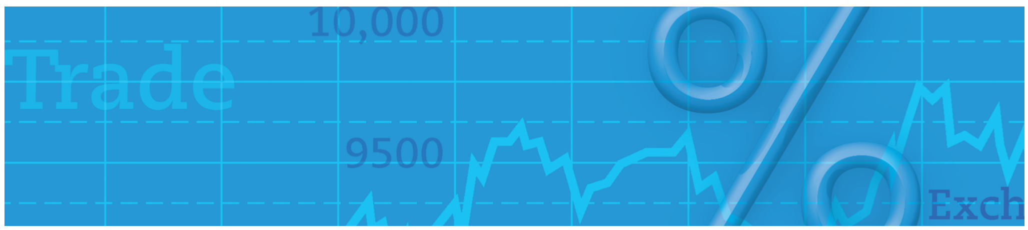
NERA
Economic Consulting

30 November 2006

Options Backdating: Accounting, Tax, and Economics

Part II of A NERA Insights Series

By Paul Hinton, Dr. Thomas Porter, and Dr. Patrick Conroy



Forthcoming topics in this options backdating series will include:

- Options Backdating: The Statistics of Luck
- In-Depth Statistics

Options backdating in the US has been characterized in the *Financial Times* as one of "the biggest scandals since the dotcom collapse." The extent of investigations has also heightened vigilance outside the US. In the UK for example, the Financial Services Authority has responded by putting companies on notice that similar practices could result in public sanctions and unlimited fines. For companies, the principal economic consequences of backdating revelations appear to be the indirect costs of dealing with associated SEC, DOJ, and IRS investigations, restatements, litigation, and media fall-out. Generalized conclusions about the economic effects of backdating practices on company shareholders are hard to draw. Economic analysis of backdating, which begins with determining the accounting and tax consequences, shows that the economic effects tend to vary from case to case.

The implication of the media sensationalism is that executives were secretly lining their pockets at shareholders' expense. After all, lowering the strike price of options below the current share price increases the value of each at-the-money option granted. However, the characteristics of the options granted were not secret. While the actual timing of option grants may not have been clearly disclosed to investors, the number of options granted, their strike prices,[1] and other terms were disclosed in several different public filings.[2] Whether or not one concludes that executives were overpaid as a result of these grants, in general, investors were not misled as to the economic value of the options actually granted.[3] Below, we describe

1 The strike price is the dollar amount for which the holder of an option may purchase a share of the underlying stock.

2 In general, the terms of options, such as the exercise price, vesting schedule, and expected life were disclosed in SEC filings, so the economic value of the options at the time of disclosure could be calculated without reference to the grant date.

3 Disclosures about grants in aggregate are made in Proxy Statements and 10-K filings. Directors, officers, and greater-than ten percent owners must individually disclose grants and exercises of options, as well as sales of stock on SEC Forms 3, 4 and 5.

the SEC disclosure requirements and accounting guidance associated with option grants, and discuss the effect of those rules on option compensation practices.

In searching for an explanation for this apparently widespread practice, media commentators have suggested that companies were motivated to backdate options by corporate tax breaks. However, although journalists have pointed to specific elements of the tax code that could have made backdating attractive, the overall tax consequences of backdating for companies were not clear cut. The taxation of options is affected by backdating. However, companies have little control over the events that can result in tax savings, making the expected effect of backdating on taxes uncertain. The SEC disclosure requirements and favorable accounting guidance prior to 2002 provide an alternative explanation for the adoption of backdating practices.

What disclosures were there of backdated grants and how were they reflected on financial statements?

During the period when most backdating is alleged to have occurred, SEC rules allowed companies up to a year and 45 days to report certain stock option grants to executives. This provided a look-back period during which to choose the most favorable grant dates. Companies could have granted options with the same strike prices without misrepresenting the actual grant date, but would have lost favorable accounting treatment. The favorable accounting treatment for at-the-money option grants, along with SEC disclosure rules prior to 2002 that obscured detection of the actual grant date, invited backdating practices.

How did SEC stock option reporting requirements affect option compensation practices?

As part of its overall reporting requirements for public companies, the SEC requires comprehensive disclosure of option activity. The total number of employee stock option grants, cancellations, and exercises each year, including average strike prices and terms, are required disclosures in annual filings. Furthermore, officers, directors, and owners of more than ten percent of a company are required to make individual filings on SEC Forms 3, 4, and 5 about all transactions involving the company's stock, including option grants and exercises. This information provides a basis for any stakeholder to assess the economic value of options granted by the company.

Until 2002, the deadline for filing Form 4 was ten days after month-end and for Form 5, 45 days after year-end. But grants approved by two independent board members or a shareholder vote were exempt from Form 4 reporting. This provided companies with the opportunity to backdate grants to any date in the prior fiscal year. In 2002, those previously exempt Form 5 transactions now had to be reported on Form 4 and the deadline for filing Form 4 was shortened to two days following a reportable event. This change in disclosure requirements effectively eliminated the opportunity for backdating.[4]

How did GAAP accounting guidance affect option compensation practices?

Prior to 2005, Generally Accepted Accounting Principles (GAAP) provided an attractive feature when accounting for stock options. By granting at-the-money options, companies could "pay" their employees without using cash and without having to record any compensation expense on GAAP-based financial statements. To qualify as "at-the-money," the strike price of the option must be equal to the price of the stock on the grant date. By backdating a grant to a date on which the stock price was low, a company could report an apparent at-the-money grant of options with a strike price below the prevailing price at the actual time of the grant. Lowering the strike price in this way provides more (non-cash) compensation to employees than granting the same number of at-the-money options at the prevailing price.

Although companies could have chosen to increase the value of option compensation without backdating by simply issuing more at-the-money options with higher strike prices on the actual grant date, choosing grant dates retrospectively made it possible for companies to increase non-cash compensation with the same number of options, while still avoiding having to record any compensation expense on GAAP-based financial statements.

How are options reflected on GAAP-based financial statements?

