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VIRGINIA LAW REVIEW

VOLUME 89

DECEMBER 2003

NUMBER 8

ARTICLE

HOW MUCH TAX DO LARGE PUBLIC CORPORATIONS PAY?: ESTIMATING THE EFFECTIVE TAX RATES OF THE S&P 500

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INTRODUCTION

THREE recent phenomena—the corporate governance scandals, continuing concern about corporate tax shelters, and the George W. Bush administration’s proposal to exempt dividends from income—have generated renewed interest in the amount of taxes paid by public corporations on the profits they report to their investors. In a letter to the President, Senator Charles Grassley, current chair of the Senate Finance Committee, expressed his belief that “most investors would like to know whether [a] corporation is paying . . . taxes, and if not, why.”¹ He criticized current disclosures as so inadequate that “an investor cannot determine

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¹ Letter from Senator Charles E. Grassley to President George W. Bush (Oct. 7, 2002), *reprinted in* Tax Notes Today (Oct. 10, 2002) (LEXIS, FEDTax lib., TNT file, elec. cit., 2002 TNT 197-33).

whether a corporation has paid a dime in taxes.”² Grassley’s letter followed up on earlier correspondence with the Treasury Department and the Securities and Exchange Commission (“SEC”) in which the Senator had inquired whether it would be appropriate to require public disclosure of the corporate tax returns of public companies.³ Public disclosure of such returns, or at least certain of their schedules, has been supported as a way to help verify the accuracy of both the financial and tax reports of the corporations affected and to expose and curb tax shelter activity.⁴

The Bush administration’s proposal to exempt dividends from income was premised on a goal of taxing corporate-source income only once, generally at the corporate rate of 35%.⁵ Yet critics have suggested that, as a result of tax shelters and loopholes, the corporate tax raises far less than this amount. One critic, who estimated the average tax rate of corporations to be only about 15%, asserted that the corporate “half tax” is more of a worry than the corporate “double tax.”⁶

Indeed, in its comprehensive examination of the Enron Corporation’s compliance with the federal income tax laws, the staff of the Joint Committee on Taxation found considerable evidence to sup-

² *Id.*

³ Letter from Senator Charles E. Grassley to Treasury Secretary Paul O’Neill and SEC Chairman Harvey Pitt (July 8, 2002), *reprinted in* Tax Notes Today (July 9, 2002) (LEXIS, FEDTax lib., TNT file, elec. cit., 2002 TNT 131-16).

⁴ See Peter C. Canellos & Edward D. Kleinbard, *Disclosing Book-Tax Differences*, 96 Tax Notes 999 (2002) (urging public disclosure of detailed book-tax reconciliation schedules); Theodore S. Sims, *Corporate Returns: Beyond Disclosure*, 96 Tax Notes 735 (2002) (arguing that disclosure would help curb corporate tax shelter activity); Alan Murray, *Inflated Profits in Corporate Books Is Half the Story*, Wall St. J., July 2, 2002, at A4 (arguing that public disclosure of returns would help ensure accuracy of both financial and tax reports).

⁵ See U.S. Dep’t of the Treasury, *General Explanation of the Administration’s Fiscal Year 2004 Revenue Proposals 12–13* (2003) (exempting dividends only to the extent they are paid out of corporate earnings already taxed at the 35% rate). The Jobs and Growth Tax Relief Reconciliation Act of 2003, Pub. L. No. 108-27, 117 Stat. 752, enacted earlier this year, did not include this proposal but generally reduced the tax rate on dividend and capital gain income to 15%.

⁶ Edmund L. Andrews, *White House Aides Push for 50% Cut in Dividend Taxes*, N.Y. Times, Dec. 25, 2002, at A1 (quoting Robert S. McIntyre of Citizens for Tax Justice).

port this critic's concern.⁷ The staff found that over the five-year period, 1996–2000, Enron and the subsidiaries included in its consolidated income tax return would have reported just over \$13 billion in financial accounting income. Yet the staff found that during the same period, only \$76 million of taxable income was reported by those entities on the consolidated income tax return.⁸ The staff identified a number of structured transactions that purported to generate both income tax losses and financial accounting profits.⁹ More generally, as noted in Senator Grassley's letter to the President, several studies have indicated a growing disconnect between corporate taxes and book income.¹⁰

This Article evaluates the validity of these concerns by estimating the effective (or average) tax rates from 1995 to 2000 of the corporations included in the Standard & Poor's 500 stock index ("S&P 500"). The S&P 500 represent an important segment of major public companies in a broad range of industries. From 1995 to 2000, they reported in the aggregate steadily increasing amounts of pre-tax book income. In addition, during this period there were no major changes in the U.S. corporate income tax laws or pertinent accounting rules. Hence, changes in the effective tax rates of the S&P 500 during the period should be attributable to changing corporate practices affecting the relationship between book income and tax liability. Consistent with prior studies undertaken by the Joint Committee on Taxation and the General Accounting Office, the "effective tax rate" ("ETR") estimated in this Article is generally defined as the portion of pre-tax book income represented by a company's current income tax expense.

One finding of this Article is that the conclusions of prior studies examining the relationship between book income and corporate

⁷ Staff of Joint Comm. on Taxation, 108th Cong., Report of Investigation of Enron Corporation and Related Entities Regarding Federal Tax and Compensation Issues, and Policy Recommendations (Comm. Print 2003).

