

**Accounting for Tax Benefits of Employee Stock Options and
Implications for Research**

Michelle Hanlon

Doctoral Candidate

and

Terry Shevlin

Deloitte & Touche Professor of Accounting

Department of Accounting

University of Washington

Box 353200

Seattle, WA 98195-3200

(shevlin@u.washington.edu)

November 7, 2001

The authors would like to thank Bob Bowen, Robert Freeman, Jim Jiambalvo, Bob Lipe, Steve Matsunaga, Susan Moyer, Tricia O'Malley, and two anonymous referees for helpful feedback and discussion on this paper.

Accounting for Tax Benefits of Employee Stock Options and Implications for Research

Abstract:

This paper examines how firms account for and report the tax benefits of employee stock options (ESOs). The tax benefits of ESOs reduce taxes actually owed but enter stockholders' equity directly without reducing reported income tax expense. Failing to adjust reported income tax expense for this benefit can lead to poorly specified studies with the distinct possibility of considerable measurement error and flawed inferences.

We explain the adjustments needed for more accurate estimates of effective tax rates, tax burdens and marginal tax rates often critical to analyses of firm-specific and public policy issues. We document problems with firms' disclosures and, using a sample of large NASDAQ firms likely to be heavy users of ESOs, find that adjusting for the ESO tax benefit is essential to understanding the impact of taxes on those firms.

Accounting for Tax Benefits of Employee Stock Options and Implications for Research

INTRODUCTION

A recent article in the *Wall Street Journal* entitled “Cisco, Microsoft Get Income Tax Break On Gains From Employee Stock Options” reports that for its fiscal year ended July 29, 2000, Cisco received a tax benefit of nearly \$2.5 billion dollars from the exercise of employees’ stock options (ESOs). As a result, the company paid little or no federal income taxes while reporting \$2.67 billion in profits.¹ Cisco obtained the tax benefits by taking an income tax deduction equal to the gain recognized by employees on the exercise of their nonqualified options. Although this tax deduction and the rules for accounting for ESOs are generally well understood, what is not as well understood is the *accounting* for the *income tax benefits* of ESOs.

This paper explains the accounting for and disclosure of the income tax benefits of ESOs and discusses the implications of these disclosures for academic researchers and financial statement users. A principal finding is that the accounting treatment causes overstatement of reported effective tax rates, and estimates of marginal tax rates and tax burdens.

We illustrate the issues by examining NASDAQ 100 firms’ tax footnotes. Such firms are expected to be big beneficiaries of stock option deductions. We estimate these firms’ tax burdens after taking the deduction for ESOs into account and compare these to the firms’ unadjusted tax burdens. Although the mean unadjusted tax burden for the firms with the necessary data is 37.08% for 1999, the mean adjusted tax burden is only 19.3%. An easy fix for the overstatement might appear to simply deduct the reported ESO tax benefit from the reported current tax expense to derive the correct tax burden on current-period taxable income. However,

because of the accounting for income taxes by loss firms, the period in which the ESO tax benefit is realized in cash can differ from the period when recognized as a credit to Additional Paid-In Capital. The calculation for loss firms requires an estimate of the ESO tax deduction for the period, which we can make using the stock option note.

BACKGROUND

SFAS 123, “Accounting for Stock-Based Compensation,” encourages firms to recognize as compensation expense the fair value of ESOs at the measurement date, but allows firms to continue accounting for ESOs under APB No. 25, “Accounting for Stock Issued to Employees.” Under APB 25, compensation expense equals “intrinsic value” – the difference between the stock price and exercise price of the option – on the measurement date, the date on which both the exercise price and number of options are known. For fixed option grants, the measurement date is the grant date while for performance-based grants the measurement date is the date on which the performance criteria are met. Because most firms grant a fixed number of options with an exercise price equal to the stock price on the grant date, the grant date becomes the measurement date and the intrinsic value and compensation expense are zero. Firms that continue to apply APB 25 must disclose in the notes the effects of fair value accounting of ESOs on reported earnings and earnings per share. Because almost all firms apply APB 25 accounting with note disclosure, the recognized ESO compensation expense is zero for most firms.²

Nonqualified stock options (NQOs) give the granting firm a tax deduction equal to the amount of ordinary income recognized by the employee on the exercise date. The ESO tax

¹ See Buckman (10/10/2000, B8) in the *Wall Street Journal*. See also Pender (10/10/2000) in the *San Francisco Chronicle*, Marshall (10/10/2000) in the *San Jose Mercury News*, and Loomis (12/18/2000, 44) in *Fortune* for a similar discussion.

² Bear Stearns reports that only 2 of the Fortune 500 companies recognize compensation expense for ESOs: Boeing and Winn Dixie. See McConnell, Pegg and Zion (2000).

deduction equals the intrinsic value of the options on the exercise date.³ Thus for NQOs, the firm obtains a tax deduction in the exercise year but under APB 25 treatment, recognizes no compensation expense for financial reporting purposes. Thus a difference exists between book and taxable income.⁴ APB 25 requires that the tax benefits related to this difference be accounted for as a credit to Additional Paid-In Capital (pars 16, 17) with an offsetting debit to Income Taxes Payable. The Board's reasoning was that the tax benefits are related to a capital transaction with the owners of the company rather than a transaction reflected in the income statement (see APB 25, par 17).⁵ However, as a result of this accounting treatment, the current portion of the total tax expense (provision) reported in firms' financial statements overstates the actual taxes due on the firms' current period taxable income by the amount of the ESO tax benefit.⁶

ACCOUNTING FOR THE TAX BENEFIT OF ESOs

We describe the accounting for ESO tax benefits under three broad scenarios: profitable firms, loss firms with no valuation allowance, and loss firms with a valuation allowance. For financial reporting, the current portion of the total tax expense, excluding the tax effects of discontinued operations and similar items which are reported net of tax, is

$$\text{Current tax expense} = (\text{pretax book income} - \text{book tax differences}) \times \text{statutory tax rate.} \quad (1)$$

³The tax code identifies two types of ESOs: statutory (or qualified options or incentive options, ISOs) and nonstatutory (or nonqualified options, NQOs). Unless otherwise noted, we mean nonqualified options when discussing ESOs. When we estimate ESO tax deductions from firm stock option disclosures, we assume all exercises are of NQOs. Because the tax code limits the amount of ISOs that can be issued to any one individual, we believe that many firms issue mostly NQOs. For further discussion of NQOs, ISOS, disqualifying dispositions, and firm granting behavior, see Scholes et al. (2002, Chapter 8) and Austin et al. (1998).

