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# Impact of Employee Stock Options on Cash Flow

Conrad S. Ciccotello, C. Terry Grant, and Gerry H. Grant

*Exercise of stock options provides a source of operating cash flow because of the accounting treatment of reduced income tax payments. Tax savings from option exercises can generate a high percentage of a company's total operating cash flow, although this source of cash varies substantially among companies and from year to year. The net effect of option exercises on cash is a function of tax savings, exercise volume and depth, and funding policy. From 1999 through 2001, companies in the S&P 100 Index repurchased stock well in excess of option exercises whereas Nasdaq 100 Index companies tended to meet exercise demand with previously unissued shares. On average, Nasdaq 100 companies would have had to spend 39 cents of every dollar of revenue over the 1999–2001 time frame to fully fund option exercises and avoid increasing the number of shares outstanding. Cash flow effects of option exercises will remain an issue regardless of the expense treatment of stock option grants.*

**D**ebates about whether or not the "fair value" of employee stock options should be expensed on the income statement continue to rage among industry representatives, politicians, and pundits (see Grant and Ciccotello 2002; Ciccotello and Grant 1995). Expense recognition of stock options can have significant effects on net income and earnings per share, so this debate is worth having (see Neill and Pfeiffer 1999; Goldsticker and Agrawal 1999). We show that the cash flow effects of option exercises are equally important and, moreover, will remain an issue for analysts regardless of the expense treatment of stock option grants.

Analysts need to understand that the exercise of stock options leads to tax savings that increase operating cash flow and that the impact varies widely among companies and over time within a company. If analysts are using operating cash flow to assess a company's performance, then option exercises will affect valuation analysis. Net cash flows from option exercises involve both operating and financing effects. The number of options exercised, how deep those options are in the money, and the company's policies to fund exercises determine cash flows from

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financing. Although these cash flows would not generally enter into performance (or valuation) analysis, they matter. A company's decision to repurchase shares to fund option exercises versus to engage in other investment projects affects the company's number of shares outstanding.

## Operating Cash Flow and Option Exercise

DeFond and Hung (2003) found that analysts are increasingly making forecasts of cash flow and paying particular attention to operating cash flows. Accounting income and expense "loopholes" can be manipulated to manage reported earnings, but operating cash flows are thought to represent "real money" that can be used to pay bills as they come due. Unlike investing and financing cash flows, operating cash flows are thought of as repeatable—that is, generated the old-fashioned way: by selling goods and services.<sup>1</sup>

Employee stock options complicate the analysis of operating cash flow. Because most options are issued either at the money or out of the money, the problem does not occur when options are granted; the complication occurs when employees exercise (in-the-money) nonqualified stock options.<sup>2</sup> Exercise actually increases operating cash flows. This strange situation is partly the result of a Financial Accounting Standards Board (FASB) rule issued in 1987, long before the recent controversies about stock option accounting. Statement of Financial Accounting Standards (SFAS) No. 95

requires classification of all income taxes paid as *operating* cash outflows. The FASB concluded that "allocation of income taxes paid to operating, investing and financing activities would be so complex and arbitrary that the benefits, if any, would not justify the costs involved" (see FASB 1987, Paragraph 92).

Upon exercise of employee stock options, the employee commonly pays the exercise price per share to the employer. The employer then issues shares to the employee. The difference between the market price of the stock and the exercise price of the stock option is a tax-deductible expense to the corporation (resulting in an income tax benefit) if the option is nonqualified—even if no expense is recognized on the income statement for financial reporting purposes.

In 2000, the FASB's Emerging Issues Task Force issued EITF 00-15 (see FASB 2000), which states that the tax benefit from option exercises should be classified as an operating cash flow.<sup>3</sup> If the tax benefit is not reported as a separate line item in the cash flow statement, EITF 00-15 requires disclosure of realized material income tax benefits in the statement of owners' equity or in the company's financial statement footnotes.

