BACKDATED STOCK OPTIONS: CROSSCURRENTS FROM GAAP TO THE CAPITAL MARKETS

Richard A. Moellenberndt[*], James A. Martin[**]

Abstract

Stock options are a major component of executive pay in America today. With this popularity opportunities come for individuals to improperly enrich themselves through manipulation of key dates related to the stock options (backdating). At this date, over 150 publicly traded companies are under investigation for the improper backdating of stock options. The first section of this paper analyzes the stock option from an operating perspective and outlines the prior and current accounting treatment of stock options. It also summarizes recent related legal activity and recent academic research. The paper then analyzes the impact of backdating on financial reports, shareholder proxies, and income tax compliance. The second section of the paper identifies commonalities associated with companies under investigation for backdated stock options. This involves an analysis of company size, institutional stockholders, external auditors, company SIC code, corporate headquarter location, and compliance with Section 404 of the Sarbanes Oxley Act. The final section of the paper analyzes capital market reaction to companies under investigation for backdating stock options. The analysis identifies a clear stock price underperformance of those investigating companies when compared to a peer group. It also identifies a drop in the observed price earnings ratio when compared to the same peer group as well as a decrease in the average beta coefficient for companies investigating the backdating of stock options. Finally, the paper identifies a pronounced increase in insider selling in those companies investigating backdated stock options.

Key words: backdated stock options, capital market reaction.
JEL Classification: K22, M41.

Introduction

For the year 2006, it was difficult to find a day when the financial press was not vilifying the board of directors or management of a publicly traded company for the practice of backdating of stock options. Stock options have had a long history of being effectively used to attract the best and brightest individuals to join companies' management teams and to reward managers for good performance. However, in 2006 the media commonly reported that companies were being investigated for illegally using stock options to enrich executives. The primary purpose of this paper is to identify a common profile of companies whose stock option practices are under investigation and summarize capital market reaction to companies who may have improperly backdated stock options. The paper will also identify the legal implications of backdating stock options and clarify the proper financial reporting and income tax treatments of stock options.

The backdated stock option tempest became quietly enough. The media first reported an option backdating case in July, 2005 when Mercury Interactive Corporation announced that its board of directors had formed a special investigative committee in connection with an informal SEC probe of past stock option grants which were suspected of being "backdated". The special committee found 49 cases in which the reported date of a Mercury stock option grant differed from the date on which the option was actually granted by the company's board of directors. As a consequence, the SEC required Mercury to restate its financial statements, including a restatement of its earnings (Sher, 2006). The SEC delisted Mercury's stock from the NASDAQ when the company did not file the restated financial statements in a timely manner (Kanigher, 2006). In November 2005, three top executives, including the company's CEO, resigned. During this period of time, Mercury's stock price declined 25%.

[*] School of Business at Washburn University, Topeka, USA.
[**] School of Business at Washburn University, Topeka, USA.

In March 2006 the Wall Street Journal (WSJ) completed a statistical analysis that identified six companies with highly suspicious stock option grant practices. The WSJ study found that some companies' top executives consistently received stock option grants on unusually advantageous dates. In some cases, the statistical analysis suggested that the odds of selecting grant dates by chance that would have had such a favorable outcome as the dates selected by the six companies were highly improbable. In one case the odds were suggested to be around 1 in 300 billion (Forelle, 2006). Some of the companies identified by the WSJ study have since been indicted in U.S. District Court. One company, Comverse Technology Corporation, was charged with conspiracy to commit securities fraud, mail fraud, and wire fraud because of a backdating scheme which allowed company executives to reap millions of dollars in profits. The company was also accused of issuing false and misleading financial statements in connection with the backdating stock options, (Finfacts, 2006) and was subsequently required to restate its financial statements (Sher, 2006). By mid 2006 over one hundred companies had been identified as being investigated by the SEC, the Justice Department, or the Internal Revenue Service (IRS). Additionally, several state attorneys general had begun to investigate companies for improper backdating (Narayanan, 2007).

Employee Stock Option Plans

Although the practice of backdating stock options granted in employee stock option plans (ESOPs) has been focused upon in recent years, the concept of the ESOP was developed in the 1950s by investment banker and lawyer Louis Kelso. Kelso argued that the capitalist system would be more effective if all workers, not just a few stockholders, had the opportunity to participate in company ownership. Kelso's proposal was to encourage employees to become owners in the corporation that employed them by granting the employees stock options which gave them the opportunity to purchase the company's stock at an advantageous price if the company performed well[1]. However, because there was not a statutory framework for ESOPs at the time, very few companies sponsored an ESOP until the middle 1970s. In 1974 the U.S. Congress enacted the Employee Retirement Income Security Act of 1974 (ERISA). In addition to governing employee benefit plans, ERISA established a statutory framework for ESOPs. Subsequently, ESOPs flourished in both privately and publicly owned companies (NCEO, 2007). Over 90% of the Fortune 1000 companies presently offer their employees stock options through ESOPs (Kanigher, 2006).

As a matter of law, ESOPs must conform to the stock option plan adopted by the company's board of directors. Some ESOPs also require approval of the company's shareholders. The board of directors, or a compensation committee appointed by the board of directors, decides who receives the stock option awards and the terms of the options. The exercise price is usually set at the underlying stock's closing market price on the date of the option's grant date. It should be noted that a stock option has more value to an executive, the lower the market price of the stock on the grant date.

