TWO ESSAYS ON THE AGENCY COSTS ASSOCIATED WITH EXECUTIVE STOCK OPTION EXERCISES

by

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(Under the Direction of Jeff M. Netter)

ABSTRACT

This dissertation is derived from two manuscripts. In the first manuscript (Chapter 3), I consider executive stock option exercise timing in light of the possibility for exercise backdating. I find that 28 (16) percent of executive option exercises were not associated with immediate stock disposition before (after) the August 2002 enactment of more restrictive reporting requirements for insider transactions under the Sarbanes-Oxley Act. I interpret this as evidence executives often exercise options with the intention of holding the acquired shares for a year to qualify for long-term capital gains tax treatment. Exercises are associated with a return trough when no shares are disposed of at exercise, and a return peak when shares are disposed of at exercise. In the pre-Sarbanes-Oxley period, executives appear to have often timed exercises based on private information regardless of the exercise strategy, and backdated exercise dates when they either did not immediately dispose of shares or only disposed of shares back to their company. The evidence of backdating largely ceased after the Sarbanes-Oxley Act, but evidence of information timing persists.

I conduct an analysis of option exercise backdating and corporate governance, and find that exercise backdating is associated with weak internal controls. However, consistent with a "skin in the game" theory, executives are less likely to backdate exercises when they hold a larger stake in the company.

In the second manuscript (Chapter 4), I examine long-run stock and operating performance around executive option exercises, and consider whether executives manage earnings to enhance the

profitability of their exercise strategy. If an executive intends to immediately dispose of the acquired shares, the incentive is to manage earnings upward prior to exercise to sell the shares at a higher price. If the executive intends to hold the shares, the incentive is to manage earnings downward prior to exercise (to minimize exercise-year taxes) and upward following exercise (to sell at a higher price). Long-run stock and operating performances around subsamples of exercises classified by the timing of stock disposition are consistent with each of these strategies. Earnings management is apparent only when the executive immediately sells the acquired shares.

INDEX WORDS: Executive Compensation, Executive Stock Options, Stock Option Exercise, Corporate Governance, Earnings Management

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CHAPTER 1

INTRODUCTION

This main portion of this dissertation consists of two manuscripts (Chapter 3 and Chapter 4) that examine executives' stock option exercise practices. Previous researchers generally assumed that executives sold all stock acquired through option exercise immediately and hypothesized that informed option exercises would be reflected in poor returns following exercise. They found only weak evidence consistent with this hypothesis. In Chapter 3, I reconsider this question after separating option exercises into subsample depending on whether the executive actually disposes of the shares at the time of exercise. It is expected that informed exercises where the executive immediately disposes of the acquired shares are associated with poor post-exercise returns, such that the executive obtains a high value for the shares. It is expected that informed exercises where the executive holds the acquired shares are associated with strong post-exercise returns, given that exercising the options and holding the shares indicates an executive's decision to increase his exposure to the prospects of his company.

Chapter 3 then turns to the question whether executive stock option exercises have at times been backdated to enhance the profitability of the exercise strategy. Many instances have recently been identified of backdating of stock option *grants*, in order to obtain a lower strike price for the options.[1] Executives also have incentive to backdate option *exercise* dates to enhance the profitability of their exercise strategies. Exercise backdating to correspond with a low stock price is expected to occur when executives hold all of the acquired shares, in order to minimize the taxes due upon exercise.[2] Exercises where the executive disposes of shares on the day of exercise to his company are expected to be

[1] For corporate tax reasons, executive stock options almost always are assigned an exercise price equal to the stock price on the day of grant.

[2] Executives generally must pay ordinary income tax in the year of exercise on the difference between the stock price on the exercise day and the exercise price. Additional stock appreciation beyond that date is taxed at capital gains rates (which are generally lower than ordinary income tax rates) upon eventual sale of shares if the executive holds the shares for a year.

backdated to correspond with a high stock price to maximize the value obtained for the shares. Exercises where the executive sells share to a third party are unlikely to be backdated.

The analysis of exercise backdating focuses on the timing of reporting of option exercises to the Securities and Exchange Commission. Before enactment of the Sarbanes-Oxley Act (August 29, 2002) insider transactions did not have to be reported to the S.E.C. until the 10th calendar day of the month following the exercise month, which provided an approximately 40 day look-back period over which exercises could be backdated. In addition, before Sarbanes-Oxley many executives violated this reporting requirement and could therefore backdate over a longer look-back period. After Sarbanes-Oxley the reporting window was shortened to 2 business days, and executives began complying with this requirement more frequently, such that backdating opportunities were minimized. The backdating analysis in this dissertation considers how favorably exercises were timed controlling for the length of reporting lag and whether the transaction was before or after enactment of the Sarbanes-Oxley Act.

Chapter 3 ends with an analysis of corporate governance attributes associated with option exercise backdating. It is expected that that firms where backdating is likely to have occurred are more likely to have weak internal controls since the practice of backdating an option exercise is likely to violate firm policies. The relationship between the likelihood that executives at a firm backdated option exercises and internal control weaknesses along with other governance variables is analyzed relative to control firms matched on industry and firm size.

Chapter 4 of this dissertation builds off of the results of Chapter 3, and examines more closely whether executives are engaging in the opportunistic behaviors of information timing and earnings management when exercising options. The focus of this chapter is on long-term market and operating performance of firms where executives exercise options. It first considers the long-run market performance of companies over the years surrounding executive option exercises, controlling for the executive's exercise strategy. As discussed above, the expectation is that informed exercises are followed by poor returns when the executive immediately sells the shares, and by strong performance when the executive holds the acquired shares. I separate executive stock option exercises over the time period

August 1996 to December 2005 into subsamples based on whether the executive sells shares immediately upon exercise, and test for the existence of abnormal operating performance and earnings management consistent with these two opposing hypotheses. Abnormal operating performance would be consistent with executives' timing option exercises based on private information, and abnormal accruals in the hypothesized directions would be consistent with the executives attempting to artificially enhance the returns to their option exercise strategies.

The remainder of this dissertation is organized as follows. Chapter 2 provides a literature review; Chapter 3 presents the manuscript entitled "Strategic Timing and Backdating of Executive Stock Option Exercises: Before and After the Sarbanes-Oxley Act"; Chapter 4 presents the manuscript entitled "Do Executives Opportunistically Exercise Stock Options? Evidence from Long-run Stock Performance, Operating Performance and Earnings Management"; and Chapter 5 concludes.

CHAPTER 2

LITERATURE REVIEW

This research is related to a number of existing strands of literature. Numerous researchers have examined the information content of insider equity transactions. In early studies, abnormal returns following both insider purchases and sales suggested they were informed transactions (Seyhun (1986, 1992, 1998)). Studies controlling for additional risk factors suggest that only insider purchases at small firms are informed (Jeng, Metrick and Zeckhauser (2000), Lakonishok and Lee (2001)). Other researchers focused on the information content of option exercises. Carpenter and Remmers (2001) find that from 1991 to 1995, negative post-exercise abnormal returns are limited to exercises by top managers at small firms. Bartov and Mohanram (2004) find negative abnormal returns following years when top executives exercise an abnormally large number of options. Huddart and Lang (2003) find that months with an abnormally high (low) option exercise volume by both executives and lower level employees are followed by poor (good) returns over the following six months. Each of these papers assumes exercises are always associated with disposition of the acquired shares, and they find informed exercise is either limited to a small number of individuals or is apparent only when executives exercise an abnormal volume of options.

This research is also closely related to the literature concerned with executive stock option grant manipulation. Early work in this area focused on informed timing of option grants. Yermack (1997) finds that stock option grants to CEOs from 1992 to 1994 were followed by abnormal positive stock returns of more than 2 percent over the following 50 trading days. Aboody and Kasznik (2000) find evidence of both the timing of unscheduled option grant dates around the scheduled release of corporate information, and timing of information release around scheduled grant dates. Recent work suggests that option grant dates are often backdated to coincide with low stock prices. Lie (2005) shows that the V-shaped return pattern around option grants intensified over time from 1992 to 2002. Option grants in his sample were

also well timed relative to market-predicted returns, which he argues is unlikely unless grant dates were selected ex post. Heron and Lie (2006a) demonstrate that the V-shaped abnormal returns around option grants diminished substantially after August 29, 2002, when the SEC began requiring insiders to report option grants within 2 business days. The abnormal return pattern persists, however, if the option grants are not timely reported. Narayanan and Seyhun (2005, 2006a, 2006b) find similar results as Heron and Lie (2006a), and also document that the magnitude of favorable return patterns around exercises in the pre-Sarbanes-Oxley period are positively related to the length of SEC reporting lag, suggestive of greater benefits from backdating over a longer look-back period. Bebchuk, Grinstein and Peyer (2007) find a link between grant backdating and firm governance, including less independent boards and more entrenched CEOs. Bizjak, Lemmon and Whitby (2006) suggest that the practice of grant backdating spread to new firms through common directors.

Finally, this research is related to the earnings management literature. There is a large body of literature consistent with firms managing earnings in furtherance of a number of objectives. Subramanyam (1996) provides evidence that returns are positively correlated with contemporary discretionary accruals. Some of the corporate actions around which managers appear to manage earnings include window-dressing of financial statements in anticipation of security issuance (Teoh, Welch and Wong (1998b)) or repurchase (Gong, Louis and Sun (2008)), and before stock-financed acquisitions (Erickson and Wang (1998)). Other researchers find evidence of earnings management specifically to enhance executive compensation or job security. Coles, Hertzel and Kalpathy (2006) find downwards earnings management prior to stock option repricing. Beneish and Vargus (2002) find evidence executives manage earnings upward through discretionary accruals prior to selling stock. Bartov and Mohanram (2004) find that executives manage discretionary accruals upward in the years prior to years when they exercise an abnormally large number of options, suggesting that they are attempting to inflate the price at which they sell the acquired stock. However, Bartov and Mohanram (2004) assume that all option exercises would be associated with immediate disposition of the acquired shares and that manipulation of exercises would be associated with positive earnings management.

The objective of this dissertation is to determine whether there is evidence that executives impose agency costs on investors through their stock option exercise practices, controlling for exercise strategy. Specifically, I consider whether executives strategically time stock option exercises based on private information, manipulate exercise dates through backdating, or attempt to enhance the profitability of their exercise strategies through earnings management.

CHAPTER 3

STRATEGIC TIMING AND BACKDATING OF EXECUTIVE STOCK OPTION EXERCISES: BEFORE AND AFTER THE SARBANES-OXLEY ACT[3]

[3] Cicero, D. C. Submitted to *The Journal of Finance*, 2/22/2007.

3.A Introduction

Previous studies have considered whether executive option exercises are timed relative to private information. Researchers have generally assumed that exercising options is only rational if the executive immediately sells the acquired stock, and that informed exercise would be reflected in abnormally low stock returns after the exercise date. The alternative hypothesis, that executives sometimes exercise options and hold the acquired stock, presumably with the intention of holding for a year to qualify for favorable capital gains tax treatment (the "exercise-and-hold" strategy), has been dismissed as a sub-optimal investment strategy. It has been argued that instead of the exercise-and-hold strategy, rational executives would follow a more profitable strategy of purchasing additional shares of stock using the funds that would have been required to exercise the options. Based on these assumptions, researchers have uncovered only weak evidence that executive option exercises are timed based on private information (see, for example, Carpenter and Remmers (2001)).

In this study, I reexamine executive option exercises in light of the recently uncovered phenomenon of option backdating. I propose that executives may rationally engage in the exercise-and-hold strategy for two reasons. First, if an executive can backdate an exercise date to correspond with a stock price lower than the one at which he can acquire additional shares, then the exercise-and-hold strategy can be more profitable than an alternative that requires purchasing additional shares. Much evidence has accumulated that executive stock option grant dates have been backdated to secure low strike prices (Lie (2005), Heron and Lie (2006a), and Narayanan and Seyhun (2006a, 2006b)). In addition, there are at least two instances where executives have been found to backdate option exercise dates.[4] Second, executives may engage in the exercise-and-hold strategy when they possess private

[4] A 2004 SEC enforcement case argued that executives at Symbol Technologies backdated exercise dates to correspond with favorable prices during the previous calendar month. Mercury Interactive reported in its amended 2004 Annual Report that "exercise dates for options exercised by certain executives appear to have been incorrectly reported," and that the misreporting in effect "reduced the executives' taxable income significantly…."[4] In both cases, exercises were allegedly backdated to correspond with low stock prices, enabling executives to realize greater tax savings under the exercise-and-hold strategy.

information, because option exercises are not subject to insider trading laws that restrict the purchase and sale of securities while in possession of material non-public information.

Whereas earlier research focused only on option exercise data, I match option exercises to stock transactions to determine whether executives disposed of shares at the time of exercise. I find strong evidence that executives have manipulated option exercises by both timing exercises relative to private information and backdating exercise dates. They manipulate exercises to precede good stock price performance when they hold the acquired shares in order to minimize their tax burden, and they manipulate exercise dates to precede poor stock price performance when they dispose of shares to secure high stock valuations.

Approximately 22 percent of executive options exercises are not accompanied by immediate disposition of shares (28 (16) percent of exercises before (after) the Sarbanes-Oxley Act). By separating exercises according to stock disposition strategy, I uncover evidence of exercise manipulation in three subsamples: (i) exercises accompanied by a sale of stock (Stock Sale Subsample), (ii) exercises accompanied by a disposition of shares to the company only (Company Disposition Subsample),[5] and (iii) exercises not accompanied by a disposition of shares (No Disposition Subsample).

Exercises in the No Disposition Subsample correspond to a distinct local price minimum, or return trough, consistent with manipulation of exercises associated with the exercise-and-hold strategy.[6] Over the full time period considered, these exercises are preceded by 21 day abnormal returns ending on the day of exercise of approximately negative 1.25 percent, and are followed by 20 day abnormal returns beginning the day after exercise of approximately 2.75 percent. Post-exercise abnormal returns continue to rise throughout the 120 trading day post-exercise window considered in this study (approximately 6 months) and equal about 5 percent at that horizon. These patterns are difficult to explain without both ex ante information timing and ex post exercise backdating.

[5] The Company Disposition Subsample consists of exercises where the executive delivers shares to satisfy the exercise price and/or taxes due upon exercise, exercises where the executive receives cash in lieu of shares, and any other disposition of shares to the company other than those tendered under a merger agreement.
[6] All returns discussed in the introduction are significant at the 1 percent confidence level.

Exercises in the Stock Sale Subsample and Company Disposition Subsample coincide with high stock prices. It has long been understood that executives exercise options after stock price run-ups, but only weak evidence has been presented that they are timed to precede negative performance. I find that exercises in the Stock Sale Subsample are followed by cumulative abnormal returns of approximately negative 2 percent over a six month period, consistent with ex ante timing based on private information when shares are sold to a third party. Exercises in the Company Disposition Subsample are followed by abnormal returns of approximately negative .6 percent over a one to two month horizon that turn insignificant at longer horizons. These results suggest backdating over short time horizons to secure high valuations for shares delivered to the company to cover the exercise price and taxes, but that they do not dispose of all acquired shares when they do not possess unique private signals about their company's continuing prospects.

I compare stock price patterns around exercises in the pre-Sarbanes-Oxley period to those in the post-Sarbanes-Oxley period. From August 15, 1996 to August 29, 2002, the SEC required insiders to report option exercises and stock transactions by the 10th calendar day of the month following exercise. This reporting window was shortened on August 29, 2002, under the Sarbanes-Oxley Act, to require that insiders report transactions by the second business day following the transaction. The results demonstrate that exercises in the No Disposition Subsample are associated with more favorable timing before implementation of the restrictive reporting requirements.[7]

Further tests for backdating focus on how the closing stock price on the exercise date compares to the stock price range during the calendar month. These tests are well suited for detecting exercise backdating in the pre-Sarbanes-Oxley period if executives used a calendar month look-back period in order to not violate the SEC reporting requirements. Exercises in both the No Disposition Subsample and Company Disposition Subsample are significantly more likely to be executed at the most favorable

[7] Favorable timing is most pronounced in the 522 observations in the pre-Sarbanes-Oxley No Disposition Subsample where an executive exercised more than 100,000 options on the same day. These exercises are preceded by total returns over the 21 day period ending on the exercise day of negative 6 percent, and total returns over the 20 days following the exercise of 9 percent

closing price of the month in the pre-Sarbanes-Oxley period than in the post-Sarbanes-Oxley period, although exercises in the Stock Sale Subsample are equally likely to correspond with the most favorable day the month before and after the rule change. These findings support a conclusion that in the pre-Sarbanes-Oxley period executives were able to backdate exercises when they either held the acquired shares or disposed of shares to the company only, but not when they disposed of shares to a third party.

The next set of tests focuses on executives' timing of reporting of exercises to the SEC. Narayanan and Seyhun (2006a) find that favorable price patterns around option grants in the pre-Sarbanes-Oxley period are stronger when the reporting lag is longer, and Heron and Lie (2006a) and Narayanan and Seyhun (2006a, 2006b) find they are more pronounced in the post-Sarbanes-Oxley period when the 2 day reporting requirement is violated. Both sets of authors argue these results suggest grant backdating as the longer reporting delay allows executives to backdate over a longer look back period.

I consider this and another hypothesis. The additional hypothesis is that exercises reported early (before the SEC reporting deadline) are timed based on private information about the firm's future performance. Executives may choose to report exercises early in order to distance informed exercises from the eventual release of information.[8] In the pre-Sarbanes-Oxley period, exercises in the Company Disposition Subsample and the No Disposition Subsample are timed more favorably to executives both when they are reported early and when they are reported late, consistent with manipulation of some exercises by ex ante private information timing and others through backdating. In the post-Sarbanes-Oxley period there is not strong evidence executives systematically violated the SEC reporting requirements to backdate option exercises.[9]

[8] An alternative characterization is that early exercise reporting is less likely to be associate with backdating if executives maximize the value of the backdating opportunity, and that any benefit associated with early reporting is therefore likely a function of exercise timing based on private information.

[9] A number of other researchers address the timing of executive stock option exercises. Cai (2006) and Dhaliwal, Erickson and Heitzman (2007) argue that executives have often backdated option exercises when they did not dispose of the acquired shares. Aboody, Hughes and Liu (2006) argue that executives have timed exercises where they did not dispose of the acquired shares based on private information, but do not address the possibility of exercise backdating.

An important issue is whether the backdating of option exercises is costly to shareholders or other investors. Backdated options in the Company Disposition Subsample seem clearly costly to the company. If an executive backdates an exercise in order to dispose of the shares to the company at an inflated price, this results in a transfer of wealth from the company to the executive. With respect to the No Disposition Subsample, if a non-qualified option exercise is backdated to correspond to a lower price there would also appear to be a wealth transfer in the form of a reduced tax deduction for the company and a smaller tax liability for the executive. However, many of the exercises that were likely to have been backdated in the No Disposition Subsample were incentive stock options, which do no provide a tax deduction for the company at the time of exercise. For these exercises, the transfer of wealth is best characterized as from the U.S. government to executives (and therefore to the company as a substitute for greater compensation) in the form of a lower tax burden.

It is also possible that investors would choose to allow executives to backdate option exercises if the value of the reduced volatility in realized compensation is offset by lower total compensation. Companies can not deduct cash compensation to executives that is greater than $1 million, so above that point shareholders may prefer to compensate executive with less volatile option payoffs instead of substituting into increased cash compensation, even if the incentive features of the options are diminished. The difficulty with this line of reason is that no evidence has been presented that backdating arrangements were disclosed to shareholders, regulators or the I.R.S. If options are backdated to minimize a tax burden and this is not disclosed to the I.R.S., then this likely amounts to tax fraud and can be actionable as a felony. That investors would purposefully accept this litigation risk and the additional risk of losing valuable executives to a scandal seems unlikely. It therefore seems not unreasonable to characterize option exercise backdating as fraudulent self-dealing by executives against their companies without the approval of shareholders.

Finally, I consider corporate governance at firms where executives are likely to have backdated option exercises. This analysis is focused on the Company Disposition and No Disposition Subsamples, which are the cases where backdating is likely to have occurred. The overwhelming result is that the

likelihood of an executive backdating an option exercise is strongly linked to the eventual reporting of an internal control weakness at the company. This finding makes it more plausible that backdating was unsanctioned and represented a failure or lack of governance procedures designed to control agency costs of this nature. Backdating is more likely when there is a stronger institutional investor presence, suggesting that executives use stealth forms of self-dealing to extract wealth when they are subject to greater control from outside investors. Finally, I find that backdating is less likely when the CEO owns a large piece of the company, suggesting that "skin in the game" is a valuable deterrent of actions that increase litigation risk.

3.B Literature Review

Numerous researchers have examined the information content of insider equity transactions. In early studies, abnormal returns following both insider purchases and sales suggested they were informed transactions (Seyhun (1986, 1992, 1998)). Studies controlling for additional risk factors suggest that only insider purchases at small firms are informed (Jeng, Metrick and Zeckhauser (2000), Lakonishok and Lee (2001)). Other researchers focused on the information content of option exercises. Carpenter and Remmers (2001) find that from 1991 to 1995, negative post-exercise abnormal returns are limited to exercises by top managers at small firms. Bartov and Mohanram (2004) find negative abnormal returns following years when top executives exercise an abnormally large number of options. Huddart and Lang (2003) find that months with an abnormally high (low) option exercise volume by both executives and lower level employees are followed by poor (good) returns over the following six months. Each of these papers assumes exercises are always associated with disposition of the acquired shares, and they find informed exercise is either limited to a small number of individuals or is apparent only when executives exercise an abnormal volume of options.

This research is also closely related to the literature concerned with executive stock option grant manipulation. Early work in this area focused on informed timing of option grants. Yermack (1997) finds that stock option grants to CEOs from 1992 to 1994 were followed by abnormal positive stock returns of

more than 2 percent over the following 50 trading days. Aboody and Kasznik (2000) find evidence of both the timing of unscheduled option grant dates around the scheduled release of corporate information, and timing of information release around scheduled grant dates. Recent work suggests that option grant dates are often backdated to coincide with low stock prices. Lie (2005) shows that the V-shaped return pattern around option grants intensified over time from 1992 to 2002. Option grants in his sample were also well timed relative to market-predicted returns, which he argues is unlikely unless grant dates were selected ex post. Heron and Lie (2006a) demonstrate that the V-shaped abnormal returns around option grants diminished substantially after August 29, 2002, when the SEC began requiring insiders to report option grants within 2 business days. The abnormal return pattern persists, however, if the option grants are not timely reported. Narayanan and Seyhun (2005, 2006a, 2006b) find similar results as Heron and Lie (2006a), and also document that the magnitude of favorable return patterns around exercises in the pre-Sarbanes-Oxley period are positively related to the length of SEC reporting lag, suggestive of greater benefits from backdating over a longer look-back period. Bebchuk, Grinstein and Peyer (2007) find a link between grant backdating and firm governance, including less independent boards and more entrenched CEOs. Bizjak, Lemmon and Whitby (2006) suggest that the practice of grant backdating spread to new firms through common directors.

Finally, this research adds to the literature exploring executives' stock option exercise practices and the implications for employee stock option valuation and expensing. A number of significant contributions to this literature include Huddart and Lang (1996), Carpenter (1998), Bettis, Bizjak and Lemmon (2006), and Armstrong, Jagolinzer and Larcker (2006). It is generally argued that traditional option pricing models may overvalue executive options because executives exercise options earlier than these models would predict. One explanation for the early exercise patterns is that risk-averse executives may wish to reduce their exposure to the performance of their companies' stock. Consistent with this view, researchers have documented that executive option exercises tend to follow large run-ups in stock price. However, early exercise may be partially explained by the higher than expected use of the exercise-and-hold strategy.

3.C Main Hypotheses Development

The main issue this research addresses is whether executives manipulate option exercises to their advantage. One form of manipulation is to time exercise ex ante based on private information (information timing). A second form is ex post selection of an exercise date to coincide with favorable past stock prices (backdating). These are certainly not mutually exclusive practices, and could lead to similar empirical outcomes, demonstrating stock price patterns around exercises favorable to executives.

Because theory has indicated that the exercise-and-hold strategy is suboptimal, prior research has been based on an assumption that all option exercises are accompanied by the sale of shares, and has examined the information content of option exercises without regard to whether executives actually disposed of shares on the exercise date.

However, exercise manipulation should be associated with different stock price patterns depending on the executives' stock disposition strategy. I consider two basic strategies, characterized by executives' stock disposition at the time of the exercise.[10] The first strategy is option exercise accompanied by share disposition, to reduce exposure to the prospects of the company. I consider two different subsamples of option exercises where executives dispose of shares on the exercise day: those accompanied by a sale of shares in either a stock transaction (Stock Sale Subsample),[11] and those accompanied by disposition of shares to the company only (Company Disposition Subsample). Option exercises under the second strategy are intended to mark the beginning date for the one year holding period for long-term capital gains treatment under the exercise-and-hold strategy. I assume this strategy is represented by exercises not associated with disposition of shares (No Disposition Subsample).

[10] I separate option exercises into subsamples based on stock transactions within a window (-1,1) surrounding the exercise date. The reason for a narrow window is to capture executives' revealed intentions as of the time of exercise. To consider whether shares were held over a longer horizon would possibly introduce a bias in favor of finding the hypothesized results because an executive's decision to continue holding shares is based on a constantly updated information set. An earlier version of this paper classified exercises based on stock transactions on the exercise day only, but this window has been expanded by a day in either direction to better classify exercises considering the large volume of stock transactions in the days immediately surrounding exercise dates.

3.C.i *Option Exercises with Stock Dispositions*

3.C.i.a *Option Exercise and Sale of Stock (the Stock Sale Subsample)*

The Stock Sale Subsample includes all exercises where the executive also reports a sale of shares to a third party at the time of exercise. Sales to a third party can occur through either a private or market transaction, and the SEC reporting forms do not require insiders to differentiate between these two methods of sale.

The overwhelming majority these exercises occur well before option expiration. Executives exercise these options on average 4.3 years before expiration and only 2.3 percent occur within a month of the expiration date. It is expected, then, that executives are exercising early either for liquidity or diversification purposes, or because they anticipate poor future performance, or for a combination of these reasons. Otherwise, they would optimally hold the options until expiration. To the extent executives are timing these transactions based on private information about future firm performance, I expect them to precede poor stock performance, such that executives realize a relatively high value upon sale of the underlying shares.

If these exercises are backdated, they are also more likely associated with a local maximum stock price – otherwise, the executive could have benefited by backdating the exercise to a day when the price was more favorable.[12] If these exercises are backdated, but are not otherwise timed based on private information, I expect longer term post-exercise returns beyond the typical look-back period to be normal, whereas a combination of backdating and information timing should produce exercises at a local maximum and also poor longer term abnormal returns.

Note, however, that exercises timed ex ante may be associated with a stock price peak in the absence of backdating, as early exercise is more likely when there has been a run up in stock price (Heath, Huddart and Lang (1999), Armstrong, Jagolinzer and Larcker (2006)). Alternatively, it is not impossible

[11] Note that exercises in the Stock Sale Subsample may also be accompanied by disposition of shares to the company.

(although it seems very risky) that executives would time the disclosure of separate pieces of information, releasing good news first followed by bad news, resulting in this price pattern. Further tests comparing results in the pre- and post-Sarbanes-Oxley period will allow for differentiation between backdating and information timing, if stricter reporting requirements are associated with return patterns less favorable to executives.

3.C.i.b *Option Exercise and Disposition of Shares to the Company (the Company Disposition Subsample)*

The Company Disposition Subsample includes exercises accompanied by a same day disposition of stock to the company as allowed under S.E.C. Rule 16b-3(d)(1), except for those dispositions in connection with a merger. Examples include (i) dispositions of previously held shares to satisfy the exercise price and required tax withholdings associated with exercise ("stock swap" exercises), (ii) cash settlement of options, so long as the shares are redeemed by the company and not sold through a broker and (iii) a general sale of shares (acquired through exercise or otherwise) to the company.