The effect of options on operating cash flows can be large—particularly for companies that rely heavily on employee stock options to sweeten compensation. For example, few would suspect that in its fiscal year (FY) 1999, almost half of Microsoft Corporation's operating cash flow did not come from selling goods and services. In that year, Microsoft realized more than \$5.5 billion (48.4 percent) of operating cash flows from the tax benefits of exercised employee stock options. Analysts and investors should realize that, although classified as operating, these cash flows are fundamentally different from those related to operations. They can easily dry up if stock options fall out of the money and option exercises decrease. For example, in FY2001, Microsoft's tax benefit from the exercise of stock options accounted for only 11 percent of operating cash flows (a fall from \$5.5 billion to \$1.6 billion).

Microsoft is an interesting example, but the question is: How do the effects on operating cash of option exercises differ among companies and over time? **Table 1** and **Table 2** provide the option-exercise tax savings as a percentage of operating cash flow for companies in, respectively, the Nasdaq 100 and the S&P 100 for 1999–2001.<sup>4</sup> A comparison of Tables 1 and 2 shows that the impact of option exercise on the Nasdaq 100 companies is about 10 times what it is for the S&P 100 companies in percentage terms. For S&P 100 companies, the

option-exercise tax savings tended to be only 1–3 percent of operating cash flow. For two companies in the Nasdaq 100, i2 Technologies and Brocade Communications, the three-year cumulative tax savings from option exercises actually exceeded three-year operating cash flow.<sup>5</sup> The average tax savings in dollars, however, is larger for these S&P 100 companies than for the Nasdaq 100 companies, which reflects the S&P 100 companies' larger operating cash flows.

Tables 1 and 2 also highlight how volatile the tax savings can be within companies from year to year. Some companies, such as Conexant Systems, shown in Table 1, had more than \$100 million in savings in one year and virtually no savings in the next year. The median coefficient of variation (CV) of the annual tax savings is similar for the Nasdaq and S&P samples—respectively, 65 percent and 60 percent.<sup>6</sup> This high volatility in the tax savings from year to year suggests that analysts should factor the effect into their assessment of companies' operations.

Companies report the tax savings in various places (as Tables 1 and 2 note) and various ways, as **Table 3** illustrates. Some 36 percent of the combined Nasdaq/S&P 100 sample reported directly in the operating section of the statement of cash flows (SCF), but 34 percent of the sample reported either in the statement of owners' equity (SOE) or in footnotes in company reports. About 30 percent of the companies did not report option-exercise tax savings, perhaps because they were following the guidance that nonmaterial savings need not be reported.

Table 3 also shows differences between Nasdaq 100 and S&P 100 companies in where these tax savings are reported. Nasdaq 100 companies tend to report in the SCF; S&P 100 companies, in the SOE or footnotes. The split is quite wide; 53 percent of the Nasdaq 100 companies reported in the SCF versus only 17 percent of the S&P 100 companies. Companies with a larger percentage impact of the savings on operating cash flow, which tend to be the Nasdaq 100 companies, also tend to report in the SCF.

## Net Cash Flows from Option Exercises

Option exercises affect cash flows in three possible ways. First, exercises increase operating cash flows from tax savings. Second, exercises provide (financing) cash inflows when an employee pays the exercise price.<sup>7</sup> Third, the company may use (financing) cash to purchase shares to meet option exercises. If the company purchases shares in the open market to meet the exercises, then a cash outflow occurs equal to the market price of the shares. Companies

**Table 1. Tax Benefits of Exercised Stock Options for Nasdaq 100 Companies, 1999–2001**

| Company/Index                   | Disclosure Location | Tax Benefit (millions) |       |       | Cumulative Benefit as Percent of Cumulative Operating Cash Flow |
|---------------------------------|---------------------|------------------------|-------|-------|---|
|                                 |                     | 1999                   | 2000  | 2001  |   |
| Top five companies <sup>a</sup> |                     |                        |       |       |   |
| i2 Technologies                 | SCF                 | \$ 41                  | \$327 | \$ 43 | 179%  |
| Brocade Communications          | SCF                 | 0                      | 148   | 105   | 128   |
| CIENA Corp.                     | SCF                 | 11                     | 155   | 72    | 97  |
| Invitrogen Corp.                | Footnote            | 6                      | 28    | 21    | 90  |
| Conexant Systems                | SOE                 | 21                     | 166   | 2     | 84  |
| Nasdaq 100                      |                     |                        |       |       |   |
| Median                          |                     | \$ 15                  | \$ 27 | \$ 19 | 13%   |
| Mean                            |                     | 122                    | 138   | 69    | 20  |

Notes: SCF = statement of cash flows; SOE = statement of owners' equity.