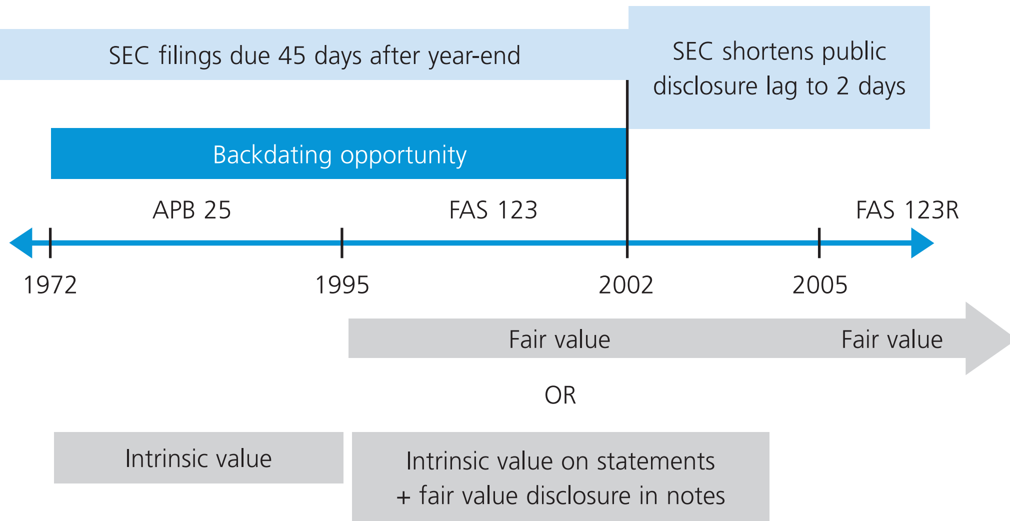
No area in financial accounting has as long a history or has caused as much controversy as how to account for stock options granted for compensation purposes in a company's financial statements. The accounting guidance for option-based compensation can be divided into three different eras: The Intrinsic Value Era, The Intrinsic/Fair Value Era, and The Fair Value Era. Figure 1 depicts the accounting guidance in the three eras.

The intrinsic value era: 1972–1995

The first professional guidance on accounting for options appeared in 1972

[4] The change in disclosure requirements did not affect the ability of companies to engage in "spring loading" – the practice of scheduling option grants before positive news; or "bullet dodging" – the practice of scheduling option grants after negative news is expected to be announced.

Figure 1. Accounting for Option-based Compensation



with the issuance of Accounting Principles Board Opinion No. 25 (APB 25), *Accounting for Stock Issued to Employees.* Under APB 25, when a company grants options with fixed terms, the intrinsic value of those options must be measured on the date (called "the measurement date") when the number of shares to be issued is known and the exercise price is fixed. That amount must be recorded as compensation expense over the ensuing vesting period,[5] and the company records an increase to paid-in-capital for the amount of compensation expense recognized.

But what if options had no intrinsic value on their grant date (i.e., they were issued "at-the-money")? Under APB 25, the amount of compensation expense to be recognized over the vesting period is zero! No compensation expense is ever recorded for grants of at-the-money options on GAAP-based financial statements as long as the terms (number of options and exercise price) remain unchanged.[6]

The intrinsic/fair value era: 1995–2002

Concerned that financial statements were "less credible than they could be"[7] as a result of the intrinsic value accounting required by APB 25, the Financial Accounting Standards Board (FASB), the successor to the Accounting Principles Board, added a project to its agenda in March 1984 to reconsider accounting for stock-based compensation plans. In June 1993, FASB issued an Exposure Draft[8] that required companies to determine the *fair value* of options granted and record that amount (instead of intrinsic value) over the ensuing vesting period. Fair value exceeds intrinsic value because it represents the market value, which incorporates the additional value associated with the right to purchase the underlying stock at the same strike price at any time during the future life of the option. Thus, at-the-money options have a positive fair value even though their intrinsic value is zero. In 1995, FASB issued Statement of Financial Accounting Standard No. 123, Accounting for Stock-Based Compensation (FAS 123). It encouraged companies to apply FASB's favored fair value approach, but also permitted continued application of APB 25's intrinsic value with disclosure of fair value amounts in the notes.

[5] For example, if the intrinsic value of options granted on 1 January 2000 was $1,000 and the vesting schedule was 25% per year for four years, the company would record $250 in compensation expense each year for the next four years.

[6] It should be noted that this discussion applies to grants with fixed terms. If the terms are not fixed at grant, then the intrinsic value is computed on the financial reporting date for vested unexercised options to determine the amount of compensation expense.

[7] Statement of Financial Accounting Standard No. 123, *Accounting for Stock Based Compensation,* paragraph 56.

[8] After extensive study by the FASB staff and deliberations by the FASB Board Members in meetings that are open to the public, an Exposure Draft is issued for public comment for a fixed period of time ("the exposure period"). The Exposure Draft represents a draft of what a new accounting standard will look like. After the exposure period, FASB reconsiders all the issues raised by respondents and redrafts the standard for final issuance.

The public criticism to the FASB's proposal to record compensation expense measured at fair value was harsh and escalated through the exposure period. At that time, cash-poor Silicon Valley firms relied on options to attract and retain talented employees. In June 2004, 700 employees of high tech employees organized a "Rally in the Valley" at Palo Alto City Hall. It was a public demonstration opposing the FASB's fair value position with the claim that a requirement to expense options would "choke entrepreneurial spirit and hurt rank-and-file workers."† The rally was held while FASB Board Members were holding a public forum on the issue nearby.

Voices of opposition were heard in the halls of Congress where bills were introduced in the Senate (S. 1890) and the House (HR 3574) to pass the Stock Option Accounting Reform Act ("the Act"). The Act would have preserved the intrinsic value approach contained in APB25. The Act would also shut down FASB as the recognized standard setter and transfer those responsibilities to the Securities and Exchange Commission.

† *The Corporate Reform Weekly,* Vol III, #23, June 28, 2004.

The fair value era: 2003–present

FASB decided to revisit the issue of accounting for stock-based compensation in March 2003, citing "serious financial reporting failures that came to light beginning in 2001,"[9] a heightened focus on the quality of financial reporting by investors, regulators, members of Congress, and the media and the increasing number of companies that were choosing to adopt the fair-value-only option in FAS 123.