Given the tax consequences of stock swap exercises, it is not obvious whether an executive would prefer to exercise at a high or low price. Stock swap exercises are treated, in effect, as two separate transactions for tax purposes: (i) a tax-free exchange of the old shares (those that are turned in) for an equal number of new shares, where the new shares have the same tax basis and holding period as the old shares (call these "Replacement Shares"). The value of the Replacement Shares equals the total exercise cost; and (ii) receipt of additional shares which are treated as compensation and taxed at ordinary income rates (call these "Additional Shares"). The value of these shares equals the intrinsic value of the exercised options (stock price – strike price).

On one hand, the executive "sells" shares to the company at the exercise day price. Along this dimension, the executive receives a benefit of a one dollar increase in stock price equal to $1 times the

[12] Depending on the number of shares disposed of, option exercise can either increase or decrease an executive's exposure to the firm. I take the most conservative approach, and assume that disposition of any shares indicates an

number of options exercised. However, the tax burden on the Additional Shares can be minimized by exercising at a low price. Ordinary income taxes must be paid on their full value at the time of exercise, but additional appreciation beyond the exercise date are taxed as capital gain. Assuming the Additional Shares are held for a year, the benefit of exercising at a low price along this dimension equals the difference in the ordinary and long term capital gains tax rates times the number of options exercised (assuming no discounting of future cash flows).[13]

I find that in the Company Disposition Subsample executives on average dispose of more shares at the time of exercise than they hold, suggesting that the first incentive is dominant. I therefore expect to find abnormally low returns following these exercises, at least at the shorter horizons, although the second incentive may become dominant at longer horizons as the executive eventually disposes of the remaining shares.

Either information timing or backdating in these two subsamples will be associated with subsequent poor stock performance, such that executives who time option exercises realize a relatively high value upon sale of the underlying shares. If these options are backdated, they are also more likely to be associated with a stock price peak on the exercise date – otherwise, the executive could have benefited by backdating the exercise to a day when the price was more favorable.

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intention to decrease exposure. This should bias against a finding of manipulation.

[13] There are other complicating factors as well. The Additional Shares will have a tax basis equal to the exercise date stock price. If they decline in value before they are sold, the losses can be used to offset other gains for tax purposes. If they are sold within a year, $3000 of losses can be used to offset ordinary income gains, and the remainder can be used to offset short term capital losses. If they are held for more than a year, additional losses can be offset against future short term capital gains or long term capital gains, as well as $3000 of ordinary income annually.

3.C.ii *The Exercise and Hold Strategy*

The exercise-and-hold strategy is an attempt to minimize the total tax burden associated with option exercise and share disposition. In the U.S. during this period, exercise of a non-qualified stock option (NQO) resulted in a taxable gain for the executive upon exercise equal to the difference between the market value of the underlying share and the exercise price. This amount was taxable in the year of exercise at ordinary income tax rates, and the tax must generally be withheld at the time of exercise. Subsequent increases in share value that are realized upon sale of the shares are subject to taxation at capital gains rates if the shares are held for at least a year. Incentive Stock Options (ISO) have been treated differently for tax purposes. Under the standard individual tax framework, ISO exercise did not automatically trigger a taxable event, and all gain is taxed at capital gains rates upon share disposition if they are held for a year.[14] However, if the executive owes taxes in the exercise year under the alternative minimum tax regime (AMT), ISO exercises are treated similarly to NQO exercises for determining the tax owed. Executives therefore have incentive to engage in the exercise-and-hold strategy even when exercising ISOs if they believe they may owe the alternative minimum tax.

Alternative investment strategies have been proposed that arguably dominate the exercise-and-hold strategy. Carpenter and Remmers (2001) prove analytically that investing the exercise price in additional shares instead of exercising, then exercising later and selling all of the shares is a dominant strategy when the holding period stock return is positive. McDonald (2003) demonstrates that the Carpenter and Remmers (2001) strategy yields returns inferior to the exercise-and-hold strategy when the holding period return is negative, but that a strategy of investing in the underlying stock and risk free bonds dominates regardless of the holding period return.[15]

[14] A "qualified disposition" of ISO shares, which qualifies for the favorable tax treatment described, requires that the executive hold the shares for 2 years from grant, and one year from exercise. A "disqualifying disposition" in violation of these requirements results in tax treatment similar to that for non-qualified options.

[15] McDonald (2003) demonstrates that the optimal strategy consists of investing (t-g)/(1-g) in shares of the underlying, and K+t(S-K)-(t-g)/(1-g)S in bonds regardless of the realized return on the underlying stock, where K is the strike price, t is the ordinary income tax rate, g is the capital gains tax rate, and S is the stock price.

I propose that the exercise-and-hold strategy may often dominate these alternative investment strategies for two additional reasons. The first is the opportunity to backdate exercise dates. These researchers have implicitly assumed that the price at which executives can purchase additional shares is equal to the price attributed to shares on the exercise day for tax purposes. The exercise-and-hold strategy is likely to be optimal if the exercise date can be backdated to coincide with a value sufficiently below the price at which the executive can acquire additional shares. In this way, the cost of the exercise-and-hold strategy can be artificially reduced in a way that the cost of strategies relying on the purchase of additional shares cannot. The second reason is related to insider trading laws. The Federal securities laws prohibit the purchase or sale of securities by persons who possess material non-public information about a company.[16] However, I am not aware of any current prohibition of option exercises based on non-public information. Executives may therefore rationally engage in the exercise-and-hold strategy in lieu of alternative strategies in order to avoid illegal insider trading.

I expect timing of exercises in the No Disposition Subsample to be associated with positive post-exercise returns, as executives employing the exercise-and-hold strategy will benefit from exercising at a low price and selling later at a high price. If these exercises are backdated, they should also be preceded by negative returns, resulting in exercise at a trough, as the most profitable exercise date is the one with the lowest price. It is plausible that exercise at a trough could result from information timing only, with no ex post backdating, as executives may be more likely to engage in the buy-and-hold strategy when they possess positive private information and they also believe the stock is undervalued. And, as mentioned above, it is also possible that executives manage the flow of information to manufacture price patterns, in this case releasing bad news first followed by good news. Comparison of return patterns before and after imposition of the more restrictive reporting requirements should shed light on this issue.

[16] See the broad anti-fraud provisions of Section 10(b) of the Securities and Exchange Act of 1934, S.E.C. Rule 10b-5 and related court decisions.

3.C.iii *Information Timing versus Backdating*

Although risky from a legal perspective, information timing of exercises in all three subsamples should not be difficult to accomplish, with the possible constraint of blackout periods around earnings or news announcements.[17]

Backdating may be more difficult to implement. Exercises not accompanied by sale of shares to a third party are arguably easiest to backdate. Both the No Disposition and Company Disposition Subsamples satisfy this condition. Exercises in the No Disposition Subsample are perhaps most likely to be backdated since this imposes the smallest relative cost on the company. If the option is a non-qualified option, a tax deduction accrues to the company on the exercise day equal to the difference between the market price and exercise price. If the exercise is backdated to coincide with a low market price, the company forfeits a portion of this deduction (or, alternatively, transfers it to the executive). However, there was no tax implication for the company of an ISO exercise during this period, so the company does not suffer a direct loss from a backdated ISO exercise.

Backdating of exercises in the Company Disposition Subsample is perhaps the next likeliest scenario. Backdating of these exercises may be more costly to the company as it effectively causes the company to "purchase" shares from the executive at inflated prices. However, backdating of ISO exercise and disposition to the company is less costly because the disqualifying disposition causes the option to be treated as non-qualified for tax purposes, and therefore generates a tax deduction for the company that would not have existed otherwise.

Exercises in the Stock Sale Subsample are least likely to be backdated. Backdating of exercise and sale to coincide with a high price would require a counterparty willing to purchase shares at above current market value. However, I do not rule out this possibility. Backdating could be facilitated either through sham transactions or with the cooperation of private counterparties, such as investment banks for example, that may be willing to accommodate executives to service a business relationship with the

[17] See Bettis, Coles and Lemmon (1998) for an examination of corporate policies restricting trade by insiders.

company.[18] Unfortunately, the data does not allow differentiation between market and private sales, so this hypothesis cannot be pursued with greater precision.

3.D Data and Summary Statistics

The Thompson Financial Network Insider Filing Data database ("Insiders Database") provides information on insider transactions compiled from Forms 3, 4, 5 and 144 filed with the SEC from 1996 through 2005.[19] The sample for this study includes option exercises by individuals indicating their highest title as either Chairman of the Board (CB), Chief Executive Officer (CEO), Chief Operating Officer (CO), President (P), General Counsel (GC) or Chief Financial Officer (CFO). Option exercises are only included if they are reported as Employee Stock Options, Incentive Stock Options or Non-Qualified Stock Options. The sample period begins on August 15, 1996, when the SEC first began requiring insiders to report transactions by the 10th calendar day of the following month, and ends December 31, 2005, to ensure that 120 days of post-exercise return data are available through CRSP. To minimize issues associated with a lack of independence of observations, I count exercises by multiple executives at the same company on the same day and with the same reporting lag as a single observation.

I match option exercises reported on Table 2 of the SEC reporting forms to stock dispositions reported on Table 1. Stock dispositions are included in this study if the executive reported a transaction code indicating an open market or private stock sale to a third party (code 'S'), payment of option exercise price or tax liability by delivering or withholding securities (code 'F'), or disposition to the company pursuant to Rule 16b-3(e) (code 'D'), which allows for transactions with the company to be exempted from the short-swing profit rules.

I compare transaction prices reported by executives to prices reported through CRSP. Exercises are excluded if they are accompanied by Stock sales reported at prices outside of the CRSP daily price

[18] A variant of this strategy would be to rescind an actual private transaction ex post before it was reported to the SEC if it turned out that the stock fared well after the supposed sale.

range. Exercises accompanied by disposition of shares to the company are excluded if the transaction price reported was both outside the CRSP daily price range and did not match the closing price on the prior day. Finally, I omitted exercises at companies whose market value was not available through COMPUSTAT or for which returns were not available through CRSP for the (-120, 120) trading day window around the exercise date. The final sample consists of 37,457 exercises by 8,007 executives at 2,970 companies.

The annual distribution of observations is reported in Table 3.1. In the pre-Sarbanes-Oxley period, 12,138 (60 percent) are in the Stock Sale Subsample, 2,300 (11 percent) are in the Company Disposition Subsample, and 5,682 (28 percent) are in the No Disposition Subsample. The proportions of exercises in the Company Disposition and No Disposition Subsamples generally decrease over time in the pre-Sarbanes-Oxley period and continue to decline in the post-Sarbanes-Oxley period. After Sarbanes-Oxley, 13,292 exercises (77 percent) are in the Stock Sale Subsample, 1,292 (7 percent) are in the Company Disposition Subsample, and 2,753 (16 percent) are in the No Disposition Subsample. The shift toward the Stock Sale Subsample over time is consistent with the opportunity to time or backdate exercises in the other two subsamples being diminished after the Sarbanes-Oxley Act.

Additional summary statistics are reported in Table 3.2. Panel A shows that a total of 2,970 companies are represented in the overall sample, of which 2,132 are represented in the Stock Sale Subsample, 727 are represented in the Company Disposition Subsample and 2,069 are represented in the No Disposition Subsample. Contrary to prior belief, we see that exercising options without disposing of the shares is quite prevalent. ISO exercises represent 10 percent of observations. Also consistent with the exercise-and-hold strategy, ISOs, represent a larger percentage of the No Disposition Subsample (26 percent) than either the Stock Sale (5 percent) or Company Disposition Subsamples (14 percent). CEOs account for the largest proportion of exercises, including approximately 37 percent of exercises in each subsample, followed by CFOs, who account for approximately 25 percent of each exercise subsample.

[19] Insiders are required to file Form 3 to report initial beneficial ownership of shares, Form 4 to report changes in beneficial holdings, Form 5 to report annual changes in beneficial ownership and Form 144 to declare intention to

Panel B of Table 3.2 shows that the average number of options an executive exercised is similar across subsamples. Whether they dispose of the shares or not, the mean number of options exercises is approximately 30,000 options, and the median is approximately 7,500 options. Interestingly, when engaging in a same-day disposition of shares, on average executives dispose of a large number of shares on the exercise date. For the Stock Sale Subsample, executives disposed of an average of 7 times (median of 1 times) as many shares as were acquired through exercise, almost all of which are disposed of through a sale. Even in the Company Disposition subsample, executives dispose of an average of 2.9 times (median of .63 times) as many shares as were acquired. The skew towards high volume of stock disposition upon exercise for these two subsamples could easily mask the large percentage of exercises that fall in the No Disposition Subsample if a researcher focuses on the average level of stock disposition across all exercises. Executives exercise options earliest relative to expiration when they sell stock (mean = 4.7 years), but the early exercise pattern is similar when they hold the acquired stock (mean = 4 years). Finally, the last line in Panel B indicates that exercises in the Company Disposition Subsample are associated with larger companies (mean market cap = $12B) whereas exercises in the No Disposition Subsample are associated with smaller companies (mean market cap = $5B).

3.E Event Study Analysis

The basic methodology is a measure of cumulative daily abnormal returns (CARs) over incremental windows around executive option exercise dates.[20] Daily abnormal returns are calculated as total return minus the portfolio return of all stocks that trade in the same market and are in the same size decile.[21] To

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sell restricted shares.

[20] An earlier version of this paper included an analysis of total returns surrounding exercises. That analysis may be important because to the extent that executives are backdating option exercises, they would be doing so to capture value associated with total price movements. Those results are consistent the ones presented here and have been excluded for brevity.

[21] Size-adjusted returns seem to be the most appropriate abnormal return model. The market model or four-factor model with parameters estimated prior to exercise are subject to downward bias because option exercises typically follow large run-ups in stock price. Adjustment relative to a value-weighted market portfolio biases abnormal returns upward because of the greater prevalence of small firms in the sample and the higher average returns to small firms. Similarly, adjustment relative to the equal-weighted market portfolio biases abnormal returns

minimize issues related to the independence of observations, I treat multiple exercises by executives at the same company on the same day as one observation if they are reported to the SEC on the same day. I focus on returns across various windows from 120 trading days before to 120 trading days after exercises. Shorter windows of 20 days or less are most appropriate to detect backdating if the look back period is short, whereas the longer windows are more appropriate for detecting exercises timed based on private information. The longest window (1, 120) corresponds to approximately 6 months and can therefore identify exercises timed relative to private information that could affect up to two cycles of quarterly earnings. Standardized cross-sectional significance tests are reported consistent with Boehmer, Musumeci and Poulsen (1991).

3.E.i *The Full Sample Period*

This section presents cumulative abnormal returns around executive stock option exercises. I perform separate event studies for the entire sample and each subsample over the full period, August 15, 1996 to December 31, 2005 and report the results in Table 3.3 and Figure 3.1 Panel A. Executive option exercises in aggregate are associated with a large abnormal stock price run-up before exercise and small positive abnormal returns in the weeks immediately following exercise that turn to small negative abnormal returns over a three to six month horizon. If only examined in aggregate, it appears executives on average exercise options when their incentive to diversify their portfolio is high but that exercises are not motivated by pending strong negative performance.

However, when analyzing the three subsamples separately, it becomes apparent that the aggregate picture clouds the economic reality. As reported in Columns 2 – 4 of Table 3.3 and demonstrated in Figure 3.2, returns around option exercises are consistent with the hypothesized exercise strategies. Most interesting are the results for the No Disposition Subsample reported in Column 4. Exercises not accompanied by share disposition are associated with a clear stock price trough, consistent with the

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downward. Using benchmark portfolios of firms that trade on the same exchange provides a crude industry adjustment.

exercise-and-hold strategy and exercise manipulation. No Disposition Subsample exercises follow a smaller long-term stock price run up, and then abruptly negative returns over the 20 or so trading days preceding exercise ((-20,0) CAR = -1.24%). Average returns reverse immediately upon exercise and are abnormally large for at least 120 trading days following exercises ((1,20) CAR = 2.78%; (1,120) CAR = 4.85%). These results strongly suggest executives engage in the exercise-and-hold strategy when they do not dispose of the shares at the time of exercise. Given the striking stock price pattern around exercise, these results are also highly suggestive of exercise manipulation. Indeed, backdating is difficult to rule out as it seems unlikely these price patterns would be generated through information timing alone.

After separating out the No Disposition Subsample, patterns suggestive of exercise manipulation are apparent in the other subsamples as well. Exercises in both the Stock Sale and Company Disposition Subsamples are preceded by large positive abnormal returns, and are followed by significant negative abnormal returns. Exercises in both subsamples sit at the apex of the abnormal return peak. The evidence of ex ante timing based on private information is greatest for the Stock Sale Subsample. Abnormal returns following this subsample continue to decline over a long period following exercise to a total of approximately -1.9% abnormal returns over the following 5 months. Abnormal returns following exercises in the Company Disposition Subsample are not as prolonged. Returns are abnormally low for about 2 months following these exercises ((1,40) CAR = -.65%), but they are more typical thereafter. This is consistent with executives only disposing of a fraction of acquired shares to the company on average and engaging in exercise backdating over a one to two month look-back period.

3.E.ii *Before and After the Sarbanes-Oxley Act*

The next question addressed is whether option exercise manipulation is less prevalent after the SEC enacted the 2 business day reporting requirement on August 29, 2002. If favorable exercise patterns do not persist after the reporting change, this would suggest backdating in the pre-Sarbanes-Oxley period.

Table 3.4 presents event study results before and after the Sarbanes-Oxley Act. Pre- and post-Sarbanes-Oxley CARs are reported for each subsample and t-statistics comparing the differences are

reported. T-statistics are also reported comparing differences in abnormal returns around the Stock Sale Subsample to those around the Company Disposition Subsample.

Abnormal returns around exercises in the No Disposition Subsample are greatly reduced after the Sarbanes-Oxley Act. Before the Sarbanes-Oxley Act, these exercises are preceded by (-20,0) abnormal returns of -1.83 percent (1 percent sig.) and followed by large (1,20) day abnormal returns of 3.54 percent (1 percent sig.). In contrast, after the Sarbanes-Oxley Act these exercises are preceded by insignificant (-20,0) day abnormal returns, although they are followed by (1,20) day abnormal returns of 1.23 percent (1 percent sig.). Over the (1, 120) day period following exercise, the stock price rose abnormally a full 6.39 percent (1 percent sig.) before the Sarbanes-Oxley Act, and only 1.66 percent after Sarbanes-Oxley (1 percent sig.). These results strongly suggests that the favorable price patterns around executive option exercises in the pre-Sarbanes-Oxley period resulted in great part from backdating exercises to dates with low stock prices. But the fact that a portion of the favorable return patterns remains after the rule change suggests that executives sometimes time exercises in this subsample relative to private information, in both the pre-and post-Sarbanes-Oxley period.

Abnormal returns around exercises in the Stock Sale provide strong evidence of exercise manipulation before the Sarbanes-Oxley Act. Negative abnormal returns become statistically significant at the 20 day horizon ((1, 20) CAR = -0.54 percent; 5 percent sig.), and grow increasingly negative across the full time period ((1, 120) CAR = -3.97 percent; 1 percent sig.). This is much stronger evidence of exercise manipulation than has been provided in previous studies. After the Sarbanes-Oxley Act, abnormal returns following these exercises are concentrated in the 20 day window following exercise, suggesting that informed sale of stock has generally decreased over time.

Negative abnormal returns following exercises in the Company Disposition Subsample are concentrated in the 40 day window following exercises. This is consistent with backdating over a one to two month window to secure higher valuations for shares delivered to the company. The longer-term normal returns are consistent with executives choosing this strategy when they can secure high valuations

for the portion of shares delivered to the company, but holding the other acquired shares when they do not have a strong negative view of the future.

3.F Backdating to Get the Best Price

3.F.i *The Best Price Before and After the Sarbanes-Oxley Act*

Another method for examining exercise timing is to compare the stock price on the day of exercise to the price on days immediately surrounding the exercise date. A variant of this methodology was introduced in the context of grant backdating by Bebchuk, Grinstein and Peyer (2006), who rank the exercise date relative to other days in the same calendar month based on the relative stock price. A similar methodology should be even more effective for identifying exercise backdating given the fact that before the Sarbanes-Oxley Act executives were expected under the law to report exercises on a monthly basis. Indeed, it seems executives at Symbol Technologies maintained a program of cherry-picking exercise during the calendar month, a strategy that could be implemented without violating SEC reporting rules.[22]

I employ a slightly different methodology than Bebchuk, Grinstein and Peyer (2006). I analyze the ratio of the exercise day stock price to the stock price range during the calendar month. For example, if a stock price ranges from $20 to $30 in a calendar month, then exercise dates where the stock closed at $20, $25 and $30 would be ranked in the 0th, 50th and 100th percentile, respectively. An advantage of this methodology is that it reflects executives' advantage from exercising options on days when the stock price was very close to the extreme price for the month, but when the closing prices on multiple days were also close to that value.

Figure 3.2 Panels A, B and C present histograms of exercise date stock prices relative to the monthly stock price range for each subsample before and after the Sarbanes-Oxley Act. Exercises are divided across 22 bins: the lowest price of the month, the highest price of the month, and 5 percent increments across the monthly price range. To the extent that executives exercise options and dispose of

[22] S.E.C. Litigation Release 18734 (June 3, 2004).

shares following large run-ups in stock price, the distributions for the Stock Sale and Company Disposition Subsamples should be naturally skewed toward the high end of the monthly stock price range, which is generally the case. However, there is a concentration of exercises on the highest price of the month for these subsamples in both the pre-and post-Sarbanes-Oxley periods, consistent with some executives' timing these exercises.

Table 3.5 compares the percent of exercises that occurred on the most favorable day of the month in the pre-and post-Sarbanes-Oxley periods. Approximately 9 percent of exercises in the Stock Sale Subsample occurred on the most favorable day of the month in both periods, suggesting that any strategic timing of these exercises is due only to information timing and not backdating. 11.9 percent of exercises in the Company Disposition Subsample were on the most favorable day of the month in the pre-Sarbanes-Oxley period, compared to 8.6 percent in the post-Sarbanes-Oxley period. The difference is significant at the 1 percent level, and indicates that exercises in this subsample were 39 percent more likely to fall on the most favorable day before Sarbanes-Oxley. The likelihood of exercising at the best price in the Company Disposition Subsample is 34 percent greater than in the Stock Sale Subsample (1 percent sig.) before Sarbanes-Oxley, and they are almost identical after Sarbanes-Oxley. These results further suggest the favorable timing of some exercises in the Company Disposition Subsample before the Sarbanes-Oxley Act was a result of exercise backdating, whereas exercises in the Stock Sale Subsample were generally only timed ex ante based on private information.

For the No Disposition Subsamples the largest concentrations of exercises fall on the lowest price of the month. Casual observation of the histograms shows that favorable exercise dates are much less prevalent after Sarbanes-Oxley. Table 3.5 confirms that 12 percent of these exercises occurred at the best price of the month before Sarbanes-Oxley, compared with only 7 percent after Sarbanes-Oxley. The difference indicates that exercises in this subsample were 70 percent more likely to occur on the most favorable day of the month before the Sarbanes-Oxley Act. Combined with the event study analysis above, these results provide strong evidence that many exercises in the No Disposition Subsample were backdated in the pre-Sarbanes-Oxley period.

3.F.ii *Incentive Stock Options*

As discussed above, ISOs are treated differently than NQOs for tax purposes. With respect to the No Disposition Subsample, unless the executive is taxed under the AMT regime, ISO exercise does not trigger a taxable event and the full gain to the executive is taxed at capital gains rates when the shares are eventually sold. Executives still have incentive to backdate ISOs in this subsample, however, if they expect to pay the AMT because ISOs are taxed the same as NQOs under this regime. In addition, their company may be more likely to allow backdating of ISOs in this subsample because there is no corresponding tax loss for the company due to the lower exercise date stock price.

Companies may also be more willing to allow backdating of ISOs in the Company Disposition Subsample. This is because the early disposition of shares causes them to lose their favorable ISO tax treatment, and results in an additional tax deduction for the company. Figure 3.2 Panel D shows the monthly stock price range for exercises in the No Disposition and Company Disposition Subsamples, respectively, divided by whether or not the options exercised were only ISOs. 12.6 percent of ISO exercises were at the lowest price of the month versus only 9.5 for NQOs (difference significant at the 1 percent level). This indicates that indeed backdating is likely to have been associated more often with ISOs, and that the gains from backdating most often represented a wealth transfer from U.S. taxpayers to executives.

3.F.iii *Backdating by Multiple Executives*

Multiple executives at a firm often exercise options on the same day. In the No Disposition Subsample, 955 of 8,435 exercises (11.3 percent) are concurrent with at least one other executive at the same firm. If these exercises also tend to fall on the most favorable day of the month, this would be evidence of coordinated backdating among the executive suite. Figure 3.2 Panel E demonstrates that this is indeed the case. This histogram shows that for the No Disposition Subsample over the full time period, 12.3 percent of exercises were executed at the most favorable day of the month when at least two executives exercised on that day, compared with 10.1 percent when only one executive exercised. The

difference is significant at the 5 percent level and indicates a 22 percent increase in the likelihood of exercising on the most favorable day when multiple executives exercise together.

3.F.iv *Distinguishing Exercise Backdating from Grant Backdating*

Much evidence has already been presented on option grant backdating. Grants have often been backdated to correspond with low stock prices because options are almost always granted with a strike price equal to the stock price on the exercise day, and those with lower strike prices are more valuable. In effect, they are granted "in-the-money." Lie (2005), Narayanan and Seyhun (2006, 2007) and Bebchuk, Grinstein and Peyer (2007) provide convincing evidence of grant backdating, and at this time the S.E.C. has prosecuted a number of grant backdating cases and is thought to be investigating around 140 companies in all.

Is exercise backdating the same as grant backdating? If this is the same issue, then one would expect the same companies to be engaging in both practices. However, that is generally not the case. Figure 3.2 Panel F plots exercise prices across the monthly price range for two subsets of option exercises: those at firms where at least one option grant has been made at the lowest price of the month and those where no grants have been made at the lowest price of the month. As can be seen, option exercise are almost as likely to fall on the most favorable day of the month in either sample. 348 out of 3,003 exercises (11.6 %) at firms where no favorable grants occurred at the lowest price of the month, and 332 out of 2,678 exercises (12.4%) at firms with at least one lucky grant occurred at the lowest price of the month. The difference of .8% is statistically significant at the 1 % level, but it is clear that option exercise manipulation is only marginally related to grant backdating. Arguments have been proposed why grant backdating may be an efficient compensation strategy (Mahmudi and Gao (2007); Jenkins, Wall Street Journal (June 21, 2006)) and how many participants in grant backdating did not consider the activity egregious. However, it appears most likely that backdating of exercise dates represents fraud and self dealing on the part of executives. It is also difficult to understand how a strategy that enriches executives when stock prices are low, or allows an executive to sell shares back to the company (in effect,

other shareholders) at inflated prices could represent an efficient contract for shareholders. Exercise backdating therefore appears to present a distinct agency issue.