<sup>a</sup>Ranked on the basis of cumulative tax benefit of exercised stock options as a percentage of cumulative operating cash flow.

**Table 2. Tax Benefits of Exercised Stock Options for S&P 100 Companies, 1999–2001**

| Company/Index      | Disclosure Location | Tax Benefit (millions) |        |       | Cumulative Benefit as Percent of Cumulative Operating Cash Flow |
|--------------------|---------------------|------------------------|--------|-------|---|
|                    |                     | 1999                   | 2000   | 2001  |   |
| Top five companies |                     |                        |        |       |   |
| MedImmune          | SOE                 | \$ 67                  | \$ 112 | \$ 25 | 42%   |
| Cisco Systems      | SCF                 | 837                    | 2,495  | 1,397 | 28  |
| AOL Time Warner    | SOE                 | 551                    | 711    | 1,446 | 23  |
| Microsoft          | SCF                 | 5,535                  | 2,066  | 1,596 | 23  |
| Oracle Corp.       | SOE                 | 493                    | 1,149  | 44    | 20  |
| S&P 100            |                     |                        |        |       |   |
| Median             |                     | \$ 12                  | \$ 9   | \$ 13 | 1%  |
| Mean               |                     | 149                    | 167    | 95    | 3   |

Note: See notes to Table 1.

**Table 3. Disclosure Location and Size of Cumulative Tax, 1999–2001**

| Sample                      | Number of Companies | Percent of Companies | Median Tax Benefit as Percent of Operating Cash Flow |
|-----------------------------|---------------------|----------------------|--|
| SCF Disclosure              |                     |                      |  |
| Total sample                | 67                  | 36%                  | 17.8%  |
| Nasdaq 100                  | 52                  | 53                   | 19.8   |
| S&P 100                     | 15                  | 17                   | 3.3  |
| SOE or Footnotes Disclosure |                     |                      |  |
| Total sample                | 63                  | 34%                  | 4.6%   |
| Nasdaq 100                  | 26                  | 26                   | 12.2   |
| S&P 100                     | 37                  | 43                   | 3.6  |
| No Disclosure               |                     |                      |  |
| Total sample                | 55                  | 30%                  | na   |
| Nasdaq 100                  | 21                  | 21                   | na   |
| S&P 100                     | 34                  | 40                   | na   |

Notes: SCF = statement of cash flows; SOE = statement of owners' equity; na = tax benefit not disclosed.

are not required, however, to purchase shares to meet option-exercise demands. A company can use existing company treasury shares (previously issued but already repurchased), or a company may have a policy of using authorized but previously unissued shares to meet option exercises.<sup>8</sup> In this portion of our study, we set out to calculate the net cash flows from option exercises.

**Method.** We first computed the net cash required to keep the number of shares outstanding constant—the no-dilution condition.<sup>9</sup> Using either existing treasury shares or previously unissued shares to meet option exercises increases the number of shares outstanding, so the no-dilution condition requires that shares be repurchased in the market to meet exercise demand. Both the employee payment of the exercise price and the tax savings provide an inflow to help offset the cash required to purchase shares and are thus part of the equation. The net cash required to keep the number of shares outstanding constant for any period was computed as follows:

$$\text{NETCASH} = \Sigma[(MP - EP)(\text{Number of options exercised}) - (\text{Reported tax savings})]$$

We computed NETCASH on an annual basis and summed over the years 1999 through 2001. As a proxy for market price, *MP*, at the exercise date, we used daily average stock price for the year of exercise (adjusted for splits).<sup>10</sup> Similarly, we used the weighted-average option-exercise price, *EP*, for the year as obtained from the footnotes in company reports.