In December 2004, that reconsideration led to the issuance of Statement of Financial Accounting Standard No. 123R ("FAS 123R"), *Share-Based Payment,* which became effective for most public companies in June 2005. FAS 123R requires that a company determine the fair value of options when granted. Because employee stock options contain unique characteristics (e.g., non-transferability), market prices of standard traded options do not provide a measured fair value. In general, fair value must be estimated using option pricing models adjusted for those unique characteristics. Once the fair value is determined, the company must make an estimate of the number of options that will ultimately vest. The company must then record compensation expense for the proportion of the originally determined total fair value that will ultimately vest in each reporting period over the vesting period.

What are the tax effects of backdating?

Backdated options, seemingly granted at-the-money, resulted in no recognition of compensation expense on GAAP-based financial statements. Corrected to reflect the actual grant dates, these backdated options would have been "in-the-money" and consequently generated GAAP-based compensation expense.[10] GAAP-based earnings would decline correspondingly, in turn reducing GAAP-based income tax expense. However, taxes actually paid by a corporation are calculated based on the taxable income reported on the company's tax return and could be higher or lower as a result of backdating. Taxable income is calculated using a different set of rules than GAAP. IRS rules govern which expenses are tax deductible and, unlike GAAP, *grants* of in-the-money options do not result in a tax deduction. The tax treatment of options is more complicated.

How are options treated on the company's tax return?

The tax rules surrounding options affect both the employee who receives options and the company that grants them. Employees must include the profit realized on option transactions as either ordinary or capital gain income. The distinction depends on the type of option, and affects the tax deduction an issuing company can take. The general rule is that companies can take a tax deduction for the amount an employee includes in ordinary income.

Qualified options

Qualified options (also known as statutory options) "qualify" for favorable tax treatment if certain conditions are met. One hallmark of qualified options is that the strike price must be at least 100 percent of the market price on the date of grant, making at-the-money or out-of-the-money grants a requirement.

For employees to receive the favorable tax treatment associated with qualified options, they must hold the stock acquired with the options for at least one year.[11] By doing so,

9 FAS 123(R), *Share-Based Payment,* Paragraph B4.

10 "In-the-money" options have a strike price below the prevailing price of the stock.

11 To receive favorable tax treatment, the stock must also be held at least two years following the option grant.

the profit realized upon the sale of those shares is taxed as capital gain income, at a lower rate than ordinary income. If the employee holds the stock less than one year, the employee has made a "disqualifying disposition." In that case, the profit realized upon the sale of those shares is included as ordinary income, which is taxed at a higher rate than capital gain income.

The company is entitled to a tax deduction for option-related compensation on its tax return for an employee's option-related compensation that is included in ordinary income on the employee's tax return. Consequently, the company is only able to take a tax deduction for qualified options when employees make a disqualifying disposition.

Non-qualified options

The taxation of option-related compensation from non-qualified options is very different. The principal differences are summarized in Figure 2. An employee is taxed upon exercise of a non-qualified option. The amount of income is equal to the difference between the market price of the stock acquired and the exercise price of the option—i.e., the option's intrinsic value at the date of exercise. That income is considered ordinary income to the employee, and the corporation is entitled to a tax deduction for the same amount at the same time, regardless of the amount of compensation expense, if any, that was reflected on its GAAP-based financial statements in the current or a previous period.

Profit from the sale of shares acquired by the exercise of non-qualified options is not recorded as ordinary income regardless of when those shares are sold. Instead, employees recognize a capital gain or loss as if it were any other personal investment transaction. The corporation gets no additional tax deduction for capital gain income realized by an employee.

What are the limits on deductibility of option compensation?

The tax code limits the amount of the corporate tax deduction for non-performance-based compensation to $1 million per year for each of the top five highest compensated employees. Non-qualified options are considered non-performance-based compensation. So, exercises of non-qualified options by those top five individuals contribute to each individual's $1 million limit and may prevent the corporation from being able to take a tax deduction for some or all of the non-qualified option-related compensation for those employees.

How are companies' withholding obligations affected?

When a company pays compensation to its employees, it faces an obligation to withhold income taxes from the amount the employee receives and remit the withholdings directly to the US Treasury. The amounts paid by the company to the US Treasury on behalf of the employee are reconciled by the employee upon filing his or her income tax return. The exercise of non-qualified options yields ordinary (wage) income for employees who are subject to withholding.

The failure to withhold taxes from wages and/or the failure to make timely payments to the IRS for those withholdings and other payroll taxes borne by the employer can result in substantial penalties to the employer. As discussed below, the restatement of backdated options may result in the recognition of compensation that should have been subject to withholding. Consequently, companies may face an immediate liability to the IRS for underwithholdings. Companies may also face penalties and interest for the failure to withhold taxes in a timely fashion on those recharacterized options.

Putting GAAP-based financial statements and taxation of options together

The different treatment of option-related "compensation expense" on GAAP-based financial statements and on corporate tax returns can make understanding the tax effects of option backdating a challenge. Tax returns show a tax deduction, in the form of compensation expense, for the same amount that an employee includes as ordinary (wage) income upon option exercise or—for non-qualified options—upon certain

Figure 2. GAAP and Tax Treatment of Options

	Qualified Options (Statutory Option)	Non-Qualified Options
GAAP Financial Statement Expense (recognized over vesting period)	No expense	Intrinsic value at grant
IRS Tax Return Deductible Expense (upon taxable event)	Ordinary income of the employee making a disqualifying disposition of stock (< 1 year after exercise)	Intrinsic value at exercise

dispositions of stock acquired through option exercise. However, on GAAP-based financial statements, a deduction for grant-date intrinsic value occurs over the period in which options vest. Since options vest prior to exercise, GAAP-based financial statements reflect a deduction and corresponding tax benefits before the tax benefits are realized. This so-called "timing difference" between the financial statements and tax returns is managed by recording a deferred tax asset on the GAAP-based financial statements corresponding to the amount of compensation expense included in financial statements not yet recognized on the tax return. The deferred tax asset is later reduced as the company realizes corresponding tax savings.

