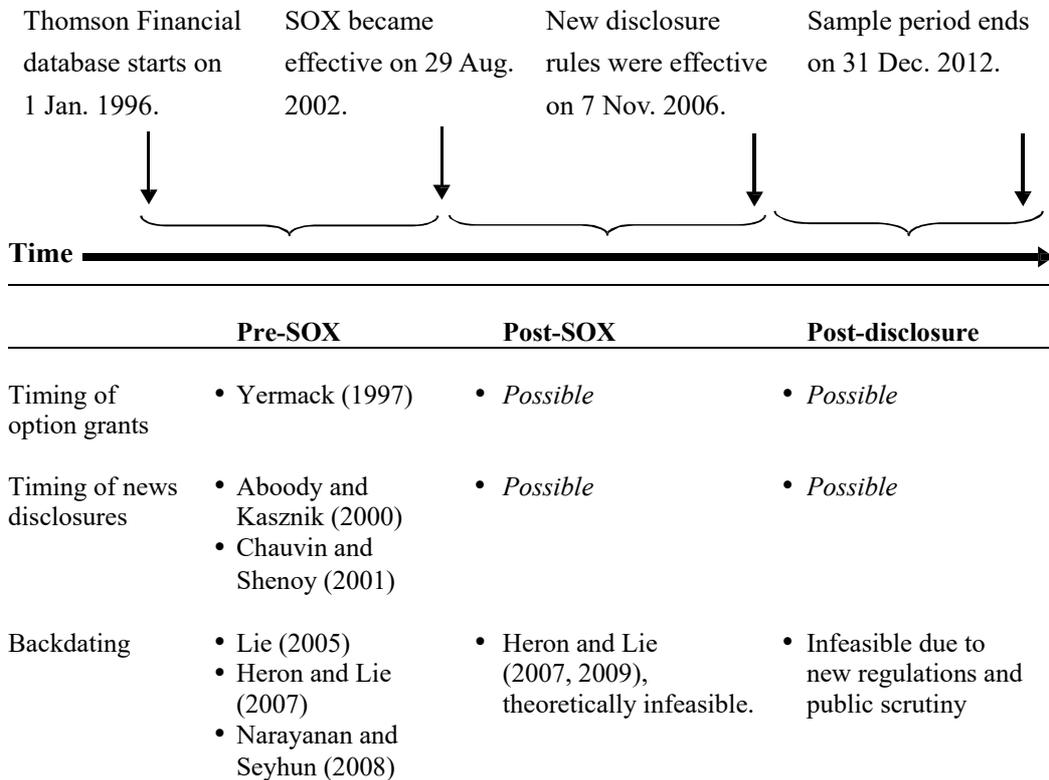
⁶ We do not expect FAS 123R to have an impact on option grant timing. See Hayes *et al.* (2012) for the impact of FAS 123R on corporate use of stock option grants.

⁷ For details of the final rule, see <http://www.sec.gov/rules/final/2006/33-8732a.pdf>.

⁸ For details of the amendments, see <https://www.sec.gov/rules/final/2009/33-9089.pdf>.

manipulating the timing of news disclosures or the firm's investments.

Figure 1 Timeline of Option Grant Events and Possible Managerial Actions Identified in the Literature



2.3 Hypothesis Development

The SOX regulations combined with the 2006 compensation disclosure rules have made illegal option backdating virtually impossible, so if option grants still show signs of manipulation, it is most likely due to opportunistic timing behaviour. As shown in Figure 1, we predict that both timing of option grants and timing of news events exist after 2006 and that the abnormal returns surrounding option grant dates are stronger for unscheduled grants than for scheduled grants. This is mainly because *ex ante*, the flexibility of grant dates for unscheduled grants allow firms to have two potential channels of manipulation—either timing option grants or timing news events. Thus, we hypothesise as follows:

Hypothesis 1: Timing behaviour on CEO option grants still exists following the 2006 compensation disclosure rules and is stronger for unscheduled grants than for scheduled grants.

As previously discussed, there are mixed views among regulators and researchers as to

whether spring-loading should be considered as insider trading that poses reputational and legal risks (Shaw, 2006). Those who maintain that spring-loading resembles insider trading do so by arguing that the firm has acted on information not available to the general public at the time when the options were granted. Illegal insider trading refers to corporate insiders' buying or selling a security, in breach of a fiduciary duty or other relationship of trust and confidence, while in possession of material, non-public information about the security.⁹ However, spring-loading is often difficult to address, not only because the tactics that companies use vary but also because in hindsight, it is easy for executives to construct plausible business reasons to justify their decisions on grant timing. As argued by some legal researchers, spring-loaded options can be viewed as discounted options, and the upward adjustment that results from the release of insider information is the size of the discount (Anabtawi 2004). The latter argument implies that spring-loading is part of efficient contracting. If this is true, we expect to observe that the executives from firms whose timing behaviour has been cultivated should be compensated with higher total or equity compensation. We thus hypothesise as follows:

Hypothesis 2: Total and equity compensation are positively associated with the change of timing behaviour on CEO option grants following the 2006 compensation disclosure rules.

To be consistent with the efficient contracting argument, we should not observe any evidence supporting timing behaviour on the options grants to directors.

III. Data and Sample Selection

We contrast CEO option grants with director grants in our primary analyses. We define an individual as a CEO if he or she is identified as either CEO or President in the Thomson Financial Insider database. An independent director is someone identified in the Thomson Financial database as a director (Role Code 1 D) and not identified as having any other roles in the firm. We drop the director grants that are awarded on the same day as the CEO grants to rule out the possibility that the opportunistic timing of director grants is the product of choices that tied the interests of independent directors with those of the CEO (Bebchuk *et al.*, 2010). We obtain earnings announcement dates and accounting data from Compustat, stock market information from the Center for Research in Securities Prices (CRSP), management forecasts from First Call, annual board meeting dates from RiskMetrics, and management

⁹ Rule 10b-5, issued by the SEC under section 10b of the Exchange Act, states: "It shall be unlawful for any person, directly or indirectly, by the use of any means or instrumentality of interstate commerce, or of the mails or of any facility of any national securities exchange, (a) to employ any device, scheme, or artifice to defraud, (b) to make any untrue statement of a material fact or to omit to state a material fact necessary in order to make the statements made, in the light of the circumstances under which they were made, not misleading, or (c) to engage in any act, practice, or course of business which operates or would operate as a fraud or deceit upon any person, in connection with the purchase or sale of any security."

compensation data from Capital IQ People Intelligence. Our sample period is from 1996 to 2012. We further classify our sample into three periods: (1) pre-SOX period from 1 January 1996 to 28 August 2002; (2) post-SOX period from 29 August 2002 to 6 November 2006; and (3) post-disclosure period from 7 November 2006 to 31 December 2012.