**Results and Discussion.** The NETCASH required for keeping the number of shares outstanding constant for the Nasdaq 100 and S&P 100 companies is shown in **Table 4**. As was found for the tax savings, NETCASH is quite volatile for Nasdaq and for S&P 100 companies.<sup>11</sup> To assess the overall

effect, the last column shows the three-year net cash requirement as a percentage of three-year revenue. For Nasdaq 100 companies, the results are striking: The mean (median) company must devote 39 (7) cents of every dollar of revenue to share repurchases to keep the number of shares outstanding constant. For S&P 100 companies, the mean (median) impact is about 3 cents (1 cent) per dollar of revenue.

Companies repurchase shares for various reasons, including the need to fund option exercises. Kahle (2002) examined open market repurchases and employee options and found that some of the variance in funding policy depends on whether executives (versus other employees) have large numbers of options outstanding. Although our data do not permit an examination of employee versus executive exercises, the data do allow us to examine the relationship between share repurchases and option exercises in the aggregate.

For this purpose, we first computed the ratios of cash for repurchases (or number of shares repurchased) to NETCASH (number of shares exercised) required for no increase in the number of shares outstanding. Ratios less than 1 indicate that option exercises were diluting ownership. **Table 5** shows the ratios for the 1999–2001 period. The median Nasdaq 100 company did not repurchase any shares; so, the median Nasdaq 100 ratio is zero. The median S&P 100 company, however, spent about three times the cash needed to cover the no-dilution exercise demand.

**Table 5** also provides the analogous data using numbers of shares repurchased. The median Nasdaq 100 company repurchased no shares over the 1999–2001 time frame, whereas the median S&P 100 company covered option exercises by a factor of 1.53. The Wilcoxon test is a nonparametric procedure used here to test the hypothesis that the cash ratios (share ratios) are different for Nasdaq 100 and S&P 100 companies. The Z-score test statistic

**Table 4. Net Cash Needed to Fund Option Exercises without Share Dilution, 1999–2001**

| Index/Measure      | Cost<br>(millions) |       |       | Tax Benefit<br>(millions) |       |       | Net Cash Needed<br>(dollars in millions) |       |       | As Percent<br>of Revenue |
|--------------------|--------------------|-------|-------|---------------------------|-------|-------|--|-------|-------|--------------------------|
|                    | 1999               | 2000  | 2001  | 1999                      | 2000  | 2001  | 1999                                     | 2000  | 2001  |                          |
| <i>Nasdaq 100</i>  |                    |       |       |                           |       |       |  |       |       |                          |
| Mean               | \$403              | \$738 | \$269 | \$ 98                     | \$174 | \$ 74 | \$307                                    | \$565 | \$197 | 38.5%                    |
| Median             | 102                | 174   | 83    | 15                        | 27    | 19    | 73                                       | 146   | 54    | 6.7                      |
| <i>S&amp;P 100</i> |                    |       |       |                           |       |       |  |       |       |                          |
| Mean               | \$515              | \$724 | \$331 | \$121                     | \$207 | \$100 | \$391                                    | \$517 | \$231 | 2.4%                     |
| Median             | 136                | 118   | 63    | 12                        | 9     | 13    | 108                                      | 91    | 43    | 0.8                      |

Note: Cost is the stock price minus exercise price of options, multiplied by the number of options exercised.

**Table 5. Median Ratios of Cash Spent (Number of Shares Repurchased) to Cash (Shares) Necessary to Fund Option Exercises without Dilution, 1999–2001**

| Index/Ratio                       | 1999   | 2000   | 2001   | Cumulative<br>1999–2001 |
|-----------------------------------|--------|--------|--------|-------------------------|
| <i>Nasdaq 100</i>                 |        |        |        |                         |
| Cash ratio                        | 0.00   | 0.00   | 0.00   | 0.00                    |
| Share ratio                       | 0.00   | 0.00   | 0.00   | 0.00                    |
| <i>S&amp;P 100</i>                |        |        |        |                         |
| Cash ratio                        | 1.97   | 2.77   | 2.46   | 3.03                    |
| Share ratio                       | 1.15   | 1.84   | 1.15   | 1.53                    |
| <i>Wilcoxon test: cash ratio</i>  |        |        |        |                         |
| Z-Score                           | -6.092 | -5.247 | -5.156 | -6.118                  |
| p-Value                           | 0.000  | 0.000  | 0.000  | 0.000                   |
| <i>Wilcoxon test: share ratio</i> |        |        |        |                         |
| Z-Score                           | -7.170 | -6.855 | -5.740 | -7.190                  |
| p-Value                           | 0.000  | 0.000  | 0.000  | 0.000                   |

Note: Options and shares in millions.

provides a measure of the differences in ratios for the two groups, whereas the *p*-value indicates the level of statistical significance in these ratios. As indicated in Table 5, both the cash and share ratios are statistically different for Nasdaq 100 and S&P 100 companies at the 0.000 level for all three years.