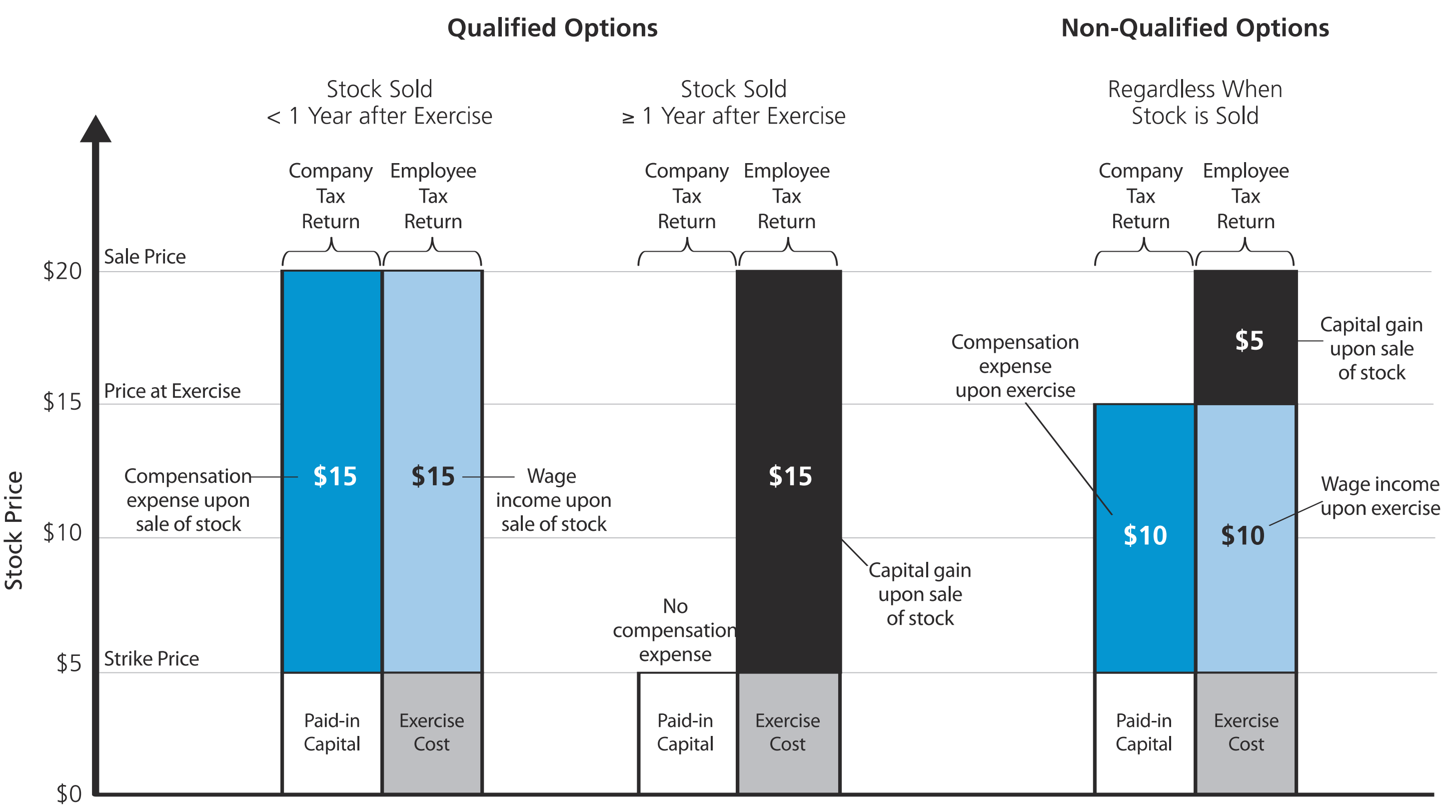
Consider a case in which at-the-money non-qualified options are granted to employees. No option-related compensation expense would ever appear on the company's GAAP-based financial statements. But, when the employee exercises those options and includes the profit in ordinary income on his or her tax return, the company is able to record a tax deductible expense for the same amount on its tax return, reducing the amount of taxes the company must pay. So, the company enjoys a reduction in the amount of taxes it owes without a commensurate deduction on its GAAP-based financial statements. The amount by which a company's tax deduction exceeds GAAP-based compensation expenses is known as "permanent difference." It represents an amount that will always reduce taxable income but never reduce GAAP-based income or the provision for taxes based on that income. The corresponding reduction in tax liabilities is referred to as a "tax windfall." Instead of reflecting the tax windfall as a reduction in the amount of GAAP-based tax expense shown on the financial statements, it is accounted for as an increase to paid-in-capital.

Figure 3 depicts the tax treatment of qualified and non-qualified options granted at-the-money. Two alternative tax treatments of the qualified options are presented. The first results from a disqualifying disposition of stock acquired upon option exercise. The second results from qualifying disposition.

Upon a disqualifying disposition of the stock acquired with the qualified option, the entire profit realized by the employee (here, $15) is deductible on the company's tax return, generating a tax savings in the year of the disposition. Figure 3 also shows that in the absence of a disqualifying disposition there is no tax deduction associated with a qualified option. In this case, the employee's profit on disposition of stock results in a capital gain (here, $15) rather than ordinary income.

For a non-qualified option, a company recognizes the intrinsic value at grant as compensation expense on the GAAP-based

Figure 3. Corporate and Individual Tax Treatment of Options Granted At-the-Money



financial statements.[12] However, for the at-the-money grant shown on Figure 3 there is no intrinsic value of grant and so no GAAP-based tax deduction. Upon exercise of the non-qualified option, the difference between the market price of the stock acquired and the exercise price of the option (in essence, the option's intrinsic value at exercise) generates a tax deduction for the company (here, $10). This amount is recorded on the tax return. The amount by which the tax deduction exceeds the GAAP-based compensation expense generates a tax windfall.[13]

The amount of GAAP-based income tax expense is not a measure of the amount of taxes actually paid. Instead, GAAP-based income tax expense reflects the amount of taxes that will ultimately be paid on GAAP-based income reported in that period, which is different from taxable income. In addition to the timing difference with respect to the actual payment of taxes, GAAP-based tax expenses differ from the actual tax liability because they do not capture the additional tax benefits that result from option exercise or disqualifying dispositions.