Stock option plans are often restricted to a company's top management. These limited plans are described as performance based executive stock option plans. These executive stock option plans are expected to align management's interests with the stockholders' interests. This is because executive stock option plans often comprise a significant portion of an executive's compensation package. Thus, stock option grants are expected to motivate executives to manage more effectively in order to improve the company's performance and hence the company's share price. This result would benefit all shareholders (Ibid, 2006). Such performance based executive stock option plans have been commonly touted as a means of attracting talented executives. They are also the most popular form of long-term compensation incentive offered to executives in major U.S. companies.

Although the ESOP has been a popular mechanism for companies to compensate executives since the middle 1970s, the use of executive stock options to provide significant amounts of executive compensation peaked during the internet boom in the 1990s. Internet and technology based companies emerging at this time were generally cash poor and used stock options to compensate

[1] A stock option provides the opportunity, but not the obligation, to purchase a particular stock at a given price, called the exercise or strike price, over a fixed time period. Thus, a stock option allows the holder to profit from an increase in the market price of the underlying stock. If the market price of the stock does not increase in value over the exercise price during its term, the option becomes valueless and is discarded.

executives while paying them relatively low cash salaries. This strategy worked very well for many executives in the mid to late 1990s because of a booming stock market which caused the options to become extremely valuable (Sher, 2006).

However ESOPs have also caused problems for companies. ESOPs were designed with the expectation that executives receiving the options would act in the shareholder's best interest. Unfortunately this has not always been the case. Over the years, many executive stock options plans have created an obsessive focus on share price as the sole measure of corporate success. Some executives have been satisfied with a quick spike in their company's share price which allowed them to exercise their options and then leave the company. ESOP plans have also been compared to the previous generation's use of country club memberships and private jets as a way of gouging additional compensation for a job that is already being handsomely paid (Broughton, 2007).

The most recent ESOP issue involves the backdating of grant dates. Backdating stock option grant dates by the executives receiving the grants has been said to further executives' ability to capture the compensation process. This is because backdating stock option grant dates allows executives to receive additional compensation without engaging in an arms-length transaction with the company's board of directors. As a result executives have been able to inappropriately enrich themselves as noted in the Mercury Interactive and Comverse Technology cases.

Backdating Stock Option Grant Dates

Stock options are backdated when executives retroactively designate a grant date that is earlier than the date which the board of directors in fact decided to grant the options; i.e., the date the board awarded the options to executives[1]. When the price of a company's stock had been rising prior to the date the board awarded the options, designating an earlier grant date results in a lower exercise price since the exercise price would otherwise be set at the underlying stock's market price at the date the board awarded the options. Studies show that a backdated grant date is often day the market price of the stock was at its lowest value for that particular reporting period (Kanigher, 2006).

When the exercise price of a stock option is set at the closing market price of the underlying stock on the date the board in fact granted (awarded) options to executives, the option is said to be granted "at the money" since the option has no value at its actual grant date. However, when an executive changes the grant date to a day when the market price of the stock is lower than what it was on the date the board made the award, the options are granted "in the money." The executive has a gain at the date an option is awarded equal to the excess of the current market price of the stock over the exercise price (Ibid, 2006). Thus, backdating instantly increases the value of the options granted and allows executives to receive additional compensation. Since shareholders are not made aware that executive stock options are in-the-money when the options are backdated, they are most likely misled into believing that the performance based stock option plan has indeed aligned management's interests with theirs (Narayanan, 2007).

Legality of Backdating Stock Option Grant Dates

Backdating stock option grant dates is not intrinsically illegal. Backdating may be legal but only if the following five (5) conditions are met.

- The company's board of directors authorizes the grant date to be set at a date prior to the date the board awards the options.
- The company has not forged any documents.
- The company's shareholders have been clearly informed about the backdating.
- The effect of backdating has been properly disclosed in the company's financial statements and proxy statements.

[1] Executives designate the retroactively chosen earlier grant date on Form 4 which is filed with the SEC. Executives initially report stock option grants on SEC Form 3. Any changes are required to be reported on Form 4. Backdating can also be accomplished at the time the board of directors makes the award by designating an earlier date as the grant date.

- The effect of backdating has been properly reflected in the company's and executives' income tax returns.

Research on backdating practices has shown that for most of the cases studied, at least one of the above conditions was not met; and hence, backdating was usually suspected to be illegal (Lie, 2005).

Arguments have been made that backdating violates both federal securities law and state corporate law (Narayanan, 2007). The SEC's filing against Comverse Technology's executives indicates that the Commission believed that Comverse had violated securities laws. Although backdating stock options may implicate several provisions of federal securities laws, section 10 of the Securities Exchange Act of 1934 has received the most attention by researchers. Section 10 is violated to the extent backdating was intended to provide undisclosed compensation to company executives. Section 10(b) makes it unlawful for any person to "use or employ, in connection with the purchase or sale of any security registered on a national securities exchange or any security not so registered,…any manipulative or deceptive device or contrivance in contravention of such rules and regulations as the Commission may prescribe (15 U.S.C., 2000). Rule 10-b5, pursuant to section 10(b), makes it unlawful for any person, in connection with the purchase or sale of securities:

a) to employ any device, scheme, or artifice to defraud; or

b) to make any untrue statement of a material fact or to omit to state a material fact necessary to order to make the statements made, in light of the circumstances under which they were made, not misleading; or

c) to engage in any act, practice, or course of business which operates or would operate as a fraud or deceit upon any person (17 C.F.R., 2006).