Table 6 shows that the median Nasdaq 100 company added nearly 11 million shares outstanding from the excess of option exercises over repurchases during the 1999–2001 time frame. The median percentage growth in Nasdaq 100 shares from option exercises alone over the three-year period was just over 5 percent.

In stark contrast, S&P 100 companies more than covered their option exercises with share repurchases. Table 6 shows that the median S&P 100 company purchased nearly 11 million shares in excess of option exercises during 1999–2001. Unlike Nasdaq 100 companies, S&P 100 companies tended not to dilute ownership from option exercise: The median company's shares outstanding *dropped* by more than 1 percent.

Lenzner (2002) argued that mutual fund managers are becoming increasingly concerned about option grants that dilute ownership. Our results suggest that dilution differs widely between Nasdaq and S&P companies. As discussed in the next section, the choice by Nasdaq 100 company managers to use cash to fund new projects rather than engage in share repurchases to meet option-exercise demand could be consistent with value maximization. Nevertheless, the results suggest that fund managers (and analysts) are wise to be concerned about the effects of option exercises.

If a company repurchased shares to precisely coincide with the exercise of options, the after-tax difference between the repurchase price of the shares and the exercise proceeds would logically represent the economic cost of these options.<sup>12</sup> Although purchasing shares in the open market and reissuing those shares to employees at below-market prices represents an economic loss to the company, it does not lead to a reported accounting loss. Under current accounting rules, compensation expense is generally measured when the options are issued. Because most options are issued out of the money, typically no compensation expense is ever recognized (most companies elect to follow the guidance of Accounting Principles Board Opinion No. 25 as permitted under SFAS No. 123).<sup>13</sup> Instead, if treasury shares are issued when stock options are exercised, companies directly reduce shareholders' equity by decreasing a capital account and/or retained earnings.<sup>14</sup>

The expense treatment of options has been a hot issue for nearly a decade (Ciccotello and Grant). But analysts should recognize that even if options were to be expensed at fair value upon grant, such action would not remove the need to understand the cash flow issues associated with option compensation. Tax savings from option exercises will continue to be a significant but variable component of operating cash flow for many companies. Option exercises will also continue to affect NETCASH and the potential dilution of ownership.

**Table 6. Median Growth in Shares Outstanding from Option Exercises, 1999–2001**

| Index             | Options<br>Exercised | Shares<br>Purchased | Options<br>Exercised Less<br>Shares Purchased | Shares<br>Outstanding<br>FY End 2001 | Percent Growth in<br>Shares from Exercises<br>1999–2001 |
|-------------------|----------------------|---------------------|---|--------------------------------------|---|
| Nasdaq 100 median | 14.8                 | 0.0                 | 10.6  | 239.2                                | 5.2%  |
| S&P 100 median    | 17.0                 | 31.5                | -10.7   | 711.7                                | -1.1%   |

Note: Shares in millions.

## Future Cash Flow and Dilution Effects

Given the widespread use of options as a compensation tool, analysts should be able to assess the future as well as current impact of option exercise on cash flow. **Table 7** shows that as of the end of 2001, Nasdaq 100 companies, on average, had higher ratios of currently exercisable and outstanding options to shares outstanding than did S&P 100 companies. Even with the large drop in the value of technology shares during 2000 and 2001, Nasdaq 100 companies' options were still deeper in the money than those of S&P 100 companies. Nasdaq 100 companies' share prices were also much more volatile in this period than were S&P 100 companies' share prices. Nasdaq 100 companies reported mean (median) stock price variability of 71.5 percent (70.5 percent), compared with 39.1 percent (35.0 percent) for S&P 100 companies.<sup>15</sup>

Table 7 indicates that option value is positively related to the volatility of the underlying security. The Wilcoxon test statistic was used here to test the hypothesis that the ratios of currently exercisable options, outstanding options, and common stock price variability are different for Nasdaq 100 and S&P 100 companies. As the *p*-values indicate, all ratios are statistically different for Nasdaq 100 and S&P 100 companies at the 0.000 level.