Did companies or executives reduce their taxes through backdating?

While individual executives may have had an interest in backdating as a way to lower the strike price of the options they received, it is not apparent why company boards would be willing to grant managements' wishes. One possible explanation cited in the media is that both companies and executives were able to reduce their tax burden by backdating.

Did companies reduce their tax burden?

Backdated options were treated as qualified options that resulted in corporate tax benefits following disqualifying dispositions by employees. After correcting for backdating, the options are re-classified as non-qualified options, whose tax benefits arose upon exercise. Thus correcting for backdating changes both the timing and amount of corporate tax deductions. *While the company has control over the type of option granted, it has little control over the amount and timing of the ultimate tax savings it will realize.* Therefore, purely based on the tax scheme, the company cannot determine in advance whether it will realize tax benefits.

The restatements already issued by some companies provide some insight into the effect on taxes of correcting the grant dates of previously issued options. We have found that changes in the amount of tax a company actually *pays* as a result of correcting backdating is small compared to changes in GAAP-based tax expense included in the financial statements.[14] For example, if a company had issued only non-qualified options, then a restatement for backdating that increased the intrinsic value of options upon grant would reduce GAAP-based tax expense and increase the deferred tax asset, but leave the tax return unchanged.[15] In general, for a company that issued qualified options, which were re-classified as in-the-money non-qualified options, there will be an effect on tax liabilities because the timing and amount of the tax deduction changes. A reclassification of options from qualified to non-qualified causes the company to lose the tax benefit it receives from disqualifying dispositions. However, the company does realize a tax benefit from the exercise of non-qualified options. Differences in the timing and number of dispositions compared with option exercises will result in different tax benefits.[16]

Upon correcting for backdating and re-classifying qualified options as non-qualified, companies will record additional GAAP-based compensation expense as illustrated in Figure 4 (here, $3). This is a consequence of previously reported at-the-money grants becoming in-the-money on the corrected grant dates. These additional expenses decrease GAAP-based income and reduce GAAP-based income tax expense. However this apparent increased GAAP tax benefit is artificial and arises solely

12 This reflects the effect of a restatement to correct for backdating. In general, changing grant dates causes at-the-money qualified options to be re-characterized as in-the-money non-qualified options.

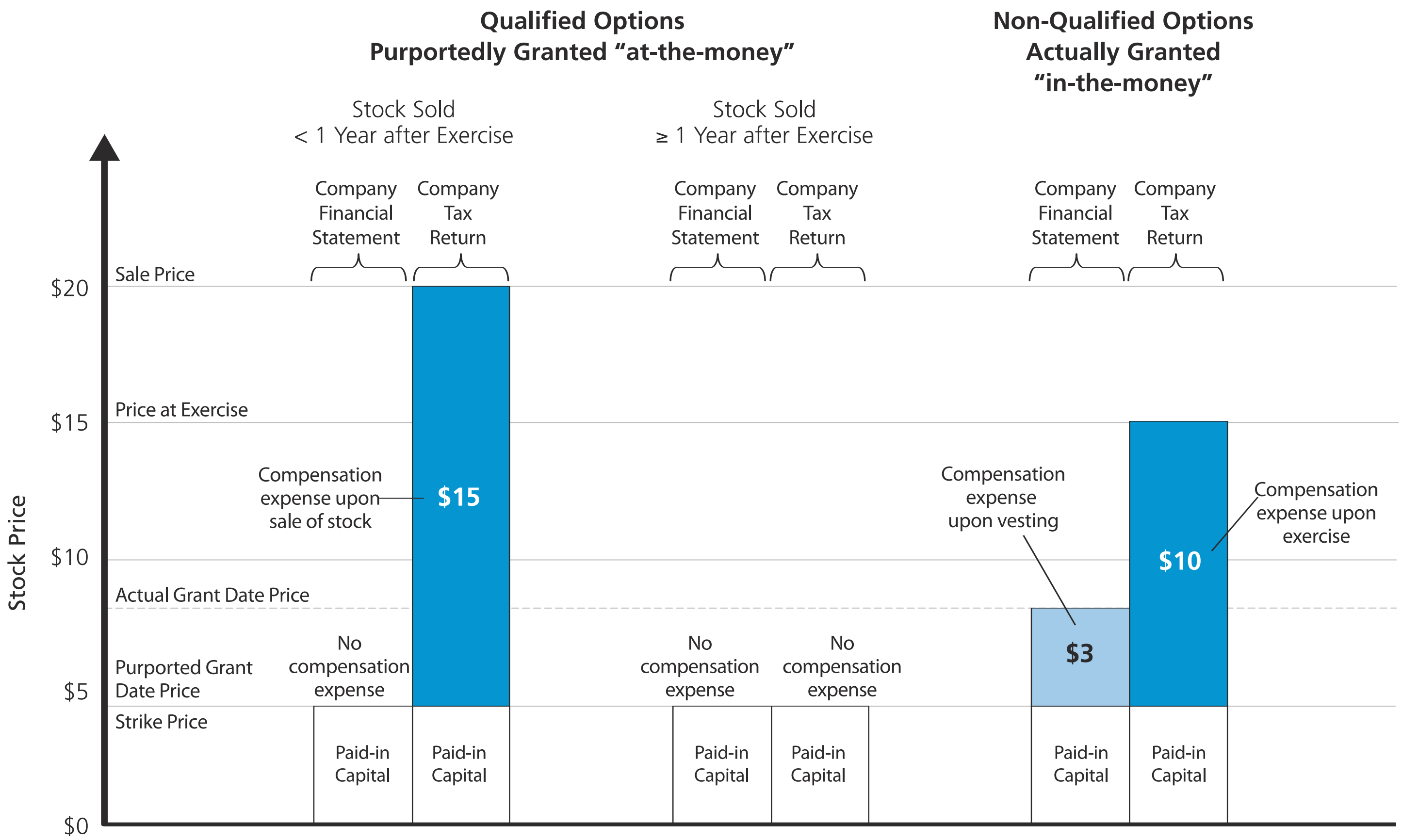
13 The tax windfall ultimately realized for in-the-money option grants is smaller than the windfall realized from at-the-money grants with the same strike price, because a portion of the tax deduction for an in-the-money option is included in GAAP-based income as a reduction in GAAP-based tax expense.