To prove that a violation of section 10(b) and Rule 10b-5 has occurred, the SEC must establish the following.

1. The accused party has made a material misrepresentation or omission of facts. A misrepresentation or omission is material if there is a substantial likelihood a reasonable investor would consider it important in making an investment decision. The fraud was in connection with the purchase or sale of a security. The courts have held that [t]he misrepresentation needs not be made with respect to a particular sales transaction but should be applied generally. Thus, [it] is enough that the scheme to defraud and sale of securities coincide. The courts have ruled that statements in press releases, annual and quarterly reports, proxy statements and SEC filings satisfy the 'in connection with' requirement since investors rely on such documents.

2. The accused party had "a mental state embracing intent to deceive, manipulate, or defraud" known as scienter. Since backdating stock option grant dates appears to be done in order to grant in the money options while making it appear that the options were granted at-the-money, at the very least, there is intent to deceive what is in fact the actual grant date.

3. The fraud was committed "by the use of any means or instrumentality of interstate commerce, or of the mails". Since, section 402 of Regulation S-K requires disclosure of executive compensation agreements, "filing with the SEC…satisfy[ies] th[is] jurisdictional means requirement" (Jones, 2004).

Narayanan, Schipani, and Seyhun noted in their research that based on numerous state court decisions dating back to 1880, state incorporation laws in general require that corporate officers and directors owe the corporation and its shareholders the fiduciary duties of care and loyalty. The duty of care requires officers and directors to act as a reasonable person would act under similar circumstances, or at least to act without gross negligence. Loyalty obligations require corporate officers and directors to act in the best interest of the corporation and not for self-interest. Although the issue of a breach of fiduciary duty breach in a particular case rests on specific facts and circumstances, executive backdating is unlikely to hold up to the scrutiny required of a proper fiduciary relationship with

shareholders and investors (Narayanan, 2007). Executive manipulation of option grant dates to provide themselves with additional undisclosed compensation likely violates the fiduciary duty of care.

Principal-Agent Problems

Beyond the legal ramifications, a question arises as to whether backdated stock options are another example of a cost resulting from the principal-agent problem resident in the American corporate fabric. Agency theory holds that when one party, the principal (in this case the stockholders), engages another party, the agent (in this case management and boards of directors), to provide a service which involves delegation of decision making, the agent will not always act in the best interest of the principal. This assumes both parties are utility maximizers (Jensen and Meckling, 1976).

The granting of employee stock options is a function that has been delegated by stockholders to elected boards of directors. In most cases, these boards of directors include (and are influenced by) the company's CEO, a common recipient of stock options. Boards and their compensation committees are tasked with designing stock option plans which incentivise CEOs and their management teams to maximize stockholder value. In the case where a board legally backdates a stock option, in most cases, it is no longer an incentive, but instead a reward for past performance. In such case, agency costs may or may not be present (depending on whether or not the options are consistent with what the stockholder would award absent delegation to the board). Like legal backdating, an illegal backdating of a stock option may involve agency costs. This too depends on whether or not the options are consistent with what the stockholder would award absent delegation to the board. In this case however, the costs must include the costs, direct and indirect, associated with committing a crime.

Academic Research of Backdating Stock Options

Company practices of backdating stock option plan grant dates have been extensively studied as part of academic research. In 1997, Yermack's research on executive stock option plans found that market prices of many corporations' stock increased immediately after ESOP grant dates. The study speculated that this abnormal price pattern was most likely due to "spring loading", whereby the grant date was timed just prior to the announcement of favorable news for the company which would cause the price of the stock to increase (Yermack, 1997).

In 2004 Lie published the results of a study of abnormal price patterns for companies whose executives filed changes in their stock option grants with the SEC prior to the enactment of the Sarbanes Oxley Act (SOX). Prior to the enactment of SOX, executives were allowed to report any changes in stock option grants with the SEC on Form 4 within 10 days of the end of the month in which the transaction occurred. Since this requirement allowed executives to select a grant date up to 40 days prior to the date the board awarded the options, executives were given an opportunity to select a propitious designated grant date.

The results of Lie's study of pre-SOX SEC filing showed that in addition to stock prices increasing shortly after grant dates, stock prices also decreased just before grant dates for many companies. The study reported that the pre-and post-grant price patterns intensified over time and that the overall stock market performed worse than normal immediately before the grant dates and better than normal immediately after the grant dates. By the end of the 1990s, the aggregate price pattern was so pronounced that it appeared executives would have been able to predict short-term movements in stock prices in order to have selected a grant date that provided such an advantageous exercise price. The study concluded that the corporate executives most likely had changed the grant dates for the stock options to the day the market price of the company's stock had fallen to a particularly low price for the year (Lie, 2005).