3.G Exercise Manipulation and SEC Reporting

3.G.i *Reporting of Insider Transactions*

By focusing on the reporting of transactions to the SEC, we can gain more information about whether exercises are backdated or timed relative to private information. The real option to backdate an exercise is more valuable when the look-back period is longer, so backdating is more likely associated with late reporting. A corollary is that an executive with a look-back option has incentive to hold it open for as long as possible, so early reporting is unlikely associated with backdating. A more sinister view of early reporting is that executives report early if they are acting on private information, in order to distance the transaction from the time the information comes to the market. This seems most likely when shares are sold because these transactions are clearly prohibited by insider trading laws. But this incentive may also affect dispositions to the company and cash exercises. These transactions benefit the executive at the company's expense and the executive may either not want to alert others of an informed wealth transfer or, alternatively, may want to avoid the appearance of backdating.[23]

Table 3.6 documents the timing of SEC reporting of option exercises. I consider an SEC filing to be "early" if it is reported before the last day allowed under the SEC reporting rules, "on time" if it is reported on the last allowable day, and "late" if it is reported in violation of SEC rules. Pre-Sarbanes-Oxley exercises are on time if the SEC receives the Form 4 on the 10th calendar day of the month following exercise, or, if the 10th falls on a weekend or holiday, then on the next business day. Exercises after Sarbanes-Oxley are classified as on time if they are reported on the second business day following exercise. In the pre-Sarbanes-Oxley period, a substantial number of exercises are reported late. 22

[23] Narayanan and Seyhun (2005) find that longer reporting lags are associated with favorable returns around option grants in the pre-Sarbanes-Oxley period, and Heron and Lie (2006a) and Narayanan and Seyhun (2006) find that reporting lags are positively related to returns around grants in the post-Sarbanes-Oxley period. Both sets of authors argue their results are consistent with grant backdating.

percent of the No Disposition Subsample are reported late, and 12 percent are reported more than 4 weeks late. 14 percent of the Company Disposition Subsample, and 12 percent of the Stock Sale Subsample are reported late. This is consistent with executives extending the look-back period more often in order to backdate transactions with the company. In each subsample, about 40 percent are reported early, with the No Disposition Subsample skewed more toward earlier reporting. This is also consistent with early reporting of transactions that are based on private information. Much fewer transactions are reported late after Sarbanes-Oxley, in spite of the shorter reporting window. Only 9 percent of the No Disposition Subsample, 7 percent of the Company Disposition Subsample and 4 percent of the Stock Sale Subsample are reported late, and they are concentrated mostly in the first two weeks after exercise.

3.G.ii *Analysis of S.E.C. Reporting Before the Sarbanes-Oxley Act*

Table 3.7 presents an analysis of S.E.C. reporting and the fortunate timing of option exercises. For each subsample in the pre-Sarbanes-Oxley period, I regress the likelihood of exercising on the most favorable day of the month (logistic regression), the magnitude of (1,20) CARs and (1,60) CARs (OLS regressions) onto dummy variables indicating when the executive reported the transaction. The regressions focusing on price during the month and the shorter CAR are more informative about backdating over a shorter window, and the longer CAR regression is more informative about timing based on private information. I use two sets of explanatory variables. The first set is simply 2 dummy variables, indicating either that an exercise is reported early or late. The second set breaks reporting down more finely. Early reporting is separated into a series of three dummies capturing successive 2 week intervals after exercise, and late reporting is separated into a series of dummies capturing reporting violations of up to 2 weeks, between 2 and 4 weeks, and longer.

The No Disposition Subsample results reported in Panel C are most interesting. Both (1, 20) and (1, 60) day returns are much more favorable when the exercises are reported either early or late. And executives are more likely to exercise on the most favorable day of the month when they report late. This is consistent with both backdating and ex ante private information timing. Longer violations are also

associated with much larger (1, 60) day returns, suggesting backdating over a longer look-back period when there have been sustained stock price swings or when the executive comes into possession of additional information about future stock prices and can also backdate.

Exercises in the Company Disposition Subsample are more likely to fall on the highest price of the month when they are reported either immediately or late. Returns over (1, 60) are also much more negative when the transactions are reported early or in the first 4 weeks after exercise, but the results for shorter window returns are consistent but not reliably significant. When compared with the results for the Stock Sale Subsample, this is substantial evidence of both backdating and information timing when shares are delivered to the company.

The main conclusion from Stock Sale Subsample results reported in Panel A is that neither early or late reporting of option exercises and stock sales are more favorable to executives. There is some evidence early reporting is associated with the most favorable day of the month and more negative (1, 20) returns. But given that this does not hold with (1, 60) returns, these results are likely driven by the market's immediate response to the disclosures. Based on the large negative constant term on the (1, 60) day regressions, the most favorable transactions are on average reported on the last allowable day, and therefore blend into the pack. It is not clear why these transactions would be reported early or late.

3.H Corporate Governance and the Likelihood of Exercise Backdating

It is not entirely obvious that exercise backdating is harmful to shareholders. Recall that a majority of backdated options in the No Disposition Subsample are ISOs, such that the company does not forfeit a tax deduction if the options are exercised at a lower price, and the backdating in effect provides compensation to the executive from the U.S. government. The backdating opportunity may also reduce idiosyncratic volatility associated with executive options, and may therefore reduce the total compensation the executive must be paid. These arguments may be persuasive if the options are initially designed to allow a look-back period for exercises, and these features are disclosed to shareholders, regulators and the I.R.S. However, I have found no instances of such disclosure. Concealed backdating

of option exercises for the purpose of reducing a tax burden is likely actionable under the anti-fraud provisions of the Internal Revenue Code (Sections 7201, 7206, 7207), and can be deemed a felony and garner penalties of up to $500,000. It also seems likely that a executive found to have fraudulently backdated options will be removed from office, which could be extremely costly for a company depending upon how much value the executive creates and how easily he can be replaced. Given these large potential costs, it seems likely that undisclosed exercise backdating is an activity that is not in shareholders' interest, and is best characterized as a fraudulent activity.[24] It is therefore instructive to examine whether exercise backdating can be classified as a governance problem.

In this section, I examine whether weaker corporate governance is associated with exercise backdating. I focus on the Company Disposition and No Disposition Subsamples in this analysis since I find evidence consistent with backdating in these two situations. I first identify all firm-years where at least one top executive exercised options on the most favorable day of a calendar month and either held all of the shares or disposed of shares back to the company only (if the executive held all shares the most favorable day was the one with the lowest closing price of the month, whereas if the executive disposed of shares it was the one with the highest closing price of the month). I match each sample firm-year to a control firm-year where no executive exercised options on the most favorable day of a month. I match to control firm-years based on CRSP size deciles and SIC codes. I first match on 4 digit SIC codes, which provides about 75 percent of my control sample, and match the remaining 25 percent by 3 digit SIC code. I conduct logit regressions across the sample and controls to determine whether the likelihood of backdating is correlated with a firm's corporate governance environment.

It is important to note that any correlation between what is generally considered weak governance and backdating does not necessarily indicate sub-optimal governance structures. Optimal governance structures should reflect a trade off between the benefits of mitigating agency problems and the costs of

[24] It is still possible, however, for option exercise backdating to be in shareholders best interest if the probability of detection is sufficiently low. It is impossible to estimate this probability ex ante, but given the high level of disclosure required (generating a nice paper trail) and the fact that many cases have been brought for option backdating, it would seem that it is relatively high.

the governance mechanism. Even if it is clear that shareholders would choose for executives not to backdate option exercises, the likelihood of this occuring is just one cost that must go into an analysis of optimal governance structure. However, this analysis can be instructive for at least three reasons. In some cases managers may enjoy excessive control and sub-optimal governance structures may persist (see Bebchuk and Fried (2004)), in which case option backdating might appropriately be characterized as a governance problem. Alternatively, if optimal governance structures prevail, it is likely that shareholders were not aware until recently of option backdating and that the cost of this activity has not been accurately priced in the corporate governance calculus. It is therefore instructive to identify what, if any, governance mechanisms may have discouraged backdating, in order to better understand the effectiveness of various mechanisms for mitigating similar agency problems in the future. Finally, if backdating is correlated with entrenched management or weaker governance, then it is more likely that the practice is actually to shareholders detriment, and indeed represents a cost of poor governance. I discuss below the governance variables considered in the analysis.

3.H.i *Governance Variables*

3.H.i.a *Internal Controls*

Executive option exercises are transactions with their employer as the counterparty, and companies normally require notice be given before an option is exercised. For an exercise to be backdated, either someone else within the company must coordinate with the executive to fabricate an earlier exercise date or the executive must have full control over the process. This would seem to implicate a deficiency in the internal control processes within a company. An internal control weakness is defined by the PCAOB as a "significant deficiency, or combination of significant deficiencies, that results in a more than remote likelihood that a material misstatement of the annual or interim financial statements will not be prevented or detected." (PCAOB, 2004). Although backdating of option exercises will not necessarily result in a material misstatement, if backdating is made possible through ineffective controls, then those companies may also be more likely to report weaknesses in controls over financial

reporting. I test this relationship using data from Audit Analytics to construct a dummy variable that indicates if the company has reported an internal control weakness since 2004, the first year in which firms must report weaknesses under Section 404 of the Sarbanes-Oxley Act.

3.H.i.b *Institutional Investors*

Hartzell and Starks (2003) demonstrate that institutional investors influence the structure of executive compensation. Hribar, Jenkins and Wang (2004) show that institutional investors sell stock in anticipation of accounting restatements, which suggests institutions can often identify fraudulent activities before they are disclosed. It is possible that the probability that institutional investors will take notice of any suspicious timing of option exercises will deter executives from backdating option exercises. Alternatively, a stronger institutional investor presence may be positively associated with backdating. There are a couple of plausible explanations for this relationship. First, it may be that institutions know about backdating and approved of its use as a compensation feature. Alternatively, executives may have more incentive to extract stealth compensation when the expected compensation level is more strenuously monitored.

I consider three measures of institutional investor presence. The first is the percentage of a company's equity held by institutions. The second is a dummy variable indicating the existence of a 5 percent blockholder. The third captures the magnitude of presence of institutions that are thought to monitor their portfolio companies. Consistent with Chen, Harford and Li (2007), I characterize an institution as a monitor if it is in CDA data type 3 (investment companies) or 4 (independent investment advisors) and is also identified as a dedicated investor or quasi-indexer by Bushee (1998).[25] To ensure that these institutions are long-term investors who have greater incentive to monitor, I require that they be in the top five institutional shareholders for each of the preceding 4 quarters. I sort observations annually

[25]Also as in Chen, Harford and Li (2007), I use the 1997 CDA classifications for all observations after 1997 because there were flaws in the classification process during this time period

into CRSP NYSE/AMEX/NASDAQ size quintiles and construct a variable that captures the percentage of holdings by the top 5 institutional investors that are held by long-term monitoring institutions.

3.H.i.c *The Board of Directors*

The board has ultimate responsibility for internal control over the affairs of a firm (Jensen (1993)). Many have argued that independent boards are better monitors of executives and exert more control over executive compensation (Bebchuk and Fried (2003, 2004)). Yermack (1999) and others have argued that smaller boards are more effective monitors of management. Others have suggested separation of the CEO and Chairman of the Board positions to guard against board capture (Jensen (1993); Brickley, Coles and Jarrell (1997)). More recently, researchers have emphasized board co-option when directors are selected during the presiding CEO's tenure (Coles, Daniel and Naveen (2007)). I use a dataset on board characteristics at 7,000 unique firms and 53,000 firm years over the period 1990 to 2006 compiled from Disclosure data by Linck, Netter and Yang (2007) to test whether board characteristics are associated with option exercise backdating. The board characteristics analyzed include the percent of insiders on the board, board size and a dummy variable indicating the CEO is also the Chairman of the Board. I combine IRRC data with Execucomp data to construct a variable indicating the percent of directors appointed before the presiding CEO began his tenure.

3.H.i.d *CEO Entrenchment*

If executives are rational, they should weigh the costs and benefits of self-dealing or fraudulent acts. Becker (1968) develops the neoclassical rational model of crime and sanctions. The basic principal is that malfeasance is optimal so long as the net expected utility of the action is positive, such that the value gained outweighs the product of the probability of being caught and the sanctions to be imposed. If the (perceived) costs of an activity are low relative to the utility to be gained, then executives should rationally engage in a fraudulent action. As an executive's influence increases, the direct cost of implementing a self-dealing strategy likely decreases, and thus the probability of being detected will

decrease. However, the loss upon detection will increase as the executive's influence increases. At the same time, the marginal benefit of self-dealing will likely also decrease if influence can be used to extract benefits in more straight-forward ways. It is therefore an empirical question whether backdating is positively associated with executive influence, and over what range of influence.

One measure of CEO influence is the level of ownership in the firm. I use Execucomp data to construct two dummy variables to capture varying levels of CEO ownership: one indicating CEO ownership between 5 % and 25 % of firm value, and a second indicating the CEO owns 25 % or more of the outstanding shares.

I construct two additional variables to capture how CEO influence can build up over time. The length of CEO tenure is captured by the natural log of 1 plus CEOs tenure. The other is a measure of the independence of other top executives.

Just as a CEO can co-opt a board, so might he co-opt the executive suite. Landier, Straer and Thesmar (2006) show that firms with a smaller fraction of executives who preceded the CEO are less profitable and make worse acquisitions. Another manifestation of executive suite co-option may be coordinated expropriation of firm value. Consistent with Landier et al (2006), I construct a variable that indicates the percent of executives who precede the CEO.

3.H.i.e *Shareholder Rights*

The final governance variable I consider is the strength of shareholder rights. Consistent with the analysis above, it is not obvious what effect shareholder rights will have on option backdating. On one hand, stronger shareholder rights might indicate management is more constrained and less likely to backdate. On the other hand, if backdating is concealed then stronger shareholder rights might give the manager more incentive to extract benefits without shareholders' knowledge. I test for the relationship between exercise backdating and shareholder rights using the Gompers, Ishii and Metrick (2003) G-score, which is an index ranking the shareholder rights based on 24 charter, bylaw and state law provisions

dealing with merger delay tactics, shareholder voting rights, officer and director protection and takeover defenses.

3.H.ii *Governance Results*

Table 3.8 provides univariate results for the sample and matched firms. Depending on the governance variable included, the sample sizes change based on data availability. The most striking results is that sample firms are much more likely to report internal control weaknesses than are the control firms. Eleven percent of sample firm-years are at firms that report an internal control weakness at some time between 2004 and 2006, compared to only three percent of the matched sample.[26] Institutional investors have a significantly stronger presence at sample firms than control firms according to all three measures. This is consistent with executives using backdated option exercise as a way to extract additional stealth benefits when they are more constrained by shareholders. With respect to the board of directors, the level of independence of sample and matched firm boards is not significantly different, with each group maintaining approximately 70 percent independent directors. The sample firms have slightly smaller boards (7.7 directors versus 8.0 directors; 10 percent significance for difference), and they are no more likely to have a joint CEO/Chairman of the Board (59 of sample firms and 61 percent of controls; insignificant difference).

CEO tenure at the sample firms are considerably longer than tenures at the matched firms (6 years versus 5 years; 1 percent significant for difference), consistent with entrenched executives having greater ability to implement backdating strategies (although this result may just represent that CEOs with longer tenures are more likely to be exercising options). Finally, a smaller percentage of the boards of directors of sample firms were appointed before the CEO took office (43 percent versus 47 percent; 10 percent level significance for difference), consistent with board co-option by the executive suite as a means of removing barriers to self dealing against the company.

[26] Under the Sarbanes-Oxley Act Section 404, firms had to begin reporting the results of internal control audits and the existence of deficiencies or weaknesses in 2004.

The multivariate results are reported in Table 3.9. I have provided odds ratios[27] for logistic regressions predicting inclusion in the sample of firms-years where executives are likely to have backdated option exercises. Panel A reports results for the full period, and Panel B reports results from the same regressions in the pre-Sarbanes-Oxley period only. Consistent with the univariate analysis, the strongest predictor of inclusion in the sample is reporting of an internal control weakness. For the full sample period, the odds ratio associated with a reporting of an internal control weakness is a highly statistically and economically significant 5.753 (t-stat = 7.48) when other governance variables are excluded, but drops to an insignificant 1.719 (t-stat =0.96) when controlling for all other governance variables. This loss of significance could be due to a loss of power due to the reduction of sample size from 1842 to 254 across the two regressions. The results are much stronger in the pre-Sarbanes-Oxley period, which is when most backdating appears to have occurred. Reporting of an internal control weakness in 2004 (the first year of widespread reporting) is highly predictive of inclusion in the sample firm-years, with an odds ratio of 15.72 (t-stat = 4.53) when not controlling for other governance variables, and with perfect prediction when controlling for other governance variables.

The other results are not as strong. Focusing on the results for the full time period, all of the coefficients on the institutional investor variables confirm that exercise backdating is significantly more likely when there is a stronger institutional investor presence. When considering all three together (regression (5)) the partial effect associated with the percent of the top five shareholdings held by long-term monitoring institutions remains significant (odds ratio = 1.673; t-stat = 2.30), although when all other governance variables are included in the regressions the existence of a blockholder is the only significant institutional investor variable (odds ratio = 2.87; t-stat = 2.01). Similar results obtain for the pre-Sarbanes-Oxley period.

The characteristics of the board of directors are not important predictors of exercise backdating. The coefficients on board independence and size are uniformly insignificant. However, when all other

[27] The odds ratio for a particular variable is equal to *e* raised to the coefficient on that variable from the logistic regression. It represents the probability of inclusion in the sample over 1 – the probability of exclusion.

variables are controlled for, there is evidence that executives are less likely to backdate option exercises when the CEO is also the Chairman of the Board (full period odd ratio = 0.499; t-stat = -2.24; pre-SOX odds ratio = 0.558; t-stat = -1.61). This is consistent with more powerful CEOs either not feeling the need to extract benefits through risky self-dealing or being less willing to take the risk of detection. The results for CEO ownership further bear this out. In both the full and pre-SOX periods, exercise backdating is less likely when the CEO owns larger stakes in the firm, with perfect prediction that the firm-year is not in the backdating sample when the CEO owns more than 25 percent of the company.

The fact that backdating is more likely when the CEO has a longer tenure is confirmed in both the full period and pre-SOX period when controlling for CEO ownership and the percent of the executive suite that precedes the CEO, although this result is diminished when controlling for the percent of the board that precedes the CEO and in the full regression. The relationship between board co-option and the likelihood of backdating is also diminished in the multivariate setting. Finally, prescribed shareholders rights do not appear to be related to exercise backdating.

In summary, option exercise backdating seems to be a problem of internal control. This result makes sense given every indication is that exercise backdating was a concealed activity, and should be easily prevented by properly-functioning internal controls. This result highlights the possible importance of internal control procedures for regulating executive actions that could put shareholder wealth at risk, which is in addition to the primary objective of accurate reporting of financial statements, which should also be weighed against the arguably high cost of maintaining and documenting effective controls under Sarbanes-Oxley Section 404. It is also instructive that executives are less likely to engage in risky, probably fraudulent actions when they, in effect, have more skin in the game. However, the fact that executives may be more likely to engage in risky actions when they are under more pressure from investors is also instructive and seems to have not been previously identified empirically.

3.I Conclusion

When examined in aggregate, the evidence that executives manipulate stock option exercises is not strong. However, when exercises are separated into subsamples based on executives' stock disposition strategy, evidence of opportunistic behavior emerges. Exercises not accompanied by stock disposition are preceded by a sharp decline in stock price, and followed by a sharp increase in stock price, such that exercise occurs at a stock price trough. This pattern suggests executives often follow the tax minimization strategy of exercising options and holding the shares for at least a year, and that they manipulate exercises to coincide with low stock values to minimize taxes due at the time of exercise, which must be paid at ordinary income rates, and push off appreciation to be taxed at a later time and at lower capital gains rates. Exercises accompanied by same day disposition of shares, either to a third party through a sale or through disposition to the company only, are associated with a stock price peak on the exercise day, consistent with exercise timing to maximize the value received for the shares upon disposition.

I also find evidence of exercise backdating when the shares acquired through exercise are either held by the executive, or are disposed of to the company only. The strongest pieces of evidence supporting backdating are that favorable return patterns around exercises are greatly diminished after the August 29, 2002, implementation of more restrictive SEC reporting rules for insider transactions under the Sarbanes-Oxley Act, and that executives are much more likely to exercise on the most favorable day of the calendar month before the rule change than they are after the change.

In the pre-Sarbanes-Oxley period, favorable price patterns around option exercises are associated with the timing of SEC reporting in ways consistent with both information timing and backdating. Exercises accompanied by disposition of shares to the company, and those where the executive holds all acquired shares, are associated with more favorable return patterns when they are reported early or late, consistent with both information timing and backdating of exercise dates. This relationship is strongest around exercises where the executive does not dispose of the shares on the exercise date.

Exercise backdating is only marginally related to option grant backdating, and it therefore appears to represent a unique previously unidentified agency cost. Backdating exercises in order to return shares

to the company at high prices extracts value directly from shareholders. Backdating an exercise to correspond with a low price will increase a company's tax burden if the options are Non-Qualified Options, although backdating of Incentive Stock Options represents a wealth transfer to an executive from the U.S. government. In all cases it would appear that option exercise backdating increases an executive's and his company's exposure to legal risk, which could greatly affect shareholder value. It is also the case that the likelihood of backdating is related to weakness of internal controls, indicating that an additional benefit of strong internal controls may be the minimization of self-dealing by insiders.

CHAPTER 4

LONG-RUN STOCK RETURNS, OPERATING PERFORMANCE AND EARNINGS MANAGEMENT AROUND EXECUTIVE STOCK OPTION EXERCISES[28]

[28] Cicero, D. C. To be submitted to *The Journal of Finance*.

4.A Introduction

This study considers whether executives time stock option exercises based on private information about firm operating performance, and whether they manage earnings to make their exercise strategies more profitable. Researchers considering this question in the past have assumed that executives sell the shares acquired through option exercises immediately, which leads to the prediction that option exercises will be timed to precede poor performance. However, Cicero (2007) provides evidence that executives often hold onto the acquired shares, and argues that they do so in order to implement an exercise-and-hold tax minimization strategy.

Executives' incentives to time exercises are different if they engage in the exercise-and-hold strategy than if they exercise-and-sell. Because executives pay income taxes at ordinary rates on the difference between the exercise price and the stock price on the day of exercise, they can minimize this tax by exercising at a low stock price. If they hold the shares for a year or longer, they pay long-term capital gains taxes on any stock appreciation beyond the exercise date. These tax implications lead to the prediction that executives will time option exercises associated with the exercise-and-hold strategy to precede good performance, and perhaps follow poor performance. They also have incentive to manage earnings downward prior to these exercises and back upward in the year following exercise.

I separate executive stock option exercises over the time period August 1996 to December 2005 into subsamples based on whether the executive sells shares immediately upon exercise, and test for the existence of abnormal operating performance and earnings management consistent with these two opposing hypotheses. The Stock Sale subsample consists of exercises accompanied by immediate sale of stock, and represents transactions associated with the exercise-and-sell strategy. The No Disposition Subsample consists of exercises where the executive does not immediately sell stock, which are likely associated with the exercise-and-hold strategy. The Future Sale Subsample consists of exercises where the executive did not immediately sell stock, but sold at least as many shares as were acquired through the exercise at a 1 year horizon. This subsample is narrowly tailored to capture only exercises associated with the exercise-and-hold strategy.

The empirical design tests for within firm abnormal changes in performance, as well as relative to a control sample of firms matched based on industry, firm-size and return. From long-run event study analysis, I find strong evidence that executives time exercise-and-sell transactions to precede poor performance. Firms experience a -8.3% (-11.2%) buy-and-hold abnormal return relative to matched control firms over the 12 (24) months following exercise-and-sell transactions. Based on comparisons of quarterly ROA over the 4 quarters preceding exercise and the 4 quarters beginning with the exercise quarter, I find that there is a significant deterioration in firm operating performance consistent with this market decline. I also find evidence executives manage earnings to supplement the profitability of these exercises. These results suggest that executives engage in the exercise-and-sell strategy when they have private information about the future performance of the firm, and they often manage earnings to make the strategy more profitable.

Performance around exercises associated with the exercise-and-hold strategy follows a different pattern. Over the full sample period, exercises in the No Disposition Subsample are followed by large positive calendar time abnormal returns (CTARs) of 0.76% (0.55%) per month over a 12 month (24 month) period. However, buy-and-hold abnormal returns (BHARs) following these exercises are not abnormal compared to a matched control sample -- BHARs are large and positive for both the sample and control firms. Interestingly, however, these exercises are preceded by 6 month negative abnormal returns of -6.80% relative to the control firms, even though the control firms are matched partially on annual pre-exercise return, and returns to the sample firms are actually significantly larger that those to the control firms over the full 12 months preceding exercise (BHAR = 1.52%). This pattern, which is stronger in the Future Sale Subsample, is suggestive that executives either time exercise-and-hold transactions to follow poor relative performance and precede good performance, and/or they manage earnings around these transactions to make the exercise-and-hold strategy more profitable. Further tests on operating performance and earnings management around these exercises does not provide additional evidence regarding earnings management. These results suggest that executives are more likely to engage

in the exercise-and-hold strategy when they believe the market has undervalued their stock, but that they do not attempt to manipulate earnings to encourage undervaluation.

4.B Literature Review

Much of the finance literature has focused on identifying ways in which managers impose agency costs on investors. Researchers have explored a number of different ways executives may extract value from shareholders through opportunistic behavior related to their compensation.

One possible way executives can impose agency costs on investors is through insider trading. Early studies argued that abnormal returns following both insider purchases and sales of their company's stock suggested they were informed transactions (Seyhun (1986, 1992, 1998)). However, later studies that controlled for additional risk factors suggest that only insider purchases at small firms are informed (Jeng, Metrick and Zeckhauser (2000), Lakonishok and Lee (2001)). Another way executives can impose agency costs is by strategically timing the exercise of options. Carpenter and Remmers (2001) find that from 1991 to 1995, negative post-exercise abnormal returns are limited to exercises by top managers at small firms. Bartov and Mohanram (2004) find negative abnormal returns following years when top executives exercise an abnormally large number of options. Huddart and Lang (2003) find that months with an abnormally high (low) option exercise volume by both executives and lower level employees are followed by poor (good) returns over the following six months.

However, each of these papers assumes exercises are always associated with disposition of the acquired shares, and they find informed exercise is either limited to a small number of individuals or is apparent only when executives exercise an abnormally large number of options. By separating exercises into subsamples based on whether or not the executive disposes of the acquired shares, Cicero (2007) finds more substantial evidence of informed option exercises. Cicero (2007) finds that option exercises where the executive disposes of the shares immediately through sale to a third party are followed by large negative abnormal returns over the following 6 months, suggestive of exercise based on private information. Exercises where the executive holds the acquired shares are followed by positive abnormal

returns. The positive returns following the latter group of exercises are hypothesized to reflect either informed exercises or backdating of exercise dates to minimize the tax burden under an exercise-and-hold strategy.

An alternative way executives can impose agency costs on investors is through earnings management. There is a large body of literature consistent with firms managing earnings in furtherance of a number of objectives. Subramanyam (1996) provides evidence that returns are positively correlated with contemporary discretionary accruals. Some of the corporate actions around which managers appear to manage earnings include window-dressing of financial statements in anticipation of security issuance (Teoh, Welch and Wong (1998b)) or repurchase (Gong, Louis and Sun (2008)), and before stock-financed acquisitions (Erickson and Wang (1998)). Other researchers find evidence of earnings management specifically to enhance executive compensation or job security. Coles, Hertzel and Kalpathy (2006) find downwards earnings management prior to stock option repricing. Beneish and Vargus (2002) find evidence executives manage earnings upward through discretionary accruals prior to selling stock. Bartov and Mohanram (2004) find that executives manage discretionary accruals upward in the years prior to years when they exercise an abnormally large number of options, suggesting that they are attempting to inflate the price at which they sell the acquired stock. However, Bartov and Mohanram (2004) assume that all option exercises would be associated with immediate disposition of the acquired shares and that manipulation of exercises would be associated with positive earnings management.

This study contributes to the literature in three ways. First, it extends the analysis of short-term abnormal returns conducted by Cicero (2007), to examine whether executive option exercises reflect information about long-term stock performance. Second, it examines earnings management and information timing around option exercises, controlling for whether or not the executive holds the acquired shares, which lead to different hypothesized directions for earnings manipulation. Previous researchers pooled all exercises together and assumed the executive sold the acquired shares. Third, it uses quarterly data to analyze earnings management and information timing with greater precision than prior studies that focused only on calendar year data in the years surrounding option exercises.

4.C Hypothesis Development

4.C.i *The Exercise and Sell Strategy*

Cicero (2007) provides evidence that executives time option exercises to correspond with favorable prices. Executives time exercises to correspond with high stock prices when they dispose of the acquired shares in order to secure high valuations.[29] These transactions are followed by negative abnormal returns over at least a six month horizon. Executives time exercises to correspond with low stock prices when they hold the acquired shares, which is consistent with a strategy to minimize the taxes due upon exercise if they intend to hold the acquired shares.