All these factors point to a greater risk of dilution from option exercises in Nasdaq 100 companies than in S&P 100 companies. When assessing option-funding policies and dilution, however, analysts should also consider the company's investment opportunities. Pursuing projects with positive net

present values (rather than repurchasing shares) can increase overall share value, even if option exercises lead to more shares outstanding. Although Nasdaq companies spent much less on share repurchases than S&P 100 companies during the 1999–2001 time frame, the reason could be the relative abundance of growth opportunities for Nasdaq companies. With the slowing of the technology industry's growth, Nasdaq companies may well begin to repurchase stock.<sup>16</sup> To the extent that a period of slowing investment opportunity coincides with flat or declining stock values, stock repurchases may rise when the level of option exercises drops (and vice versa).

Even though stock repurchases and option exercises may be uncorrelated (or even negatively correlated) in the short run, over time, the *NET-CASH* measure still captures the "burden" that option compensation must overcome to provide shareholder value. To create value for shareholders, employee stock options must create incentives for managers sufficient to offset the net claim that options place on revenue.

The Table 7 results also highlight the potential effects of "repricing" stock options to move them "back to the money." This move can be structured to avoid recognizing stock option expenses on the income statement (see Grant and Ciccotello 2002), but the cash flow and dilution impacts of repricing will be severe. Table 4 shows that, although operating cash flows from tax savings are significant, net financing outflows greatly outstrip cash inflows from tax savings. If options are in the money because of aggressive repricing rather than significant appreciation, additional uses of cash

**Table 7. Factors Affecting Future Cash Flows and Dilution from Option Exercises: As of End of FY2001**

| Index/Measure        | Exercisable Options  |   | Total Outstanding Options  |   |                                      |
|----------------------|--|---|--|---|--------------------------------------|
|                      | Ratio of Stock Price to Weighted-Average Exercise Price of Exercisable Options | Exercisable Options as Percent of Common Shares Outstanding | Ratio of Stock Price to Weighted-Average Exercise Price of Total Outstanding Options | Total Outstanding Options as Percent of Common Shares Outstanding | Common Stock Volatility <sup>a</sup> |
| <i>Nasdaq 100</i>    |  |   |  |   |                                      |
| Mean                 | 1.95   | 6.9%  | 1.34   | 15.3%   | 71.5%                                |
| Median               | 1.60   | 5.6   | 1.22   | 13.7  | 70.5                                 |
| <i>S&amp;P 100</i>   |  |   |  |   |                                      |
| Mean                 | 1.32   | 4.4%  | 1.05   | 8.2%  | 39.1%                                |
| Median               | 1.14   | 3.8   | 1.03   | 7.8   | 35.0                                 |
| <i>Wilcoxon test</i> |  |   |  |   |                                      |
| Z-Score              | -3.366   | -4.516  | -2.704   | -6.323  | -8.796                               |
| <i>p</i> -Value      | 0.001  | 0.000   | 0.007  | 0.000   | 0.000                                |

Note: Options and shares are in millions.

<sup>a</sup>Measured by standard deviation of stock price.

will occur when the company has not had the benefit of improved performance (or the expectation of such improvement).

## Conclusion

Expense recognition of employee stock options is a hot topic, but understanding the cash flow effects of options is also a worthwhile endeavor. We have alerted analysts to these cash flow effects. A striking result of option exercise is that it actually increases operating cash flow. The reason is that the exercise of nonqualified stock options creates a tax-deductible expense. This source of operating cash varies from year to year for an individual company and varies widely among types of companies. As a percentage of operating cash flow, the mean and median impacts we found were much larger for Nasdaq 100 companies than for S&P 100 companies.