Consistent with Bebchuk *et al.* (2010), we construct our at-the-money CEO option grants using the following procedure. First, we keep the grants in the Thomson Financial Insider Filings database that have a cleanse indicator of R, H, or C. Second, for grants with varying vesting or maturity dates, Thomson Financial reports them as multiple records. We collapse such grants for each CEO occurring on the same day with a valid exercise price into one grant to reduce the impact of the weight carried by different vesting schedules. Third, we eliminate the grants in months where the firms went ex-dividend and require returns to be available for the entire month of the grant dates. Fourth, we also check whether the exercise price of the grant is the same as or close enough to—that is, where the price difference is less than 1%—the closing price on the reported grant date or the closing price one day before or after the grant date. The date with the nearest closing price to the exercise price is then defined as the grant date. The detailed sample selection procedures are presented in Table 1.

Table 1 Sample Selection

All CEO grant records between January 1996 and December 2012	72,886
Required to have a cleanse indicator of R, H, or C	(21,561)
Eliminating grants with a difference between the closing price and the exercise greater than 1%	(16,410)
Eliminating grants in months where the firms went ex-dividend	(4,980)
Eliminating grants without returns available around (-1,-30) and (1,30)	(107)
Final number of grants	<u><u>29,828</u></u>

This table presents our sample selection procedures. The final sample includes 29,828 CEO grants.

We investigate both scheduled and unscheduled grants. If a grant is scheduled, it is unlikely for firms to manipulate the grant date, but it is still possible for them to opportunistically time a news release around the grant date. Therefore, we test scheduled and unscheduled grants separately when examining both types of timing behaviour. We define a grant as scheduled if it occurs within one day of the one-year anniversary of the prior grant or annual board meeting date, and as unscheduled otherwise. These screens yield a sample of 29,828 CEO grants, including 3,220 scheduled grants and 26,608 unscheduled grants, from 1 January 1996 to 31 December 2012. We check the monthly distribution of unscheduled and scheduled CEO option grants. The frequency of grants in January and February is greater than that in other months of the year, except that scheduled grants also appear to be frequent in

May, following the usual annual board meeting time.

IV. Empirical Analyses

4.1 Stock Returns around Scheduled and Unscheduled Option Grants

If directors are well informed about granting CEO stock options and give executives the flexibility of timing news events or option award dates, we are likely to observe different asymmetric return patterns around both CEO and director option grants. We thus compare the return patterns around unscheduled CEO grants and unscheduled director grants. We are more interested in unscheduled grants than in scheduled grants because the former provide opportunities for both the timing of option grants and the timing of corporate news disclosures. For scheduled option grants, neither backdating nor opportunistic timing of option grants is likely to occur, so the abnormal pattern of stock returns around scheduled grants, if any, should be attributed to the opportunistic timing of news disclosures. In contrast, for unscheduled option grants, all three types of behaviour can contribute to the abnormal return pattern in the pre-SOX period, whereas in the post-SOX and post-disclosure periods, backdating is largely eliminated and hence the other two timing behaviours may become the major sources of the asymmetric return pattern around grant dates.

We first examine the existence of spring-loading by investigating whether the trough pattern of stock returns around the grant date continues to exist in the post-SOX and post-disclosure periods. We calculate the cumulative abnormal returns for the window of 30 trading days before and after the option grant date. The abnormal returns are the difference between raw returns and value-weighted market returns. In the absence of backdating or timing behaviour, there should be no statistical difference between the cumulative abnormal returns in the window from day -30 to day -1 (i.e. $CAR(-30, -1)$) and those in the window from day 1 to day 30 (i.e. $CAR(1, 30)$), where day 0 is the option grant date.¹⁰

Table 2 presents the results. First, Panel A shows that the difference between $CAR(1, 30)$ and $CAR(-30, -1)$ across all three sample periods is significant for unscheduled grants to CEOs, although the magnitude decreases from 9.55% in the pre-SOX period to 3.13% in the post-SOX period, and further to 1.41% in the post-disclosure period. This finding suggests that the trough pattern of stock returns is most prevalent before SOX, possibly driven by all three types of timing game. Under the tightened reporting requirement of SOX, backdating is presumed to be greatly diminished, especially after the revelation of backdating practice and the subsequent investigations launched by the federal prosecutors. Hence, the significant

¹⁰ Heron and Lie (2009) calculate the difference using raw returns. Under the assumption that the difference should be centred on zero, they are able to infer the fraction of option grants that are backdated or manipulated. We use the difference in CAR to further take care of return seasonality—for example, the January effect. This control is important because February is the month with the largest number of option grants. We also exclude day 0 , the option grant date, in the comparison of returns. All results are robust when we replace day $(-30, -1)$ with day $(-29, 0)$.

difference in returns in the post-SOX and post-disclosure periods can be attributed to the timing of either option grants or corporate news disclosures. Second, Panel B presents the return pattern for unscheduled director grants that are not awarded simultaneously with CEO grants. The difference in CAR also decreases over time, and more importantly, it becomes insignificant in the post-disclosure period, suggesting that the asymmetric return for unscheduled grants to directors disappears after 2006. A comparison between Panel A and Panel B shows that the asymmetric return pattern is more distinct for CEOs than for directors for all three sub-periods, suggesting that grants to directors are not as well timed as grants to CEOs with respect to news releases. One implication of this evidence is that directors have given CEOs the discretion to make decisions on the award date of their stock option compensation.