⁴ Prior to SFAS 109 "Accounting for Income Taxes," this difference is similar to a permanent difference but is not accounted for as such.

⁵ Four members of the Accounting Principles Board took exception to this treatment (APB 25, par 20) arguing that it should be a reduction in tax expense. FASB agreed with the APB 25 treatment (SFAS 123, par 228) "The Board agrees ... that the additional tax benefits are attributable to an equity transaction."

⁶ Note also that several other items also are charged to shareholders' equity per SFAS 109 par 36. These other items (mostly technical in nature) are not as widespread among corporate America nor as large a dollar item for

If ESO tax benefits are not treated as a book-tax difference, then current tax expense is overstated in equation (1). Because the term inside the brackets approximates taxable income, when researchers estimate taxable income from financial statement disclosures as

$$\text{Estimated taxable income} = \text{current tax expense} / \text{statutory tax rate}, \quad (2)$$

current tax expense is overstated by the ESO tax benefits and estimates of taxable income are overstated.

Before discussing our scenarios, we distinguish among three important concepts. *ESO tax deduction* refers to the dollar amount the firm deducts on its tax return in the period in which ESOs are exercised. *ESO recognition* refers to both the dollar amount and time period in which the firm recognizes the ESO tax benefit as a credit to shareholders' equity. Finally, *ESO realization* refers to both the dollar amount and timing of the actual cash savings from the ESO tax deduction as reported on the Cash Flow Statement. The cash flow adjustment is an adjustment necessary to obtain the cash outflow for corporate income taxes because the ESO tax benefit did not reduce current tax expense in the income statement.⁷

Positive Taxable Income

A firm with positive taxable income takes a deduction for the intrinsic value of any options exercised during the year (ESO deduction). Because this stock option amount is not an expense under SFAS 123, book income exceeds taxable income. Failure to treat the stock option deduction as a book-tax difference means that current tax expense exceeds the tax liability on the tax return. For example, suppose a firm with pretax book income of \$12,000 has a \$2,000 deduction for stock options exercised, faces the statutory 35% tax rate, and has no other book-tax

most companies. Nevertheless, users of financial statements should be aware of their effects on current tax expense as an estimate of the current tax burden.

⁷ Some firms include this adjustment in the operating cash flow section while others, e.g., Microsoft, up until its 9/18/2000 filing, include it in the financing section presumably because the ESO tax benefit is a credit to

differences. Its cash payment for taxes is \$3,500 $[(\$12,000 - \$2,000) \times .35]$. Current tax expense for financial reporting purposes is \$4,200 $[(\$12,000 - \$0) \times .35]$, per equation (1). Therefore, the current tax expense on the financial statements is overstated, relative to the tax due, by the tax benefits of the stock options, in this case $\$2,000 \times .35$ or \$700. A summary journal entry debits current tax expense for \$4,200, credits cash for \$3,500, and credits shareholders' equity for the difference of \$700. This firm reports an effective tax rate (ETR) of 35% in its financial statements and taxable income estimated from current tax expense is \$12,000 $(\$4,200/.35)$, per equation (2).

If the ESO deduction is considered a book-tax difference, the current tax expense per equation (1) is \$3,500 $[(\$12,000 - \$2,000) \times .35]$ and the journal entry has only a single credit to cash of \$3,500 and no direct impact on shareholders' equity. The ETR is now 29% $(\$3,500/\$12,000)$ and estimated taxable income using current tax expense is \$10,000 $(\$3,500/.35)$.

In this scenario, the adjustment to correct for the overstatement of current tax expense under APB 25 subtracts the tax benefit of stock options reported in the Statement of Shareholders' Equity from reported current tax expense. Subtracting the ESO tax benefits of \$700 $(\$4,200 - \$3,500)$ in the example yields \$3,500, the actual tax liability on the tax return, and the correct estimate of taxable income, \$10,000 $(\$3,500/.35)$. Unfortunately, all firms do not disclose the tax benefit of stock options separately in the equity statement. In addition, researchers cannot obtain this amount from sources such as Compustat or Compact Disclosure and must hand collect it from annual reports or 10Ks.

shareholders' equity and SFAS 95 states that issuing equity securities is a financing cash flow. However, EITF Issue No 00-15 classifies the ESO tax benefit as an operating cash flow in periods ending after July 20, 2000.

Firms with Tax Losses with No Valuation Allowance

The situation is more complex when firms have tax losses. The following is a general discussion of the associated problems and does not address the many specific complexities.⁸

When the ESO deduction produces a tax NOL, and no valuation allowance is established, the firm reports a positive current tax expense under APB 25 and an ESO tax benefit. For example, in fiscal 2000 Microsoft reports pretax book income of \$14,275 million and a tax benefit from stock options of \$5,535 million. This tax benefit implies an ESO tax deduction of \$15,814 million ($\$5,535/.35$). However, Microsoft also reports current tax expense of \$5,279 million and an ETR of 34%, even though little or no taxes likely were due on 2000 income. With a positive current tax expense before the ESO tax deduction and no valuation allowance, we can estimate Microsoft's fiscal 2000 tax loss at \$731 million, $[(\$5,279-\$5,535)/.35]$.