Following Cicero (2007), I hypothesize that executives attempt to secure high valuations for shares when they exercise options and sell the shares. There are a number of strategies to accomplish this. First, the executives could time option exercises to precede poor performance in a form of insider trading. This type of manipulation would be reflected in abnormally low stock price performance and earnings performance following exercise.

A second, complimentary strategy to maximize stock value at the time of sale would be to manage earnings upward prior to exercise. If executives artificially inflate earnings prior to exercise, they could do so at the lowest cost by inflating the discretionary component of accruals upward. Because accruals must eventually net to a value of zero, these discretionary accruals would necessarily reverse at some time after exercise.

The alternative null hypothesis is that executive exercise options and sell the shares for diversification or liquidity purposes, and do not opportunistically exercise options. If this null hypothesis is true, then option exercises are still expected to follow positive abnormal returns, as risk-averse executives will have greater incentive to diversify after a price run-up, but they should not be followed by abnormally low returns or performance. In addition there should be no evidence of reversal of discretionary accruals following exercise in the absence of earnings management.

[29] Executives often employ a broker to provide a short-term loan to cover the exercise price and taxes due and to recoup those expenses through immediate sale of the acquired shares.

To test these hypotheses, I construct a subsample of executive option exercises where the executive sold shares immediately upon exercise (the "Stock Sale Subsample"), and examine returns, return on assets and discretionary accruals in the quarters surrounding these exercises.

4.C.ii *The Exercise and Hold Strategy*

Executives do not always immediately dispose of shares acquired through option exercises. Often, the executive pays cash to cover the exercise price and taxes due at the time of option exercise and holds the acquired shares. Because it is less costly and less risky to hold the unexercised options than to exercise and hold the shares, it is expected that executives would only engage in this strategy if the options are approaching expiration[30] or if the executive has identified a strategy more profitable than holding the options with the opportunity to exercise at a later date. One possible strategy is driven by tax considerations. If options are non-qualified[31] the executive will owe taxes at ordinary income tax rates in the year of exercise on the difference between the stock price on the day of exercise and the strike price. An amount estimated to cover this tax is withheld at the time of exercise. However, if the executive holds the acquired shares for a year or longer, any additional appreciation beyond the exercise date is taxed at as long-term capital gains at the time of future sale. Therefore there exists a tax minimization strategy that entails exercising options and holding the acquired shares for a year if the executive has a strong belief that the shares will appreciate in value over the coming year. In this way, the executive can minimize the amount of stock value that is subject to ordinary income taxes and maximize the portion that is subject to long-term capital gains taxes.[32]

[30] Cicero (2007) reports that on average executives exercise options 4 to 5 years prior to exercise, even when the hold the acquired shares. It therefore appears that the need to exercise options because they are going to expire is not a significant determinant of the exercise strategy.

[31] Qualified dispositions of Incentive Stock Options do not generate a tax burden for the executive at the time of exercise so there is not ordinarily a reason to seek to exercise at a low price. However, if the executive will be subject to taxation under the Alternative Minimum Tax regime or if the exercise is not a year after the option was granted then the tax treatment will be similar to that for non-qualified options.

[32] Previous researchers have proposed alternatives to the exercise-and-hold strategy that entail the purchase of additional shares of company stock and holding the options and acquired shares for the ensuing year (see Carpenter and Remmers (2001), McDonald (2003)). As discussed in Cicero (2007), there are a number of reasons alternative strategies will not be superior to the exercise-and-hold strategy. First, if the executive can backdate an option

The hypotheses for opportunistic timing associated with the exercise-and-hold strategy are the opposite of those for the exercise-and-sell strategy. If an executive times these exercises based on private information, he would exercise when he is confident that the stock price will increase over the following year. This should be evident in the form of positive abnormal returns and abnormally good earnings performance. If the executive manages earnings to supplement his returns from this strategy, it should also be associated with abnormally low abnormal returns prior to exercise and abnormally low discretionary accruals prior to exercise that reverse following exercise.

I assume that if an executive does not immediately dispose of the shares acquired through option exercise then he intends to engage in the exercise-and-hold strategy. If this were not the case, the executive would be better off holding the unexercised options. I form a subsample of executive option exercises where the executive does not disposes of any shares for at least one month following exercise (the "No Disposition Subsample") to test these hypotheses.

To test the exercise-and-hold hypotheses more precisely, I form another subsample that only includes exercises where the executive both holds all acquired shares for at least a month, and also sells at least as many shares as he acquired in the 5^{th} quarter after exercise, which would be a long enough holding period to qualify for long-term capital gains tax treatment (the "Future Sale Subsample"). Although positive abnormal returns following exercises in this subsample will be consistent with an ex ante exercise-and-hold strategy, it may also be that an executive originally intended to hold these shares for a longer period and decides to sell them for diversification after an unexpected abnormal stock price run up. However, it seems unlikely that the executive would exercise options and hold the shares initially unless he was confident the stock would outperform over the coming year. Otherwise the rational strategy would be to hold the options unexercised. Tests for earnings management downward prior to

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exercise to correspond with a sufficiently low exercise day stock price to sufficiently reduce the cost of the exercise-and-hold strategy below the alternatives. Second, because either the exercise-and-hold or the alternative strategies all pre-suppose a favorable view of the future stock performance, the executive may not be willing to purchase additional shares due to restrictions on insider trading. However, there is no restriction on exercising options while in possession of private information.

these exercises is more clear cut given that any pre-exercise behavior will reflect only the executive's intentions as of the time of exercise.

4.D Methodology

The main analyses of this paper consist of long-run event study analyses, and analyses of return on assets and discretionary in the quarters surrounding executive stock option exercises. In this section I describe the methods used.

4.D.i *Long-Run Abnormal Returns*

I employ two methods for calculating long-run abnormal returns. The first is a measure of buy-and-hold abnormal returns (BHARs) relative to a matched set of control firms. Control firms are matched on industry, firm size and prior-year annual return, and therefore allow for calculation of abnormal returns netting out the effect of factors that affect similar firms. A T-month BHAR for an event firm *i* relative to a control firm *c* is computed as:

$$BHAR_{i,t} = \prod_{t=1}^{T}(1+R_{i,t}) - \prod_{t=1}^{T}(1+R_{c,t}) \qquad (1)$$

where $R_{i,t}$ is the return on sample firm *i* for month *t*, and $R_{c,t}$ is the return on control firm *c* for month *t*. The mean BHAR for the sample is then computed as

$$\overline{BHAR} = \left(\frac{1}{N}\right)\sum_{i=1}^{N} BHAR_i \ . \qquad (2)$$

If executives are timing exercises relative to information that affects their overall industry, then this will not show up in BHARs relative to firms matched on industry.

T-month calendar time abnormal returns (CTARs) are calculated by constructing monthly portfolios consisting of all sample firms where an executive exercised options during the previous T months, and regressing the excess returns to this portfolio onto the three Fama-French (1993) factors and the Carhart (1997) momentum factor:

$$R_{p,t} - R_{f,t} = \alpha + \beta_m \left(R_{m,t} - R_{f,t}\right) + \beta_s SMB_t + \beta_h HML_t + \beta_u UMD_t + \varepsilon_t \qquad (3)$$

Where $R_{p,t}$ is the return on the portfolio in month *t*, $R_{f,t}$ is the return on a risk-free asset in month *t*, $\left(R_{m,t} - R_{f,t}\right)$ is the excess return on the market for month t, SMB_t is the return on a self-financing portfolio long small stocks and short large stocks, HML_t is the return on a self-financing portfolio long high book-to-market stocks and short low book-to-market stocks, and UMD_t is the return on a self-financing portfolio long stocks with high prior returns and short stocks with low prior returns. Abnormal returns are calculated with each method over different horizons ranging from 1 year prior to and 2 year after the exercise month.

4.D.i *Discretionary Accruals*

Executives are expected to manage earnings through abnormal recognition of accruals, which is defined generally as the difference between reported net income and actual cash flow from operations. An expected, or normal level of accruals can be estimated based on changes in revenue and fixed assets. Revenues proxy for accruals that would be typical given changes in working capital needs, and the value of assets proxies for the effect of depreciation on accruals.

I employ a modified quarterly cross-sectional Jones (1991) model adjusted for return on assets (see Kothari, Leone and Wasley (2004)) to determine the expected and discretionary portion of total

accruals. All variables are taken from the COMPUSTAT Industrial Quarterly database. Following Collins and Hribar (2004), I first calculate total accruals using data from the Statement of Cash Flows:

$$TA_{i,t} = EBXI_{i,t} - CFO_{i,t} \quad (4)$$

Where for firm *i* and quarter *t*, $TA_{i,t}$ is total accruals, $EBXI_{i,t}$ is earnings before extraordinary items (Compustat item 8) and $CFO_{i,t}$ is cash from operations (item 108). To determine the predictable portion of accruals (the portion that executives should not be capable of managing), total accruals are regressed onto a number of proxies for accruals scaled by the value of assets at the end of the previous quarter. The following cross-sectional regression is estimated independently each quarter for each two-digit SIC code:

$$TA_{i,t} = \delta_0 + \delta_1\left(\frac{1}{ASSETS_{1,t-1}}\right) + \delta_2\left(\frac{\Delta SALES_{i,t}}{ASSETS_{i,t-1}}\right) + \delta_3\left(\frac{PPE_{i,t}}{ASSETS_{i,t-1}}\right) + \delta_4\frac{NI_t}{ASSETS_{i,t-1}} + \upsilon_{i,t} \quad (5)$$

Where $ASSETS_{1,t-1}$ is the lagged value of assets (item 44), $\Delta SALES_{i,t}$ is the quarterly increase in sales (item 2), $PPE_{i,t}$ is gross property, plant and equipment at the end of quarter *t* (item 118), and NI_t is net income in quarter *t* (item 69). Sample and control firms are excluded from the estimation of (5). The estimated coefficients are then merged with data for the control and sample firms to determine the predicted and discretionary accruals for each firm-quarter. Industry-quarters are excluded if there are less than 20 observations available to estimate (5). Modified discretionary accruals (Dechow, Sloan and Sweeney (1996)) are determined as the difference between the actual value of total accruals and the fitted value calculated according to the following formula:

$$\hat{TA}_{i,t} = \hat{\delta}_0 + \hat{\delta}_1 \left(\frac{1}{ASSETS_{1,t-1}} \right) + \hat{\delta}_2 \left(\frac{\Delta SALES_{i,t}}{ASSETS_{i,t-1}} - \frac{\Delta ACCREC_{i,t}}{ASSETS_{i,t-1}} \right)$$

$$+ \hat{\delta}^3 \left(\frac{PPE_{i,t}}{ASSETS_{i,t-1}} \right) + \hat{\delta}_4 \frac{NI_t}{ASSETS_{i,t-1}} \qquad (6)$$

Where $\Delta ACCREC_{i,t}$ is the change in accounts receivable in quarter *t* (item 103).[33]

4.E Data and Summary Statistics

The Thompson Financial Network Insider Filing Data database ("Insiders Database") provides information on insider transactions compiled from Forms 3, 4, 5 and 144 filed with the SEC from 1996 through 2005.[34] The sample for this study includes option exercises by individuals indicating their highest title as either Chairman of the Board (CB), Chief Executive Officer (CEO), Chief Operating Officer (CO), President (P), or Chief Financial Officer (CFO). Option exercises are only included if they are reported as Employee Stock Options, Incentive Stock Options or Non-Qualified Stock Options. The sample period begins on August 15, 1996, when the SEC first began requiring insiders to report transactions by the 10th calendar day of the following month, and ends in December 2005, to ensure that 2 years of post-exercise return data are available through CRSP. I only include options exercises in the sample by executives at the same firm if they are 2 years apart to ensure non-overlapping return periods. Option exercises are prioritized by the number of options exercised and excluded from the sample if they fall within 2 years of a larger option exercise.

[33] All results are reported based on Dechow et al (1996) modified discretionary accruals, but the results are robust to the use of unmodified Jones (1991) discretionary accruals.

[34] Insiders are required to file Form 3 to report initial beneficial ownership of shares, Form 4 to report changes in beneficial holdings, Form 5 to report annual changes in beneficial ownership and Form 144 to declare intention to sell restricted shares.

I match option exercises reported on Table 2 of the SEC reporting forms to stock dispositions reported on Table 1. Stock dispositions are included in this study if the executive reported a transaction code indicating an open market or private stock sale to a third party (code 'S').

I compare transaction prices reported by executives to prices reported through CRSP. Exercises are excluded if they are accompanied by Stock sales reported at prices outside of the CRSP daily price range. Finally, I omitted exercises at companies whose market value was not available through COMPUSTAT or for which returns were not available through CRSP for the (-12, 12) month window around the exercise date. The final samples are as follows: 559 option exercises at 454 companies in the Pooled Sample, 393 exercises at 335 companies for the Stock Sale Subsample, 362 exercises at 306 companies for the No Disposition Subsample and 132 exercises at 122 companies for the Future Sale Subsample.

Firm-specific fundamentals are taken from the Compustat Quarterly database available through WRDS. Firms are excluded unless data is available to calculate discretionary accruals for each quarter in the (-4,3) window around the exercise quarter.

Sample firms are matched to control firms based on industry, size and prior 1 year return. I first determine all possible control firms for a given sample firm by determining which other firms in the same 2-digit SIC code and same NYSE/NASDAQ/AMEX size quintile have all data available in the COMPUSTAT database to construct discretionary accruals over a (-4,3) quarter window, and also monthly CRSP stock price data over the window (-12,12) so that pairwise t-tests can be performed over these ranges. I then select as a control firm the one of these firms with the closest prior year return. If there is no possible matching firm with a prior year return within 25 percent of the sample firm return, that observation is excluded.

Summary statistics are reported in Table 4.1. Panel A reports the time distribution of exercises. In the pre-Sarbanes-Oxley period (post-Sarbanes-Oxley period), 240 (153) exercises are in the Stock Sale Subsample, 248 (114), are in the No Disposition Subsample and 86 (46) are in the Future Sale Subsample. The exercises in all subsamples are distributed fairly evenly over the sample period.

Panel B provides the distribution of option exercises across industries (as defined by Thompson Financial). The largest concentration of exercises are in the technology industry (41% of exercises in the Stock Sale Subsample, 33% of the No Disposition Subsample, and 48% of the Future Sale Subsample). This partially reflects the common use of option compensation in technology firms, although the larger percentage in the Future Sale Subsample suggests that opportunistic timing associated with the exercise-and-hold strategy may have been more prevalent in technology firms.

Panel C provides the distributions of firm sizes across NYSE/NASDAQ/AMEX size deciles. Each subsample is skewed towards the largest decile (decile 10), although there is considerable heterogeneity across firm sizes.

Panel D provides that in each subsample the options are typically exercised well before expiration. Exercises in the Stock Sale Subsample are exercised a mean (median) of 4.5 (4.8) years prior to expiration, those in the No Disposition Subsample are exercised a mean (median) of 3.5 (3.3) years prior to exercise and those in the Future Sale Subsample are exercised a mean (median) of 3.7 (3.7) years prior to exercise. The earlier exercise of options in the Stock Sale Subsample is consistent with diversification purposes partially driving the exercise decision. The fact that executives exercise early even when they hold the acquired shares is consistent with intention to engage in the exercise-and-hold strategy. Finally, Panel D demonstrates that these are generally exercises of a large number of options, although the volume of options is smaller in the two subsamples where the executive does not immediately sell the shares. Also, when the executive does immediately sell shares, he generally sells all of the shares in a very short period of time.

4.F Results

4.F.i *Event Study Analysis*

I calculate BHARs and CTARs over the 12 months prior to and the 24 months following the month of executive option exercises in each subsample. I first report the results for a Pooled Sample, which is constructed from executive option exercises regardless of the stock disposition strategy. Because this sample includes both exercises associated with the exercise-and-sell strategy and the exercise-and-hold strategy, any evidence of timing should cancel out. The results are reported in Table 4.2. Consistent with prior literature, option exercises follow a steep run up in returns. From the CTAR analysis in Panel B we can see that the run-up is abnormal for sample firms but normal for the control firms. There is only weak evidence of abnormal performance following exercises in the Pooled Sample. BHARs are negative 4.4% at the 6 month horizon (5 percent significance) but are insignificant thereafter; CTARs are insignificant at every horizon.

4.F.i.a *Event Study Analysis and the Stock Sale Subsample*

The abnormal returns for the different subsamples tell a more striking story consistent with the hypothesis that executives strategically time exercises associated with both the exercise-and-sell and exercise-and-hold strategies. Abnormal returns for the Stock Sale Subsample are reported in Table 4.3 for the full period (Panel A), the pre-Sarbanes Oxley period (Panel B) and the post-Sarbanes Oxley period (Panel C), and the BHARs are demonstrated in Figure 4.1. BHARs are large and negative over the full 24 month period following exercises in this subsample (-8.3% (5 percent sig.) at the 12 month horizon, -11.2% (5 percent sig.) at the 24 month horizon. CTARs are also reliably negative (-.41%/month (10 % sig.) at the 12 month horizon; -.28%/month (10 % sig.) at the 24 month horizon).

In the pre-Sarbanes-Oxley period, the total returns are actually negative over the year following exercise (-2.4% at the 12 month horizon) and the BHARs are consistent with those estimated for the full period (10 % sig. or better level at every horizon). However, CTARs are only significant at the 6 month horizon (-0.72%/month; 10 % sig.), although the sign is negative at the 12 and 24 month

horizons. In the post-Sarbanes-Oxley period, BHARs are consistent in magnitude with the full and pre-Sarbanes-Oxley periods, but are significant only at the 24-month horizon. CTARs are insignificant in the post-Sarbanes-Oxley period. Taken together, these results provide substantial evidence that executives time option exercises where they sell the acquired shares to follow good stock performance and precede poor market performance, up to at least the 2 year horizon.

4.F.i.b *Event Study Analysis and the No Disposition Subsample*

The results are quite different when the executive holds the acquired shares. Results for BHARs and CTARs around the No Disposition Subsample are reported in Table 4.4 and demonstrated in Figure 4.2. The BHAR results indicate that over the full period and in the pre-Sarbanes-Oxley period post-exercise returns are not significantly different from those following the control firms. However, the CTAR results indicate that abnormal returns following both the sample and control firms are large and positive in the full sample and the pre-Sarbanes-Oxley period. This seems to indicate that these exercises tended to precede periods in which firms in the same industry were outperforming the market. This is not inconsistent with the exercise-and-hold strategy given that the manager's objective is to exercise before absolute increases in stock value, regardless of whether they are abnormal or related to factors also affecting other firms. It seems to indicate, though, that an opportunistic behavior is likely to be associated with information timing and not earnings management, which would likely result in stock price patterns different from peers. In the post-Sarbanes-Oxley period both BHARs and CTARs are positive for sample firms following exercise, consistent with either timing relative to firm-specific information or earnings management.

Abnormal returns *preceding* exercises in the full and pre-Sarbanes-Oxley samples are, however, consistent with firm-specific earnings management. Although over the 12 month period preceding exercise the sample firms perform slightly better than control firms (1.52% BHAR over the full period; 1% sig.), they greatly underperform control firms in the 6 months leading up to exercise (-6.8%; 1% sig). this result indicates that although both sample and control firms have a large run up in stock price prior to

the exercise month, the sample firm returns are much flatter than those for the control firms during the 2 quarters preceding exercise. This is interesting because the control firms are matched in part based on the 12 month return prior to exercise, and because this is the opposite from what was evident the months leading up to exercise in the Stock Sale Subsample. Consistent results are found in the CTAR analysis, with the sample firms having a much smaller abnormal stock price run-up in the 6 months prior to exercise (0.95% for sample firms (5% sig.) versus 2.43% for control firms (1% sig.)) although the abnormal returns are almost exactly the same over the 12 month pre-exercise period (2.14% for sample firms (1% sig.) versus 2.09% for control firms (1% sig.)).[35]

There are at least two possible explanations consistent with this result. First, the lower sample firm returns may reflect negative earnings management leading up to exercise. Second, the lower pre-exercise returns may reflect the fact that the market is just undervaluing these firms and this may trigger executives' decision to engage in the exercise-and-hold strategy based on private information. Further analysis of discretionary accruals may distinguish between these two alternatives.

4.F.i.c *Event Study Analysis and the Future Sale Subsample*

Option exercises in the Future Sale Subsample are most likely to have been associated with an ex ante exercise-and-hold strategy given that the executive does not immediately sell and shares and actually sells at least as many shares as were acquired though exercise at the 1 year horizon. The event study results presented in Table 4.5 and demonstrated in Figure 4.3 are consistent with this subsample targeting more precisely exercises associated with the exercise-and-hold strategy. For the full sample period, these exercises are followed by very large abnormal returns, concentrated in the year after exercise (20.19% 12 month BHAR (1% sig.); 22.86% 24 month BHAR (1% sig.)). The CTAR results also demonstrate these large post-exercise abnormal returns (2.55%/month at 12 month horizon (1% sig.); 1.38%/month at 24 month horizon (1% sig.)). These results are strongest in the pre-Sarbanes-Oxley period (24.04% 12

[35] Comparing CTARs for a sample versus those for control firms is not a conventional method for comparing abnormal returns; it is used in this context solely to corroborate the results from BHAR analysis that compares

month BHAR (1% sig.); 32.21% 24 month BHAR (1% sig.)), although they also persist in the post-Sarbanes-Oxley period at the 12 month horizon (12.99% 12 month BHAR (1% sig.)). Of course, the decision to sell shares at the 1 year horizon is not independent of the returns over the year following exercise. It may be that these executives had no original intention of selling the shares at the 1 year horizon, but decided to for diversification purposes once the stock price experienced such large abnormal returns. If this is the case then it would be unreasonable to conclude that the executive anticipated the strong stock performance at the time of exercise.

However, the pre-exercise return patterns are consistent with executives planning to engage in the exercise and hold strategy ex ante (or at least to maximize the value of this option). The 6 month BHARs preceding these option exercises across the full period and concentrated in the pre-Sarbanes-Oxley period are large and negative (-6.2% for full period (10% sig.); -12.1% for pre-Sarbanes-Oxley period (5% sig.)). This indicates that although these firms were experiencing a large stock price run-up over the year prior to exercise, this run-up was abnormally lower (by a large amount) than similar-sized firms in the same industry with similar price run-ups. Because these stock sales at the 1 year horizon are associated with return patterns consistent with an exercise and hold strategy prior to exercise, it is likely the eventual sale was anticipated. If these executives planned to engage in the exercise-and-hold strategy ex ante, then these return patterns are strongly suggestive of either earnings management or well-timed exercises based on private information.

In the post-Sarbanes-Oxley period, there is no evidence that these stock returns were low prior to exercise, but there is continuing evidence of strong positive abnormal performance for a year following these exercises (12.99% BHAR at 12 month horizon (10% sig.); 1.47%/month CTAR (5% sig.)).

These return patterns confirm those identified around the No Disposition Subsample. This indicates that exercises in the Future Sale Subsample are indeed likely associated with an attempt to maximize profits under the exercise-and-hold strategy. They are consistent with pre- and post-exercise earnings management or exercise based on private information in the pre-Sarbanes-Oxley period, and

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sample and control firm returns directly.

with continuing post-exercise earnings management and information timing in the post-Sarbanes-Oxley period.

4.F.ii *Firm Operating Performance (ROA) around Executive Option Exercises*

In the previous section, I demonstrated with event study analyses that executive stock option exercises are timed favorably relative to performance over a long horizon. In this section I address the question whether executives are timing option exercises relative to changes in company performance, and whether executives manipulate their company's apparent performance to enhance the returns to their option exercise strategies. I first consider fluctuations in firms' return on assets ("ROA"; defined as net income (compustat item 69)/lagged assets (compustat item 44)) in the quarters surrounding option exercises. I consider two ways of calculating abnormal ROA. The first abnormal ROA measure (Sample Firm Abnormal ROA) is calculated relative to past sample firm ROA. Sample Firm Abnormal ROA for a quarters (-4,1) preceding exercise is calculated as the difference between quarterly ROA and ROA for the quarter -5. Sample Firms Abnormal ROA for the four quarters (0,3) following exercise is calculated quarterly ROA minus quarter -1 ROA. This measure of abnormal ROA identifies abnormal shifts in ROA for samples firms based on an assumption that current ROA is an unbiased estimate of future ROA, and will be informative whether executives are timing option exercises relative to changes in their own firm's performance. The second measure of abnormal ROA (Control-Adjusted Abnormal ROA) is the difference between Sample Firm Abnormal ROA and the similar measure calculated for the control firms. This measure controls for fluctuations common to similar firms in the same industry, and will provide evidence on whether executives are timing option exercises relative to firm-specific information that does not affect other similar firms.

If executives are timing option exercises in the Stock Sale Subsample based on private information, then ROA is likely to deteriorate in the quarters following exercise. If they are timing exercises on private information in the No Disposition and Future Sale Subsamples, then ROA should improve in the quarters following exercise. In addition, exercises in the No Disposition and Future Sale

Subsample will follow abnormally lower ROA if they are timed to minimize taxes as of the exercise date.

4.F.ii.a *Operating Performance and the Stock Sale Subsample*

The ROA results are presented in Table 4.6 for the Stock Sale Subsample in the full period, pre-Sarbanes-Oxley period and post-Sarbanes-Oxley period. For the full sample period, Sample Firm ROA steadily increases in the quarters leading up to exercise, and is generally lower in the quarters following exercise than immediately prior to exercise. Abnormal ROA aggregated over the period (-4,-1) prior to exercise is 3.8% higher than would be the case if the firms experienced stable ROA equal to ROA in quarter -5 (1 percent sig.). This is consistent with the strong run-up in stock prices prior to option exercises. Sample Firm Abnormal ROA is abnormally low in the four quarters following exercise. ROA for each of the quarters (0,4) is lower than quarter -1 ROA, and the difference is statistically significant for quarters 2 and 3. In aggregate, Sample firm ROA is 4.2% lower for the four quarters following exercise (10 percent sig.). The results are similar for the Control-Adjusted Abnormal ROA, although the individual quarterly results are not significant. The post-exercise aggregate abnormal ROA is 3.1% lower than for control firms (10 percent sig.). The results are similar for both measures in both the pre- and post-Sarbanes-Oxley periods, although there is a loss of statistical significance (which may be due to a loss of power associated with the smaller sample size). These results suggest that executives are timing exercise-and-sell transactions to precede deteriorating firm performance relative both to past firm performance and the performance of similar firms.

4.F.ii.b *Operating Performance and the No Disposition Subsample*

The ROA results for exercises in the No Disposition Subsample are presented in Table 4.7. Contrary to my hypothesis, Sample Firm Abnormal ROA is generally negative in the quarters following exercises in this subsample in the full period and the pre-Sarbanes-Oxley period. However, they are positive and just outside of the 10 percent significance level in aggregate across quarters (0,4) following

exercises the post-Sarbanes-Oxley period. Control-Adjusted ROA is also generally negative in the full period and pre-Sarbanes-Oxley period, and positive in the post-Sarbanes-Oxley period, although none of these results are statistically significant. These results suggest that, although exercises associated with the exercise-and-hold strategy before Sarbanes-Oxley precede deteriorating performance, it is not abnormal relative to peers. The stock return analysis is consistent with this lower post-exercise performance still exceeding market expectations. The higher post-exercise ROA in the post-exercise period is consistent with strategic timing of exercises related to the exercise-and-hold strategy when the market expects post-exercise performance to be similar to pre-exercise performance.

With respect to pre-exercise performance, the expectation based on the stock return analysis was that sample firm ROA would be lower than that of control firms in the quarters immediately preceding exercise. This would be consistent with either strategic timing of the exercise-and-hold strategy to follow relative poor performance and possible manipulation firm performance downward prior to these exercises. The Control-Adjusted Abnormal ROA results for quarter -1 in the full period and the pre-Sarbanes-Oxley period are consistent in sign with this hypothesis, although they are far from being statistically significant.