Table 2 Cumulative Abnormal Returns around Option Grant Dates

Panel A CEO unscheduled grants

	(1) Pre-SOX		(2) Post-SOX		(3) Post-disclosure	
	Number of grants	CAR	Number of grants	CAR	Number of grants	CAR
(-30, -1)	12,799	-3.24***	7,257	0.57***	6,552	0.00
(1, 30)		6.31***		3.70***		1.41***
Difference		9.55***		3.13***		1.41***

Panel B Director unscheduled grants

	(1) Pre-SOX		(2) Post-SOX		(3) Post-disclosure	
	Number of grants	CAR	Number of grants	CAR	Number of grants	CAR
(-30, -1)	21,781	-0.11	16,671	1.07***	12,409	0.71***
(1, 30)		1.43***		2.29***		1.03***
Difference		1.54***		1.22***		0.32

Panel C CEO scheduled grants

	(1) Pre-SOX		(2) Post-SOX		(3) Post-disclosure	
	Number of grants	CAR	Number of grants	CAR	Number of grants	CAR
(-30, -1)	1,063	1.10**	865	1.02***	1,292	1.19***
(1, 30)		1.14**		0.90**		0.91**
Difference		0.04		-0.12		-0.29

The table shows the cumulative abnormal returns around option grant dates for CEO and director grants in the three periods—pre-SOX, post-SOX, and post-disclosure—respectively. Scheduled option grants are those granted either within one day of the one-year anniversary of prior grants or within one day of the annual board meeting date. $CAR(-30, -1)$ and $CAR(1, 30)$ are the cumulative abnormal returns in the 30-trading-day window before and after an option grant date, respectively, where day 0 is the grant date. Abnormal returns (in percentage) are calculated as the difference between raw returns and value-weighted market returns. *, **, and *** indicate the 0.1, 0.05, and 0.01 (two-tailed) significance levels, respectively.

Third, to provide additional insights into the evolution of the grant timing behaviour, we report the results for CEO scheduled option grants in Panel C. We find no significant difference between $CAR(1, 30)$ and $CAR(-30, -1)$ in any of the three periods (0.04%, -0.12%, and -0.29%). The findings indicate that the timing of corporate news events is not significant for scheduled grants in our sample period. This evidence is different from the findings in Daines *et al.* (2018), which define scheduled options as the options awarded within 7 days before and after the anniversary grant date, but is consistent with the argument in Heron and Lie (2007) that once scheduled option grants are redefined as within one day instead of within one week of the prior year's grant anniversary, the abnormal returns largely disappear.

Overall, our evidence supports the first hypothesis that after SOX and even in the post-disclosure period, executives are still tempted to time either grant dates or corporate disclosures associated with the unscheduled grants to increase their option value.

4.2 Timing of Option Grants and Corporate News Events

We further test whether CEOs game the timing of the news release or/and option grants. We compare how CEOs and directors align the option grant dates with announcements of two corporate events that have been shown in previous studies to affect stock returns. Following Aboody and Kasznik (2000), we focus on earnings announcements and management forecasts as our corporate news events. Specifically, we examine whether firms grant options before (after) good (bad) news. We use three-day cumulative abnormal returns (denoted as $CAR3d$) around the event dates to classify whether a specific event is good or bad news. It follows that if firms time option grants strategically to increase potential option value, the likelihood of observing good news (positive $CAR3d$) would be higher after the option grants than before the grants. Therefore, the $CAR3d$ for events in the half quarter after the option grants is expected to be higher than that for events in the half quarter before the option grants. Furthermore, on the basis of the argument that CEOs are better informed than independent directors on the exact timing of these news releases, we expect that evidence to support the timing hypothesis for grants awarded to independent directors is less likely to be found.

Table 3 presents the difference in $CAR3d$ between the two windows for both unscheduled and scheduled grants. Panel A presents the difference in $CAR3d$ for unscheduled CEO grants. Consistent with our expectations, the news disclosed is negative in the half quarter before option grant dates and positive afterwards for both earnings announcements and management forecasts across the three periods, with only one exception, namely that news contained in management forecasts prior to the grant is a positive 0.22% (but insignificant from zero) in the post-disclosure period. The differences in $CAR3d$ are significant in all three periods but diminish over time. Specifically, for earnings announcements, the difference is 1.89%, 1.16%, and 0.55% in the pre-SOX, post-SOX, and post-disclosure periods, respectively. The difference is larger for management forecasts: 5.54%, 1.66%, and 0.62% for the three periods, respectively. Compared to earnings announcement dates that are largely fixed for many firms

(Bagnoli *et al.*, 2002), management forecasts are voluntary. Thus, our findings indicate that management has more discretion about choosing the time of issuing forecasts. Consistent with the findings in the previous section, these results suggest that the opportunistic timing of CEO grants and of news disclosures continue to exist in the post-disclosure period.

Table 3 News Events around Option Grant Dates

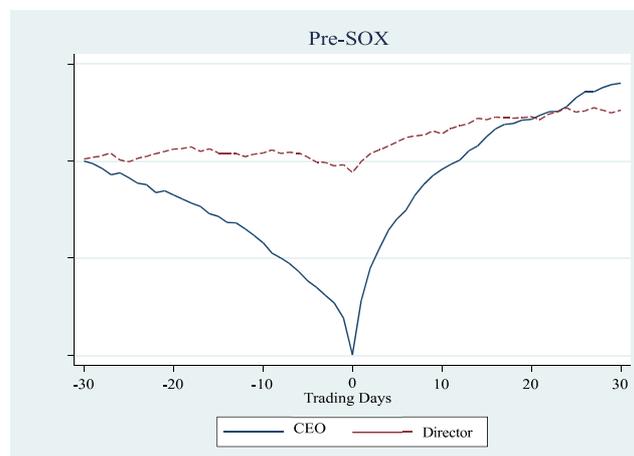
<i>Panel A CEO unscheduled grants</i>						
	(1) Pre-SOX		(2) Post-SOX		(3) Post-disclosure	
	Number of events	CAR3d	Number of events	CAR3d	Number of events	CAR3d
<u>Earnings announcement</u>						
Before	5,998	-0.32	3,714	-0.34	3,940	-0.28
After	5,473	1.57	3,056	0.82	2,332	0.26
<i>Difference</i>		1.89***		1.16***		0.55**
<u>Management forecast</u>						
Before	1,943	-4.80	2,372	-0.67	1,645	0.22
After	1,650	0.73	1,848	0.99	850	0.84
<i>Difference</i>		5.54***		1.66***		0.62*
<i>Panel B Director unscheduled grants</i>						
	(1) Pre-SOX		(2) Post-SOX		(3) Post-disclosure	
	Number of events	CAR3d	Number of events	CAR3d	Number of events	CAR3d
<u>Earnings announcement</u>						
Before	11,850	0.45	8,921	-0.31	7,658	0.59
After	7,100	0.55	6,441	0.16	3,831	0.06
<i>Difference</i>		0.10		0.47***		-0.53**
<u>Management forecast</u>						
Before	2,821	-4.13	4,221	0.08	2,951	0.96
After	2,480	-0.59	3,828	-0.15	1,511	-0.24
<i>Difference</i>		3.53***		-0.23		-1.20***
<i>Panel C CEO scheduled grants</i>						
	(1) Pre-SOX		(2) Post-SOX		(3) Post-disclosure	
	Number of events	CAR3d	Number of events	CAR3d	Number of events	CAR3d
<u>Earnings announcement</u>						
Before	711	0.90	507	0.92	911	0.34
After	304	1.43	301	1.17	375	0.02
<i>Difference</i>		0.52		0.26		-0.32
<u>Management forecast</u>						
Before	275	-1.42	393	0.82	589	0.97
After	167	-1.20	296	-0.27	306	0.45
<i>Difference</i>		0.22		-1.09**		-0.52