When there is a tax loss and the ESO tax deduction increases the tax loss, current tax expense is zero, assuming no NOL carryback. The amount credited to shareholders' equity (ESO recognition) continues to equal the ESO tax deduction times the firm's tax rate.⁹ In this case, though, subtracting the ESO tax benefit from the zero current tax expense does not lead to a correct estimate of the firm's current tax burden or of the tax loss. The adjustment error in this case is of most concern for researchers and analysts wishing to estimate the full amount of the firms' tax losses for marginal tax rate estimation or for assessing earnings quality. To derive an estimate of negative taxable income when reported current tax expense is zero, we suggest using the equation (1) definition of taxable income: pretax book income less book-tax differences less estimated ESO tax deduction.

⁸ Numerical examples including tax loss scenarios are available from the authors and can be downloaded from the following web address: <http://faculty.washington.edu/shevlin/xxxxx.pdf>.

Firms with Tax Losses with Valuation Allowance

When a valuation allowance is established against the deferred tax asset associated with an NOL carryforward, an additional complexity arises because the timing of ESO recognition, the credit to shareholders' equity, occurs later than the period in which the ESO tax deduction is taken. As a result, subtracting the shareholders' equity amount of reported ESO tax benefit from the current tax expense is generally not helpful in finding the current tax burden and taxable income. Firms with the valuation allowance do not credit shareholders' equity until the valuation allowance is removed, perhaps years after taking the tax deduction. An example is provided by Lycos Inc. 1998 (10-K filing, tax note):

“Deferred tax assets and related valuation allowance of approximately \$10,519,000 relate to certain operating loss carryforwards resulting from the exercise of employee stock options, the tax benefit of which, when recognized, will be accounted for as a credit to additional paid-in capital rather than a reduction of income tax.”

A notable “worst case” attempt to adjust for the tax effects of the ESO exercise occurs when the valuation allowance is removed for financial reporting purposes before the net operating loss is used for tax purposes. In this case, the firm credits Additional Paid-In Capital, and debits the valuation allowance account without affecting tax expense. Subtracting the shareholders' equity amount from current tax expense causes current tax burden and taxable income to be underestimated. To estimate the firm's current tax burden and taxable income, one needs the *actual ESO tax deduction for the period*, not the amount recognized for financial

⁹ And note that ESO realization occurs in a later period when the NOL carryforward is utilized. This difference between recognition and realization is not unique to an ESO-generated NOL carryforward. All future deductible amounts carried as deferred tax assets without a valuation allowance share this timing difference.

reporting purposes. For tax loss firms with a valuation allowance on the deferred tax asset, one can use the firm's stock option note to estimate the ESO tax deduction.¹⁰

As an example, Microsoft's 2000 annual report indicates that employees exercised $N=198$ million options with a weighted average exercise price of $X=\$9.54$. Although we cannot directly estimate the stock price at which employees exercised, we can use the weighted average exercise price of new grants during the year. Because Microsoft grants new options at-the-money, the exercise price equals the stock price at the grant date, leading to an estimated stock price of $P_e=\$79.87$. Thus the estimated ESO tax deduction for Microsoft is $N(P_e-X) = \$198$ million $(\$79.87 - \$9.54) = \$13,925$ million with an estimated tax benefit $(x.35)$ of $\$4,874$ million, compared to the $\$5,535$ million reported in Microsoft's Statement of Shareholders' Equity. While our calculation assumes that all exercised options are nonqualified options that produce a tax deduction, it likely provides a more reliable estimate of the ESO tax deduction for tax loss firms with valuation allowances than the amount disclosed by the firm in shareholders' equity.

ANALYSES AFFECTED BY THE ACCOUNTING FOR ESO TAX BENEFITS

Tax Burden Studies

A major impact of the accounting treatment for employee stock option tax benefits is on studies that use financial statement data to estimate ETRs. Numerous academic studies that do not adjust for ESO tax benefits overstate the firm's actual tax liability, although ESO tax benefits were likely smaller during the sample period for many of these studies.¹¹ See, for example,

¹⁰ An alternative approach is to gross up the change in the deferred tax asset (NOL component) associated with the unused ESO deduction. However, this information is not always disclosed and care needs to be exercised to avoid double counting if only a partial valuation allowance is placed on the NOL due to the ESO tax benefits. An increase in the valuation allowance implies no ESO recognition of that amount and vice versa.

¹¹ Using financial statement data to assess corporate tax burdens also gives rise to other problems such as the treatment of deferred taxes, foreign, state and local taxes, and the omission of implicit taxes – see the studies listed in the text for further discussion.

Gupta and Newberry (1997) and Shevlin and Porter (1992), who use either current tax expense or total tax expense in the numerator of the ETR measure.¹²

A recent *Wall Street Journal* article (WSJ 08/04/1999, A1), “How Companies Find Shelter From IRS,” discusses the General Accounting Office’s (GAO) calculation of ETRs. The GAO uses the current portion of tax expense divided by pretax book income. The article states that although it is imperfect the GAO considers it “...the most accurate because it excludes taxes that the companies report to shareholders, but can put off paying for years,” meaning they do not include deferred taxes in their computation. However, their calculations do not adjust for ESO tax benefits. For example, the article states that GM owed only \$36 million in taxes to the IRS for 1998. However, the \$36 million was the current tax expense amount for 1998, which excludes any ESO tax benefit. GM did not disclose the tax benefits from ESO plans but their stock option note allows us to estimate ESO tax benefits of \$55 million assuming all ESOs exercised are NQOs. Although GM likely paid no federal taxes in 1998, the GAO estimates GM’s taxes to be \$36 million.