4.F.ii.c *Operating Performance and the Future Sale Subsample*

ROA results for the Future Sale Subsample are reported in Table 4.8. Exercises in the Future Sale Subsample are most likely to be associated with the exercise-and-hold strategy, and therefore the firm performance results are expected to be most likely as hypotheses for this subsample. In contrast to the results for the No Disposition Subsample, post-exercise Sample Firm Abnormal ROA is positive in all periods considered, although they are not statistically significant. The one quarter where post-exercise Sample Firm Abnormal ROA is significant is in quarter 1 following exercises in the pre-Sarbanes-Oxley period. Post-exercise Control-Adjusted Abnormal Returns are not statistically significant, either, suggesting that performance is generally consistent with that at similar firms.

Pre-exercise abnormal stock returns were the smallest for this subsample, suggesting that exercise-and-hold transactions are timed to follow poor performance relative to peers. However, I find no statistically-significant results that confirm that operating performance is also poor for these firms relative to controls firms prior to exercise. It may be that the lower stock performance is a function of the market having different expectations for these firms during these quarters.

4.F.iii Do Executives Manage Earnings to Enhance the Value of Option Exercise Strategies?

I consider next whether changes in firm performance around executive option exercises are at least in part a function of earnings management. If executives sell the acquired shares, then earnings management would be expected upward in the quarters leading to exercise in order to inflate the stock price. Earnings management in the form of inflated discretionary accruals would necessarily reverse at some time after exercise since discretionary accruals net to zero in the long run.[36] I analyze abnormal discretionary accruals in two ways. First, I calculate Sample Firm Abnormal Accruals by comparing discretionary accruals in each quarter (or aggregated annually) relative to expected discretionary accruals for the firm defined as discretionary accruals in quarter -5 (if the quarter of interest is in the year leading up to exercise) and -1 (if the quarter of interest is in the year after exercise). Second, I calculate Control-Adjusted Abnormal Accruals as the difference between quarterly Sample Firm Abnormal Accruals and abnormal accruals measured similarly for control firms.

4.F.iii.a *Earnings Management and the Stock Sale Subsample*

Table 4.9 reports earnings management results for the Stock Sale Subsample. In the full sample period, there is evidence of upward earnings management in quarter -1 prior to exercise according to the Sample Firm Abnormal Accruals, although the significance is lost in the Control-Adjusted Abnormal Accruals. There is also evidence of reversal of abnormal accruals according to the Sample Firm

[36] Discretionary accruals will not necessarily revert in the quarters immediately following exercise. Managers may wait a number of quarters or years before reversal to avoid litigation risk (see Teoh, Welch and Wong (1998b)).

Abnormal Accruals in quarters 2 and 3 following exercise, although again significance is lost relative to the control firms. Similar results obtain for the pre-and post-Sarbanes-Oxley period but the statistical significance is lost on pre-exercise upwards earnings management.

These results are consistent with the hypothesis of upwards earnings management prior to exercises where the executive sells the acquired shares, although the lack of significance relative to control firms suggests that similar accrual inflation is occurring at other firms within the industry that experience a similar run-up in stock prices.[37]

4.F.iii.b *Earnings Management and the No Disposition Subsample*

Earnings management intended to maximize profits under the exercise-and-hold strategy would be manifest as negative abnormal discretionary accruals prior to exercise (to minimize taxes dues at exercise) that turn positive over the year thereafter (to maximize the price of shares upon sale).

The discretionary accruals results for the No Disposition Subsample are presented in Table 4.10. Results for the full period are not consistent with the hypotheses. There is actually evidence of abnormally high discretionary accruals in the pre-exercise quarters in the full and pre-Sarbanes-Oxley periods (Sample Firm Abnormal Accruals). There is also some evidence of abnormally low discretionary accruals relative to control firms in quarter 3 after exercise in the full period, which is driven by the result for the pre-Sarbanes-Oxley period. In the post-Sarbanes-Oxley period, there is no evidence of abnormal discretionary accruals.

4.F.iii.c *Earnings Management and the Future Sale Subsample*

Earnings management consistent with the exercise-and-hold strategy would be most pronounced in the Future Sale Subsample. The results for this subsample are reported in Table 4.11. As with the No Disposition Subsample, the results are inconsistent with the hypotheses. Again, there is some evidence of

[37] Because discretionary accruals are computed relative to all firms in the industry, the abnormal levels cannot be attributed to industry-wide trends.

increases in abnormal accruals prior to exercise that reverse after exercise. These results are clearly inconsistent with earnings management to maximize profits under the exercise-and-hold strategy.

4.G Conclusion

In this study, I examine firm performance around executive stock option exercises associated with two distinct exercise strategies: an exercise-and-sell strategy, and an exercise-and-hold strategy. The exercise-and-sell strategy represents a clear decision by an executive to reduce his exposure to the prospects of his firm. The exercise-and-hold strategy reflects an executive's decision to increase his exposure to the performance of his firm. In addition, for tax purposes an executive that engages in the exercise-and-hold strategy has an incentive to exercise options at a low price and sell the acquired shares a year (or longer) after exercise at a higher price.

I find evidence consistent with informed option exercises by executives engaging in both of these strategies. Long-run abnormal returns are negative following option exercises where the executive immediately sells the acquired shares; and they are generally positive after exercises where the executive holds the acquired shares. They are also negative in the two quarters preceding exercise relative to control firms matched on pre-exercise annual return when the executive holds the acquired shares, suggesting strategic timing of exercise to follow relatively poor stock performance when engaging in the exercise-and-hold strategy. Confirming this analysis, these results are stronger in the subsample of exercises where the executive actually sells shares at a 1 year horizon.

Changes in company operating performance in the quarters surrounding exercise-and-sell transactions are consistent with the observed stock price patterns: it is increasing prior to exercise, and declining after exercise. This suggests that executives are timing these transactions based on private information regarding firm performance. There is also evidence that this pattern of performance is at least partially a function of earnings management.

However, I do not find strong evidence that executives are timing exercise-and-hold transactions to follow poor operating performance or to precede abnormally good performance, although performance

is generally not weak after these exercises. Nor do I find evidence of earnings management around these transactions. This evidence is consistent with executives engaging in the exercise-and-hold strategy when they believe the market has undervalued their shares and when they believe future performance will be strong.

CHAPTER 5

CONCLUSION

This dissertation has provided an analysis of agency issues associated with executives stock option exercises. Chapter 3 presented an analysis of short-term returns around executive option exercises separated into subsamples depending on the executive's exercise strategy. When examined in aggregate, the evidence that executives manipulate stock option exercises is not strong. However, when exercises are separated into subsamples based on executives' stock disposition strategy, evidence of opportunistic behavior emerges. Exercises not accompanied by stock disposition are preceded by a sharp decline in stock price, and followed by a sharp increase in stock price, such that exercise occurs at a stock price trough. This pattern suggests executives often follow the tax minimization strategy of exercising options and holding the shares for at least a year, and that they manipulate exercises to coincide with low stock values to minimize taxes due at the time of exercise. Exercises accompanied by same day disposition of shares, either to a third party through a sale or through disposition to the company, are associated with a stock price peak on the exercise day, consistent with exercise timing to maximize the value received for the shares.

I also present evidence of exercise backdating when the acquired shares are either held by the executive, or are disposed of to the company only. The strongest pieces of evidence supporting backdating are that favorable return patterns around exercises are greatly diminished after the August 29, 2002, implementation of more restrictive SEC reporting rules for insider transactions under the Sarbanes-Oxley Act, and that executives are much more likely to exercise on the most favorable day of the calendar month before the rule change than they are after the change.

Backdating exercises in order to return shares to the company at high prices extracts value directly from shareholders. Backdating an exercise to correspond with a low price will increase a company's tax burden if the options are Non-Qualified Options, although backdating of Incentive Stock

Options represents a wealth transfer to an executive from the U.S. government. In all cases it would appear that option exercise backdating increases an executive's (and his company's) legal risk, which could greatly affect shareholder value. Backdating is related to a weakness of internal controls, indicating that an additional benefit of strong internal controls may be the minimization of self-dealing by insiders.

In Chapter 4, I examine long-run firm performance around executive stock option exercises associated with two exercise strategies: an exercise-and-sell strategy, and an exercise-and-hold strategy. The exercise-and-sell strategy represents a decision by an executive to reduce his exposure to the prospects of his firm; the exercise-and-hold represents a decision to increase exposure to the firm. I find long-run market and operating performance consistent with informed option exercises by executives engaging in both of these strategies. Long-run abnormal returns are negative following option exercises where the executive immediately sells the acquired shares; and they are generally positive after exercises where the executive holds the acquired shares. They are also negative in the two quarters preceding exercise relative to control firms matched on pre-exercise annual return when the executive holds the acquired shares, suggesting strategic timing of exercise to follow relatively poor stock performance when engaging in the exercise-and-hold strategy. Confirming this analysis, these results are stronger in the subsample of exercises where the executive actually sells shares at a 1 year horizon.

Changes in operating performance in the quarters surrounding exercise-and-sell transactions are consistent with the observed stock price patterns: it is increasing prior to exercise, and declining after exercise. This suggests executives time these transactions based on private information regarding firm performance. I also find evidence executives manage earnings to enhance operating performance prior to these exercises, which may cause the price to be inflated at the time of exercise. I do not find evidence that executives are timing exercise-and-hold transactions to follow poor operating performance or to precede abnormally good performance, although performance is generally not weak after these exercises. I also do not find evidence of earnings management around these transactions. This evidence is consistent with executives engaging in the exercise-and-hold strategy when they believe the market has undervalued their shares and when they believe future performance will be strong.

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Table 3.1: Executive option exercises

This table presents the number and percentage of options exercises in the total sample and each subsample: (i) exercises accompanied by a same day Stock sale of shares (Stock Sale Subsample), (ii) exercises accompanied by a same day disposition of shares to the company (Company Disposition Subsample), and (iii) exercises not accompanied by a same day disposition of shares (No Disposition Subsample). For each year, the percent of annual exercises is presented for each subsample; the percent of total in the period (before or after Sarbanes-Oxley Act) is presented for the total option exercise sample.

Panel A: Before Sarbanes - Oxley Act

YEAR	all exercises	Stock Sale Subsample	Company Disposition Subsample	No Disposition Subsample
1996 (After Aug. 15)				
number	566	295	83	188
percent of annual		52%	15%	33%
1997				
number	2,617	1,364	418	835
percent of annual		52%	16%	32%
1998				
number	2,893	1,570	369	954
percent of annual		54%	13%	33%
1999				
number	3,205	1,769	431	1,005
percent of annual		55%	13%	31%
2000				
number	4,250	2,666	384	1,200
percent of annual		63%	9%	28%
2001				
number	3,898	2,652	355	891
percent of annual		68%	9%	23%
2002 (before Aug. 29)				
number	2,691	1,822	260	609
percent of annual		68%	10%	23%
TOTAL				
number	**20,120**	**12,138**	**2,300**	**5,682**
percent of total		**60.33%**	**11.43%**	**28.24%**

Panel B: After Sarbanes - Oxley Act

YEAR	all exercises	Stock Sale Subsample	Company Disposition Subsample	No Disposition Subsample
2002 (after Aug. 29)				
number	728	474	68	186
percent of annual		65%	9%	26%
2003				
number	4,762	3,549	380	833
percent of annual		75%	8%	17%
2004				
number	6,230	4,804	459	967
percent of annual		77%	7%	16%
2005				
number	5,617	4,465	385	767
percent of annual		79%	7%	14%
TOTAL				
number	**17,337**	**13,292**	**1,292**	**2,753**
percent of total		**76.67%**	**7.45%**	**15.88%**

Table 3.2: Summary statistics

Panel A presents summary statistics on the number of companies, the percent of options exercised in which at least some options were incentive stock options (ISOs), and the percent of exercises in each subsample associated with each executive title. Option exercises were included in this study if the highest position reported by the option holder was Chief Executive Officer (CEO), Chief Financial Officer (CFO), Chairman of the Board of Directors (Chairman), President, Chief Operating Officer (COO) or General Counsel (GC). Panel B presents summary statistics by exercise regarding the number of options exercised by an executive, the disposition of shares on the same day, how far the options were in the money (defined as the ratio of the stock price on the day of exercise to the reported exercise price), how far the options are from expiration, and the market capitalization of the company.

Panel A: Summary statistics of NQO vs. ISOs and by Executive Position

	Total Sample	Stock Sale Subsample	Company Disposition	No Disposition Subsample
Companies (#)	2,970	2,132	727	2,069
Incentive Stock Options (%)	10%	5%	14%	26%
Percent of observations by position:				
Chief Executive Officer	36%	36%	38%	37%
Chief Financial Officer	26%	26%	23%	27%
Non-CEO Board Chairman	6%	6%	5%	6%
President	14%	13%	16%	16%
Chief Operating Officer	5%	6%	3%	5%
General Counsel	12%	12%	15%	9%

Panel B: Summary statistics of variables

	Total Sample		Stock Sale Subsample		Company Disposition Subsample		No Disposition Subsample	
	mean	**median**	**mean**	**median**	**mean**	**median**	**mean**	**median**
options exercised	28,055	7,499	27,221	7,500	33,137	8,000	28,404	7,348
shares disposed of:								
Total (%)	651	100	702	100	293	63	0	0
Stock sale (%)	600	100	685	100	0	0	0	0
To company (%)	51	0	17	0	293	63	0	0
Year to Expiration	4.39	4.70	4.67	4.97	3.38	3.24	3.97	4.31
market cap ($mil)	7,587	1,261	7,780	1,411	12,168	1,975	5,054	707

Table 3.3: Abnormal returns around executive stock option exercises

This table presents abnormal returns around executive option exercises over the period August 15, 1996 to December 31, 2005. Option exercises are separated into three subsamples: those accompanied by same day stock sale to a third party in a Stock transaction (Stock Sale Subsample); those accompanied by a same day disposition of shares to the company only (Company Disposition Subsample); and those not accompanied by a same day disposition of shares (No Disposition Subsample). Option exercises by multiple executive at the same company are treated as one observation. Abnormal returns are calculated with the market adjustment method, where the abnormal return for each observation is measured relative to the average return to all stocks in the same size decile that trade on the same market (NYSE, NASDAQ or AMEX). Standardized cross-sectional t-statistics consistent with Boehmer, Musumeci and Poulsen (1991) are reported. T-statistics for daily and cumulative total returns reflect deviations from zero return. Significance at the 1%, 5% and 10% level are represented by ***, **, and *, respectively.

Cumulative Abnormal Returns (CARs)				
Window	**(1) All Observations**	**(2) Market or Private Sale Subsample**	**(3) Company Disposition Subsample**	**(4) No Disposition Subsample**
(-120,0)	17.57%***	21.44%***	9.90%***	9.16%***
(-100,0)	15.36%***	18.97%***	9.23%***	7.07%***
(-80,0)	13.01%***	16.40%***	8.28%***	4.78%***
(-60,0)	10.20%***	13.14%***	6.99%***	2.70%***
(-40,0)	7.64%***	10.32%***	5.44%***	0.48%***
(-20,0)	4.40%***	6.39%***	3.60%***	-1.24%***
(-15,0)	3.55%***	5.29%***	3.14%***	-1.52%***
(-10,0)	2.67%***	4.06%***	2.59%***	-1.50%***
(-5,0)	1.72%***	2.71%***	1.84%***	-1.29%***
(+1,+5)	0.26%***	-0.12%***	-0.38%***	1.70%***
(+1,+10)	0.35%***	-0.17%***	-0.50%***	2.26%***
(+1,+15)	0.32%***	-0.30%***	-0.49%***	2.54%***
(+1,+20)	0.18%	-0.57%***	-0.63%***	2.78%***
(+1,+40)	-0.26%	-1.27%***	-0.65%***	2.94%***
(+1,+60)	-0.26%**	-1.55%***	-0.19%**	3.59%***
(+1,+80)	-0.21%***	-1.70%**	0.52%	3.98%***
(+1,+100)	-0.22%***	-1.90%**	0.51%	4.51%***
(+1,+120)	-0.06%***	-1.80%	0.74%	4.85%***
observations	37,457	25,430	3,592	8,435

Table 3.4: Abnormal returns around executive option exercises before and after SOX

This table compares abnormal returns around executive option exercises from August 15, 1996 to August 28, 2002 (the pre-Sarbanes-Oxley period) to those from August 29, 2002 to December 31, 2005 (the post-Sarbanes-Oxley period). On August 29, 2002 the S.E.C. enacted the two business day reporting requirement for insider stock and derivative transactions. Option exercises are separated into three subsamples: those accompanied by same day stock sale (Stock Sale Subsample); those accompanied by a same day share disposition to the company only (Company Disposition Subsample); and those not accompanied by disposition of shares (No Disposition Subsample). Abnormal returns are calculated with the market adjustment method, where the abnormal return for each observation is measured relative to the portfolio of stocks in the same size decile that trade on the same market (NYSE, NASDAQ or AMEX). Standardized cross-sectional t-statistics are reported consistent with Boehmer, Musumeci and Poulsen (1991). Significance at the 1%, 5% and 10% level are represented by ***, **, and *, respectively.

	(1) Stock Sale			(2) Company Disposition			(3) No Disposition			(4) Stock Sale versus Company Disposition	
Window	**(1) Before SOX**	**(2) After SOX**	**(3) Diff.**	**(4) Before SOX**	**(5) After SOX**	**(6) Diff.**	**(7) Before SOX**	**(8) After SOX**	**(9) Diff.**	**(10) Before SOX**	**(11) After SOX**
(-120,0)	29.04%***	14.49%***	***	11.32%***	7.37%***	***	10.86%***	5.67%***	***	***	***
(-100,0)	25.74%***	12.79%***	***	10.53%***	6.91%***	***	8.29%***	4.54%***	***	***	***
(-80,0)	22.61%***	10.73%***	***	9.65%***	5.83%***	***	5.70%***	2.89%***	***	***	***
(-60,0)	17.94%***	8.75%***	***	8.18%***	4.87%***	***	2.98%***	2.13%***		***	***
(-40,0)	13.92%***	7.03%***	***	6.36%***	3.82%***	***	0.22%**	1.04%***		***	***
(-20,0)	8.55%***	4.41%***	***	4.07%***	2.77%***	***	-1.83%***	-0.02%	***	***	***
(-15,0)	7.04%***	3.69%***	***	3.45%***	2.59%***	***	-2.17%***	-0.19%	***	***	***
(-10,0)	5.43%***	2.82%***	***	2.83%***	2.16%***	**	-2.03%***	-0.40%**	***	***	**
(-5,0)	3.54%***	1.95%***	***	2.06%***	1.45%***	***	-1.77%***	-0.31%**	***	***	**
(+1,+5)	-0.06%	-0.18%***		-0.46%***	-0.23%**		2.19%***	0.69%***	***	**	
(+1,+10)	0.07%	-0.38%***	***	-0.63%***	-0.26%**	*	2.91%***	0.91%***	***	***	
(+1,+15)	-0.09%	-0.49%***	***	-0.61%***	-0.27%**		3.22%***	1.14%***	***		
(+1,+20)	-0.54%**	-0.60%***		-0.66%***	-0.56%***		3.54%***	1.23%***	***		
(+1,+40)	-2.24%***	-0.38%***	***	-0.77%***	-0.46%***		3.71%***	1.33%***	***	***	
(+1,+60)	-2.84%***	-0.37%**	***	-0.13%*	-0.29%*		4.85%***	1.01%***	***	***	
(+1,+80)	-3.32%***	-0.22%	***	0.52%	0.53%		5.32%***	1.23%**	***	***	
(+1,+100)	-3.98%***	0.01%**	***	0.49%	0.54%		5.98%***	1.49%***	***	***	
(+1,+120)	-3.97%***	0.18%***	***	0.66%	0.89%**		6.39%***	1.66%***	***	***	
Obs.	12,138	13,292		2,300	1,292		5,682	2,753			

Table 3.5: Exercises on most favorable day of month

This table presents the number and percent of observations in each subsample that occur on the day of the calendar month with the most favorable closing stock price for the executive. For the Stock Sale and Company Disposition Subsamples, the most favorable day is the day with the highest closing price of the month. For the No Disposition Subsample, the most favorable day is the day with the lowest closing price of the month. The differences in the probability of exercising on the most favorable day of the month in the pre-versus the post-Sarbanes-Oxley period are reported for each subsample. In addition, the differences in the probabilities of an exercise occurring on the most favorable day of the month are compared across the Stock Sale Subsample and the Company Disposition Subsample in both the pre-and post-Sarbanes-Oxley periods. Significance at the 1%, 5% and 10% level are represented by ***, **, and *, respectively.

	Stock Sale	Company Disposition	No Disposition
Before Sarbanes-Oxley			
number	1,081	274	680
percent	8.91%	11.91%	11.97%
After Sarbanes-Oxley			
number	1,199	111	194
percent	9.02%	8.59%	7.05%
Differences:			
before SOX - after SOX	-0.11%	3.32% ***	4.92% ***
Market or Private Sale - Company Disposition			
Before SOX	-3.01% ***		
After SOX	0.43%		

Table 3.6: SEC reporting of executive option exercises

Summary statistics are presented regarding the timing of reporting to the S.E.C. of option exercises for each subsample during the pre-and post-Sarbanes-Oxley period. Exercises are grouped into two week periods (10 trading days) around the last allowable S.E.C. reporting date, which was the 10th calendar day of the month following the month of exercise in the pre-Sarbanes-Oxley period, and 2 business days in the post-Sarbanes-Oxley period.

	Reporting window relative to 10th calendar day of following month:						
	(max -, -21)	**(-20,-11)**	**(-10,-1)**	**on time**	**(1,10)**	**(11,20)**	**(21,max +)**
Before Sarbanes-Oxley:							
Stock Sale	53	154	4,529	5,814	827	145	616
	0.4%	1.3%	37.3%	47.9%	6.8%	1.2%	5.1%
Company Disposition	7	40	936	991	170	28	128
	0.3%	1.7%	40.7%	43.1%	7.4%	1.2%	5.6%
No Disposition	58	158	2,145	2,047	442	146	685
	1.0%	2.8%	37.8%	36.0%	7.8%	2.6%	12.1%
After Sarbanes-Oxley:							
Stock Sale			7,778	4,967	401	57	88
			58.5%	37.4%	3.0%	0.4%	0.7%
Company Disposition			497	707	57	8	23
			38.5%	54.7%	4.4%	0.6%	1.8%
No Disposition			1,514	981	154	30	72
			55.0%	35.7%	5.6%	1.1%	2.6%

Table 3.7: SEC reporting and returns around option exercises before SOX

This table presents results from logistic and OLS regressions analyzing the relationship between abnormal returns around option exercises before the Sarbanes-Oxley Act and the time when the executive reports the transaction to the SEC. During this period, executives were supposed to report derivative transactions by the 10th calendar day of the month following the month of the transaction. All variables are constructed from the Thompson Financial Insiders Database which compiles information from executives SEC filings. *Reported early* (*Reported late*) = 1 if the executive reported the exercise before (after) the 10th calendar day of the following month. Three dummy variables indicate an exercise is reported early and how many weeks it is reported after exercise. *Reported early and within 2 weeks of exercise* = 1 if the executive reported the exercise early and within 2 weeks of exercise; *Reported early and 2 to 4 weeks after exercise* = 1 if the executive reported the exercise early and between 2 and 4 weeks after exercise; and *Reported early and between 4 to 6 weeks after exercise* = 1 if the executive reported early and more than 4 weeks after exercise. Three dummy variables indicate the exercise was reported lat and how long it was reported after the 10th day of the following month. *Reported 2 weeks late or less* = 1 if reporting was late but was within 2 weeks of the last allowable day; *Reported between 2 and 4 weeks late* = 1 if reporting was late and between 2 and 4 weeks after the last allowable day; and *Reported more than 4 weeks late* = 1 if the exercise was reported more than 4 weeks after the last allowable day. Columns (1) and (2) of each panel report logistic regressions predicting exercise on the most favorable day of the calendar month. Columns (3) and (4) of each panel report OLS regressions predicting the magnitude of (1, 20) CARs following exercise. Columns (5) and (6) report OLS regressions predicting (1, 60) day CARs. T-statistics presented in parentheses are based on robust standard errors and significance at the 1, 5 and 10 percent level is represented by ***, **, *, respectively.

Panel A: Stock Sale Subsample

When reported relative to 10th calendar day of following month:	**best price of month (logit)**		**(1, 20) CAR (OLS)**		**(1,60) CAR (OLS)**	
	(1)	**(2)**	**(3)**	**(4)**	(5)	(6)
Reported early	0.047		-1.013 ***		1.538 **	
	(0.68)		(-3.49)		(2.55)	
Reported late	-0.107		0.606		2.730 ***	
	(-1.02)		(1.36)		(2.87)	
Reported early / within 2 weeks of exercise		0.348 ***		-0.582		2.934 ***
		(3.73)		(-1.43)		(3.61)
Reported early / 2 to 4 weeks after exercise		-0.324 ***		-0.560		1.617 **
		(-3.14)		(-1.54)		(2.16)
Reported early / more than 4 weeks from exercise		0.152		-2.333 ***		-0.379
		(1.39)		(-5.03)		(-0.39)
Reported late / 2 weeks or less		-0.160		0.852		4.495 ***
		(-1.13)		(1.55)		(3.61)
Reported late / 2 to 4 weeks		-0.112		2.408 *		2.937
		(-0.35)		(1.77)		(1.34)
Reported late / more than 4 weeks		-0.039		-0.149		0.312
		(-0.25)		(-0.21)		(0.21)
Constant	-2.388 ***	-2.388 ***	0.222	0.222	-3.800 ***	-3.800 ***
	(-50.53)	(-50.53)	(1.04)	(1.04)	(-8.32)	(-8.32)
Observations	12,138	12,138	12,138	12,138	12,138	12,138
R^2 / pseudo-R^2	0.03%	0.48%	0.01%	0.28%	.001	0.02%

Table 3.7 (Cont'd): SEC reporting and returns around option exercises before SOX

Panel B: Company Disposition Subsample

	best price of month (logit)		(1, 20) CAR (OLS)		(1,60) CAR (OLS)	
	(1)	**(2)**	**(3)**	**(4)**	(5)	(6)
reported early	0.368 **		-0.385		-1.346 *	
	(2.55)		(-0.99)		(-1.72)	
reported late	0.400 **		-0.540		-1.591	
	(2.03)		(-0.84)		(-1.28)	
Reported early / within 2 weeks of exercise		0.666 ***		-0.932		-2.032 **
		(3.52)		(-1.63)		(-1.96)
Reported early / 2 to 4 weeks after exercise		0.145		-0.174		-1.065
		(0.77)		(-0.38)		(-1.04)
Reported early / more than 4 weeks from exercise		0.341		-0.154		-0.987
		(1.52)		(-0.25)		(-0.83)
Reported late / 2 weeks or less		0.413 *		-0.388		-3.524 **
		(1.65)		(-0.51)		(-2.54)
Reported late / 2 to 4 weeks		0.968 **		-0.881		-4.345 *
		(2.05)		(-0.63)		(-1.70)
Reported late / more than 4 weeks		0.170		-0.779		1.347
		(0.56)		(-0.71)		(0.62)
Constant	-2.270 ***	-2.268 ***	-0.367	-0.354	0.672	0.684
	(-20.83)	(-20.81)	(-1.26)	(-1.21)	(1.17)	(1.18)
observations	2,300	2,300	2,300	2,300	2,300	2,300
R^2 / pseudo-R^2	0.48%	0.94%	0.06%	0.14%	0.16%	0.46%

Panel C: No Disposition Subsample

	(1)	**(2)**	**(3)**	**(4)**	(5)	(6)
reported early	0.096		1.323 **		3.379 ***	
	(1.01)		(2.51)		(3.48)	
reported late	0.198 *		2.044 ***		4.606 ***	
	(1.82)		(3.01)		(3.67)	
Reported early / within 2 weeks of exercise		0.112		1.216 *		4.362 ***
		(0.91)		(1.84)		(3.61)
Reported early / 2 to 4 weeks after exercise		-0.075		1.230 **		2.829 **
		(-0.60)		(1.98)		(2.46)
Reported early / more than 4 weeks from exercise		0.396 ***		1.763		2.559
		(2.65)		(1.60)		(1.38)
Reported late / 2 weeks or less		0.359 **		0.758		3.026 *
		(2.39)		(0.86)		(1.81)
Reported late / 2 to 4 weeks		0.405 *		1.838		5.173 *
		(1.70)		(1.15)		(1.73)
Reported late / more than 4 weeks		0.030		2.917		5.504 ***
		(0.21)		(3.19) ***		(3.33)
Constant	-2.082 ***	-2.082 ***	2.203 ***	2.203 ***	2.406 ***	2.406 ***
	(-29.57)	(-29.57)	(5.54)	(5.53)	(3.17)	(3.17)
observations	5,681	5,681	5,681	5,681	5,681	5,681
R^2 / pseudo-R^2	0.08%	0.37%	0.20%	0.28%	0.33%	0.38%

Table 3.8: Summary statistics of governance variables

This table presents summary statistics of governance characteristics for sample and control firm-years. Sample firm-years consist of those where at least one top level executive at a firm exercised an option on the most favorable day of a calendar month and either did not dispose of any shares at the time of exercise or only disposed of shares back to the company, and that firm could be matched to the appropriate governance variables. Matched Control firm-years are matched on a 1-for-1 basis to Sample firm-years based on industry and market capitalization. Firms are matched first on 4 or 3 digit SIC code and then the closest size match is selected based on market value of equity. Significance levels for difference in means t-stats are reported; significance at the 1, 5, and 10 percent level are represented by ***, **, and *, respectively.