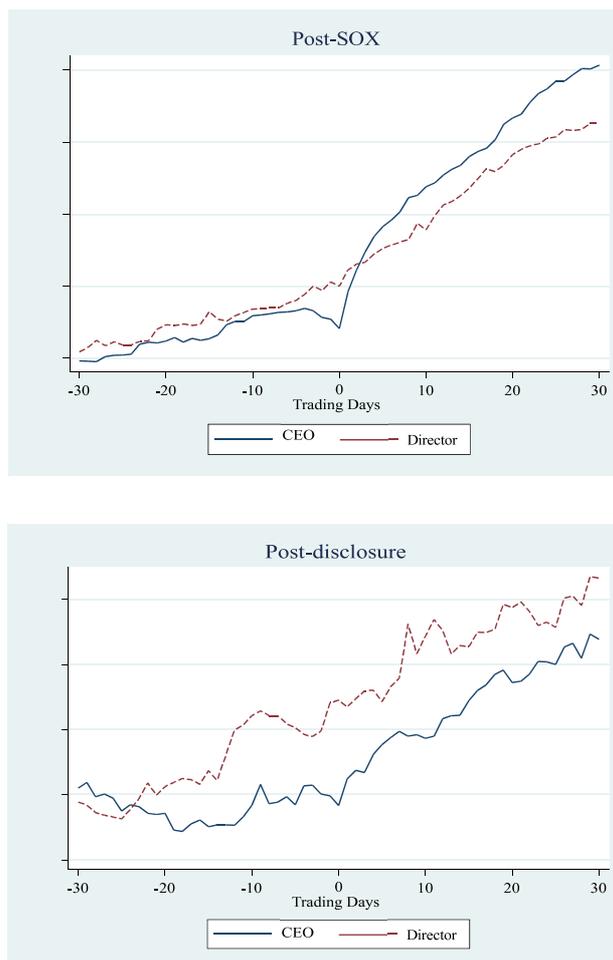
This table shows the average three-day market-adjusted returns around two common news events in the half quarter before and after the grant dates for the unscheduled options awarded to CEOs (Panel A) and directors (Panel B) and for the scheduled options awarded to CEOs (Panel C). “Before” (“After”) denotes 45 days before (after) the option grant dates. **and *** indicate the difference is statistically significant at the 0.05 and 0.01 (two-tailed) levels, respectively.

Panel B of Table 3 reports the results for unscheduled option grants to independent directors. The difference in $CAR3d$ is significantly positive only for two out of six event periods (that is, earnings announcements in the post-SOX period and management forecasts in the pre-SOX period). Although timing behaviours with respect to director grants exist for those two event periods, the magnitude is significantly smaller than that of CEO grants. For example, the difference in $CAR3d$ for earnings announcements is 1.16% for CEO grants in the post-SOX period, while it is only 0.47% for director grants. The comparison between Panel A and Panel B shows that the timing behaviour for director grants is much weaker than that for CEO grants. More importantly, the difference in $CAR3d$ in the post-disclosure period is -0.53% and -1.20% for earnings announcements and management forecasts, respectively. The negative sign is opposite to what would be predicted by opportunistic grant-timing behaviour. The findings, once again, confirm the idea that directors give CEOs the discretion to make decisions on when to award stock option grants.

Panel C presents the difference in $CAR3d$ for scheduled CEO grants. The market responses to earnings announcements and management forecasts disclosed in the half quarter after option grants are not significantly stronger than those to earnings announcements and management forecasts disclosed before option grants. Although the difference is significant for management forecasts in the post-SOX period, the sign is again opposite to the prediction. Given that it is unlikely for firms to manipulate grant dates (through either backdating or timing grant date) for scheduled option grants, the no-difference result supports the assertion that in the sample period we examine (1996 to 2012), the timing of corporate news events is not significant for scheduled grants. This conclusion is consistent with the finding in Heron and Lie (2007) and further confirms our return tests reported in the previous section.

Figure 2 Abnormal Returns around Unscheduled Option Grants to CEOs and Independent Directors in the Pre-SOX, Post-SOX, and Post-Disclosure Periods





To further illustrate our point, in Figure 2, we present the cumulative abnormal returns in the month before and after grant dates for unscheduled option grants awarded to CEOs and to independent directors. Visual examination indicates that the evidence is largely consistent with our expectations: in the pre-SOX period, the trough pattern of abnormal returns around CEO grants is stronger than that around director grants; in the post-SOX period, the trough pattern is still observable for CEO grants but is no longer observable for director grants; in the post-disclosure period, the abnormal returns following both CEO grants and director grants show an upward trend, although the slope is not as deep as in previous periods.

Taken together, the above analyses suggest that timing practice with respect to either option grants or corporate events is prevalent for unscheduled grants to CEOs in all three periods. Our evidence supports hypothesis 1 that time behaviour with respect to CEO option grants is stronger for unscheduled grants than for scheduled grants.