Not all external users are unaware of this issue. In their October 2000 report, the Citizens for Tax Justice (CTJ) subtracts the ESO tax benefit from the reported current tax expense to estimate firms’ income tax burdens (McIntyre 2000). The CTJ report includes only sample firms that have positive pretax profits, reducing but not avoiding the problems associated with tax loss firms, because positive book profits do not always imply positive taxable income. Where the ESO tax benefit was not disclosed, the CTJ study estimates the benefit from the stock option note using the algorithm discussed earlier. The CTJ notes that 233 of their 250 firms received an

¹² Wilkie (1990) and Wilkie and Limberg (1993) provide an alternative measure of assessing tax burdens or tax subsidies to corporations. Wilkie defines a firm’s tax subsidy as the difference between pretax book income multiplied by the top statutory tax rate and current tax expense. Recall that current tax expense is estimated as

estimated \$25.8 billion in ESO tax benefits over the 1996-98 period, with Microsoft being the largest recipient. Total ESO tax benefits reduced the yearly-average ETR by 2.3%, 3.4%, and 4.7% in each year 1996-1998 for the sample firms.

Marginal Tax Rate Calculations

Estimating corporate marginal tax rates often uses the simulation approach developed by Shevlin (1990) and extended by Graham (1996). The simulation estimation method begins by deriving an estimate of taxable income from financial statement data. Both Shevlin and Graham estimate taxable income as book income less grossed up deferred taxes.¹³ This calculation does not take into account the deduction for stock option compensation and results in overstated estimates of taxable income and thus in some cases overstated estimates of marginal tax rates.¹⁴ Even for Microsoft, a large profitable firm, the net tax benefit of ESOs constituted 76% of the tax provision in 1999 (\$3,107/\$4,106 (in millions)) and 105% in 2000 (\$5,535/\$5,279).

Early capital structure literature assumed all firms faced the top corporate statutory tax rate when considering the debt interest tax shield (Miller 1977). DeAngelo and Masulis (1980) recognized that interest expense on debt is not the only tax shield available to firms: depreciation shields income from tax as well. We predict that ESOs also act as a non-debt tax shield such that the greater the tax benefits of ESOs, *ceteris paribus*, the lower the firm's leverage. Graham's (2000) conclusion that firms are under-leveraged ignores these non-debt ESO tax shields and overstates the estimated foregone tax benefits of debt.

pretax book income less GAAP book-tax differences. Because ESO tax benefits are not treated as a book-tax difference, current tax expense is overstated and thus the tax subsidy measure is understated.

¹³ Both Shevlin (1990) and Graham (1996) estimate deferred taxes as the change in the balance sheet deferred tax account grossed up by the top statutory tax rate. This adjustment is discussed further in Omer et al. (1991). White, Sondhi and Fried (1997, p. 543) also suggest estimating taxable income as pretax book income less deferred tax expense grossed up by the statutory tax rate.

¹⁴ Note that estimating taxable income as book income adjusted for deferred taxes ignores other "permanent differences" and will overstate taxable income to the extent the ignored "permanent differences" decrease taxable income relative to book income.

Microsoft again is a good case in point. Even though it has no long-term debt in its capital structure and no interest shields, Microsoft's extensive use of ESOs suggests that it receives major tax benefits from non-debt ESO tax shields. Thus tests of the DeAngelo and Masulis (1980) debt substitution hypothesis on companies like Microsoft will be misspecified if this shield is not controlled for.

Earnings Management Using the Valuation Allowance

Firms are obligated by SFAS 109 to provide a valuation allowance when any part of the deferred tax asset is not likely to be realized. Adjustments to this valuation allowance flow through income tax expense and affect income on an after-tax basis. Tests searching for evidence of earnings management often view manipulation of the valuation allowance as a prime suspect. But when some part of the valuation allowance change flows directly to shareholders' equity, bypassing income tax expense, the tests may signal unwarranted conclusions.

Studies by Miller and Skinner (1998) and Visvanathan (1998) conclude that changes in this valuation allowance, after controlling for known economic determinants of its balance, do not signal earnings management.¹⁵ Both these studies might have concluded differently had the ESO tax benefits associated with the valuation allowance changes been properly treated. The following required disclosure made in Vitesse Semiconductor Corporation's 1998 annual report illustrates the problem:

“The change in the valuation allowance for the year ended September 30, 1998 was \$17,047,000, of which \$14,124,000 reduced income tax expense for the year. The remaining \$2,923,000 was credited to additional paid-in capital which was

¹⁵ Miller and Skinner (1998) also examine the level or balance in the valuation account. Visvanathan (1998) acknowledges that the change in the valuation allowance may not all flow directly to income tax expense (see his notes 1 and 2).

the amount attributable to net operating losses created by the exercise of stock options previously unrecognized.”

One possible solution to this problem is to include the disclosed or estimated ESO tax benefits as an additional control variable in cross-sectional regressions of the change in the valuation allowance on variables proxying for incentives to manage earnings. Note also that some other valuation allowance adjustments do not flow directly to the income statement (SFAS 109, pars 30, 36) and must also be controlled for.

A second solution uses the required reconciliation of the difference between the statutory tax rate and the GAAP ETR to identify ESO tax benefits and similar items reflected in valuation allowance adjustments. Bauman, Bauman, and Halsey (2000) adopt this approach but conclude that the disclosures are often inadequate and difficult to interpret.

Earnings Quality and Conservatism

Some authors suggest that the difference between pretax book income and taxable income provides the financial statement user with relevant information in assessing the quality of reported earnings. For example, Revsine, Collins, and Johnson (1998, p. 638) suggest calculating an earnings conservatism (EC) ratio = pretax book income/estimated taxable income, where estimated taxable income = current tax expense/statutory tax rate. Joos, Pratt and Young (1999) examine the hypothesis that as book-tax differences increase in absolute magnitude, they create bias and/or noise and the value relevance of earnings declines. Joos, et al. report evidence consistent with their predictions but ignore ESO tax benefits when estimating taxable income.

Because current tax expense overstates the current tax burden and hence taxable income, given the accounting for ESO tax benefits, book-tax differences and the EC ratio are both

understated. Of course, users may want to ignore the ESO tax deduction when assessing earnings quality, earnings conservatism, or tax aggressiveness, but this needs to be by design.