Beginning on August 29, 2002 SOX required executives to report changes in stock options on Form 4 within two business days of the transaction. Heron and Lie subsequently compared the abnormal stock price pattern for a sample of corporate stock option grants from 1/1/2000 through 8/28/2002 to that for a sample from 8/29/2002 to 11/30/2004. This study allowed them to observe possible effects of the new Form 4 filing requirement. Their study found that approximately 80% of

the abnormal returns of the first sample did not occur in the second sample. They also found that when executives filed Form 4 within one day of the deadline, the abnormal pattern was rare. However, some executives filed changes in their grants dates weeks after the deadline which showed a much stronger abnormal price pattern. Heron and Lie concluded that the new SOX reporting requirement had significantly reduced backdating but had not eliminated it (Heron, 2007).

Investigations by the Securities and Exchange Commission

The SEC has identified more than 160 companies that may have backdated stock options. The list includes such household names as Apple Computer and Home Depot (Reuters, 2006). In response, more than 20 companies have announced the formation of independent committees to investigate option granting practices (or have announced the existence of a government investigation into their option grants) (Kanigher, 2006).

The SEC's investigation on stock option backdating is focusing on companies in which the price of the underlying stock increased materially between the purported grant date and the day executives and directors filed Form 4 with the SEC (Reuters, 2006). Executives and directors are required to disclose on Form 4 the issuances, exercises, cancellations, and regrants of stock options, including repricings (Jacob, 2002). Most SEC investigations have centered on stock option grants made before August 29, 2002. After that date, SOX required executives of publicly owned companies to file Form 4 with the SEC within two business days of the date the board of directors effected a stock option grant. Prior to August 29, 2002 the SEC allowed executives to report information about stock option grants up to 45 days after the company's fiscal year-end (Ibid, 2002).

Impact of Backdating on Financial Statements

Until 1995 the accounting treatment given to employee stock options was based on the standards set forth in APB No. 25 which required compensation expense arising from stock options to be measured at their intrinsic value (APB, 1972). The intrinsic value of a stock option is defined as the difference between the market price of the stock at the option's grant date and the option's exercise price. Thus, compensation expense was recognized only if the market price of the company's stock at the grant date was greater than the exercise price. Since the exercise price of most stock options is set equal to the market price of the stock at the grant date, i.e., "at the money", the use of the intrinsic method usually resulted in companies not reporting any compensation expense for their stock option plans. As discussed later, lack of reporting an expense for financial reporting did not preclude the corporation from deducting an amount for a stock option plan on its income tax return.

Thus, under APB No. 25 stock option plans allowed companies to offer potential and existing executives large amounts of future compensation without affecting the bottom line of their income statements. Although companies did not pay out any cash because of granting stock options, which has been used as an argument for not recognizing an expense, they did forego large amounts of cash inflow by allowing executives to purchase the company's stock in the future at a price below its market value. Thus, companies had an opportunity cost from granting executive stock options even though there were no out of the pocket costs.

In 1993 the Financial Accounting Standards Board (FASB) issued an exposure draft for a newly proposed standard – SFAS No. 123 "Accounting for Stock Based Compensation", The exposure draft proposed that stock options be expensed based on their fair value at the time they were granted. However, during the comment period of the exposure draft, the FASB received numerous letters which opposed mandatory expensing of employee stock options. The U.S. Senate proposed legislation that would stop the FASB from requiring stock options to be expensed. The Senate also passed a nonbinding resolution condemning the FASB proposal and threatened to revoke the FASB's independence status.

Subsequently the FASB yielded to the pressures of the Senate and dropped the requirement of expensing stock options at their fair value in the exposure draft. In 1995 the FASB adopted SFAS 123. Although the newly adopted standard encouraged companies to report the fair

value of stock options as expense on the face of their income statements, it also allowed companies the option to continue using the intrinsic method under APB No. 25. However, if companies chose to use the intrinsic method, SFAS 123 required disclosure of the options' fair value in the notes to the financial statements as well as a pro forma presentation of earnings based on expensing the options at their fair value.

Following the adoption of SFAS No. 123, virtually all companies chose to continue using the intrinsic method through 2002 and hence refused to include the cost of granting stock options in the measurement of net income. However, in 2002 several large corporations announced that they would be expensing the fair value of their employee stock option grants in future years as recommended by SFAS No. 123. The impetus for these decisions was likely due, at least in part, to the heavy criticism of corporate management arising from scandals involving financial statement transparency in the early 2000s. In response to these announcements, FASB changed its position on reporting stock based employee compensation. In 2003 the Board unanimously voted to recommend all companies sponsoring employee stock options be required to expense employee stock options at fair value on their grant dates. Hence, employee stock options would now impact reported net income. Although the new exposure draft also received much criticism, the FASB approved the release of SFAS 123R in December, 2004 which became effective for fiscal years beginning on or after December 15, 2005 (SFAS 123R, 2004).

Most companies' financial statements examined for evidence of backdating were financial statements having fiscal years beginning prior to December 15, 2005. Thus, most financial statements studied were still based on the intrinsic method of accounting for employee stock option plans.