	Sample firm-years				Matched Controls				
	mean (percent)	**25th**	**50th**	**75th**	**mean (percent)**	**25th**	**50th**	**75th**	**t-test of difference in means**
	obs = 921 firm-years				*obs = 921 firm-years*				
Internal Control Weakness reported from 2004 to 2006 (% firms)	11%				3%				***
% equity held by institutions	27%	0%	22%	45%	24%	0%	16%	42%	*
% with 5% blockholder	53%				47%				**
% of top 5 holdings by L-T monitors	50%	0%	59%	77%	44%	0%	53%	75%	***
Market cap equity (mil)	6,744	173	665	2,521	5,260	176	697	2,876	
	obs = 644 firm-years				*obs = 644 firm-years*				
% Insiders on board	30%	17%	29%	40%	30%	18%	25%	40%	
Board size	7.7	6.0	7.0	9.0	8.0	6	8	10	*
% with joint CEO/Chairman of board	59%				61%				
	obs = 485 firm-years				*obs = 485 firm-years*				
CEO tenure (years)	5.98	3	7	12	5.02	2	5	10	***
% CEO equity ownership	1.6%	0.1%	0.4%	1.3%	2.0%	0.1%	0.3%	1.4%	
	obs = 364 firm-years				*obs = 364 firm-years*				
% of EXECs that precede CEO	61%	33%	60%	100%	59%	25%	60%	100%	
	obs = 403 firm-years				*obs = 403 firm-years*				
% of BOD that precede CEO	43%	11%	42%	71%	47%	14%	50%	80%	*
	obs = 423 firm-years				*obs = 423 firm-years*				
G index	9.1	7.0	9.0	11.0	9.1	7	9	11	

Table 3.9: Option exercise backdating and corporate governance

This table presents results from logistic regressions predicting inclusion in sample of firm-years where at least one top executive exercised options at the most favorable day of a calendar month and either held all of the acquired shares or only dispose of shares back to the company. Panel A presents results for the full sample period, and Panel B presents results for the pre-Sarbanes-Oxley period. For each regression, firm-years are matched to control firm years based on firm size and either 4 or 3 digit SIC code. *IC_weakness* = 1 if the firm is identified by Audit Analytics as having reported an internal control weakness to the SEC under Sarbanes-Oxley Section 404. *total_insti_percent* is the percent of outstanding stock held by institutions who file Form13(f) with the SEC*; block_holder* = 1 if at least one 13(f) reported held 5 % or more of the outstanding shares; *monitor_rank* is the percentage ranking of a firm relative to others in the same CRSP size decile of the percent of shares held long-term by monitoring institutions as defined by Chen, Harford and Li (2007). Data on boards of directors comes from Disclosure data as compiled by Linck, Netter and Yang (2007). *Percent_insiders* is the percentage of directors that are also executives; *Board size* is the number of directors on the board; *CEO_/_chair_of_BOD* = 1 if the CEO is also the Chairman of the board. Executive compensation and tenure data comes from EXECUCOMP. *Ln_CEO_tenure* = the log of 1 plus the number of years the CEO has held that position; *5%_ <_CEO_own_<_25%* = 1 if the CEO holds between 5 and 25 percent of the outstanding common stock; *CEO_own_>_25%* = 1 if the CEO owns more than 25 percent of the outstanding common stock; and *%_execs_precede_CEO* is the percentage of executives that have held their position longer than the CEO. CEO tenure data is matched to IRRC director tenure data to construct the similar variable *%_BOD_precede_CEO*. *GIM_score* is the measure of shareholder rights taken from Gompers, Ishii and Metrick (2003). Control variables include the firms' equity market capitalization (*Market_cap*), current year total return (*annual_return*), one year lag annual return (lag_*annual_return*) and industry dummies. T-statistics based on robust standard errors are reported and significance at the 1, 5, and 10 percent level are represented by ***, **, and *, respectively.

(continued on next page)

Table 3.9 (cont'd): Option exercise backdating and corporate governance
Panel A: the Full Period

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Internal Control Weakness:																		
ic_weakness	1.753***																	1.719
	(7.48)																	(0.96)
Institutional Investors:																		
total_insti_percent		1.558**			0.929													0.566
		(2.38)			(-0.27)													(-0.66)
block_holder			1.308***		1.026													2.870**
			(2.81)		(0.17)													(2.01)
Monitor_rank				1.652***	1.673**													0.350
				(3.69)	(2.30)													(-1.26)
Board of Directors:																		
Percent_insiders						1.078			0.885									1.320
						(0.24)			(-0.36)									(0.39)
board_size							0.971		0.969									1.052
							(-1.38)		(-1.37)									(0.97)
CEO_/_Chair_of_BOD								0.903	0.905									0.488**
								(-0.87)	(-0.85)									(-2.24)
CEO Entrenchment:																		
ln_CEO_tenure										1.224***		1.277***		1.404***		1.229		1.037
										(2.89)		(3.34)		(3.65)		(1.52)		(0.13)
5%_<_CEO_own_<_25%											0.749	0.628*						1.687
											(-1.13)	(-1.73)						(0.77)
CEO_own_>_25%											0.162*	0.119*						perfect
											(-1.71)	(-1.91)						Pred.(-)
Firm Co-option:																		
%_execs_precede_CEO													1.126	1.469*				0.823
													(0.59)	(1.76)				(-0.62)
%_BOD_precede_CEO															0.728	1.135		0.465
															(-1.49)	(0.35)		(-1.00)
Shareholder Rights:																		
GIM_score																	1.006	1.009
																	(0.23)	(0.17)
Control Variables:																		
market_cap	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000*	1.000
	(1.01)	(0.78)	(1.01)	(0.91)	(0.92)	(0.16)	(0.56)	(0.20)	(0.60)	(0.22)	(0.18)	(0.12)	(1.27)	(1.11)	(0.40)	(0.40)	(1.84)	(-1.37)
annual_return	1.116*	1.137**	1.131**	1.137**	1.136**	1.126	1.122	1.123	1.119	1.045	1.046	1.040	1.123	1.120	1.068	1.066	0.887	0.837
	(1.85)	(2.14)	(2.05)	(2.15)	(2.13)	(1.44)	(1.38)	(1.41)	(1.34)	(0.45)	(0.49)	(0.42)	(0.94)	(0.88)	(0.40)	(0.39)	(-0.85)	(-0.68)
lag_annual_return	1.112**	1.136***	1.126***	1.136***	1.134***	1.205***	1.194***	1.205***	1.194***	1.135**	1.146**	1.147**	1.098*	1.097	1.135*	1.142*	1.155	1.081
	(2.56)	(3.01)	(2.93)	(3.10)	(3.05)	(3.85)	(3.70)	(3.86)	(3.69)	(2.09)	(2.20)	(2.18)	(1.67)	(1.59)	(1.81)	(1.87)	(1.53)	(0.45)
Industry dummies	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
N	1,842	1,842	1,842	1,842	1,842	1,288	1,288	1,288	1,288	970	970	970	728	728	806	806	846	254
pseudo R-sq	0.036	0.008	0.009	0.011	0.011	0.013	0.014	0.014	0.015	0.011	0.009	0.017	0.007	0.021	0.006	0.009	0.006	0.058

Table 3.9 (cont'd): Option exercise backdating and corporate governance
Panel B: Before the Sarbanes-Oxley Act

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Internal Control Weakness:																		
ic_weakness	5.72***																	Perfect
	(4.53)																	Pred. (+)
Institutional Investors:																		
total_insti_percent		1.832***			1.069													1.059
		(2.69)			(0.20)													(0.06)
block_holder			1.367***		1.063													2.678*
			(2.82)		(0.35)													(1.67)
Monitor_rank				1.719***	1.559*													0.311
				(3.42)	(1.71)													(-1.15)
Board of Directors:																		
Percent_insiders						1.133			0.923									1.482
						(0.36)			(-0.21)									(0.50)
board_size							0.968		0.967									1.048
							(-1.37)		(-1.31)									(0.84)
CEO_/_Chair_of_BOD								0.902	0.907									0.558
								(-0.76)	(-0.71)									(-1.61)
CEO Entrenchment:																		
ln_CEO_tenure										1.204**		1.245***		1.399***		1.158		0.949
										(2.32)		(2.62)		(3.17)		(0.93)		(-0.15)
5%_<_CEO_own_<_25%											0.855	0.716						2.206
											(-0.54)	(-1.07)						(0.95)
CEO_own_>_25%											0.196	0.156*						Perfect
											(-1.51)	(-1.66)						Pred. (-)
Firm Co-option:																		
%_execs_precede_CEO													1.121	1.406				0.609
													(0.49)	(1.38)				(-1.32)
%_BOD_precede_CEO															0.733	1.011		0.380
															(-1.27)	(0.03)		(-0.98)
Shareholder Rights:																		
GIM_score																	1.027	1.068
																	(0.88)	(0.91)
Control Variables:																		
market_cap	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000**	1.000
	(0.71)	(0.71)	(0.87)	(0.82)	(0.81)	(0.14)	(0.54)	(0.17)	(0.58)	(0.33)	(0.27)	(0.30)	(1.22)	(1.14)	(0.12)	(0.15)	(2.04)	(-1.05)
annual_return	1.138*	1.138*	1.130*	1.137*	1.136*	1.110	1.104	1.106	1.100	1.068	1.067	1.062	1.141	1.137	1.082	1.078	0.943	1.226
	(1.94)	(1.94)	(1.83)	(1.92)	(1.92)	(1.20)	(1.12)	(1.16)	(1.08)	(0.63)	(0.65)	(0.60)	(0.99)	(0.93)	(0.42)	(0.40)	(-0.38)	(0.72)
lag_annual_return	1.123**	149***	1.135***	1.145***	1.146***	1.226***	1.214***	1.227***	1.214***	1.112*	1.123*	1.119*	1.084	1.076	1.134*	1.138*	1.148	1.077
	(2.47)	(2.92)	(2.83)	(2.97)	(2.95)	(3.66)	(3.51)	(3.66)	(3.50)	(1.82)	(1.92)	(1.86)	(1.42)	(1.28)	(1.73)	(1.77)	(1.34)	(0.43)
Industry dummies	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
N	1,382	1,382	1,382	1,382	1382	970	970	970	970	728	728	728	552	552	598	598	614	185
pseudo R-sq	0.030	0.011	0.012	0.014	0.014	0.016	0.017	0.016	0.018	0.011	0.008	0.016	0.008	0.022	0.008	0.009	0.008	0.060

Table 4.1: Summary statistics

This table presents summary statistics for the difference subsamples of executives stock option exercises. The Stock Sale Subsample includes option exercises where the executive immediately (within a (-1,1) day window around exercise) sells shares in an market or private sale. The No Disposition Subsample consists of option exercises where the executive did not dispose of any share for at least a month following exercise. The Future Sale Subsample consists of exercises where the executive did not dispose of any shares for at least a month following exercise but did sell at least as may shares as were acquired at a one year horizon (during the 5th quarter after exercise). The Pooled Sample consists of option exercises regardless of the disposition strategy. Panel A presents the distribution of exercises through time. Panel B presents the distribution of exercises across industries. Panel C presents the distribution of exercises across NYSE/AMEX/NASDAQ size deciles. Panel D presents the timing of exercise relative to option expiration, the number of options exercised and the number of options sold at the time of exercise.

Panel A: Annual Distribution of Executive Option Exercises

Year	Stock Sale Subsample	No Disposition Subsample	Future Sale Subsample	Pooled Sample
1996	18	12	1	25
1997	44	42	19	73
1998	36	45	11	65
1999	41	38	12	49
2000	38	49	22	63
2001	38	37	7	62
2002	32	34	15	48
2003	60	46	23	69
2004	73	46	18	83
2005	13	13	4	22
Total	393	362	132	559
Before SOX	240	248	86	378
After SOX	153	114	46	181

Panel B: Industry Distribution of Firms

	Stock Sale Subsample		No Disposition Subsample		Future Sale Subsample	
	Number	**Percent**	**Number**	**Percent**	**Number**	**Percent**
Finance	21	5%	15	4%	5	4%
Healthcare	61	16%	75	21%	29	22%
Consumer Non-Durables	10	3%	10	3%	1	1%
Consumer Services	37	9%	36	10%	9	7%
Consumer Durables	7	2%	12	3%	1	1%
Energy	31	8%	28	8%	5	4%
Transportation	2	1%	6	2%	0	0%
Technology	160	41%	120	33%	63	48%
Basic Industries	26	7%	15	4%	5	4%
Capital Goods	33	8%	42	12%	12	9%
Utilities	5	1%	3	1%	2	2%
Total	393	100%	362	100%	132	100%

Table 4.1 (Cont'd): Summary statistics
Panel C: CRSP NYSE/NASDAQ/AMEX Size Decile Distribution

	Stock Sale Subsample		No Disposition Subsample		Future Sale Subsample	
Size Decile	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**
largest	113	29%	83	23%	36	27%
9	62	16%	48	13%	19	14%
8	72	18%	54	15%	27	20%
7	36	9%	48	13%	12	9%
6	31	8%	43	12%	13	10%
5	22	6%	29	8%	11	8%
4	25	6%	19	5%	9	7%
3	13	3%	11	3%	1	1%
2	9	2%	14	4%	1	1%
smallest	10	3%	13	4%	3	2%

Panel D: Option Exercise Summary

	Stock Sale Subsample		No Disposition Subsample		Future Sale Subsample	
	mean	**median**	**mean**	**median**	**mean**	**median**
Years to option expiration	4.5	4.8	3.5	3.3	3.7	3.7
Options exercised	88,105	40,684	65,773	25,000	44,404	21,000
Shares Sold at exercise	84,925	42,000	0	0	0	0

Table 4.2: Abnormal returns around the Pooled Sample of executive option exercises

This table presents monthly buy-and-hold abnormal returns (BHARs) and calendar-time abnormal returns (CTARs) before and after option exercises in the Pooled Subsample. The Pooled Sample is taken from option exercises regardless of the stock disposition strategy. BHARs are calculated relative to control firms that are matched based on 2-digit SIC code, firm size and prior year annual stock return. T-month CTARs are calculated by constructing monthly portfolios consisting of all sample firms where an executive exercised options during the previous T months, and regressing the excess returns to this portfolio above the risk-free return onto the three Fama-French (1993) factors and the Carhart (1997) momentum factor. T-statistics are adjusted for heteroskedasticity consistent with White (1980), and significance at the 1, 5, 10 percent levels is represented by ***, **, *, respectively.

Window (months)	Sample Total Return	Controls Total Return	Abnormal Return		Sample CTAR (monthly)	
(-12,-1)	51.19%	54.39%	-3.20%	***	2.71%	***
(-6,-1)	29.17%	25.78%	3.39%	*	3.04%	***
(1,6)	1.01%	5.37%	-4.40%	**	-0.08%	
(1,12)	5.57%	8.39%	-2.80%		0.12%	
(1,24)	19.61%	23.95%	-4.30%		0.12%	
Obs.	559	559			559	

Table 4.3: Abnormal returns around option exercises when the executive immediately sells shares (The Stock Sale Subsample)

This table presents monthly buy-and-hold abnormal returns (BHARs) and calendar-time abnormal returns (CTARs) before and after option exercises in the Stock Sale Subsample. The Stock Sale Subsample is taken from option exercises where the executive sells shares in a market or private sale in the (-1,1) day window around option exercise. BHARs are calculated relative to control firms that are matched based on 2-digit SIC code, firm size and prior year annual stock return. T-month CTARs are calculated by constructing monthly portfolios consisting of all sample firms where an executive exercised options during the previous T months, and regressing the excess returns to this portfolio above the risk-free return onto the three Fama-French (1993) factors and the Carhart (1997) momentum factor. Panel A presents results for the full sample period (August 1996 to December 2005), Panel A presents results for the pre-Sarbanes-Oxley Period (August, 1996 to August 28, 2002), and Panel C presents results for the post-Sarbanes-Oxley period (August 29, 2002 to December 2005). T-statistics are adjusted for heteroskedasticity consistent with White (1980), and significance at the 1, 5, 10 percent levels is represented by ***, **, *, respectively.

Panel A: Full Period

Window (months)	Sample Total Return	Controls Total Return	Buy and Hold Abnormal Return		Sample CTAR (monthly)	
(-12,-1)	60.91%	60.34%	0.58%		3.36%	***
(-6,-1)	38.09%	29.87%	8.21%	***	4.57%	***
(1,6)	-0.40%	5.87%	-6.30%	**	-0.54%	*
(1,12)	1.87%	10.16%	-8.30%	**	-0.41%	*
(1,24)	13.66%	24.85%	-11.20%	**	-0.28%	*
Obs.	393	393			393	

Panel B: Before the Sarbanes-Oxley Act

Window (months)	Sample Total Return	Controls Total Return	Buy and Hold Abnormal Return		Sample CTAR (monthly)	
(-12,-1)	60.15%	59.41%	0.75%		4.09%	
(-6,-1)	36.09%	27.49%	8.60%	***	4.90%	
(1,6)	-3.20%	3.78%	-7.00%	**	-0.72%	*
(1,12)	-2.40%	6.62%	-9.10%	*	-0.42%	
(1,24)	10.00%	21.38%	-11.40%	*	-0.09%	
Obs.	240	240			240	

Panel C: After the Sarbanes-Oxley Act

Window (months)	Sample Total Return	Controls Total Return	Buy and Hold Abnormal Return		Sample CTAR (monthly)	
(-12,-1)	62.11%	61.80%	0.31%		3.21%	***
(-6,-1)	41.21%	33.60%	7.61%	**	4.27%	***
(1,6)	4.06%	9.16%	-5.10%		0.61%	
(1,12)	8.64%	15.73%	-7.10%		0.33%	
(1,24)	19.40%	30.28%	-10.90%	*	0.24%	
Obs.	153	153			153	

Table 4.4: Abnormal returns around option exercises when the executive does not immediately sell shares (The No Disposition Subsample)

This table presents monthly buy-and-hold abnormal returns (BHARs) and calendar-time abnormal returns (CTARs) before and after option exercises in the No Disposition Subsample. The No Disposition Subsample is taken from option exercises where the executive does not dispose of any shares for at least a month after exercise. BHARs are calculated relative to control firms that are matched based on 2-digit SIC code, firm size and prior year annual stock return. T-month CTARs are calculated by constructing monthly portfolios consisting of all sample firms where an executive exercised options during the previous T months, and regressing the excess returns to this portfolio above the risk-free return onto the three Fama-French (1993) factors and the Carhart (1997) momentum factor. Panel A presents results for the full sample period (August 1996 to December 2005), Panel A presents results for the pre-Sarbanes-Oxley Period (August, 1996 to August 28, 2002), and Panel C presents results for the post-Sarbanes-Oxley period (August 29, 2002 to December 2005). T-statistics are adjusted for heteroskedasticity consistent with White (1980), and significance at the 1, 5, 10 percent levels is represented by ***, **, *, respectively.

Panel A: Full Period

Window (months)	Sample Total Return	Controls Total Return	Buy and Hold Abnormal Return	Sample CTAR (monthly)	Controls CTAR (monthly)
(-12,-1)	43.14%	41.62%	1.52% ***	2.14% ***	2.09% ***
(-6,-1)	16.85%	23.64%	-6.80% ***	0.95% **	2.43% ***
(1,6)	8.56%	8.24%	0.33%	0.70% **	0.90% **
(1,12)	16.92%	15.05%	1.88%	0.76% ***	0.49% *
(1,24)	32.35%	29.16%	3.20%	0.55% ***	0.52% **
Obs.	362	362		362	362

Panel B: Before the Sarbanes-Oxley Act

Window (months)	Sample Total Return	Controls Total Return	Buy and Hold Abnormal Return	Sample CTAR (monthly)	Controls CTAR (monthly)
(-12,-1)	43.56%	41.68%	1.89% ***	2.36% ***	2.35% ***
(-6,-1)	15.80%	23.65%	-7.90% ***	1.00% **	2.73% ***
(1,6)	4.08%	6.99%	-2.90%	0.39%	1.54% ***
(1,12)	9.49%	12.01%	-2.50%	0.56% *	1.06% ***
(1,24)	25.79%	24.19%	1.59%	0.58% **	0.37%
Obs.	248	248		248	248

Panel C: After the Sarbanes-Oxley Act

Window (months)	Sample Total Return	Controls Total Return	Buy and Hold Abnormal Return	Sample CTAR (monthly)	Controls CTAR (monthly)
(-12,-1)	42.21%	41.50%	0.71%	2.26% ***	1.07% **
(-6,-1)	19.12%	23.60%	-4.50%	0.56% *	0.85%
(1,6)	18.33%	10.94%	7.39% **	0.94%	-1.39% **
(1,12)	33.10%	21.66%	11.44% **	0.93% **	-1.52% ***
(1,24)	46.64%	39.95%	6.69%	0.38%	-0.27%
Obs.	114	114		114	114

Table 4.5: Abnormal returns around option exercises when the executive does not immediately sell shares and sells shares at a one year horizon (The Future Sale Subsample)

This table presents monthly buy-and-hold abnormal returns (BHARs) and calendar-time abnormal returns (CTARs) before and after option exercises in the Future Sale Subsample. The Future Sale Subsample is taken from option exercises where the executive does not dispose of any shares in the month following exercise, and sells at least as many shares as were acquired at the 1 year horizon. BHARs are calculated relative to control firms that are matched based on 2-digit SIC code, firm size and prior year annual stock return. T-month CTARs are calculated by constructing monthly portfolios consisting of all sample firms where an executive exercised options during the previous T months, and regressing the excess returns to this portfolio above the risk-free return onto the three Fama-French (1993) factors and the Carhart (1997) momentum factor. Panel A presents results for the full sample period (August 1996 to December 2005), Panel A presents results for the pre-Sarbanes-Oxley Period (August, 1996 to August 28, 2002), and Panel C presents results for the post-Sarbanes-Oxley period (August 29, 2002 to December 2005). T-statistics are adjusted for heteroskedasticity consistent with White (1980), and significance at the 1, 5, 10 percent levels is represented by ***, **, *, respectively.

Panel A: Full Period

Window (months)	Sample Total Return	Controls Total Return	Buy and Hold Abnormal Return		Sample CTAR (monthly)		Controls CTAR (monthly)	
(-12,-1)	63.71%	62.41%	1.30%		3.76%	***	3.38%	***
(-6,-1)	28.64%	34.89%	-6.20%	*	2.46%	***	3.31%	***
(1,6)	12.94%	7.80%	5.14%		1.51%	**	1.17%	*
(1,12)	36.87%	16.68%	20.19%	***	2.55%	***	0.76%	
(1,24)	47.19%	24.32%	22.86%	***	1.38%	***	1.00%	**
Obs.	132	132			132		132	

Panel B: Before the Sarbanes-Oxley Act

Window (months)	Sample Total Return	Controls Total Return	Buy and Hold Abnormal Return		Sample CTAR (monthly)		Controls CTAR (monthly)	
(-12,-1)	63.51%	62.41%	1.10%		4.54%	***	3.45%	***
(-6,-1)	23.75%	35.85%	-12.10%	**	2.57%	***	3.62%	***
(1,6)	13.89%	6.76%	7.13%		1.91%	***	1.58%	*
(1,12)	41.26%	17.22%	24.04%	***	2.72%	***	1.36%	**
(1,24)	49.38%	17.17%	32.21%	***	1.58%	***	0.55%	
Obs.	86	86			86		86	

Panel C: After the Sarbanes-Oxley Act

Window (months)	Sample Total Return	Controls Total Return	Buy and Hold Abnormal Return		Sample CTAR (monthly)		Controls CTAR (monthly)	
(-12,-1)	64.07%	62.41%	1.66%		1.66%	**	2.27%	**
(-6,-1)	37.79%	33.08%	4.71%		3.04%	***	1.32%	
(1,6)	11.18%	9.76%	1.42%		1.23%		-0.43%	
(1,12)	28.66%	15.67%	12.99%	*	1.47%	**	-1.17%	
(1,24)	43.10%	37.71%	5.39%		0.43%		1.30%	
Obs.	46	46			46		46	

Table 4.6: Return on assets around option exercises where the executive immediately sells shares (the Stock Sale Subsample)

This table presents return on assets (ROA) and abnormal ROA in the quarters surrounding option exercises in the Stock Sale Subsample. The Stock Sale Subsample is taken from option exercises where the executive sells shares in a market or private sale in the (-1,1) day window around option exercise. ROA is calculated as net income (compustat item 69)/lagged assets (compustat item 44) in the quarters surrounding option exercises. I consider two ways of calculating abnormal ROA. The first abnormal ROA measure (Sample Firm Abnormal ROA) is calculated relative to past sample firm ROA. Sample Firm Abnormal ROA for a quarters (-4,1) preceding exercise is calculated as the difference between quarterly ROA and ROA for the quarter -5. Sample Firms Abnormal ROA for the four quarters (0,3) following exercise is calculated quarterly ROA minus quarter -1 ROA. The second measure of abnormal ROA (Control-Adjusted Abnormal ROA) is the difference between Sample Firm Abnormal ROA and the similar measure calculated for the control firms. Panel A presents results for the full sample period (August 1996 to December 2005), Panel A presents results for the pre-Sarbanes-Oxley Period (August, 1996 to August 28, 2002), and Panel C presents results for the post-Sarbanes-Oxley period (August 29, 2002 to December 2005). T-statistics are provided and significance at the 1, 5 and 10 percent significance level are represented with ***, **, and *, respectively.