Corporate Tax Shelters

Congress and Treasury are increasingly concerned with the aggressive use of corporate tax shelters to reduce tax bills (see, U.S. Department of Treasury 1999). The widening gap between corporate tax receipts or taxable income and reported profits is used as evidence in support of the growing use of tax shelters (see, for example, Sullivan 1999). In some instances, these corporate tax receipts and taxable income amounts are derived from tax data and so represent actual tax return amounts. However, the reported profits are financial-statement based and do not reflect the ESO tax deduction that reduces actual tax receipts.¹⁶

Yin (2000) attempts to estimate how much of the tax receipt gap is due to ESO tax benefits. However, Yin incorrectly assumes that the financial statement reported current tax expense equals the actual current taxes payable. Even though his comparisons are flawed, Yin's basic point that some of the growing tax gap is likely due to ESO tax deductions rather than corporate tax shelter activity is valid.¹⁷

ILLUSTRATION OF THE PROBLEM AND SOLUTION FOR NASDAQ 100 FIRMS

To illustrate the magnitude of the problem caused by the accounting for ESO tax benefits, we analyze firm disclosures and present ETRs before and after adjustment for ESO tax benefits, for the NASDAQ 100 firms in fiscal 1999.

Analysis of Disclosures

¹⁶ Note this point is not a direct implication arising from the accounting for the ESO tax benefits but rather arises because of the nonrecognition of compensation expense of ESOs in computing reported earnings.

¹⁷ Manzon and Plesko (2001) examine the spread between reported book income and estimated taxable income to shed light on corporate tax shelter activity and estimate taxable income by grossing up reported current tax expense and correctly recognize that this estimate of taxable income is before the ESO deduction.

Of the 100 firms, 63 report a tax benefit from stock options on the Statement of Shareholders' Equity. However, this does not mean that the remaining 37 firms do not have stock options or that these 63 firms are the only firms that will obtain tax benefits from options. For example, Immunex Corporation's 1999 10-K reports pretax book income of \$56.8 million and a 22.1% GAAP ETR after utilizing tax net operating losses. Immunex discloses that 2.89 million options were exercised during the year but does not report the ESO tax benefits on its Statement of Shareholders' Equity or Cash Flow Statement. The likely explanation that the company has a tax NOL is supported by the company's tax note: "An additional \$98.3 million of NOL carryforwards were generated due to stock option deductions for tax purposes" (during 1999). This note also states that "Our ability to generate sufficient future taxable income for tax purposes in order to realize the benefits of our net deferred tax assets is uncertain primarily as a result of future stock option deductions." Thus the company established a valuation allowance on the deferred tax assets related to the NOLs.¹⁸

Forty-three of the 100 firms mention ESO tax benefits on their Cash Flows Statement. Twenty additional firms report the amount on the Statement of Shareholders' Equity. Some of these 20 firms may have concluded that the amount is not material enough to report separately in the Cash Flow Statement. As an example, Dell Computer Corporation reported ESO tax benefits on its Statement of Shareholders' Equity in 1997 and 1998 of \$37 million and \$164 million, respectively, but did not do so on its Cash Flow Statement. When the amount apparently became material in 1999, Dell reported \$444 million in its Cash Flow Statement and reported the above 1997 and 1998 amounts.

¹⁸ It is also possible that some of the 37 firms issue only incentive stock options or that all their outstanding options had negative intrinsic values and were not exercised.

Another explanation is that some or all of the ESO tax benefits are recognized in Additional Paid-In Capital in the current year, but are realized later. This happens when (1) the firm has a tax loss in the current period that must be carried forward and no valuation allowance is provided on the deferred tax asset or (2) the firm reduces the valuation allowance on the portion of the deferred tax asset arising from a prior tax loss due to the ESO tax deduction before the tax loss carryforward is utilized. In these cases, there is no cash flow to report on the Cash Flow Statement.

We also find that some firms report different positive amounts on the two statements. For example, in 1999 Yahoo reports \$122.6 million ESO tax benefits credited to Additional Paid-In Capital and \$37.1 million on the Cash Flow Statement, an \$85.5 million difference. In the same year, Yahoo's gross deferred tax assets, primarily related to net operating losses, increased by \$720.4 million and deferred tax liabilities decreased by \$2.5 million¹⁹ for a total change in net deferred tax assets of \$722.9 million. The company also increased the valuation allowance by \$637.4 million. Therefore, the change in the valuation allowance is \$85.5 million less than the increase in net deferred tax assets (\$722.9 - \$637.4) for the year. In sum, a valuation allowance was *not* established for \$85.5 million of the increase in the deferred tax assets attributed to net operating losses. Because no valuation allowance was established, and the deferred tax asset is related to the ESO deduction, the credit is to Additional Paid-In Capital rather than to deferred tax expense. Although Yahoo realized only \$37.1 of tax benefits in 1999, the amount *recognized* under APB 25 is the \$122.6 million.²⁰

The above discussion explains why the amount reported on the Cash Flow Statement cannot generally be subtracted from current tax expense when attempting to estimate taxable

¹⁹ This excludes the change due to the unrealized gain on securities that does not affect the deferred tax expense.

income for loss firms. When a firm carries forward a tax loss arising from an ESO deduction, there is no ESO tax benefit on the Cash Flow Statement to signal the presence of that deduction.

Estimates of Effective Tax Rates

Tables 1 and 2 illustrate the magnitude of the problem for a subsample of NASDAQ 100 firms. We present ETRs for both worldwide and U.S. operations for a sample of 42 NASDAQ 100 firms that separately report positive U.S. pretax book income – 47 report U.S. pretax book income and 5 report negative U.S. pretax book income in fiscal 1999. Twelve of these 42 firms report NOL carryforwards on Compustat, raising concern about the reliability of adjusting reported current tax expense using any reported ESO tax benefits. We use the ESO tax benefits reported by these firms when the tax notes indicate that the NOL relates to foreign operations and/or acquired firms. For firms with U.S. tax NOLs we estimate the ESO tax deduction from the firm's stock option note. Thirty-six of the 42 firms have ESO tax benefits.