14 We cannot observe changes in companies' tax returns because they are not public, but we can impute the changes in tax liabilities from changes in GAAP-based tax expenses, tax windfalls and reductions in deferred tax assets.

15 The tax return remains unchanged in this example because the strike price of the options exercised are unaffected by the restatement. Thus the resulting ordinary income to employees on option exercise and corresponding compensation expense to the company are also unaffected.

16 This could occur if all the stock acquired by the exercise of options in the period was sold immediately upon exercise. It is possible in theory that there would be no change in tax liabilities. However, this outcome would also require that the $1 million limit on non-performance-based compensation for the five highest paid executives did not reduce restated tax benefits.

Figure 4. Effect on Company of Reclassifying Backdated Options



as a result of the accounting treatment, which also produces an offsetting decline in tax windfalls.[17]

The actual tax effects of correcting for backdating are determined by comparing the tax benefits of backdated qualified options (illustrated on the left side of Figure 4) with tax benefits computed after reclassifying them as non-qualified in-the-money options (illustrated on the right side of Figure 4). Actual tax benefits resulting from disqualifying dispositions are replaced by tax benefits resulting from the exercise of non-qualified options. Because tax implications arise upon disqualifying dispositions for qualified options and upon exercise for non-qualified options, the change in tax benefits will depend on the timing and number of disqualifying dispositions versus the number of options exercised in each reporting period. In Figure 4, the tax deduction for each disqualifying disposition is $15 while the tax deduction for each non-qualified option is $10. Thus if there were the same number of disqualifying dispositions as options exercised in the period, a restatement would lower tax benefits by a third.

Did employees reduce their tax burden by backdating?

Like the company's tax savings, the employee's tax cost of options depends on the type of option and the timing of stock disposition and/or exercise. Since the company's tax deductions mirror employees' recognition of ordinary income, the net effect on the total amount of taxes collected by the IRS is close to zero.[18] Ultimate tax savings are realized either by the employee (when ordinary income realized upon exercise of non-qualified options is lower than it would have been without backdating) or the company (when

17 Tax windfalls are the incremental tax benefits not already recorded on the GAAP financials. Thus, holding actual taxes owed fixed, increasing GAAP tax benefits merely reduces reported tax windfalls. Since at-the-money option grants result in no GAAP-based tax benefit, the entire amount of any tax benefit resulting from at-the-money grants is recorded as a tax windfall.

18 Differences would result from different tax rates faced by the employee and the employer.

employee's income is higher than it would have been without backdating).

What are the effects of backdating exercise dates?

Some companies have also reported that option exercise dates may have been backdated. Backdating the exercise of non-qualified options to an earlier date on which the price of the stock is lower than the price on the actual exercise date reduces the gain that must be included in ordinary income and, consequently, the taxes due from the individual. In this case the tax benefit to the company is lower than it should be, so the company effectively pays the tax the employee avoided, or at least hoped to avoid. Clearly, companies had no direct economic interest in this type of back-dating at the time, and now face possible penalties and interest for under-withholding employee income taxes as a result of restatements. Notwithstanding the potential liability for under-withholding, the shortfall in tax originally collected by the IRS from employees would have been offset by approximately equivalent increases in amounts paid by employers.

Employees who exercised non-qualified options through cashless exercise arrange-ments would have had an incentive to backdate the exercise to a date on which the stock price was higher. This would have increased the amount of taxes due immediately but also increased the value of the underlying stock with which the taxes and strike price were paid. The net effect on the employee would have been to give up fewer shares of stock to pay the strike price and immediate tax obligation. Since the stock price was lower on the actual exercise date, backdating exercise dates caused the company to issue too many shares of stock to employees who took advantage of cashless exercise arrangements.

Making things right—what restatements result from backdating?

Restatements of financial statements are necessary as a result of backdating because the accounting and tax treatment of options are affected by changes in grant dates. Previously reported grants of qualified, at-the-money options will, in general, have to be re-classified as non-qualified, in-the-money grants. This change will require recognition of grant date intrinsic value as compensation expense *and* a correction for the amount and timing of tax deductions on the company's tax returns. Further, the interaction between the company's financial statements and tax returns will result in a different display of a company's tax position in its GAAP-based financial statements.

What were the economic effects of backdating?

We have already described the accounting and tax effects of restating backdated grant dates. These tax effects, including possible penalties and interest (due in the restate-ment period or in subsequent periods) have observable cash flow consequences for the issuing firm.

Other cash flow effects, here reflecting the difference between actual cash flows and what the cash flows would have been had there been no backdating, are possible if, as a result of re-classification of qualified options as non-qualified options, the timing of option exercise were to change. Unlike qualified options, non-qualified options are taxed on exercise, so it is possible that some individuals would have changed the timing of exercise decisions to minimize personal income tax. In turn this would affect the amount and timing of corporate tax deductions and the timing of cash receipts by the company in payments of the strike price by employees upon exercise. Except in the case of cashless exercise, the company receives cash in the amount of the strike price for each option exercised. Thus the timing of exercise also affects the timing of these cash flows.

Determining when options would have been exercised, had the tax consequences of re-classification been known, is difficult without historical data to analyze exercise behavior under each condition. Possible differences in future exercise behavior are even more difficult to estimate because future exercise behavior cannot be observed. However, data recording the exercise history of stock option recipients are generally available, which would allow analysis of past exercise behavior.[19]

Absent backdating, option grants could have differed

An alternative perspective from which to view the economic effects of backdating is to compare the consequences of the actual grants of backdated options with the consequences of option grants that would have been made had backdating not been possible.[20] Companies would not necessarily have issued the options they did had they had to grant them on the corrected grant dates. Rather than issuing non-qualified options, it is likely, based on past option compensation practices, that companies would have issued qualified options, perhaps in different quantities. Without backdating, these options would have had different strike prices from the options they actually

[19] NERA regularly models patterns of exercise behavior in estimating the fair value of employee stock options. See Dr. Cindy W. Ma, Algis T. Remeza and Qi Wang, "Valuation of Employee Stock Options: The Model Does Matter," NERA Working Paper, June 2006.