4.3 Economic Impact of Option Grant Signals

While we have demonstrated that spring-loading is an opportunistic timing practice that

Table 4 Portfolio Analysis

	1-Month			2-Month			3-Month		
	(1) Pre-SOX	(2) Post-SOX	(3) Post-disclosure	(1) Pre-SOX	(2) Post-SOX	(3) Post-disclosure	(1) Pre-SOX	(2) Post-SOX	(3) Post-disclosure
Alpha	0.0030 (18.19)	0.0012 (9.27)	0.0006 (3.85)	0.0019 (15.51)	0.0009 (8.40)	0.0006 (4.34)	0.0015 (14.36)	0.0007 (8.09)	0.0004 (3.37)
MKT	0.9946 (44.97)	0.9199 (58.26)	0.9014 (68.67)	1.0007 (62.25)	0.9283 (75.85)	0.9083 (81.71)	1.0000 (73.15)	0.9279 (85.77)	0.9143 (89.84)
SMB	0.8185 (28.70)	0.7735 (26.11)	0.7116 (25.90)	0.7985 (37.44)	0.7703 (33.67)	0.6892 (29.59)	0.7948 (43.70)	0.7758 (38.47)	0.6672 (31.28)
HML	0.2075 (5.73)	0.1989 (4.39)	0.0899 (2.80)	0.2580 (9.70)	0.2028 (5.80)	0.0609 (2.24)	0.2753 (12.12)	0.2146 (6.96)	0.0652 (2.61)
UMD	-0.2177 (-12.75)	-0.1825 (-7.47)	-0.1231 (-6.83)	-0.2335 (-18.15)	-0.1659 (-8.75)	-0.1362 (-8.92)	-0.2354 (-21.68)	-0.1723 (-10.28)	-0.1344 (-9.62)

The table presents calendar-time Fama-French-Carhart four-factor regressions for the portfolio formed on the next day following the unscheduled CEO option grant date. The portfolio is held for one month, two months, and three months, respectively. The dependent variable is the portfolio equal-weighted daily excess return over the risk-free rate. MKT, SML, HML and UMD are the market, size, book-to-market, and momentum factors, respectively. We run the portfolio-level regressions for each of the three periods, (1) pre-SOX, (2) post-SOX, and (3) post-disclosure, separately. The numbers in parentheses are t-values. All the factors are significant at the 0.01 or 0.05 (two-tailed) significance level.

persists in the post-SOX and post-disclosure periods, we have not answered the question as to whether such opportunistic timing has any significant economic consequences. We next examine whether investors could earn abnormal returns if they learn about the timing of option grants. Specifically, we test whether investors could earn significant abnormal returns from a portfolio formed on option grant signals after controlling for the Fama-French-Carhart four factors (Carhart, 1997; Fama and French, 1992). To reduce the dilution effect of scheduled option grants, we focus on unscheduled grants. The portfolio is formed on the day following the grants and held for one month, two months, and three months, respectively.

Table 4 presents the results from the calendar-time Fama-French-Carhart four-factor regressions. When the portfolio is held for one month, the alpha (daily abnormal return) is significantly positive at 0.30%, 0.12%, and 0.06% in the pre-SOX, post-SOX and post-disclosure periods, respectively. In other words, investors can earn abnormal returns of approximately 6%, 2.4%, and 1.2% over 20 trading days within one month following the option grants in each of the three periods, respectively. The signs for other factors are as expected. Thus, our finding suggests that, indeed, timing behaviours persist in the post-SOX and post-disclosure periods as investors can still significantly profit from a portfolio formed on option grant signals; however, the magnitude of the profit decreases over time. The average daily abnormal return within three months following the option grants is 0.15%, 0.07%, and 0.04% in the pre-SOX, post-SOX and post-disclosure periods, respectively: that is, investors can earn 9%, 4.2%, and 2.4% in the next three months. Overall, these results suggest that spring-loading has significant economic consequences.

4.4 Option Timing and Executive Compensation

We use the 2006 compensation disclosure rules as a shock to executives' timing behaviour and examine whether executives demand compensation (total compensation and/or equity compensation) for the benefits they forego as a result of their firms reducing their option-timing behaviour. We focus on the latter two periods (post-SOX and post-disclosure periods) in which backdating is theoretically infeasible to provide cleaner analyses. Our executive compensation data are obtained from Capital IQ. We use the following model to examine the relation between changes in executive compensation and option-timing behaviour. We control for a battery of firm and CEO characteristics, motivated by other studies (e.g. Hayes *et al.*, 2012). Our control variables include firm size, firm leverage, market-to-book ratio, return on assets, annual stock return, and CEO age. We include firm and year fixed effects to control for unobserved firm heterogeneity and time heterogeneity.

$$\begin{aligned} \text{LogComp} = & \beta_0 + \beta_1 \text{Post2006} + \beta_2 \text{Post2006} * \text{Disciplined} + \beta_3 \text{Size} \\ & + \beta_4 \text{Leverage} + \beta_5 \text{MtoB} + \beta_6 \text{ROA} + \beta_7 \text{AnnualReturn} \\ & + \beta_8 \text{Age} + \text{FirmFE} + \text{YearFE} + \varepsilon \end{aligned} \quad (1)$$

where

<i>LogComp</i>	Log value of total compensation (<i>LogTotComp</i>) or the log value of equity compensation (<i>LogEqComp</i>) obtained from Capital IQ.
<i>Post2006</i>	An indicator variable that takes the value of one in the post-compensation disclosure rule period and zero otherwise.
<i>Disciplined</i>	An indicator variable that measures the change in a firm's timing behaviour from the pre-disclosure period to the post-disclosure period. Timing behaviour is measured by the <i>CAR</i> difference in a 30-trading-day window before and after a CEO option grant date. For a given firm, <i>Disciplined</i> takes the value of one if the reduction in <i>CAR</i> difference is above the median, and zero otherwise.
<i>Size</i>	The log value of firm assets at the beginning of the year.
<i>Leverage</i>	The ratio of total liabilities to total assets.
<i>MtoB</i>	The market value of assets over the book value.
<i>ROA</i>	EBIT over total assets.
<i>AnnualReturn</i>	Annual stock return in the year.
<i>Age</i>	CEO age obtained from Capital IQ.