As noted earlier, the use of the intrinsic method usually resulted in companies not reporting any expense for options granted prior to December 15, 2005 because of the option's exercise price was set equal to market price of the underlying stock at the date the option plan was awarded. For executives designating a grant date prior to the date the option plan was awarded by the board of directors, the options may have been "in the money" at the award date because the market price of the stock was lower at the backdated grant date. "In the money" stock option grants require recognition of expense on the income statement even when the intrinsic method is used. Thus, the company would be required to restate its financial statements to reflect the previously unrecorded expense. Since compensation expense is recognized over the vesting period of the option, improper backdating could result in the restatement of several years of financial statements (Kanigher, 2006).

Effect of Backdating on Proxy Statements

Backdating stock options may also cause inaccurate disclosure in companies' proxy statements since publicly-traded companies are required to disclose executive officers' compensation in those statements. Proxy disclosures would be inaccurate if the proxy statement indicated the stock options were granted "at the money", but because of backdating the grant date to a date when the market price of the stock was lower, the options were actually granted "in the money" (Ibid).

Effect of Backdating on Income Taxes

Income tax returns filed by executives receiving stock option grants as well as tax returns filed by corporations granting the stock options may also be inaccurate because of backdating. Corrections of inaccurate income tax returns usually cause executives to report additional taxable income and hence increase the amount of income taxes owed. Granting companies ironically had to decrease their income taxes because of making corrections for illegal backdating. The increase in the taxes for executives is because the stock option grants were originally treated as incentive stock options (ISOs) and not immediately taxed to the executive. Subsequently changing the status of the stock option plan to a non-statutory (unqualified) stock option plan (NSO) due to the backdating of the options' grant date causes their value to be taxable to the executive. However this change in the stock option plan to an NSO plan allows the corporation a tax deduction that was not allowed when the plan was classified as an ISO plan.

For stock options qualifying as incentive stock options (ISOs) under the Internal Revenue Code, the recipient employee is not subject to income taxes when the option is granted or exercised. Only the gain realized at the time the purchased stock is sold is subject to income taxes. The gain is treated as a long term capital gain which also benefits executives (I.R.C. Sec. 421/422, 2000). The company granting ISOs is not allowed an income tax deduction for their value (I.R.C. Sec. 421/422, 2000).

The Internal Revenue Code requires the exercise price of an ISO be equal to or exceed the market price of the underlying stock at the option's grant date (I.R.C. Sec. 421/422, 2000). Hence, an ISO cannot be granted in-the-money. Since the purpose of backdating is to provide executives with an exercise price that is less than the stock's market price at the option's grant date, backdated options will always be in-the-money. Thus, when an ISO's grant date is backdated, the option will no longer qualify as an ISO for income tax purposes, and hence must be reclassified as an NSO. The recipient of an NSO is subject to income taxes on the excess of the market price of the underlying stock at the time the executive exercises the option over the exercise price. The gain measured is treated as ordinary income (Ibid.). Thus, backdated ISOs that become NSOs will require the recipient executives to amend their personal income tax returns in order to include the gains that were measured at the exercise date. An amount equal to the gains reported by executives from exercising their options is deductible as compensation expense by the company granting the options (I.R.C. Sec. 421/422, 2000). The newly created deduction resulting from backdating provides an income tax advantage to the granting corporation. However, because the IRC allows corporations to deduct an amount for compensation expense only under NSOs, most stock option plans granted are NSOs (Narayanan, 2007). Thus, prior to the adoption of SFAS No. 123R when corporations used the intrinsic method for financial reporting purposes, a company most likely reported no expense on its income statement but reported a deduction for its stock option plan on its income tax return.

Analysis of Companies Investigating Backdated Stock Options

Responding to the heightened interest in the backdating of stock options, The Wall Street Journal began publishing an online chronicle of companies that have come under scrutiny for potential backdated stock options (WSJ Online, 2007). On January 4, 2007 the WSJ online report summarized the progress of backdating investigations of 127 companies. Part two of this paper analyzes the 127 companies from two perspectives. First, the companies were reviewed in order to determine a common profile based on six factors: 1) company size, 2) institutional ownership of shares, 3) external auditor, 4) primary standard industrial classification (SIC), 5) geographic location of the company headquarters, and 6) prior disclosures related to material weaknesses in internal control pursuant to SOX. The hypothesis is that the companies will be small, with a high institutional shareholder base. It is also expected that the portfolio of companies will have considerable commonalities within the categories of SICs, external auditors, geographic location, and SOX violations.

Following analysis of commonalities in the portfolio, the capital market reaction to the announcement was analyzed. This involved an analysis of the stock market returns, price/earnings ratios, and beta coefficients of the companies in the study in order to assess the capital market reaction to companies that have announced investigations of potential backdated stock options. It was expected that an analysis of companies with a history of backdating stock options would show companies underperforming the market in general while exhibiting above average risk. Finally, the purchases and sales of company stock by company insiders were analyzed for periods surrounding the backdating. It was expected that the insiders would likely be sellers of their stock, capitalizing on their "in the money" status.

Commonalities of Investigated Companies-External Auditors

The current external auditors for the population of 127 potentially backdating firms were extracted from the most recent Form 10-K's. Table 1 below depicts the level of external auditor concentration observed.