[20] This is the perspective most relevant to the economic analysis of derivative litigation claims.

issued. Unless option grants were scheduled, it is probably not possible to determine when these options would have been issued, but one possibility is that a larger number of at-the-money options would have been issued on the actual grant dates, having the same aggregate economic value as the backdated options actually granted.

From this perspective, there are additional possible economic effects of backdating that result from changing the number of options granted and the terms of those options. Backdated options with lower strike prices may have provided economic benefits through improved employee retention, greater performance incentives, and lower cash compensation costs.[21] These benefits would have been affected had different options been granted.

Indirect economic effects may exceed the direct effects of backdating

Without backdating, the effects of different tax treatment and exercise patterns may have either a positive or negative effect on company cash flows. However, backdating investigations, financial restatements, and litigation are imposing significant costs on the companies affected.

In addition to increased professional service fees, there is also a cost of diverting management time from running the core business to dealing with backdating. In some cases, executives implicated in backdating practices have resigned. The aggregate effects of the investigations, restatements, and ensuing litigation are ultimately reflected in companies' stock prices and event studies can be used to quantify this impact.[22] Ironically, in many cases the reaction to disclosure of backdating practices has been less pronounced than the reaction to the events that have followed. Securities class action lawsuits, for example, have alleged stock prices were inflated due to misrepresentation of option compensation costs, despite the fact that the number, strike price, and other terms of the options granted were disclosed in SEC filings. Thus, even though investors were not aware that options were being issued in-the-money,[23] the economic value of the options actually granted, determined by reference to amounts reported in annual financial statements, was unaffected.

Determining the net economic effect of backdating requires case by case analysis

Options backdating had a wide range of accounting, tax, and both direct and indirect economic effects on companies. Many of these effects are the result of changes in the detailed technical rules that govern tax and GAAP accounting.[24] Contrary to some of the media commentary, however, it is not clear that it was uniformly in companies' economic interest to backdate options to avoid taxes. Determining the overall net effect of backdating requires a fact-specific, case-by-case determination.

21 Compared with at-the-money options issued on the corrected grant date, the value of backdated options with lower strike prices more closely tracks the value of the underlying stock. Somewhat ironically, backdated options better align the interests of employees with those of shareholders.

22 For an explanation of the use of event studies see, for example, David Tabak and Fred Dunbar, "Materiality and Magnitude: Event Studies in the Courtroom," in *Litigation Services Handbook: The Role of the Financial Expert, Third Edition,* edited by Roman L. Weil, Michael J. Wagner, and Peter B. Frank, John Wiley & Sons, Inc., 2001.

23 Investors knew how many options were granted but believed they were issued at-the-money. In theory this could have caused them to under-estimate the costs of hiring new employees in the future even though the value of prior option compensation was disclosed.

24 In some cases, the indirect costs of backdating have been offset by the cancellation or repricing of options because after being restated they no longer met the terms of the option plans under which they were awarded.

Companies Involved in Options Backdating: Disclosures and Lawsuits[1]

Company	Value of In-The-Money Options[2]	Lawsuits: Class Action[3]	Lawsuits: Derivative[4]	Disclosures: SEC or DOJ Investigation[5]	Disclosures: Restatement or Charges[6]	Disclosures: Internal Investigation[7]	Disclosures: Executive Departure[8]
Activision	$66.45		x	x	x	x	
Affiliated Computer Services	46.84		x	x	x	x	x
Affymetrix	NA		x		x	x	
Agile Software	NA				x	x	
Alkermes	NA			x	x	x	
Altera	86.62		x	x	x	x	
American Tower	NA	x	x	x	x	x	
Amkor Technology	NA			x	x	x	
Analog Devices	99.96		x	x			
Apollo Group	41.36	x		x	x	x	
Apple Computer	48.45	x	x	x	x	x	x
Applied Micro Circuits	114.52		x	x	x	x	
ArthroCare	11.24			x		x	
Aspen Technology	11.76	x			x	x	
Asyst Technologies	NA		x	x	x	x	
Atmel	8.55		x	x	x	x	
Autodesk	33.40			x	x	x	
Barnes & Noble	73.32		x	x		x	
BEA Systems	NA					x	
Bed, Bath & Beyond	88.74		x	x	x	x	
Black Box	35.07		x	x			
Blue Coat Systems	NA		x	x	x	x	
Boston Communications Group	5.91			x	x	x	x
Broadcom	170.26	x		x	x	x	x
Brocade Communications Systems	119.78	x	x	x	x	x	x
Brooks Automation	3.83	x	x	x	x	x	x
CA	340.65				x	x	
Cablevision	NA		x	x	x	x	
Caremark Rx.	68.98		x	x			
CEC Entertainment	16.61			x	x	x	
Ceradyne	0.37		x	x	x	x	
Children's Place	4.32					x	
Chordiant Software	NA		x	x		x	
Cirrus Logic	4.04			x		x	
Clorox	60.54		x		x	x	
CNET Networks	NA		x	x	x	x	x
Computer Sciences	46.97		x	x		x	
Comverse Technology	208.80	x	x	x	x	x	x
Corinthian Colleges	16.10		x	x		x	
Crown Castle International	NA			x		x	
Cyberonics	12.16		x	x	x	x	x
Dean Foods	19.88		x	x			
Delta Petroleum	NA			x		x	
Dot Hill Systems	NA					x	
Electronic Arts	94.00		x	x		x	
Emcore	NA				x	x	
Endocare	NA			x		x	
Engineered Support Systems[9]	NA			x			
EPlus	NA				x	x	
Equinix	NA		x	x		x	
Extreme Networks	51.08			x		x	
F5 Networks	1.13		x	x	x	x	
Foundry Networks	NA		x	x	x	x	
GAP	444.47					x	
Getty Images	NA			x		x	