Table 5 Relation between Option Timing and Level of Compensation

VARIABLES	(1) <i>LogTotComp</i>	(2) <i>LogEqComp</i>
<i>Post2006</i>	0.3521*** (3.21)	1.4485*** (3.39)
<i>Post2006*Disciplined</i>	0.1051** (2.18)	0.3592* (1.78)
<i>Size</i>	0.2642*** (7.79)	0.5394*** (3.60)
<i>Leverage</i>	-0.1378 (-1.43)	0.1703 (0.48)
<i>MtB</i>	0.0455*** (3.08)	0.0015 (0.03)
<i>ROA</i>	1.0694*** (5.83)	1.2064* (1.86)
<i>AnnualRet</i>	0.0292** (2.18)	-0.0242 (-0.42)
<i>Age</i>	-0.0093** (-2.27)	-0.0433*** (-3.83)
<i>Constant</i>	6.2708*** (20.00)	2.0376* (1.70)
Observations	4,887	4,887
Adj R-sq	0.748	0.572
Firm FE	YES	YES
Year FE	YES	YES

The table presents the results of the relation between option timing and executive compensation. The dependent variable is the log value of total compensation in Column (1) and the log value of equity compensation in Column (2). T-statistics are adjusted for firm clusters. *, **, and *** indicate the 0.1, 0.05, and 0.01 (two-tailed) significance levels, respectively.

Table 5 presents the above regressions. The results show that the levels of both total compensation and equity compensation increase over time. The coefficient on the variable *Post2006* is significantly positive in both columns (1) and (2). In addition, the coefficient on *Post2006*Disciplined* is positive in both columns, with t-values of 2.18 and 1.78, respectively. The variable *Disciplined* is a proxy for the degree of reduction in timing behaviour from before to after 2006. The findings suggest that firms that reduce their option-timing behaviour more have to increase executive pay to compensate executives for the benefits they forego as a result of this change in behaviour. This evidence supports hypothesis 2. Combined with the evidence shown in previous section that timing behaviour does not exist among directors' option grants, we interpret our results as evidence that timing behaviour following the tightened regulations is consistent with efficient contracting.

V. Additional Analysis

5.1 Timing of News Disclosure versus Timing of Option Grants

In this section, we try to explicitly separate the timing of information events from the timing of option grants to gain more insight into managerial choices under different circumstances. In doing so, we need to identify a setting where the announcement time of information events is fixed (that is, scheduled). For these fixed-date events, we believe that the opportunistic timing of news disclosures is almost impossible; hence, executives can only time the option grants to align with news disclosures in order to increase potential option values. In contrast, for events whose announcement dates are variable, it may be appealing for executives to engage in both types of timing behaviour to their advantage. Prior studies show that management would manage earnings around option grants (e.g. Aboody and Kasznik, 2000; Baker *et al.*, 2009; McAnally *et al.*, 2008). We investigate quarterly earnings announcements because these are mandatory corporate events and for many firms the announcement date is fixed (Bagnoli *et al.*, 2002). We are thus able to use this feature to categorise firms' earnings announcements into two groups—fixed versus variable earnings announcements. Fixed earnings announcements are defined as those announcements made within one day of the same quarter in the prior year. Based on our argument, the test for fixed earnings announcement dates allows us to identify the timing of option grants, whereas the test for variable earnings announcement dates is a joint test of the timing of grants and corporate disclosures.

We match each unscheduled CEO option grant with the closest quarterly earnings announcement (either fixed or variable) and examine the difference between $CAR(-30, -1)$ and $CAR(1, 30)$, where day 0 is the option grant date. Table 6 presents the results. Several observations are noteworthy. First, although the difference between $CAR(-30, -1)$ and $CAR(1, 30)$ for all three periods is statistically significant, the differences across different groups and

over time are also significant. The trends follow our expectations: The difference between $CAR(-30, -1)$ and $CAR(1, 30)$ is the largest in the pre-SOX period, with 8.22% and 10.14% for the quarters with fixed and variable earnings announcements, respectively. For the quarters with variable earnings announcements, executives can strategically time earnings announcements to align with the option grants or simply backdate the grants; hence, it is not surprising that the difference in CAR is 1.92% higher than that in the quarters with fixed earnings announcements. Second, this pattern persists in the post-SOX and post-disclosure periods—the difference in CAR between fixed and variable earnings announcement quarters is 1.99% (= 3.79% – 1.80%) and 0.53% (= 1.73% – 1.20%), respectively. Finally, the difference in CAR in the variable earnings announcement quarter experiences a significant decrease of 2.06% (=3.79% – 1.73%) from the post-SOX period to the post-disclosure period. The magnitude of decrease is greater than that for grants in the fixed earnings announcement quarter, which is 0.60% (=1.80% – 1.20%).

Note that in the latter two periods, backdating becomes highly unlikely. Thus, the difference in CAR for fixed earnings announcements is primarily driven by the timing of option grants, while the difference in CAR for variable earnings announcements is jointly driven by the timing of option grants and earnings announcements. Consistent with the findings in previous tables, Table 6 thus shows that although evidence of timing for unscheduled CEO grants becomes weaker over time due to enhanced regulation requirements, both the timing of option grants and the timing of news disclosure still persist in the post-SOX and post-disclosure periods.

Table 6 Timing of News Disclosure versus Timing of Option Grants

Panel A Fixed earnings announcement dates

	(1) Pre-SOX		(2) Post-SOX		(3) Post-disclosure	
	Number of grants	CAR	Number of grants	CAR	Number of grants	CAR
(-30, -1)	4,163	-2.80***	2,823	1.49***	2,792	0.07
(1, 30)		5.42***		3.29***		1.27***
Difference		8.22***		1.80***		1.20**

Panel B Variable earnings announcement dates

	(1) Pre-SOX		(2) Post-SOX		(3) Post-disclosure	
	Number of grants	CAR	Number of grants	CAR	Number of grants	CAR
(-30, -1)	7,842	-3.43***	4,079	-0.05	3,594	-0.08
(1, 30)		6.71***		3.74***		1.65***
Difference		10.14***		3.79***		1.73***

The table shows the cumulative abnormal returns (in percentage) around unscheduled CEO option grants in the quarters with fixed and variable earnings announcement dates. Fixed earnings announcements are defined as those announcements made within one day of the same quarter in the previous year. $CAR(-30,-1)$ and $CAR(1, 30)$ are respectively the cumulative abnormal returns in the 30-trading-day window before and after option grant date, which is day 0. *, **, and *** indicate the 0.1, 0.05, and 0.01 (two-tailed) significance levels, respectively.