Four of the 42 firms report the ESO tax benefit as other current tax expense, separating it from the current U.S. tax expense in their tax footnote. For this reason the reported U.S. current tax expense can be used without adjustment to estimate current U.S. tax burdens and taxable income because it already reflects the ESO tax benefits. However, the total reported ETR, worldwide current tax rate, and worldwide estimated taxable income are still overstated for these firms and need to be adjusted for the ESO tax benefits.²¹ The 4 firms in Table 2 that separately report are highlighted by an asterisk.

²⁰ Because this analysis is based on Yahoo's financial statement disclosures, which are not necessarily transparent descriptions of all related events, it required some interpretation.

²¹ Users of financial statements must examine the tax footnote to determine if current U.S. tax expense must be adjusted. For Compustat users a simple check is to sum the separate components of the tax expense reported by Compustat (specifically current and deferred U.S., current and deferred foreign, and current and deferred state) and compare the sum to the total income statement tax expense number reported by Compustat. If the sum is less than the total tax expense it is likely due to ESO tax benefits being separately reported as other current tax expense.

Table 1 reports some descriptive statistics for the 42 sample firms. The mean (median) ESO tax benefit is \$153 million (\$40 million). The mean (median) worldwide pretax book income is \$988 million (\$237 million). The mean (median) U.S. pretax book income is slightly smaller at \$726 million (\$176 million). For both worldwide and U.S. operations the mean and median current portion of tax expense is greater than the total tax expense implying that the average sample firm has negative deferred tax expense. The mean (median) ESO tax benefit is approximately 43 percent (49 percent) of worldwide current tax expense and 54 percent (78 percent) of U.S. current tax expense indicating that ESO tax benefits are important for these firms.

We also estimate taxable income for these firms using the disclosed current tax expense and the current tax expense adjusted for the ESO tax benefit. The mean (median) adjusted worldwide taxable income is approximately 54 percent (51 percent) of the mean (median) taxable income estimated using the disclosed current tax expense. The corresponding percentages for US taxable income are 47 percent for the mean and 39 percent for the median.

Finally, the table reports the ratio of pretax book income to estimated taxable income, the EC ratio, both adjusted and unadjusted for ESO tax benefits. Because the means are affected by outliers here, the median provides a more reliable picture. The median worldwide ratio is approximately 1 but after adjustment for the ESO tax benefit increases to 1.45 and the median U.S. ratio is .94 before adjustment and 1.40 after adjustment. Recall that a ratio greater than 1 indicates that pretax book income is greater than estimated taxable income. Not surprisingly, when ESO tax benefits are incorporated (as a subtraction) into the estimate of taxable income the ratio increases indicating a greater gap between the two income measures. Overall, these

descriptive statistics indicate that if ESO tax benefits are ignored, the analyst is likely to overstate tax burdens and overstate taxable income by a substantial amount.

(Table 1 about here)

Table 2 presents ETRs and adjusted ETRs for the 42 sample firms. We calculate three worldwide and three U.S. ETRs: total tax expense/pretax book income; current tax expense/pretax book income; and current tax expense less the ESO tax benefit divided by pretax book income.²² Consistent with Table 1 data, the adjusted ETR for many sample firms is substantially smaller than the reported ETR reflecting these firms' large ESO tax benefits. Dell Computer, Ebay Inc, Novell Inc, and Sun Microsystems are vivid examples. The mean (median) adjusted worldwide current ETR is approximately 52 percent (55 percent) of the unadjusted worldwide current ETR (ETR3/ETR2). The corresponding numbers for the U.S. ETRs are 45 percent (mean) and 36 percent (median) – large and important effects. Thus studies that ignore the ESO tax benefits, especially those that examine samples of firms similar to the NASDAQ 100, likely contain serious measurement error and flawed inferences.

(Table 2 about here)

CONCLUDING REMARKS

Employee stock options are widely used by U.S. corporations and often result in large gains being realized by employees. These gains are generally taxable to the employees and, when the options are nonqualified options, deductible by the issuing corporation in the year of exercise. The tax benefits can be substantial for successful firms that use options extensively such as Microsoft, Cisco, Yahoo and Dell. Because these same firms disclose the value of new option grants in footnotes rather than recognize stock option compensation expense, option

compensation creates a book-tax difference. However, GAAP per APB 25 requires that the ESO tax benefit be credited to Additional Paid-In Capital, not to current tax expense, which has implications for studies that:

- estimate firms' current tax burden as (current tax expense/pretax book income) because current tax expense is overstated.
- estimate taxable income from financial statements as (current tax expense/.35). Because current tax expense is overstated, taxable income is overestimated and marginal tax rate estimates can be overstated. Furthermore, ESOs create a large non-debt tax shield in addition to items such as depreciation.
- examine earnings management via the valuation allowance account. To the extent that a deferred tax asset and related valuation allowance reflect unrealized ESO tax benefits, Additional Paid-In Capital is credited when the ESO tax benefits are recognized. Income tax expense is not reduced and reported earnings are not increased.
- examine differences between reported pretax book income and estimated taxable income to assess earnings quality and conservatism. Because estimated taxable income is overstated, book-tax differences are understated, *ceteris paribus*.
- provide evidence in the debate that the growing gap between corporate tax receipts and reported book profits is due to corporate tax shelters. But the growth in ESO usage means that the growing gap is at least partially attributable to rising ESO tax benefits.

To avoid errors in using current tax expense to assess tax burdens, taxable income, and book-tax differences for firms with positive taxable income, one can make a simple correction by subtracting the ESO tax benefit – either the amount reported or estimated from the ESO footnote

²² Consistent with prior ETR research, when the numerator (tax expense) of the ETR is negative we set the ETR to 0, and, to reduce the effects of outliers, when the ETR is greater than 100% we set the ETR to 100%. The numbers

– from the current tax expense. The correction is more complex for firms with tax losses and deferred tax assets.