Company	Value of In-The-Money Options[2]	Lawsuits		Disclosures			
		Class Action[3]	Derivative[4]	SEC or DOJ Investigation[5]	Restatement or Charges[6]	Internal Investigation[7]	Executive Departure[8]
Hansen Natural	$0.76		x	x			
HealthSouth	136.09						
HCC Insurance Holdings	11.00			x	x	x	x
Home Depot	44.79		x	x		x	
iBasis	NA			x	x	x	x
Insight Enterprises	12.73		x	x		x	
Integrated Silicon Solution	NA				x	x	
Intuit[10]	52.48			x		x	
J2 Global	NA				x	x	
Jabil Circuit	56.19	x	x	x		x	
Juniper Networks	154.87	x	x	x	x	x	
KB Home	32.48		x	x		x	x
King Pharmaceuticals	6.43				x	x	
Keithley	14.14		x	x		x	
KLA-Tencor	86.29	x	x	x	x	x	x
KOS Pharmaceuticals	NA			x	x	x	
L-3 Communication Holdings	113.63					x	
Linear Technology	107.35		x	x			
Macrovision	13.63			x		x	
Marvell Technology Group	NA	x	x	x	x	x	
Maxim Integrated Products	184.75		x	x		x	
McAfee Inc.	88.48		x	x	x	x	x
Meade Instruments	3.34	x	x	x		x	
Medarex	NA		x	x	x	x	
Mercury Interactive	95.12	x	x	x	x	x	x
Michaels Stores	21.35	x	x	x		x	
Microsoft	334.92						
Microtune	NA				x	x	
Mips Technologies	20.08			x	x	x	
Molex	14.15			x		x	
Monster Worldwide	79.77		x	x	x	x	x
msystems[11]	NA		x	x	x	x	
Newpark Resources	NA				x	x	x
Novell	13.62		x			x	
Novellus Systems	48.61		x			x	
Nvidia	104.67		x		x	x	
Nyfix	11.82		x	x	x		
Openwave Systems	35.36		x	x	x	x	
Pixar[12]	NA			x		x	
PMC Sierra	136.97		x	x	x	x	
Power Integrations	11.63		x	x	x	x	x
Progress Software	22.59		x	x	x	x	
Quest Software	NA		x	x	x	x	x
QuickLogic	NA			x		x	
Rambus	56.86	x	x		x	x	x
Redback Networks	37.32			x	x	x	
Renal Care[13]	28.36			x			
Research in Motion	NA			x	x	x	
Restoration Hardware	NA				x	x	
RSA Security	34.53		x	x			
SafeNet	NA	x	x	x	x	x	x
Sanmina-SCI	122.18		x	x	x	x	x
Sapient	23.57				x	x	x
Semtech	58.04		x	x	x	x	
Sepracor	124.06		x	x	x	x	

	Value of	Lawsuits		Disclosures			
Company	In-The-Money Options[2]	Class Action[3]	Derivative[4]	SEC or DOJ Investigation[5]	Restatement or Charges[6]	Internal Investigation[7]	Executive Departure[8]
Sharper Image	NA				x	x	
Sigma Designs	NA		x	x		x	
Silicon Image	NA			x		x	
Sonus Networks	NA				x	x	
Stolt-Nielsen	NA			x	x		
Sunrise Telecom	NA			x	x	x	
Sun-Times Media	NA				x	x	
Sycamore Networks	NA		x	x	x	x	
Sysview Technology	NA						
Take-Two Interactive Software	$6.43		x	x		x	
The Cheesecake Factory	15.31		x	x	x	x	
THQ	21.30		x	x		x	
Trident MicroSystems	2.93		x	x	x	x	x
Ulticom	NA		x	x	x	x	
UnitedHealth	369.83	x	x	x	x	x	x
Valeant Pharmaceuticals	45.09			x	x	x	
Verint	NA			x		x	
VeriSign	NA		x	x		x	
Vitesse Semiconductor	97.94	x	x	x	x	x	x
Western Digital	6.40					x	
Wind River	20.82					x	
Witness Systems	NA	x	x	x	x	x	
Xilinx	195.04		x	x	x	x	
Zoran	NA	x	x	x		x	

Notes and Sources:

1 The universe of companies is defined as those identified by the *Wall Street Journal*'s Options Scorecard as of 11/27/06.

2 In millions of dollars. Defined as the average value of fiscal year-end in-the-money exercisable and unexercisable options from 1997 through 2002. Data are from S&P's ExecuComp Database. NA means the data is not available in the database.

3 Data are from class action complaint documents as of 11/27/06.

4 Data are from news searches as of 11/27/06.

5 Defined as a formal or informal request for information or investigation from the SEC, or a subpoena from the US Attorney's Office.

6 Defined as a company announcement of an actual restatement or charge, or the possibility of a restatement or charge.

7 Defined as a company announcement of an internal investigation relating to the accounting for or grant of stock options.

8 Defined as the resignation or termination of an executive officer or director due to an investigation into the backdating of stock options.

9 Acquired on 01/31/06 by DRS Technologies, Inc.

10 Intuit announced on 10/30/06 that the SEC had notified Intuit that it had terminated its investigation into the company's historical stock option granting practices.

11 Acquired on 11/19/06 by SanDisk Corp.

12 Acquired on 05/05/06 by Walt Disney Co.

13 Acquired on 03/31/06 by Fresenius Medical Care AG & Co.

Although the data found in the above table has been produced and processed from sources believed to be reliable, no warranty, expressed or implied, is made regarding accuracy, adequacy, completeness, legality, reliability, or usefulness of any information.

Contact

For further information and questions, please contact the authors:

Paul Hinton
Vice President
+1 212 345 5360
paul.hinton@nera.com

Dr. Thomas Porter, CPA
Senior Consultant
+1 212 345 9455
tom.porter@nera.com

Dr. Patrick Conroy
Vice President
+1 212 345 1466
patrick.conroy@nera.com

About NERA

NERA Economic Consulting is an international firm of economists who understand how markets work. Our 45 years of experience creating strategies, studies, reports, expert testimony, and policy recommendations reflects our specialization in industrial and financial economics. Our global team of more than 500 professionals operates in 22 offices across North and South America, Europe, Asia, and Australia.

NERA Economic Consulting (**www.nera.com**), founded in 1961 as National Economic Research Associates, is a unit of Mercer Specialty Consulting, an MMC company.