Table 1

External auditor concentration

Audit Firm's Name	Number of Observations	Percent
Pricewaterhouse Coopers	34	27%
Deloitte Touche	32	25%
Ernst and Young	30	24%
KPMG	24	19%
All Others	7	5%
Total	127	100%

Given the dominant market share of the Big Four accounting firms as auditors of SEC registered companies, the observed dominance in the population by the Big Four was not unexpected. The population of potentially backdating companies also includes a large number of technology firms. As such, the level of auditor concentration could also be a reflection of industry specialization in technology. Hogan and Jeter found such auditor specialization is common to industries demonstrating high growth (like technology) (Hogan and Jeter, 1999). The review of published literature found no research linking the choice of auditor to a higher likelihood of backdating of stock options. It was expected that the study would yield a concentration of companies in the portfolio within a few Big Four firms. Although the portfolio companies are largely audited by the Big Four firms, there is no observed concentration within this group of four dominant audit firms.

Commonalities of Investigated Companies-Standard Industrial Classification

Primary Standard Industrial Classification codes for all 127 potentially backdating companies were identified. The largest concentration of companies in the population sorting by the three digit SIC was in industry group 737 (Computer Programming, Data Processing, and Other Computer Related Services). Thirty-one (24%) companies were in this classification. The second largest concentration of population companies in a SIC code was in industry group 367 (Electronic Components and Accessories). Twenty-five (20%) companies were in this classification.

Table 2

The concentration of companies in the population sorting by the SIC

SIC Code	SIC Description	Number of Observations	Percent
737	Computer Programming, Data Processing, and Other Computer Related Services	31	24%
367	Electronic Components and Accessories	25	20%
357	Computer and Office Equipment	10	8%
283	Drugs	5	4%
	All Others	56	44%
	Total	127	100%

The only other SIC code with 10 or more companies in the population was industry group 357 (Computer and Office Equipment). Ten (8%) companies were in this classification (Compustat, 2007). Noticeably absent from the top tiers of the SIC analysis are the "low tech" mature industries. It was concluded that the SIC concentration of technology stocks in the population reflects the fact that most technology companies had compensation programs in place which emphasized stock options. This observed concentration of portfolio companies within SICs supports the hypothesis. The practice of backdating appears to be culturally accepted or an improper inducement of employers seeking to attract and retain talented employees. See Table 2 below for additional analysis.

Commonalities of Investigated Companies – Headquarter Location

Corporate headquarter addresses for all 127 companies in the population were identified. Sixty-four of the companies (50%) were headquartered in California. The only other state with more than 10 corporate headquarters from the population was Massachusetts which had 14 (11%) (Compustat, 2007). This finding is also consistent with the high concentration of technology companies in California and supportive of the hypothesis that many of the companies would be from the same geographic area. See Table 3 below for additional analysis.

Table 3

Headquarter 's location

State	Number of Observations	Percent
California	64	50%
Massachusetts	14	11%
New York	9	7%
Texas	9	7%
New Jersey	6	5%
All Others	25	20%
Total	127	100%

Commonalities of Investigated Companies – Material Weaknesses in Internal Control

The most recent Form 10-Ks filed for the 127 companies population were reviewed to determine if these companies had recently disclosed a material weakness in internal control pursuant to Section 404 of SOX. Of the 127 companies, 23 (18%) reported material weaknesses in internal control pursuant to SOX. Other researchers have also studied the level of reported material weakness in internal control. Shaw found that almost 11% of companies with market capitalization above $75 million reported material weakness during a 16 month period ending in May 2005 (Shaw, 2005). The difference betweens Shaw's 11% finding and the 18% finding appears significant and suggests a trend of weaker internal control in companies with potential backdated stock options. Although this supports the hypothesis that companies in the portfolio would be likely to display material weaknesses in internal control, it was concluded that this finding merits additional research, given the two studies covered different periods of time and the study did not exclude companies with capitalization below $75 million.

Analysis of Shareholder Base of Companies with Potential Backdated Stock Options and Stock Market Reaction to Announcement of Backdating

It was expected that there would be common characteristics in the stockholder demographics for companies suspected of backdating stock options. These companies were expected to

be smaller than average (as measured by market capitalization and number of shareholders). Market returns for these suspected backdating companies were also expected to be less than the market in general. The companies were expected to be perceived as riskier than average and have a resulting shareholder make-up that is skewed towards institutional ownership. Finally, a trend of insider selling of stock in those companies suspected of backdating stock options was anticipated.

Stock Market Returns and Company Size

In order to evaluate the stock market returns of companies announcing investigations into potential backdated stock options, the 2006 change in the market value of the companies' common shares in the portfolio was compared to the 2006 change in an appropriate stock market benchmark index. The change in the market value of the companies' common shares for the 2006 calendar year was chosen because all companies in the study had announced backdating investigations during the 2006 calendar year.

The change in the market value of the companies' common shares was determined by creating a portfolio consisting of one share of stock in each of the 126 companies[1]. In order to find a suitable benchmark for the portfolio's stock price return, the relative size of companies in the portfolio was compared to the average market capitalizations (market cap) for various published stock indexes. The portfolio had an average market cap of $7.677 billion and $7.857 billion on December 31, 2005 and December 31, 2006, respectively. The Russell Midcap Index had an average market cap of $7.621 billion and $8.455 billion at the same two points in time (Compustat). Accordingly, the Russell Midcap Index was chosen as the appropriate benchmark for the portfolio. As a test of the average size of companies in the portfolio, the average number of shareholders in the portfolio and in the stock market in general was calculated. The average number of shareholders in the portfolio was calculated to be 42,370. However, after removing one outlying large company (Home Depot) from the portfolio, the average number of shareholders was calculated to be 17,190 for the portfolio. The average number of shareholders for all publicly traded firms was calculated to 34,265 (Compustat). The average market cap and average number of shareholders for companies in the portfolio was supported the hypothesis that companies with potential backdated stock options would be smaller in size.