Panel A: ROA -- Full Period

Period	ROA	Sample Firm Abnormal ROA	t-stat		Control-Adjusted Abnormal ROA	t-stat	
Qtr -4	0.005	0.006	1.47		0.001	0.24	
Qtr -3	0.006	0.007	1.95	*	0.008	0.87	
Qtr -2	0.008	0.009	2.44	**	-0.007	-0.96	
Qtr -1	0.016	0.017	3.39	***	0.006	0.79	
Exercise Qtr	0.012	-0.004	-0.96		-0.011	-1.11	
Qtr 1	0.013	-0.003	-0.82		-0.004	-0.98	
Qtr 2	0.007	-0.009	-2.35	**	-0.01	-1.39	
Qtr 3	0.009	-0.007	-1.73	*	-0.006	-1.05	
Year -1	0.035	0.038	2.71	***	0.009	0.43	
Exercise Year	0.042	-0.022	-1.74	*	-0.031	-1.69	*
Obs	393	393			393		

Panel B: ROA -- Before the Sarbanes-Oxley Act

Period	ROA	Sample Firm Abnormal ROA	t-stat		Control-Adjusted Abnormal ROA	t-stat	
Qtr -4	0.005	-0.001	-0.16		-0.002	-0.38	
Qtr -3	0.009	0.004	0.93		0.000	0.03	
Qtr -2	0.009	0.004	0.74		-0.006	-0.66	
Qtr -1	0.015	0.010	1.67	*	0.009	1.06	
Exercise Qtr	0.015	0.000	0.02		-0.013	-0.84	
Qtr 1	0.015	0.000	0.06		0.000	-0.06	
Qtr 2	0.004	-0.011	-2.51	**	-0.007	-0.73	
Qtr 3	0.006	-0.009	-1.83	*	-0.004	-0.53	
Year -1	0.038	0.016	0.94		0.001	0.03	
Exercise Year	0.040	-0.019	-1.46		-0.024	-1.06	
Obs	240	240			240		

Table 4.6 (Cont'd): Return on assets around option exercises where the executive immediately sells shares (the Stock Sale Subsample)

Panel C: ROA -- After the Sarbanes-Oxley Act

Period	ROA	Sample Firm Abnormal ROA	t-stat		Control-Adjusted Abnormal ROA	t-stat
Qtr -4	0.006	0.016	2.76	***	0.007	0.70
Qtr -3	0.001	0.011	1.95	*	0.021	0.95
Qtr -2	0.007	0.017	3.27	***	-0.009	-0.69
Qtr -1	0.018	0.028	3.13	***	0.002	0.11
Exercise Qtr	0.008	-0.010	-1.47		-0.008	-0.97
Qtr 1	0.010	-0.008	-1.18		-0.010	-1.32
Qtr 2	0.013	-0.005	-0.79		-0.014	-1.54
Qtr 3	0.015	-0.003	-0.52		-0.009	-1.02
Year -1	0.032	0.072	3.07	***	0.021	0.65
Exercise Year	0.046	-0.026	-1.05		-0.041	-1.38
Obs	153	153			153	

Table 4.7: Return on assets around option exercises where the executive does not immediately sell shares (the No Disposition Subsample)

This table presents return on assets (ROA) and abnormal ROA in the quarters surrounding option exercises in the No Disposition Subsample. The No Disposition Subsample is taken from option exercises where the executive does not dispose of any shares for at least a month after exercise. ROA is calculated as net income (compustat item 69)/lagged assets (compustat item 44) in the quarters surrounding option exercises. I consider two ways of calculating abnormal ROA. The first abnormal ROA measure (Sample Firm Abnormal ROA) is calculated relative to past sample firm ROA. Sample Firm Abnormal ROA for a quarters (-4,1) preceding exercise is calculated as the difference between quarterly ROA and ROA for the quarter -5. Sample Firms Abnormal ROA for the four quarters (0,3) following exercise is calculated quarterly ROA minus quarter -1 ROA. The second measure of abnormal ROA (Control-Adjusted Abnormal ROA) is the difference between Sample Firm Abnormal ROA and the similar measure calculated for the control firms. Panel A presents results for the full sample period (August 1996 to December 2005), Panel A presents results for the pre-Sarbanes-Oxley Period (August, 1996 to August 28, 2002), and Panel C presents results for the post-Sarbanes-Oxley period (August 29, 2002 to December 2005). T-statistics are provided and significance at the 1, 5 and 10 percent significance level are represented with ***, **, and *, respectively.

Panel A: ROA -- Full Period

Period	ROA	Sample Firm Abnormal ROA	t-stat		Control-Adjusted Abnormal ROA	t-stat
Qtr -4	0.004	0.002	0.83		0.000	-0.06
Qtr -3	0.009	0.007	2.20	**	0.004	0.76
Qtr -2	0.007	0.005	1.45		0.002	0.27
Qtr -1	0.008	0.006	2.00	**	-0.001	-0.15
Exercise Qtr	0.006	-0.002	-0.55		-0.004	-0.70
Qtr 1	0.006	-0.002	-0.72		0.002	0.42
Qtr 2	-0.006	-0.014	-1.26		-0.009	-0.76
Qtr 3	0.003	-0.005	-1.40		-0.003	-0.53
Year -1	0.027	0.020	2.24	**	0.005	0.31
Exercise Year	0.008	-0.023	-1.61		-0.014	-0.64
Obs	362	362			362	

Panel B: ROA -- Before the Sarbanes-Oxley Act

Period	ROA	Sample Firm Abnormal ROA	t-stat		Control-Adjusted Abnormal ROA	t-stat
Qtr -4	0.003	-0.001	-0.14		-0.006	-1.31
Qtr -3	0.009	0.005	1.32		0.001	0.10
Qtr -2	0.005	0.002	0.42		0.001	0.07
Qtr -1	0.008	0.005	1.42		-0.003	-0.40
Exercise Qtr	0.002	-0.006	-1.36		-0.008	-1.23
Qtr 1	0.003	-0.005	-1.45		0.004	0.59
Qtr 2	-0.015	-0.023	-1.45		-0.016	-0.91
Qtr 3	-0.002	-0.011	-2.57	**	-0.005	-0.70
Year -1	0.025	0.012	1.11		-0.008	-0.39
Exercise Year	-0.012	-0.045	-2.38	**	-0.025	-0.89
Obs	248	248			248	

Table 4.7 (Cont'd): Return on assets around option exercises where the executive does not immediately sell shares (the No Disposition Subsample)

Panel C: ROA -- After the Sarbanes-Oxley Act

Period	ROA	Sample Firm Abnormal ROA	t-stat		Control-Adjusted Abnormal ROA	t-stat	
Qtr -4	0.007	0.008	1.98	**	0.013	2.28	**
Qtr -3	0.009	0.010	2.23	**	0.012	1.43	
Qtr -2	0.010	0.012	1.88	*	0.004	0.40	
Qtr -1	0.006	0.008	1.47		0.003	0.41	
Exercise Qtr	0.013	0.007	1.44		0.005	0.55	
Qtr 1	0.011	0.005	1.16		-0.001	-0.17	
Qtr 2	0.013	0.007	1.46		0.005	0.67	
Qtr 3	0.014	0.008	1.41		0.001	0.15	
Year -1	0.031	0.039	2.28	**	0.032	1.28	
Exercise Year	0.052	0.026	1.63		0.011	0.34	
Obs	114	114			114		

Table 4.8: Return on assets around option exercises where the executive does not immediately sell shares and sells shares at a one year horizon (the Future Sale Subsample)

This table presents return on assets (ROA) and abnormal ROA in the quarters surrounding option exercises in the Future Sale Subsample. The Future Sale Subsample is taken from option exercises where the executive does not dispose of any shares in the month following exercise, and sells at least as many shares as were acquired at the 1 year horizon. ROA is calculated as net income (compustat item 69)/lagged assets (compustat item 44) in the quarters surrounding option exercises. I consider two ways of calculating abnormal ROA. The first abnormal ROA measure (Sample Firm Abnormal ROA) is calculated relative to past sample firm ROA. Sample Firm Abnormal ROA for a quarters (-4,1) preceding exercise is calculated as the difference between quarterly ROA and ROA for the quarter -5. Sample Firms Abnormal ROA for the four quarters (0,3) following exercise is calculated quarterly ROA minus quarter -1 ROA. The second measure of abnormal ROA (Control-Adjusted Abnormal ROA) is the difference between Sample Firm Abnormal ROA and the similar measure calculated for the control firms. Panel A presents results for the full sample period (August 1996 to December 2005), Panel A presents results for the pre-Sarbanes-Oxley Period (August, 1996 to August 28, 2002), and Panel C presents results for the post-Sarbanes-Oxley period (August 29, 2002 to December 2005). T-statistics are provided and significance at the 1, 5 and 10 percent significance level are represented with ***, **, and *, respectively.

Panel A: ROA -- Full Period

Period	ROA	Sample Firm Abnormal ROA	t-stat		Control-Adjusted Abnormal ROA	t-stat
Qtr -4	0.005	0.005	0.96		-0.002	-0.30
Qtr -3	0.010	0.011	2.90	***	0.005	0.76
Qtr -2	0.012	0.013	3.04	***	0.005	0.64
Qtr -1	0.016	0.016	3.39	***	0.012	1.30
Exercise Qtr	0.017	0.001	0.31		-0.004	-0.42
Qtr 1	0.020	0.005	1.33		-0.011	-0.95
Qtr 2	0.016	0.000	-0.01		-0.005	-0.65
Qtr 3	0.019	0.004	0.60		-0.004	-0.46
Year -1	0.043	0.045	3.01	***	0.019	0.77
Exercise Year	0.072	0.010	0.72		-0.023	-0.79
Obs	132	132			132	

Panel B: ROA -- Before the Sarbanes-Oxley Act

Period	ROA	Sample Firm Abnormal ROA	t-stat		Control-Adjusted Abnormal ROA	t-stat
Qtr -4	-0.002	0.000	0.04		-0.008	-0.76
Qtr -3	0.007	0.009	2.17	**	0.005	0.64
Qtr -2	0.011	0.013	2.34	**	0.009	0.88
Qtr -1	0.012	0.014	2.31	**	0.013	1.08
Exercise Qtr	0.012	0.000	0.10		-0.014	-1.21
Qtr 1	0.021	0.009	1.89	*	-0.020	-1.22
Qtr 2	0.014	0.002	0.35		-0.010	-0.90
Qtr 3	0.010	-0.002	-0.24		-0.008	-0.77
Year -1	0.028	0.036	1.93	*	0.019	0.57
Exercise Year	0.056	0.010	0.59		-0.052	-1.28
Obs	86	86			86	

Table 4.8 (Cont'd): Return on assets around option exercises where the executive does not immediately sell shares and sells shares at a one year horizon (the Future Sale Subsample)

Panel C: ROA -- After the Sarbanes-Oxley Act

Period	ROA	Sample Firm Abnormal ROA	t-stat		Control-Adjusted Abnormal ROA	t-stat
Qtr -4	0.017	0.014	2.51	**	0.009	0.83
Qtr -3	0.016	0.014	1.92	*	0.004	0.42
Qtr -2	0.015	0.013	1.96	*	-0.003	-0.26
Qtr -1	0.023	0.021	2.57	**	0.011	0.71
Exercise Qtr	0.026	0.003	0.38		0.016	1.65
Qtr 1	0.020	-0.003	-0.64		0.007	0.69
Qtr 2	0.019	-0.004	-0.65		0.004	0.38
Qtr 3	0.037	0.014	1.03		0.005	0.43
Year -1	0.071	0.062	2.47	**	0.020	0.54
Exercise Year	0.101	0.009	0.40		0.031	0.92
Obs	46	46			46	

Table 4.9: Discretionary accruals around option exercises where the executive immediately sells shares (the Stock Sale Subsample)

This table presents an analysis of discretionary accruals in the quarters surrounding option exercises in the Stock Sale Subsample. The Stock Sale Subsample is taken from option exercises where the executive sells shares in a market or private sale in the (-1,1) day window around option exercise. Discretionary accruals are calculated using a modified quarterly cross-sectional Jones (1991) model adjusted for return on assets (see Kothari, Leone and Wasley (2004)) . All variables are taken from the COMPUSTAT Industrial Quarterly database. Following Collins and Hribar (2004), total accruals (TA) are calculated as income before extraordinary items (Compustat item 8) minus cash flow (item 108) using data from the Statement of Cash Flows. Total accruals are regressed onto 1/ the lagged value of assets (item 44), quarterly increase in sales (item 2), gross property, plant and equipment at the end of quarter *t* (item 118), and net income in quarter *t* (item 69) (all variables scaled by lagged assets). Modified discretionary accruals are calculated consistent with Dechow, Sloan and Sweeney (1996). Panel A presents results for the pre-Sarbanes-Oxley Period (August, 1996 to August 28, 2002), and Panel C presents results for the post-Sarbanes-Oxley period (August 29, 2002 to December 2005). T-statistics are provided and significance at the 1, 5 and 10 percent significance level are represented with ***, **, and *, respectively.

Panel A: Discretionary Accruals -- Full Period

Period	Discretionary Accruals	Abnormal Disc. Accruals (relative to qtr -5 (before exercise) or qtr-1 (after))	t-stat		Abnormal Disc. Accruals (relative to controls)	t-stat	
Qtr -4	-0.003	0.001	0.18		0.001	0.24	
Qtr -3	-0.001	0.003	0.71		0.000	0.03	
Qtr -2	0.002	0.006	1.11		0.000	0.07	
Qtr -1	0.005	0.009	1.68	*	0.003	0.89	
Exercise Qtr	0.003	-0.002	-0.51		-0.002	-0.47	
Qtr 1	0.003	-0.003	-0.80		-0.002	-0.67	
Qtr 2	-0.004	-0.009	-2.64	***	-0.008	-2.82	***
Qtr 3	0.000	-0.005	-1.81	*	0.006	1.06	
Year -1	0.004	0.018	1.04		0.004	0.79	
Exercise Year	0.002	-0.019	-1.82	*	-0.007	-0.96	
Obs	393	393			393		

Panel B: Discretionary Accruals -- Before the Sarbanes-Oxley Act

Period	Discretionary Accruals	Abnormal Disc. Accruals (relative to qtr -5 (before exercise) or qtr-1 (after))	t-stat		Abnormal Disc. Accruals (relative to controls)	t-stat	
Qtr -4	-0.004	0.000	-0.03		-0.004	-0.86	
Qtr -3	-0.001	0.003	0.55		0.000	-0.10	
Qtr -2	0.006	0.010	1.25		0.005	1.38	
Qtr -1	0.005	0.009	1.18		0.004	0.77	
Exercise Qtr	0.005	0.000	0.09		-0.002	-0.34	
Qtr 1	0.002	-0.003	-0.67		-0.001	-0.18	
Qtr 2	-0.004	-0.009	-1.86	*	-0.009	-2.22	**
Qtr 3	0.000	-0.005	-1.38		0.008	0.92	
Year -1	0.005	0.022	0.82		0.006	0.76	
Exercise Year	0.003	-0.017	-1.23		-0.005	-0.46	
Obs	240	240			240		

Table 4.9 (Cont'd): Discretionary accruals around option exercises where the executive immediately sells shares (the Stock Sale Subsample)

Panel C: Discretionary Accruals -- After the Sarbanes-Oxley Act

Period	Discretionary Accruals	Abnormal Disc. Accruals (relative to qtr -5 (before exercise) or qtr-1 (after))	t-stat		Abnormal Disc. Accruals (relative to controls)	t-stat	
Qtr -4	0.000	0.003	0.60		0.007	1.87	*
Qtr -3	0.000	0.002	0.47		0.001	0.20	
Qtr -2	-0.003	-0.001	-0.23		-0.008	-1.39	
Qtr -1	0.005	0.008	1.54		0.002	0.45	
Exercise Qtr	0.000	-0.005	-1.04		-0.002	-0.40	
Qtr 1	0.003	-0.002	-0.43		-0.004	-1.01	
Qtr 2	-0.004	-0.009	-2.02	**	-0.006	-1.86	*
Qtr 3	0.000	-0.005	-1.17		0.003	0.57	
Year -1	0.002	0.011	0.79		0.003	0.30	
Exercise Year	-0.001	-0.022	-1.40		-0.009	-1.37	
Obs	153	153			153		

Table 4.10: Discretionary accruals around option exercises where the executive does not immediately sell shares (the No Disposition Subsample)

This table presents an analysis of discretionary accruals in the quarters surrounding option exercises in the No Disposition Subsample. The No Disposition Subsample is taken from option exercises where the executive does not dispose of any shares for at least a month after exercise. Discretionary accruals are calculated using a modified quarterly cross-sectional Jones (1991) model adjusted for return on assets (see Kothari, Leone and Wasley (2004)) . All variables are taken from the COMPUSTAT Industrial Quarterly database. Following Collins and Hribar (2004), total accruals (TA) are calculated as income before extraordinary items (Compustat item 8) minus cash flow (item 108) using data from the Statement of Cash Flows. Total accruals are regressed onto 1/ the lagged value of assets (item 44), quarterly increase in sales (item 2), gross property, plant and equipment at the end of quarter *t* (item 118), and net income in quarter *t* (item 69) (all variables scaled by lagged assets). Modified discretionary accruals are calculated consistent with Dechow, Sloan and Sweeney (1996). Panel A presents results for the pre-Sarbanes-Oxley Period (August, 1996 to August 28, 2002), and Panel C presents results for the post-Sarbanes-Oxley period (August 29, 2002 to December 2005). T-statistics are provided and significance at the 1, 5 and 10 percent significance level are represented with ***, **, and *, respectively.

Panel A: Discretionary Accruals -- Full Period

Period	Discretionary Accruals	Abnormal Disc. Accruals (relative to qtr -5 (before exercise) or qtr-1 (after))	t-stat		Abnormal Disc. Accruals (relative to controls)	t-stat	
Qtr -4	0.002	0.006	1.60		0.002	0.70	
Qtr -3	0.005	0.008	2.49	**	0.005	1.33	
Qtr -2	0.000	0.004	1.19		0.000	-0.03	
Qtr -1	0.001	0.004	1.45		-0.003	-0.77	
Exercise Qtr	0.000	-0.001	-0.23		0.000	0.11	
Qtr 1	0.000	-0.001	-0.37		-0.001	-0.26	
Qtr 2	-0.001	-0.002	-0.45		-0.003	-0.75	
Qtr 3	-0.004	-0.005	-1.59		-0.007	-2.02	**
Year -1	0.008	0.022	2.18	**	0.005	0.72	
Exercise Year	-0.006	-0.009	-0.86		-0.010	-1.68	*
Obs	362	362			362		

Panel B: Discretionary Accruals -- Before the Sarbanes-Oxley Act

Period	Discretionary Accruals	Abnormal Disc. Accruals (relative to qtr -5 (before exercise) or qtr-1 (after))	t-stat		Abnormal Disc. Accruals (relative to controls)	t-stat	
Qtr -4	0.003	0.008	1.81	*	0.004	0.94	
Qtr -3	0.004	0.009	1.99	**	0.004	0.83	
Qtr -2	0.001	0.006	1.65		0.004	0.70	
Qtr -1	0.003	0.008	2.23	**	-0.001	-0.30	
Exercise Qtr	0.001	-0.002	-0.40		0.001	0.16	
Qtr 1	0.000	-0.004	-1.00		0.001	0.13	
Qtr 2	-0.003	-0.006	-1.34		-0.007	-1.27	
Qtr 3	-0.006	-0.009	-2.25	**	-0.009	-2.09	**
Year -1	0.011	0.031	2.35	**	0.009	1.33	
Exercise Year	-0.007	-0.020	-1.80	*	-0.014	-1.85	*
Obs	248	248			248		

Table 4.10 (Cont'd): Discretionary accruals around option exercises where the executive does not immediately sell shares (the No Disposition Subsample)

Panel C: Discretionary Accruals -- After the Sarbanes-Oxley Act

Period	Discretionary Accruals	Abnormal Disc. Accruals (relative to qtr -5 (before exercise) or qtr-1 (after))	t-stat	Abnormal Disc. Accruals (relative to controls)	t-stat
Qtr -4	0.001	0.001	0.17	0.000	-0.05
Qtr -3	0.007	0.008	1.58	0.008	1.10
Qtr -2	-0.002	-0.001	-0.23	-0.008	-1.18
Qtr -1	-0.004	-0.004	-0.75	-0.006	-0.91
Exercise Qtr	-0.003	0.001	0.19	0.000	-0.07
Qtr 1	0.000	0.004	0.73	-0.004	-0.91
Qtr 2	0.004	0.008	1.31	0.005	1.25
Qtr 3	-0.002	0.002	0.31	-0.002	-0.40
Year -1	0.002	0.003	0.23	-0.006	-0.47
Exercise Year	-0.002	0.016	0.69	-0.001	-0.09
Obs	114	114		114	

Table 4.11: Discretionary accruals around option exercises where the executive does not immediately sell shares and sells shares at a one year horizon (the Future Sale Subsample)

This table presents an analysis of discretionary accruals in the quarters surrounding option exercises in the Future Sale Subsample. The Future Sale Subsample is taken from option exercises where the executive does not dispose of any shares in the month following exercise, and sells at least as many shares as were acquired at the 1 year horizon. Discretionary accruals are calculated using a modified quarterly cross-sectional Jones (1991) model adjusted for return on assets (see Kothari, Leone and Wasley (2004)) . All variables are taken from the COMPUSTAT Industrial Quarterly database. Following Collins and Hribar (2004), total accruals (TA) are calculated as income before extraordinary items (Compustat item 8) minus cash flow (item 108) using data from the Statement of Cash Flows. Total accruals are regressed onto 1/ the lagged value of assets (item 44), quarterly increase in sales (item 2), gross property, plant and equipment at the end of quarter *t* (item 118), and net income in quarter *t* (item 69) (all variables scaled by lagged assets). Modified discretionary accruals are calculated consistent with Dechow, Sloan and Sweeney (1996). Panel A presents results for the pre-Sarbanes-Oxley Period (August, 1996 to August 28, 2002), and Panel C presents results for the post-Sarbanes-Oxley period (August 29, 2002 to December 2005). T-statistics are provided and significance at the 1, 5 and 10 percent significance level are represented with ***, **, and *, respectively.

Panel A: Discretionary Accruals -- Full Period

Period	Discretionary Accruals	Abnormal Disc. Accruals (relative to qtr -5 (before exercise) or qtr-1 (after))	t-stat		Abnormal Disc. Accruals (relative to controls)	t-stat	
Qtr -4	0.008	0.011	1.80	*	0.011	1.82	*
Qtr -3	0.005	0.008	1.54		0.002	0.32	
Qtr -2	-0.007	-0.004	-0.63		-0.011	-2.06	**
Qtr -1	0.010	0.013	2.53	**	0.008	1.75	*
Exercise Qtr	0.001	-0.009	-2.05	**	0.002	0.44	
Qtr 1	0.001	-0.008	-1.62		-0.001	-0.18	
Qtr 2	-0.005	-0.015	-3.22	***	0.001	0.14	
Qtr 3	-0.006	-0.016	-2.72	***	-0.010	-1.72	*
Year -1	0.016	0.028	1.48		0.009	0.96	
Exercise Year	-0.009	-0.047	-3.13	***	-0.008	-0.77	
Obs	132	132			132		

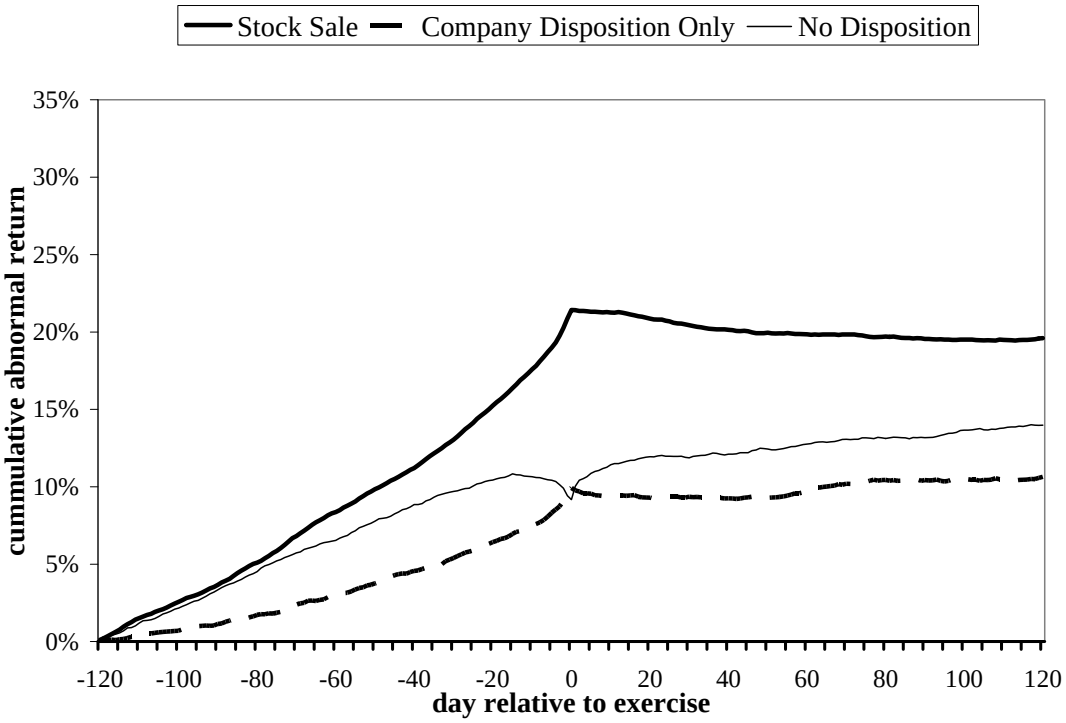
Panel B: Discretionary Accruals -- Before the Sarbanes-Oxley Act

Period	Discretionary Accruals	Abnormal Disc. Accruals (relative to qtr -5 (before exercise) or qtr-1 (after))	t-stat		Abnormal Disc. Accruals (relative to controls)	t-stat	
Qtr -4	0.009	0.015	1.70	*	0.011	1.38	
Qtr -3	0.006	0.013	1.82	*	0.003	0.30	
Qtr -2	-0.008	-0.001	-0.09		-0.010	-1.49	
Qtr -1	0.010	0.016	2.42	**	0.009	1.69	*
Exercise Qtr	0.001	-0.009	-1.70	*	0.004	0.67	
Qtr 1	0.003	-0.007	-0.92		-0.001	-0.11	
Qtr 2	-0.005	-0.015	-2.41	**	0.006	0.80	
Qtr 3	-0.006	-0.016	-2.62	**	-0.010	-1.43	
Year -1	0.017	0.044	1.62		0.012	0.93	
Exercise Year	-0.007	-0.046	-2.45	**	-0.001	-0.04	
Obs	86	86			86		

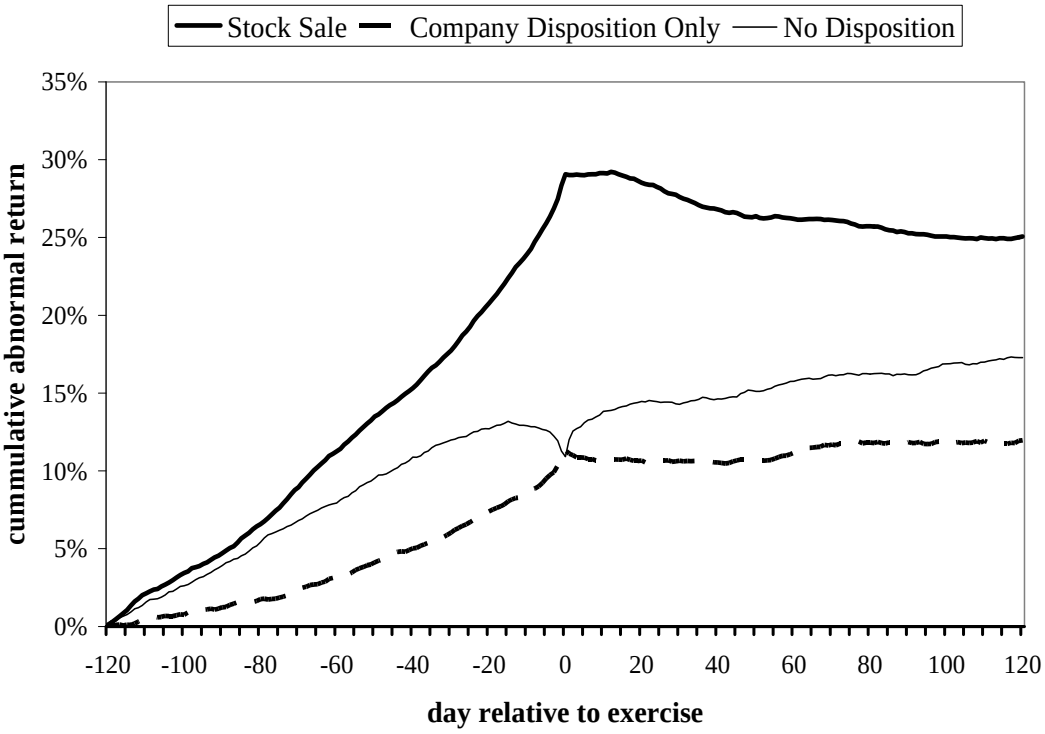
Table 4.11 (Cont'd): Discretionary accruals around option exercises where the executive does not immediately sell shares and sells shares at a one year horizon (the Future Sale Subsample)