Changes in net cash flow from option exercises are a function of tax savings, the number of exercises, how deep the options are in the money, and funding policies. We determined that to keep the number of outstanding shares constant, the mean

Nasdaq 100 company would have had to spend 39 cents of every dollar of revenue on share repurchases in the 1999–2001 period. Few Nasdaq 100 companies repurchased any shares in this period, however, perhaps because of the abundance of other investment opportunities. The result was growth of the number of shares outstanding from option exercises in Nasdaq 100 companies. In contrast, during this period, S&P 100 companies tended to repurchase shares in excess of option-exercise demand.

Nasdaq 100 companies also face greater potential for continued dilution from option exercises. Relative to S&P 100 companies, Nasdaq 100 companies' shares are more volatile, their options are deeper in the money, and their options constitute a greater percentage of shares outstanding. Together, the results suggest that analysts should be attentive to the cash flow effects of option exercises, which will continue regardless of how the income effects of options are reported.

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## Notes

1. We do not mean to imply that operating cash flow is entirely free from other confounding tax effects that come from actions other than option exercise. For example, the cash flow from the sale of a long-term depreciable asset has tax effects.
2. Nonqualified stock options are governed by general U.S. Internal Revenue Code principles of compensation because these plans do not meet the specific requirements of statutory or qualified options (qualified options are usually awarded in the form of incentive stock options). Code requirements for qualified options include shareholder approval of the number of shares that may be issued as options and who may receive the options [see Code section 422(a)], restrictions from granting options to employees who own more than 10 percent of the combined voting power of all classes of stock [Code section 422(b)], and restrictions on sale of the stock within one year from the date the option was exercised [Code section 422(a)]. Upon exercise of a nonqualified stock option, the employee recognizes ordinary income measured as the market value of the stock on the exercise date minus the exercise price. The granting corporation is allowed to deduct a like amount in the year in which the option value is included in the gross income of the employee. In contrast, incentive stock options generally do not result in taxable income to the employee (except possibly Alternative Minimum Tax) and the granting corporation does not receive a tax deduction.
3. The EITF was formed in 1984 to provide timely financial reporting guidance. The EITF comprises a diverse group, primarily from public accounting firms. The chief accountant of the U.S. SEC, however, regularly attends EITF meetings. If the EITF reaches a consensus on an issue, the FASB usually accepts this position as an authoritative part of generally accepted accounting principles and takes no further action.
4. Graham, Lang, and Shackelford (2002) and Cipriano, Collins, and Hribar (2002) used the Nasdaq 100 and S&P 100 samples to test issues related to options. As in those papers, we eliminated financial institutions from the sample because of the peculiarities in their reporting of cash flows.
5. Tax savings exceeding operating cash flow would also be the case for companies with negative three-year operating cash flows. We do not show these companies in the "top five."
6. The median CV was computed on a company-by-company basis as the standard deviation of the annual tax savings for 1999–2001 divided by the mean.
7. In some cases, companies lend employees the money for the exercise price. We do not evaluate that situation here.
8. Unissued shares are often "reserved" for option programs.
9. The use of net cash (as we have defined it) is not meant to imply that any growth in the number of shares outstanding from option exercises must harm shareholders. Whether option compensation helps or harms shareholders is an empirical issue. Although early studies of employee stock option grants showed a positive market reaction, some later studies found a negative reaction, especially in the case of plans with high potential for dilution (see Martin and Thomas 2003). Net cash as defined here also complements the research of Hall and Murphy (2003), who argued that options are "over-used" as compensation.
10. This measure understates the net cash impact to the extent that employees can time exercise to coincide with points during the year when the stock price is above its average. But the impact could be overstated slightly because we assumed that those companies (about 30 percent of the sample) that did not report tax savings from option exercises had no tax savings. Because companies are not required to report unless the savings are "material," the overstatement should be small.