5.2 Excluding Lucky Grants

When choosing the channels to maximise their stock option compensation, executives may have a pecking order based on the potential benefits and costs.¹¹ For example, under the older, more lenient reporting regime before the enactment of SOX, stock option backdating practice was widespread and could have been at the top of the pecking order. This happened primarily because backdating does not require foreknowledge about stock market reactions to impending corporate news and could be easily camouflaged under the long option reporting window; hence, few firms expected that they would be caught by regulators.

In theory, under the SEC's two-day filing requirement rule introduced in SOX, it is almost impossible to backdate option grants for such a short look-back period. However, Heron and Lie (2007) and Narayanan and Seyhun (2008) find some evidence that it takes more than two business days for some firms to file their option grants with the SEC. They suggest that backdating may continue in the post-SOX period among some firms. To further examine different regulatory effects on backdating and timing behaviour, we repeat our analysis in sections 4.1 and 4.2 excluding lucky grants. Lucky grants, which are defined as those options awarded on the day with the lowest stock price within the grant month, are most likely to be the backdated grants.¹² Based on the argument in Bebchuk *et al.* (2010), excluding lucky grants should largely rule out the possibility of backdating. As a result, the remaining sample can be largely considered as unlucky grants that are subject to manipulation of the grant date itself and/or corporate news releases.

Panel A of Table 7 shows that the asymmetric pattern in *CAR* around unlucky, unscheduled grants to CEOs is much stronger in the pre-SOX period than in the post-SOX period.¹³ The difference between $CAR(1, 30)$ and $CAR(-30, -1)$ is 6.36% and 1.88% for the pre-SOX and post-SOX periods, respectively. A closer comparison with Panel A of Table 2 reveals that the percentage of lucky, unscheduled grants in the total number of unscheduled grants decreases over time. Lucky, unscheduled grants account for 14.8% (1–10,903/12,799) and 7.6% (1–6,706/7,257) in the pre-SOX and post-SOX periods, respectively, suggesting that the incidence of backdating has greatly decreased since SOX. Panel B of Table 7 shows that the difference between $CAR(1, 30)$ and $CAR(-30, -1)$ around unlucky, unscheduled grants to directors is insignificant at -0.48% and 0.08% for the pre-SOX and post-SOX periods, respectively. Our finding that there is no asymmetric return pattern around director grants after excluding lucky grants suggests that directors have little knowledge of inside

¹¹ There is an extensive literature on the benefits, costs, and both intended and unintended consequences of disclosure regulation. See, for example, Healy and Palepu (2001) and Leuz and Wysocki (2016) for a related literature review.

¹² The logic is that it is possible to time the grant date on one of the days with a low price but it is highly unlikely that managers can award a grant exactly on the day with the lowest price.

¹³ We do not extend our sample to the post-disclosure period because we consider it theoretically impossible to engage in backdating behaviour in the post-disclosure period. It is now commonly viewed that backdating option grants is a violation of the law if not properly disclosed, approved, and accounted for.

Table 7 Analysis Excluding Lucky Grants*Panel A Cumulative abnormal returns around CEO unscheduled grant dates*

	(1) Pre-SOX		(2) Post-SOX	
	Number of grants	CAR	Number of grants	CAR
(-30, -1)	10,903	-2.35***	6,706	0.86***
(1, 30)		4.02***		2.74***
Difference		6.36***		1.88***

Panel B Cumulative abnormal returns around director unscheduled grant dates

	(1) Pre-SOX		(2) Post-SOX	
	Number of grants	CAR	Number of grants	CAR
(-30, -1)	19,641	0.77***	15,511	1.50***
(1, 30)		0.29*		1.58***
Difference		-0.48		0.08

Panel C News events around CEO unscheduled option grant dates

	(1) Pre-SOX		(2) Post-SOX	
	Number of events	CAR _{3d}	Number of events	CAR _{3d}
<u>Earnings announcement</u>				
Before	5,187	-0.07	3,446	-0.22
After	4,621	1.31	2,812	0.55
Difference		1.38***		0.77***
<u>Management forecast</u>				
Before	1,701	-4.86	2,203	-0.57
After	1,373	0.54	1,710	0.82
Difference		5.40***		1.39***

Panel D News events around director unscheduled option grant dates

	(1) Pre-SOX		(2) Post-SOX	
	Number of events	CAR _{3d}	Number of events	CAR _{3d}
<u>Earnings announcement</u>				
Before	10,935	0.59	8,417	-0.17
After	6,338	0.50	5,911	-0.13
Difference		-0.10		0.04
<u>Management forecast</u>				
Before	2,576	-3.95	3,976	0.22
After	2,266	-0.78	3,528	-0.29
Difference		3.17***		-0.51

Panels A and B shows the cumulative abnormal returns around CEO (Panel A) and director (Panel B) option grant dates for unscheduled and unlucky grants in the pre-SOX and post-SOX periods. Lucky grants are defined as those options awarded on the day with the lowest stock price within the grant month. CAR(-30,-1) and CAR(1, 30) are the cumulative abnormal returns in the 30-trading-day window before and after the option grant date, respectively, where day 0 is the grant date. Abnormal returns (in percentage) are calculated as the difference between raw returns and value-weighted market returns. Panels C and D show the average three-day market adjusted returns around earnings announcements and management forecasts in the half quarter before and after the grant dates for the unscheduled, unlucky options awarded to CEOs (Panel C) and directors (Panel D). "Before" ("After") denotes 45 days before (after) the option grant dates. *, **, and *** indicate the 0.1, 0.05, and 0.01 significance levels, respectively.

information. Panel C of Table 7 reports the analysis of the timing of earnings announcements and management forecasts around unlucky, unscheduled grants to CEOs. We continue to find that disclosures prior to (following) unscheduled CEO grants contain bad (good) news after excluding lucky grants, but the pattern does not exist for director grants (reported in Panel D) except for management forecasts in the pre-SOX period. The results again confirm our findings in previous sections that the opportunistic timing of option grants and the timing of disclosure exist in both the pre-SOX and post-SOX periods. In sum, the inferences we draw from our primary analyses are unchanged after excluding lucky grants.