Although we note that the ESO tax deduction has all the characteristics of a book-tax difference that reduces reported income tax expense, we stop short of recommending changing the current treatment. Using the ESO tax deduction to produce a lower tax expense and higher bottom line in the income statement seems incompatible with the initial failure to recognize the ESOs' value as an expense in that same income statement. Of course, if the accounting for stock options is revised to require expensing of options' value, then what has been an unbooked book-tax difference (“permanent different”) becomes a run-of-the-mill temporary difference subject to SFAS 109's deferred tax treatment.

of observations reset for each ETR are reported at the bottom of the table.

References

- Austin, J., J.Gaver, and K. Gaver, K. 1998. The choice of incentive stock options vs. nonqualified options: A marginal tax rate perspective, *Journal of the American Taxation Association* 20, 1-21.
- Bauman, C., M. Bauman and R. Halsey. 2000. Do firms use the deferred tax asset valuation allowance to manage earnings? Working paper, University of Wisconsin-Milwaukee, Milwaukee, WI.
- DeAngelo, H., and R. Masulis. 1980. Optimal capital structure under corporate and personal taxation. *Journal of Financial Economics* (March), 3-29.
- Graham, J. 1996. Proxies for the marginal tax rate. *Journal of Financial Economics* 42, 187-221.
- Graham, J. 2000. How big are the tax benefits of debt? *Journal of Finance* 60 (5), 1901-1941.
- Gupta, S., and K. Newberry. 1997. Determinants of the variability in corporate effective tax rates: Evidence from longitudinal data. *Journal of Accounting and Public Policy* 16 (1), 1-34.
- Joos, P., J. Pratt and S. Young. 1999. Book-tax differences and the value relevance of earnings. Working paper, Indiana University, Bloomington, IN.
- Kinney, M., and E. Swanson. 1993. The accuracy and adequacy of tax data in Compustat. *Journal of the American Taxation Association* 15 (2), 121-135.
- Manzon, G., and G. Plesko. 2001. The relation between financial and tax reporting measures of income. Working paper (MIT, Boston, MA).
- McConnell, P., J. Pegg and D. Zion. 2000. Accounting Issues: Employee Stock Option Expense, Pro Forma Impact on EPS and Operating Margins – The S&P 500. Bear, Stearns & Co. Inc., August 17.
- McIntyre, R. 2000. Corporate Income Taxes In the 1990s, (October), Institute on Taxation and Economic Policy, Washington, DC.
- Miller, M., 1977. Debt and taxes. *Journal of Finance* 32 (May), 261-276.
- Miller, G., and D. Skinner. 1998. Determinants of the valuation allowance for deferred tax assets under SFAS 109, *The Accounting Review* 73 (2), 213-233.
- Revsine, L., D. Collins and W.B. Johnson. 1998. *Financial Reporting & Analysis*, Prentice Hall, Upper Saddle River, NJ.

- Scholes, M., M. Wolfson, M. Erickson, E. Maydew and T. Shevlin. 2002. *Taxes and Business Strategy: A Planning Approach*, Second edition, Prentice Hall, Upper Saddle River, NJ.
- Shevlin, T. 1990. Estimating corporate marginal tax rates with asymmetric tax treatment of gains and losses. *Journal of the American Taxation Association* 11 (1), 51-67.
- Shevlin, T., and S. Porter. 1992. The corporate tax comeback in 1987: Some further evidence. *Journal of the American Taxation Association* 14 (1), 58-79.
- Sullivan, M. 1999. Despite September surge, corporate tax receipts fall short. *Tax Notes*, November 1, 565-567.
- U.S. Department of Treasury. 1999. *The Problem of Corporate Tax Shelters: Discussion, Analysis and Legislative Proposals*, July.
- Visvanathan, G. 1998. Deferred tax valuation allowances and earnings management. *The Journal of Financial Statement Analysis* 3, 6-15.
- White, G., A. Sondhi and D. Fried. 1997. *The Analysis and Use of Financial Statements*, Second edition, John Wiley & Sons, Inc. New York, NY.
- Wilkie, P. 1992. Empirical evidence of implicit taxes in the corporate sector. *Journal of the American Taxation Association* 14, 97-116.
- Wilkie, P., and S. Limberg. 1993. Measuring explicit tax (dis)advantage for corporate taxpayers: An alternative to average effective tax rates. *Journal of the American Taxation Association* 15 (1), 46-71.
- Yin, G. 2000. How much of the recent evidence of a corporate tax shelter problem is explained by increased stock option activity? Working paper, University of Virginia, Charlottesville, VA.

TABLE 1
Descriptive Statistics and Effects of ESO Tax Benefits
on Estimated Tax Burden and Estimated Taxable Income

	Mean	Median	Std Devn
ESO tax benefit	\$153.144	\$39.975	\$492.843
<i>Worldwide</i>			
Pretax book income	\$987.960	\$237.025	\$2,481.628
Total tax expense	335.362	74.915	863.550
Current tax expense	354.110	80.935	911.837
Estimated taxable income	1,011.742	231.243	2,605.247
Adjusted taxable income	547.189	118.186	1,676.452
EC ratio – unadjusted	1.144	1.011	0.907
EC ratio – adjusted	1.050	1.454	4.524
<i>United States</i>			
Pretax book income	\$726.168	\$176.550	\$1,949.604
Total tax expense	181.071	40.430	553.632
Current tax expense	281.410	51.330	801.115
Estimated taxable income	804.029	146.657	2,288.899
Adjusted taxable income	379.103	57.129	1,309.019
EC ratio – unadjusted	1.006	0.943	1.828
EC ratio – adjusted	3.263	1.402	7.801

Notes:

Sample consists of the 42 firms of NASDAQ 100 firms with available data and with reported positive U.S. pretax book income, fiscal year 1999

Estimated taxable income = Current tax expense/.35

Adjusted taxable income = (Current tax expense – ESO tax benefit)/.35

EC ratio = earnings conservatism ratio = pretax book income/estimated taxable income