11. Dividing the "Cost" column (Market price – Exercise price × Number of options exercised) into the appropriate year's "Tax Benefit" column gives an estimate of the tax savings percentage of about 25 percent in most cases. Because most of these companies are in the 35 percent marginal tax bracket, an implication of this analysis is that about two-thirds (25/35) of the options exercised were in-the-money nonqualified stock options (NQSO) versus incentive stock options. Recall, however, that about 30 percent of the companies did not report any (material) tax savings. So, we cannot calculate the percentage of options exercised during this time that were NQSO, although we can state that at least two-thirds were NQSO.
12. See Chance (1997) for additional discussion of using derivative securities as compensation.
13. In March 2003, the FASB added equity-based compensation to its agenda, with the stated objective of achieving convergence with the International Accounting Standards Board to a single global accounting standard for equity-based compensation. This new standard is expected to require expensing of all employee stock options. The FASB has announced its intent to issue an Exposure Draft of the proposed new rule during the first quarter of 2004, with the issuance of a final rule planned during the third quarter of 2004.
14. Most companies account for treasury stock by using the cost method, in which the cost of repurchased shares is debited to treasury stock and reported as a reduction to shareholders' equity. If the company subsequently sells treasury stock at a higher price than it paid to repurchase the shares, the difference is credited to paid-in capital from treasury stock—an increase to shareholders' equity. If the company sells treasury stock at a lower price than it paid to repurchase the shares, the difference is debited to paid-in capital from treasury stock. Once the credit balance in paid-in capital from treasury stock is eliminated, any additional excess of cost over selling price is debited to retained earnings.
15. Companies report variability of stock price in the footnotes, as required by SFAS No. 123.
16. A sign may be that Cisco Systems repurchased more than \$4.5 billion of its stock during the nine-month period ending April 2003.

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## References

- Chance, Don. 1997. "A Derivative Alternative as Executive Compensation." *Financial Analysts Journal*, vol. 53, no. 2 (March/April):6–8.
- Ciccotello, Conrad S., and C. Terry Grant. 1995. "Employee Stock Option Accounting Changes." *Journal of Accountancy*, vol. 179, no. 1 (January):72–77.
- Cipriano, Michael, Daniel Collins, and Paul Hribar. 2002. "An Empirical Analysis of the Tax Benefit from Employee Stock Options." Working paper, Cornell University.
- DeFond, Mark, and Mingyi Hung. 2003. "An Empirical Analysis of Analysts' Cash Flow Forecasts." *Journal of Accounting and Economics*, vol. 35, no. 1 (April):73–100.
- FASB. 1987. Statement of Financial Accounting Standards No. 95: *Statement of Cash Flows*. Stamford, CT: Financial Accounting Standards Board (November).
- . 1995. Statement of Financial Accounting Standards No. 123: *Accounting for Stock-Based Compensation*. Stamford, CT: Financial Accounting Standards Board (November).
- . 2000. EITF 00-15: *Classification in the Statement of Cash Flows of the Income Tax Benefit Received by a Company upon Exercise of a Nonqualified Employee Stock Option*. Norwalk, CT: FASB Emerging Issues Task Force (July).
- Goldsticker, Ralph P., and Pankaj Agrawal. 1999. "The Effects of Blending Primary and Diluted EPS Data." *Financial Analysts Journal*, vol. 55, no. 2 (March/April):51–60.
- Graham, John, Mark Lang, and Douglas Shackelford. 2002. "Employee Stock Options, Corporate Taxes, and Debt Policy." Working paper, Duke University.
- Grant, C. Terry, and Conrad S. Ciccotello. 2002. "The Stock Options Accounting Subterfuge." *Strategic Finance*, vol. 83, no. 10 (April):37–41.
- Hall, Brian, and Kevin J. Murphy. 2003. "The Trouble with Stock Options." National Bureau of Economics Research Working Paper No. W9784.
- Kahle, Kathleen. 2002. "When a Buyback Isn't a Buyback: Open Market Repurchases and Employee Options." *Journal of Financial Economics*, vol. 63, no. 2 (January):235–261.
- Lenzner, Robert. 2002. "Options Vigilantes." *Forbes* (23 December):67–68.
- Martin, Kenneth J., and Randall S. Thomas. 2003. "When Is Enough, Enough? Market Reaction to Highly Dilutive Stock Option Plans and the Subsequent Impact on CEO Compensation." Vanderbilt Law and Economics Research Paper No. 03-06.
- Neill, John D., and Glenn M. Pfeiffer. 1999. "The Effects of Potentially Dilutive Securities on P/Es." *Financial Analysts Journal*, vol. 55, no. 4 (July/August):58–64.