5.3 Excluding Late Filers

To further ensure that our results are not driven by the firms that are likely to take more than two days to file their option grants after SOX, we repeat our analysis in sections 4.1 and 4.2 excluding late filers for the post-SOX and post-disclosure periods. We calculate the reporting lag as the difference in business days between the transaction date and the SEC filing date for each option grant, and a grant is defined as a late filer if the reporting lag is longer than two days.

Panel A of Table 8 shows that the asymmetric pattern in *CAR* around unscheduled grants to CEOs still persists in the post-SOX and post-disclosure periods after excluding late filers (2.00% and 1.13% for the post-SOX and post-disclosure periods, respectively), suggesting that our results in the previous section are not driven by late filers. Panel B of Table 8 shows that the difference between *CAR*(1, 30) and *CAR*(-30, -1) around unscheduled grants to directors after dropping late filers is 0.83% for the post-SOX period and 0.59% for the post-disclosure period. Consistent with our previous findings, a comparison between Panel A and Panel B shows that the asymmetric return pattern is more pronounced for CEOs than for directors, suggesting that directors are less informed than CEOs when making compensation decisions. Panel C of Table 8 reports the analysis of the timing of earnings announcements and management forecasts around unscheduled grants to CEOs. We continue to find that the opportunistic timing of CEO grants and of news disclosures continues to exist in the post-SOX and post-disclosure periods and that the evidence of timing behaviour with respect to director grants is much weaker than that with respect to CEO grants. Overall, the inferences we draw from our previous analyses remain unchanged after excluding late filers.

Table 8 Analysis Excluding Late Filers

Panel A Cumulative abnormal returns around CEO unscheduled grant dates

	(2) Post-SOX		(3) Post-disclosure	
	Number of grants	<i>CAR</i>	Number of grants	<i>CAR</i>
(-30, -1)	5,739	0.70***	5,810	0.12
(1, 30)		2.70***		1.25***
Difference		2.00***		1.13***

Panel B Cumulative abnormal returns around director unscheduled grant dates

	(2) Post-SOX		(3) Post-disclosure	
	Number of grants	CAR	Number of grants	CAR
(-30, -1)	13,067	0.92***	10,603	0.73
(1, 30)		1.75***		1.32***
Difference		0.83***		0.59

Panel C News events around CEO unscheduled option grant dates

	(2) Post-SOX		(3) Post-disclosure	
	Number of events	CAR3d	Number of events	CAR3d
<u>Earnings announcement</u>				
Before	2,969	-0.51	3,489	-0.25
After	2,324	0.69	1,999	0.26
Difference		1.20***		0.51*
<u>Management forecast</u>				
Before	1,965	-0.64	1,517	0.24
After	1,472	0.65	763	0.93
Difference		1.29***		0.69*

Panel D News events around director unscheduled option grant dates

	(2) Post-SOX		(3) Post-disclosure	
	Number of events	CAR3d	Number of events	CAR3d
<u>Earnings announcement</u>				
Before	7,085	-0.24	3,489	-0.25
After	5,009	0.24	1,999	0.26
Difference		0.47**		0.51
<u>Management forecast</u>				
Before	3,525	-0.14	1,912	1.91
After	3,204	-0.29	1,107	-0.35
Difference		-0.15		-2.25***

Panels A and B show the cumulative abnormal returns around CEO (Panel A) and director (Panel B) option grant dates for unscheduled options in the post-SOX and post-disclosure periods after excluding late filers. Late filers are grants filed with SEC more than two business days after the execution date of the transaction. CAR(-30,-1) and CAR(1, 30) are the cumulative abnormal returns in the 30-trading-day window before and after the option grant date, respectively, where day 0 is the grant date. Abnormal returns (in percentage) are calculated as the difference between raw returns and value-weighted market returns. Panels C and D show the average three-day market adjusted returns around earnings announcement and management forecast in the half quarter before and after grant dates for unscheduled options awarded to CEOs (Panel C) and directors (Panel D), excluding late filers. "Before" ("After") denotes 45 days before (after) the option grant dates. *, **, and *** indicate the 0.1, 0.05, and 0.01 significance levels, respectively.

VI. Conclusion

We provide new evidence of the effect of the new compensation disclosure rules on the timing of stock option grants and the propriety of spring-loading. Opponents of spring-loading characterise it as a form of insider trading that impairs investors' confidence. Its defenders, however, argue that it is a legitimate, and even an effective, means of executive compensation. We exploit two sets of rules that are most pertinent to executive option grant disclosure (i.e.

SOX and the 2006 compensation disclosure rules) to understand the dynamics of CEOs' stock option timing behaviour, and provide evidence showing that spring-loading persists.

We show that firms appear to continue to manipulate the timing of option grants even after the 2006 executive compensation disclosure rules in order to increase CEO compensation, potentially at the expense of shareholders. We compare the pattern of stock returns around option grants to CEOs with that around option grants to independent directors and find that the asymmetric return pattern only exists for CEO grants. In addition, news disclosures around director grants show little systematic pattern after the 2006 compensation disclosure rules, while timing behaviour persists among CEO grants. The evidence confirms our argument that directors are informed to provide CEOs with the flexibility of timing option grants. In other words, CEOs are aware of, and take actions that benefit themselves around, favourable corporate news disclosures. Although we do not directly test the determinants of a firm's decision to time option grants, we provide new evidence that executives in firms involved in timing behaviour are paid less in total and equity compensation. Furthermore, we show that opportunistic timing leads to significant economic consequences. Specifically, investors can earn abnormal returns of approximately 6%, 2.4%, and 1.2% over one month following option grants in the pre-SOX, post-SOX and post-disclosure periods, respectively.

Our findings indicate that existing disclosure regulations related to equity compensation may not be adequate in eliminating managers' opportunistic behaviour. In contrast, evidence documented in this study suggests that the practice of opportunistically timing option grants is a form of efficient contracting: for example, firms take the advantage of the flexibility allowed by the regulator to optimise the timing of option grants and related news events.

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