EC ratio adjusted = pretax book income/adjusted taxable income

TABLE 2
Effect of ESO Tax Benefits on 1999 Effective Tax Rates for 42 NASDAQ 100 Firms

	Worldwide			United States		
	ETR1	ETR2	ETR3	ETR1	ETR2	ETR3
ADC TELECOMMUNICATIONS INC	45.4%	64.6%	64.6%	N/A	58.3%	58.3%
ADOBE SYSTEMS INC*	36.5%	36.3%	20.7%	15.2%	15.4%	15.4%*
ALTERA CORP	33.2%	40.4%	21.3%	34.1%	40.5%	17.6%
AMERICAN PWR CNVRSION	29.5%	29.5%	28.6%	32.6%	32.8%	31.4%
APPLE COMPUTER INC	11.1%	5.5%	0.0%	53.1%	6.3%	0.0%
ATMEL CORP	36.0%	24.6%	20.6%	66.0%	71.9%	54.4%
BMC SOFTWARE INC	23.8%	32.5%	22.2%	27.2%	39.2%	25.0%
BIOGEN INC	33.0%	40.2%	7.1%	36.2%	44.4%	1.4%
BIOMET INC	33.6%	34.5%	33.8%	N/A	30.3%	29.5%
CHIRON CORP	18.0%	21.8%	0.0%	28.6%	17.7%	0.0%
CISCO SYSTEMS INC	36.8%	43.0%	17.8%	44.4%	52.8%	14.8%
CITRIX SYSTEMS INC	36.0%	43.3%	15.5%	N/A	43.4%	1.8%
DELL COMPUTER CORP	29.9%	31.3%	10.0%	N/A	36.5%	7.9%
EBAY INC	45.8%	66.6%	0.0%	30.2%	43.5%	0.0%
ELECTRONIC ARTS INC*	38.3%	48.1%	43.3%	26.1%	39.1%	39.1%*
INTEL CORP	34.9%	36.8%	32.3%	44.1%	46.4%	39.4%
INTUIT INC	39.0%	41.5%	32.5%	31.2%	33.7%	24.8%
KLA-TENCOR CORP	22.1%	77.6%	49.3%	2.2%	76.1%	28.9%
LEGATO SYSTEMS INC	67.9%	100.0%	0.0%	74.5%	100%	0.0%
LINEAR TECHNOLOGY CORP	32.0%	29.0%	11.8%	32.4%	29.0%	9.1%
MAXIM INTEGRATED PRODUCTS	34.0%	33.8%	0.0%	29.7%	29.6%	0.0%
MICROSOFT CORP	34.5%	36.2%	10.1%	N/A	37.8%	8.6%
MICROCHIP TECHNOLOGY INC	27.0%	24.5%	17.4%	25.3%	21.6%	9.0%
MILLER (HERMAN) INC	38.3%	32.4%	31.6%	37.0%	30.4%	29.4%
MOLEX INC	22.7%	21.9%	21.9%	0.0%	0.0%	0.0%
NETWORK APPLIANCE INC	37.5%	46.4%	15.2%	35.1%	44.0%	5.1%
NOVELL INC	21.8%	26.2%	5.4%	20.7%	72.4%	0.0%
ORACLE CORP	34.9%	34.8%	32.0%	25.8%	23.6%	19.2%
PMC-SIERRA INC	31.6%	33.9%	9.5%	0.0%	0.0%	0.0%
PACCAR INC	36.8%	37.5%	37.5%	N/A	33.2%	33.2%
QUINTILES TRANSNATIONAL CO	36.9%	30.4%	27.2%	37.1%	24.2%	20.0%
REALNETWORKS INC	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SDL INC	26.9%	26.9%	7.0%	22.8%	22.8%	0.9%
SIEBEL SYSTEMS INC*	38.0%	42.9%	0.0%	0.0%	0.0%	0.0%*
SIGMA-ALDRICH	27.1%	24.1%	24.1%	24.6%	20.7%	20.7%
STAPLES INC	39.5%	57.7%	33.4%	N/A	51.9%	23.6%
SUN MICROSYSTEMS INC	35.8%	34.6%	20.8%	39.2%	39.4%	16.6%
SYNOPSYS INC*	35.8%	37.9%	26.0%	20.8%	22.4%	22.4%*
TELLABS INC	31.5%	31.6%	31.6%	30.7%	31.5%	31.5%
3COM CORP	31.1%	17.4%	2.6%	33.0%	5.9%	0.0%
XILINX INC	29.8%	33.4%	14.5%	32.7%	35.5%	8.3%
YAHOO INC	39.0%	46.0%	10.4%	34.2%	40.5%	3.7%
Mean	32.70%	37.08%	19.27%	29.34%	34.40%	15.50%
Median	34.26%	34.55%	19.17%	30.73%	33.44%	11.95%
Std Devn	10.15%	17.35%	14.95%	16.65%	21.36%	15.58%

Notes:

N/A – could not be calculated because U.S. total tax expense is not reported

ETR1 = effective tax rate = total tax expense/pretax book income (= GAAP effective tax rate).

ETR2 = effective tax rate = current tax expense/pretax book income (= tax burden ETR)

ETR3 = effective tax rate = (current tax expense – ESO tax benefit)/pretax book income (= adjusted tax burden ETR)

* Denotes firm that breaks current tax expense into other current tax expense (due to ESO tax benefit) and U.S. current and foreign current. Thus in estimating U.S. current ETR for these firms we make no adjustment for the ESO tax benefit. An adjustment is still needed for worldwide ETR3 because total current tax expense includes the ESO tax benefit.

Number of observations reset when	Worldwide			United States		
	ETR1	ETR2	ETR3	ETR1	ETR2	ETR3
ETR < 0, then reset to zero.	0	0	6	3	2	11
ETR > 100% then reset to 100%.	0	1	0	0	1	0