Panel C: Discretionary Accruals -- After the Sarbanes-Oxley Act

Period	Discretionary Accruals	Abnormal Disc. Accruals (relative to qtr -5 (before exercise) or qtr-1 (after))	t-stat		Abnormal Disc. Accruals (relative to controls)	t-stat	
Qtr -4	0.007	0.003	0.62		0.010	1.27	
Qtr -3	0.004	-0.001	-0.08		0.001	0.10	
Qtr -2	-0.006	-0.010	-1.58		-0.011	-1.56	
Qtr -1	0.010	0.005	0.82		0.005	0.66	
Exercise Qtr	0.001	-0.009	-1.15		-0.002	-0.38	
Qtr 1	-0.002	-0.011	-1.89	*	-0.001	-0.20	
Qtr 2	-0.005	-0.014	-2.27	**	-0.008	-1.51	
Qtr 3	-0.006	-0.015	-1.27		-0.009	-0.95	
Year -1	0.014	-0.002	-0.13		0.004	0.31	
Exercise Year	-0.012	-0.050	-1.93	*	-0.021	-1.76	*
Obs	46	46			46		

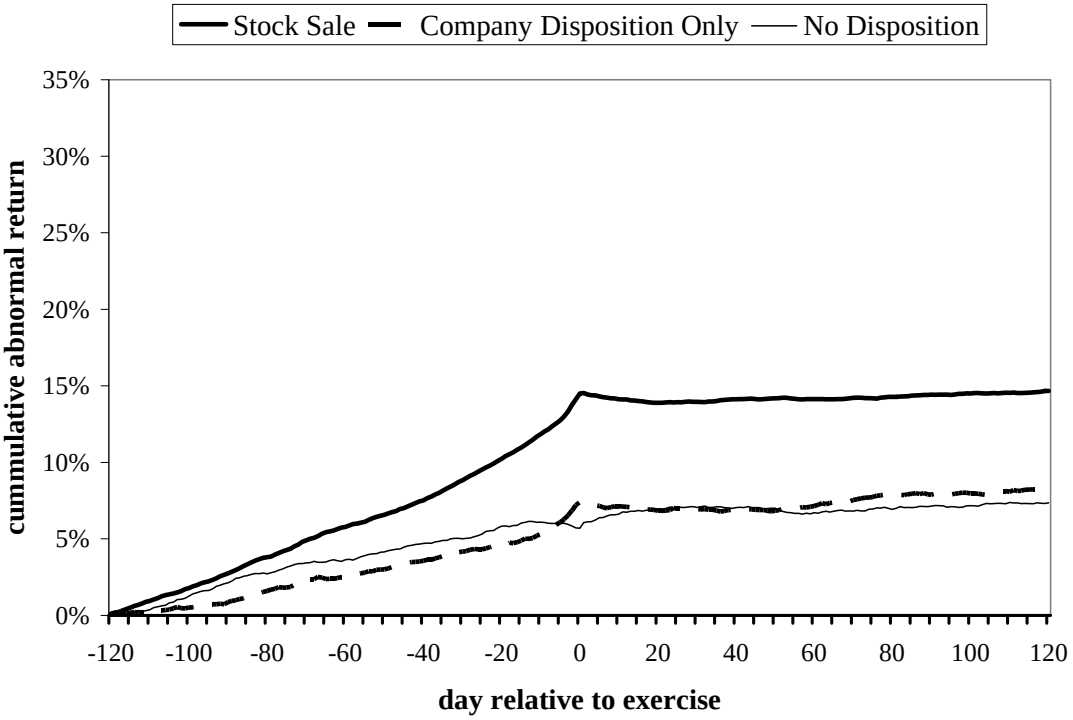


Panel A: Full Sample Period



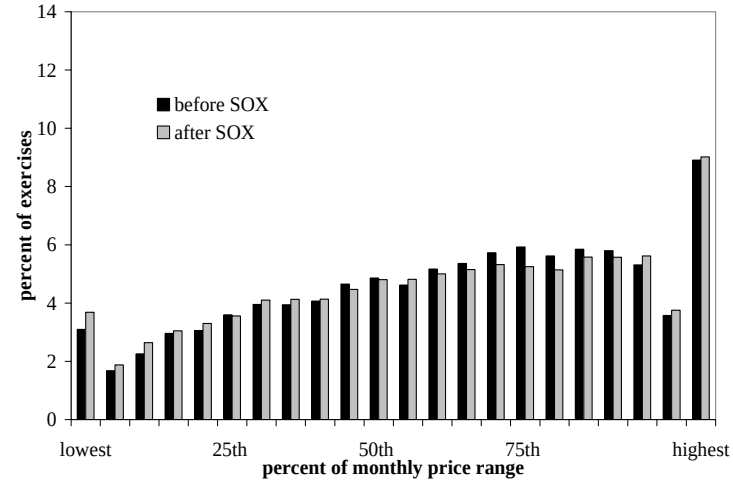
Panel B: Before the Sarbanes-Oxley Act

Figure 3.1: Abnormal returns around executive option exercises

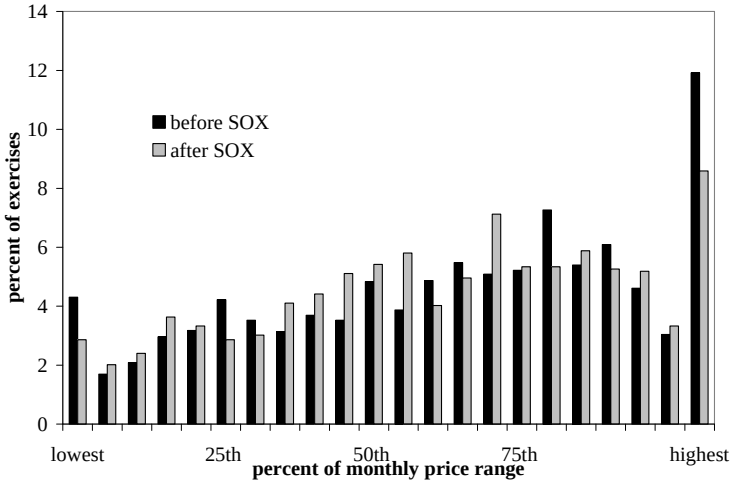


Panel C: After the Sarbanes-Oxley Act

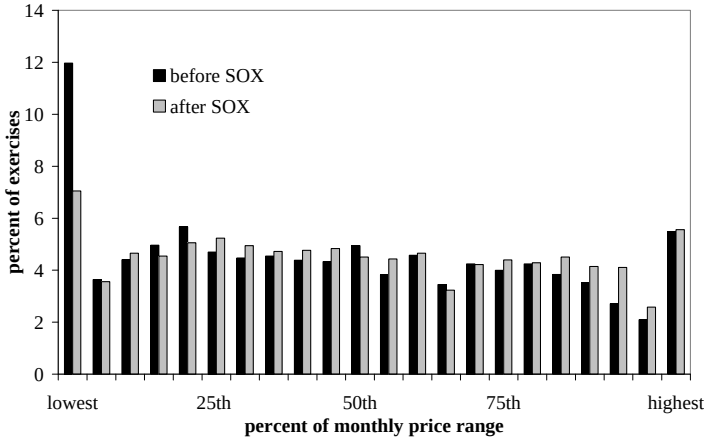
Figure 3.1 (cont'd): Abnormal Returns around executive option exercises



Panel A: Stock Disposition Subsample

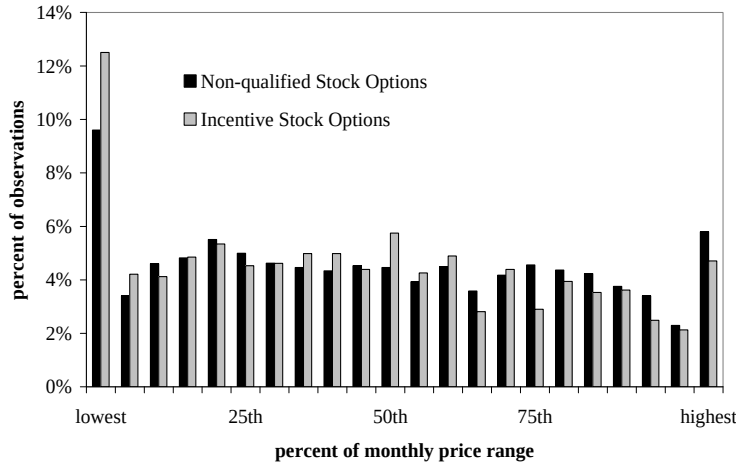


Panel B: Company Disposition Subsample

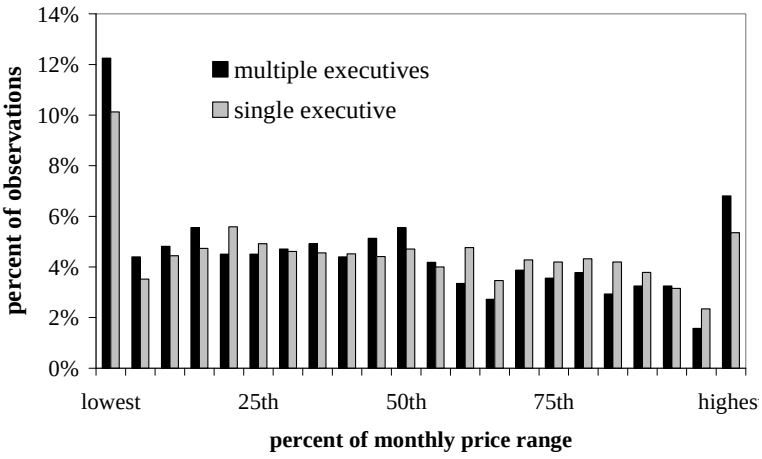


Panel C: No Disposition Subsample

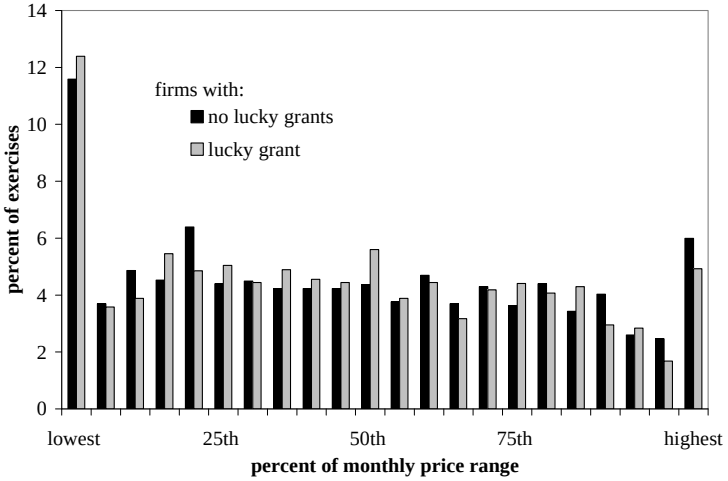
Figure 3.2: Exercise date stock price as a percentage of monthly price range



Panel D: ISOs versus NQOs in No Disposition Subsample

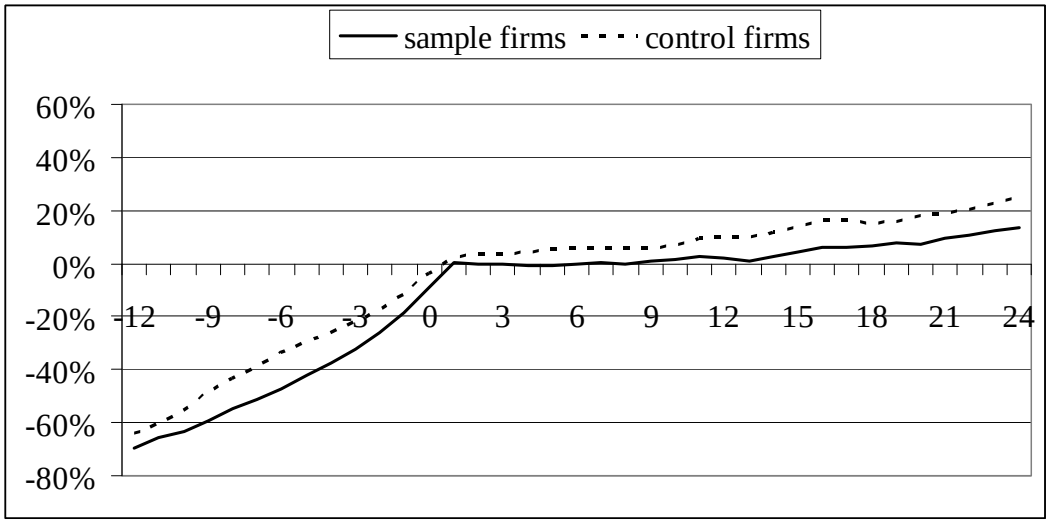


Panel E: No Disposition Subsample when Multiple Executives Exercise on Same Day

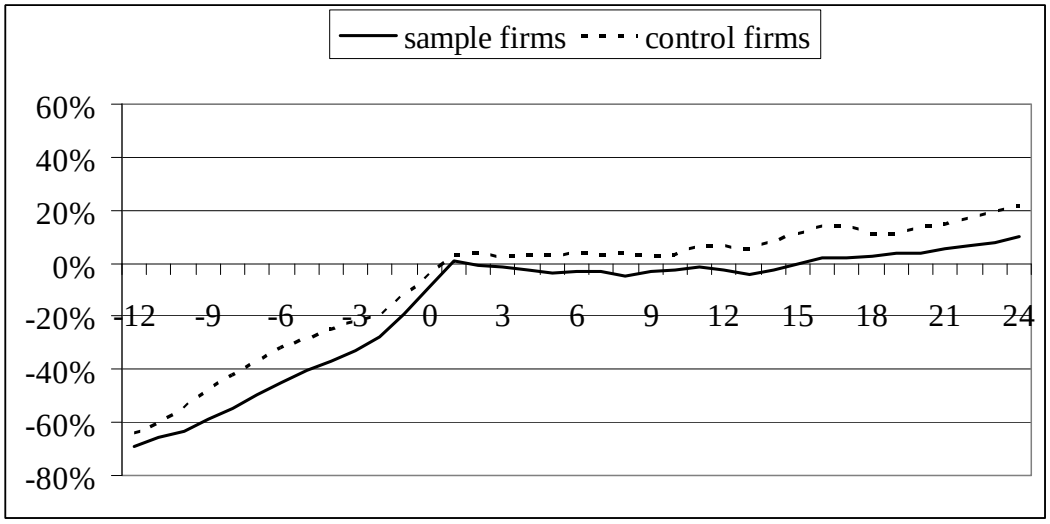


Panel F: No Disposition Subsample and Favorable Grants

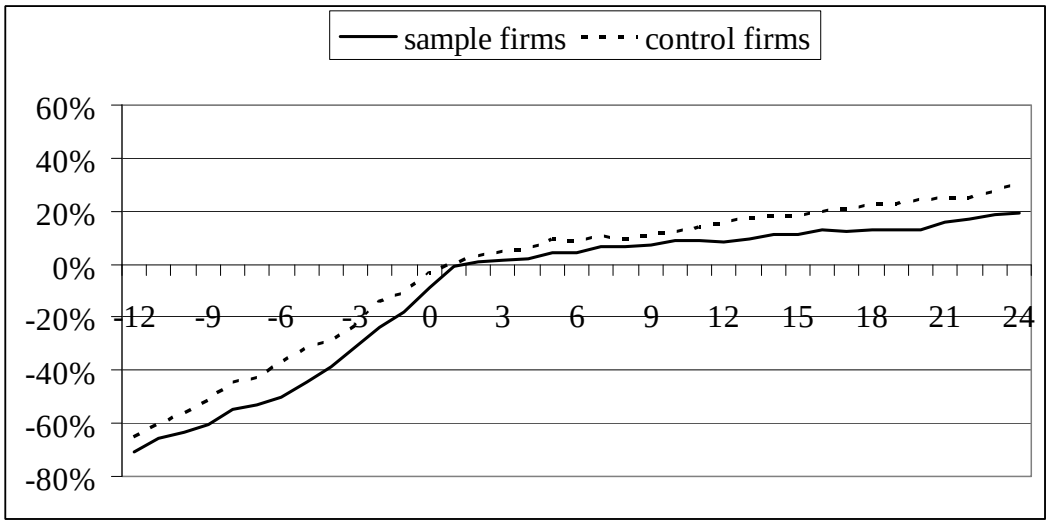
Figure 3.2 (cont'd): Exercise date stock price as a percentage of monthly price range



Panel A: Full Period

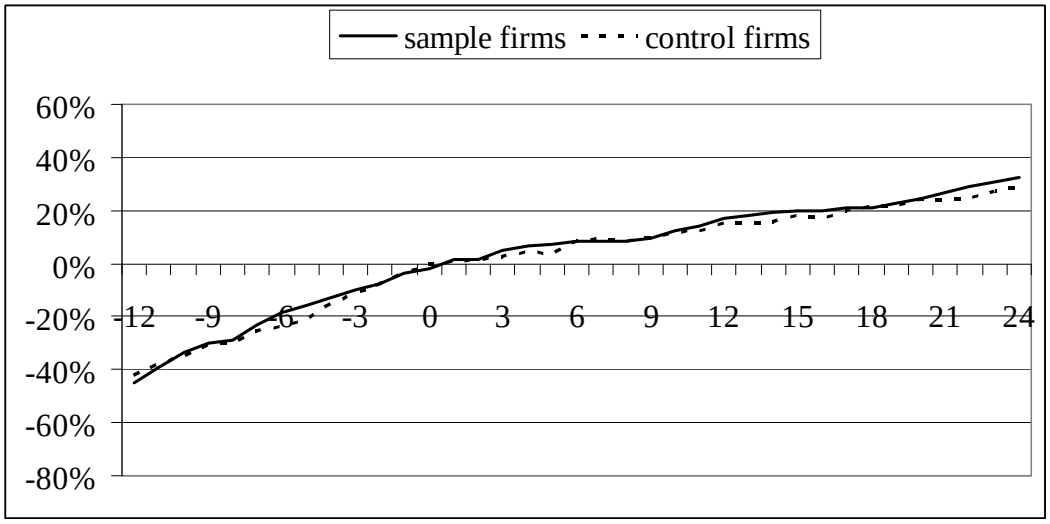


Panel B: Before the Sarbanes-Oxley Act

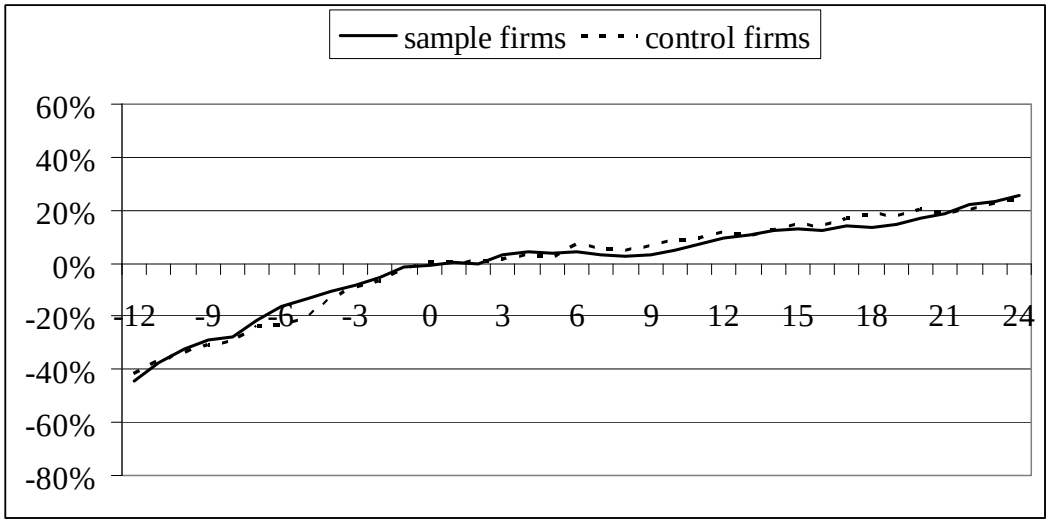


Panel C: After the Sarbanes-Oxley Act

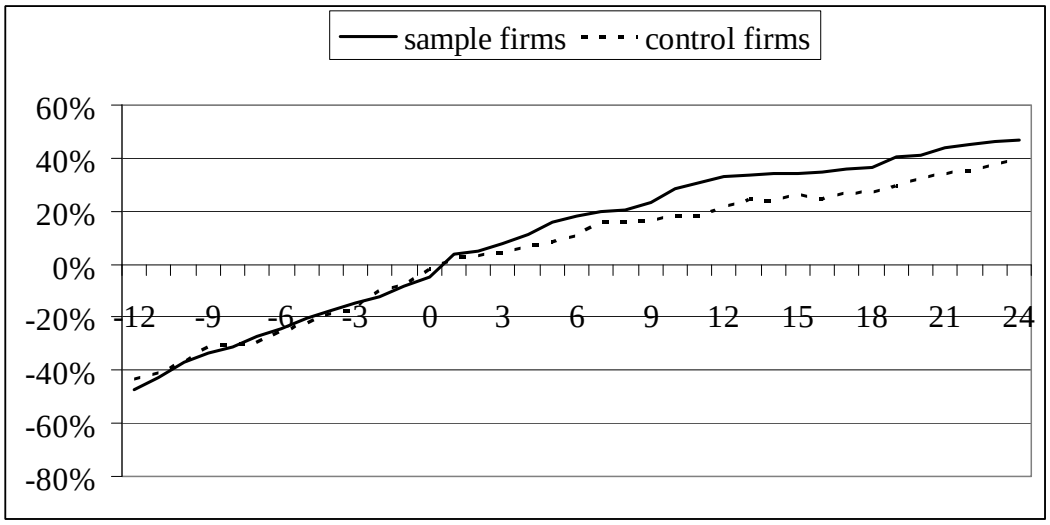
Figure 4.1: Buy-and-hold abnormal returns for the Stock Sale Subsample



Panel A: Full Period

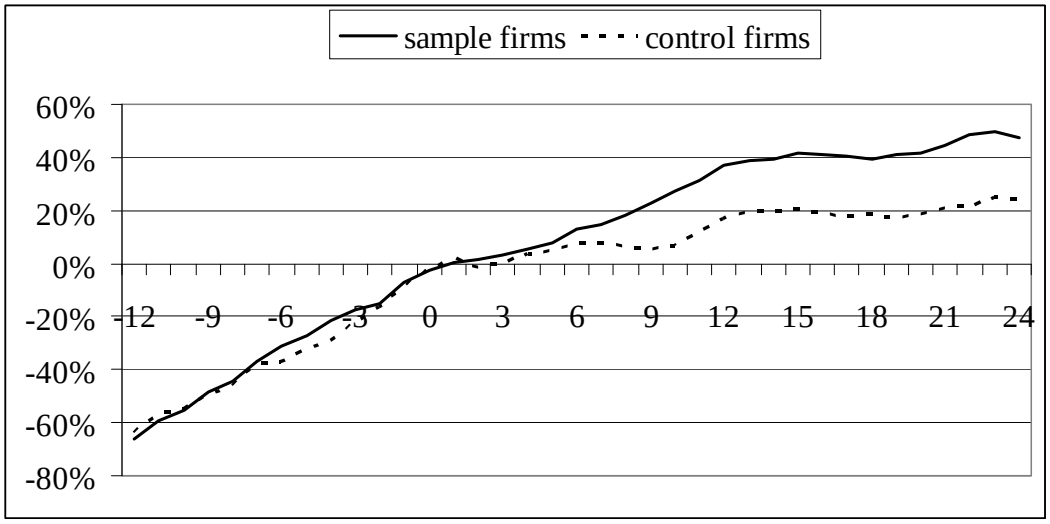


Panel B: Before the Sarbanes-Oxley Act

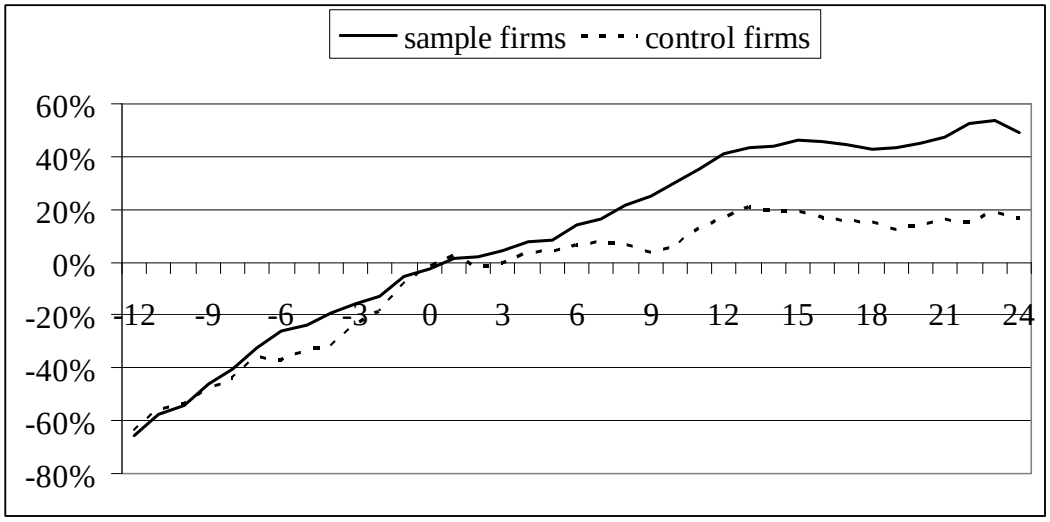


Panel C: After the Sarbanes-Oxley Act

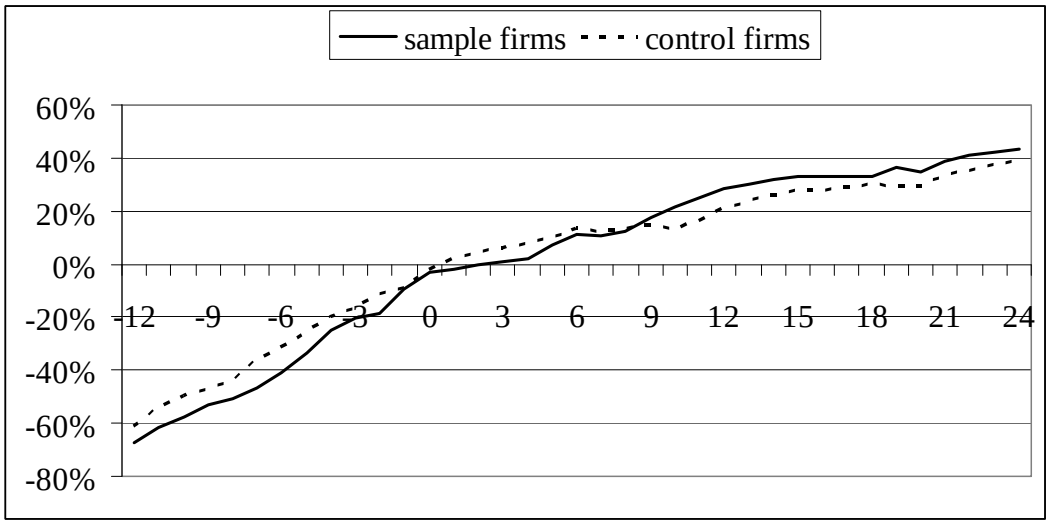
Figure 4.2: Buy-and-hold abnormal returns for the No Disposition Subsample



Panel A: Full Period



Panel B: Before the Sarbanes-Oxley Act



Panel C: After the Sarbanes-Oxley Act

Figure 4.3: Buy-and-hold abnormal returns for the Future Sale Subsample