Regarding the actual stock market returns, during the calendar year 2006, the Russell Midcap Index gained 13.53% in value while the portfolio of the 126 companies lost 3.58% of its market value. The 17.01% negative difference in the average return on the portfolio when compared to the average return on the Russell Midcap Index strongly suggests that the market reacted negatively to companies that had announced potential backdated stock options. This resulted in the observed downward movement in those companies' stock prices (Compustat, 2007).

More in depth analysis of the market's reaction is an area requiring additional study. One possible extension of the analysis would involve the construction of a reference portfolio (matched pairs) as demonstrated by Lyon, Barber, and Tsai (Lyon et al., 1999).

Capital Market Reaction – Price/Earnings Ratio

The study also analyzed the impact that the investigations of potential backdated stock options had on company price/earning (PE) ratios. First, the PE ratios were calculated for those companies in the portfolio that did not have negative earnings. The non-negative subset of the population included 85 companies. The average PE ratio for these companies on December 31, 2005 (prior to announcement of backdating investigations) was 59.41. The average PE ratio for these companies on December 31, 2006 (after announcement of backdating investigations) was 43.02 or a 27.6% decrease since the beginning of the year. In comparison, the average PE ratio for Russell Midcap Index went from 18.66 to 19.23, or an increase of 3.1% during the same period of time (Compustat, 2007). These results also provide evidence that investors reacted negatively to companies that had announced potential backdated stock options.

[1] Stock price data were not available for one of the 127 companies and the average was calculated on the remaining 126 companies.

Capital Market Reaction – Beta Coefficient

The beta coefficient of a company's stock is a common measure of risk for that stock relative to other investment opportunities. In general, an investment with a beta coefficient of 1.00 is considered to have average risk. Betas above 1.00 are considered to be more risky than average while stocks with betas below 1.00 are considered less risky than average. To assess the level of risk associated with the stocks in the population, the average beta coefficient at the end of December, 2005 for the 125 companies portfolio was calculated[1]. At that time the average beta for stocks in the portfolio was 2.38. The average beta for the 125 companies was calculated for each month in 2006. The average beta coefficient at the end of December 2006 was 2.19. Figure 1 graphically displays the results of these calculations below (Compustat, 2007). Figure 1 also includes a superimposed vertical broken line to indicate the first public disclosure of investigations of potentially backdated stock options.

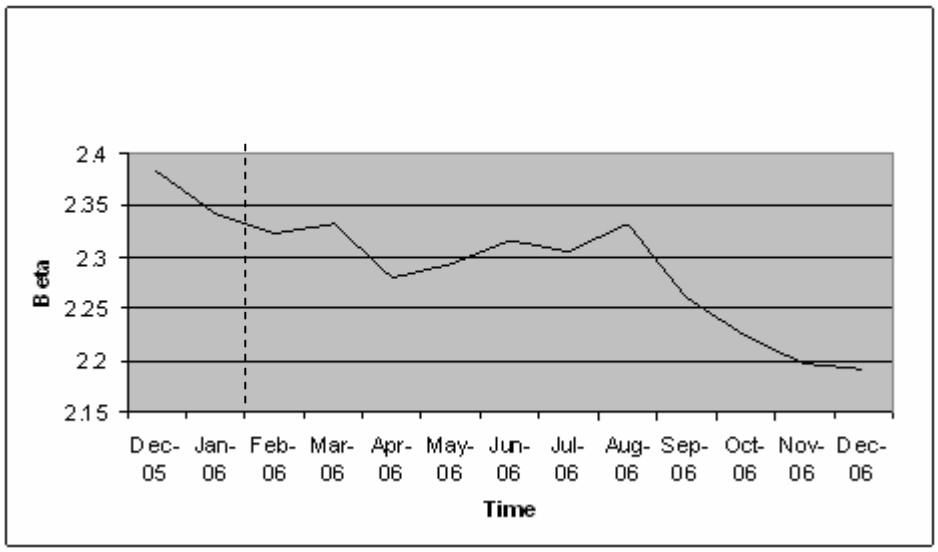

Fig. 1. Average beta coefficient

The average observed beta supports the hypothesis that the portfolio companies are more risky than the market in general. However, one should note that the average beta coefficient for the 125 companies has decreased from approximately 2.33 when the first public announcement about improper backdating was made in March 2006 to 2.19 by the end of 2006. The 6% decrease in the beta coefficient since the first public announcement about improper backdating indicates that the improvement in transparency arising from disclosures of backdating practices has caused the market to view the 125 companies as less risky.

Obviously, a stock's beta coefficient is not the only means to measure risk. Other factors have at least a contributing effect. Fama and French's research found other factors such as the size of a firm's market equity and the firm's use of leverage. The ratio of book equity to market equity and the ratio of earnings to price are also part of the relationship of a firm's risk and its return to shareholders. (Fama and French, 1992) On the other hand, Lintner, in his research, found beta to be the foremost factor. Lintner's research on beta as the main risk driver, still today, remains a seminal piece in the explanation of the relationship of risk and return on stocks (Lintner, 1965).

[1] Beta coefficient data were not available for two of the 127 companies and the average was calculated on the remaining 125 companies.

Institutional Holders and Insider Activity

Two additional tests were performed related to the stock of companies which have announced investigations into potential backdated stock options. It was expected that stock in these companies would be largely institutionally held. Immediately prior to the period of announcement (2005), 76.5% of the stock in the portfolio of companies was held by institutions. This decreased slightly to 75.8% during the period of announcement (2006) and increased to 77.5% in mid 2007. This compares to a 46% institutional holding of the stock market in general during the same period (Compustat). This confirmed the expectation of stock ownership.

The number of inside buyers and sellers for each company during the period of announcement was also analyzed. For this purpose, the stock purchases and sales for the 10 largest insiders were identified. During this period, there were 5.5 times as many inside sellers as inside buyers in the backdated portfolio. In the stock market in general, there were 2.1 times as many inside sellers as there were inside buyers. The amount of stock purchased or sold during this period also varied widely between the portfolio and the stock market in general. For the portfolio, the average insider share sale was 1.6 times the average insider share purchase. For the stock market in general, the average insider sale, in shares, was 1.1 times the average insider share purchase (Compustat). This confirmed the expectation of elevated sales of stock by insiders in companies with potential backdated stock options.

Conclusion

The analysis yielded several significant findings. The initial review focused on identification of a common profile among companies investigating potential backdated stock options based on six factors: 1) size of company, 2) institutional shareholder base, 3) external auditor, 4) primary Standard Industrial Classification, 5) geographic location of the company's headquarters, and 6) prior disclosures related to material weaknesses in internal control pursuant to the Sarbanes Oxley Act. The findings are:

1. Companies now investigating potential backdated stock options in prior periods were smaller than the average publicly traded firm, both in terms of market capitalization and number of shareholders.

2. Companies now investigating potential backdated stock options in prior periods have a higher concentration of institutional shareholders (75-77%) than the average publicly traded firm (46%).

3. Companies now investigating potential backdated stock options in prior periods did not predominantly rely on the same external auditor. The audits of these firms were completed primarily by the "Big Four" accounting firms and no single firm had more than 27% of this audit market.

4. Companies now investigating potential backdated stock options in prior periods are in most cases "high tech" growth-oriented companies. The SIC analysis indicated over 50% of the companies were in "high tech" classifications. Analysis of reasons (such as cultural or competitive reasons) that lead these companies to be involved in the backdating of stock options is an area of future study.

5. Companies now investigating potential backdated stock options in prior periods are primarily headquartered in California. Given the concentration of "high-tech" companies in California and in the population, the finding that 50% of the population are California companies is not surprising. Analysis of reasons (such as the sharing of compensation consultants or regional expectations of employees) that lead these companies to be involved in the backdating of stock options is an area of future study.

6. Companies now investigating potential backdated stock options in prior periods include a higher percentage (18%) reporting a material weakness in internal control than their peers. (Eleven percent of all companies with a market capitalization above $75 million that were studied during a 16 month period ending in May, 2005 reported a material weakness

in internal control.) This seven percent difference appears significant and suggests a trend of weaker internal control in companies with potential backdated stock options. This finding merits additional research, given the two studies covered different periods of time and the study did not exclude companies with capitalization below $75 million.

The second level analysis focused on capital market reaction to companies investigating potential backdated stock options in prior periods and insider buying and selling. The findings are:

1. The stock of companies investigating potential backdated stock options dramatically underperformed their peers during the period the investigation was announced. The analysis found the average stock price of companies investigating potential backdated stock options underperformed the Russell MidCap Index by over 17% in the year the investigation was reported. Considerable research has been completed on the market's overreaction to such bad news. Evaluating the stock performance of these companies in a future period is an area of future study.

2. The average Price/Earnings (PE) ratios of companies investigating potential backdated stock options dropped from 59.41 to 43.02 in the year the investigation was reported. The Russell Midcap Index peer group PE went from 18.66 to 19.23 during the same period. Evaluating the stock performance of these companies in a future period is also an area of future study.

3. The average beta coefficient for the portfolio of companies investigating potential backdated stock options decreased in the year the investigation was reported. The average beta decreased from 2.38 to 2.19 in the one year period. Given that the calculation of beta involves five years of historic data, changes in beta are generally gradual and not precipitous. However, the decrease in risk as measured by beta can be attributed, in part to market reaction to disclosure of potential backdated stock options. Given the multi-year data requirements of beta, continued analysis of beta coefficients in future years is an area of future study.

4. Insiders at companies which are investigating potential backdated stock options are 5.5 times as likely to be sellers as buyers of their own stock. Insiders in the stock market in general are 2.1 times as likely to be sellers as buyers of their own stock. When evaluating the volume of insider sales, the average sale by insiders in companies investigating backdated stock options was 1.6 times the average insider purchase. This is higher than the stock market in general where the average insider sale was 1.1 times the average insider purchase. This supports a conclusion that company executives may have improperly been enriched by the backdating of stock options followed by a rapid sale of the granted shares.

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