⁸ *Id.* at 90.

⁹ See, e.g., *id.* at 118–19, 124, 136, 148. Interestingly, the staff found that Enron continued to engage in transactions designed to produce tax benefits even after the corporation had eliminated all of its taxable income and tax liability. Although the benefits did not produce any current tax savings, they still generated earnings for financial accounting purposes. *Id.* at 102–03.

¹⁰ See Letter from Senator Charles E. Grassley to President George W. Bush, *supra* note 1.

taxes may not be meaningful for corporations, like many included in the S&P 500, with significant foreign investment. This is because the studies either focus on corporate “taxable income” rather than corporate taxes, compare U.S. taxes paid or accrued to worldwide book income, or compare U.S. taxes to the U.S. share of worldwide book income. To overcome these shortcomings, this Article uses financial statement information to compare the *worldwide* taxes and *worldwide* book incomes of the S&P 500.

A major difficulty with relying upon financial statements is that their reports of corporate tax expense generally disregard the potentially sizable tax benefit obtained by companies when their nonqualified stock options are exercised by their employees. As a consequence, financial statements typically overstate the tax liability actually incurred by the company. Another potential difficulty results from the fact that financial statements reflect information on companies consolidated with the reporting company for accounting purposes, which may be different from the companies consolidated for tax purposes. A principal difference is the inclusion of foreign subsidiaries for the former purpose but not for the latter. Thus, care must be taken in interpreting the financial and tax information provided by multinational groups with foreign subsidiaries.

To take into account the first factor, this Article estimates, from hand-collected data, the amount of the tax benefit obtained by the sampled companies in 1995–2000 from the exercise of their employee stock options (the “ESO tax benefit”). To adjust for the second factor, the Article estimates the creditable portion of the foreign income tax expense of the companies, including the foreign taxes paid by any foreign subsidiaries, and includes such portion in the amount of worldwide taxes of the reporting company. This estimate enables the possible identification of trends in the use of foreign subsidiaries to reduce the payment of taxes.¹¹

¹¹ See Martin A. Sullivan, Data Show Big Shift in Income to Tax Havens, 97 Tax Notes 880 (2002) (suggesting that U.S. multinationals have increasingly shifted income to tax haven countries in order to reduce payment of taxes); David Cay Johnston, Key Company Assets Moving Offshore, N.Y. Times, Nov. 22, 2002, at C3. For some earlier examinations of tax planning by multinational corporations, see Harry Grubert, Tax Planning by Companies and Tax Competition by Governments: Is There Evidence of Changes in Behavior?, in *International Taxation and Multinational Activity* 113 (James R. Hines, Jr. ed., 2001); Harry Grubert et al., Country and

Although these estimates attempt to overcome the main difficulties of financial statement disclosures, they still suffer from other inherent inadequacies. For example, the estimates do not exclude the possibility of “tax cushions” included by companies to reflect anticipated tax deficiencies resulting from positions taken in their income tax return. To the extent such cushions are included in the reported amount of current tax expense, the estimates of ETRs presented by this Article are overstated.¹²

The principal findings of this Article are as follows. The ETRs of the sampled corporations fell almost steadily throughout the six-year period, from 28.85% in 1995 to 24.20% in 2000, a 16% decline. Eight of the ten industry sectors separately classified by this Article experienced declines, with the largest being those of the information technology sector (12.19 percentage point decline from 27.81% ETR in 1995 to 15.62% ETR in 2000, a 43.8% decrease), telecommunication services (10.78 points, or a 26.4% decrease), and financials (5.55 points, or a 18.9% decrease). Of the twenty-five largest companies in the sample (based on their reported pre-tax book income over the six years), Microsoft had the largest decline (18.74 percentage point decline from 22.35% ETR in 1995 to 3.61% ETR in 2000, an 83.9% decrease), followed by Verizon (17.22 points, or a 42.2% decrease), and American International Group (15.40 points, or a 52.7% decrease).

Part of the reason for the decline in ETR during this period, however, was the inconsistent treatment of stock options for tax and accounting purposes. In general, the compensatory element of

Multinational Company Responses to the Tax Reform Act of 1986, 49 *Nat'l Tax J.* 341 (1996); David Harris et al., *Income Shifting in U.S. Multinational Corporations*, in *Studies in International Taxation* 277 (Alberto Giovannini et al. eds., 1993); James R. Hines, Jr. & Eric M. Rice, *Fiscal Paradise: Foreign Tax Havens and American Business*, 109 *Q.J. Econ.* 149 (1994); Kenneth Klassen et al., *Geographic Income Shifting by Multinational Corporations in Response to Tax Rate Changes*, 31 *J. Acct. Res.* 141 (1993).

¹² See Lowell Dworin, *On Estimating Corporate Tax Liabilities from Financial Statements*, 29 *Tax Notes* 965, 969 n.9 (1985); Gary A. McGill & Edmund Outslay, *Did Enron Pay Taxes?: Using Accounting Information to Decipher Tax Status*, 96 *Tax Notes* 1125, 1130–31 (2002); Gillian M. Spooner, *Effective Tax Rates from Financial Statements*, 39 *Nat'l Tax J.* 293, 300 (1986); Michelle Hanlon, *What Can We Infer About a Firm's Taxable Income from Its Financial Statements?* 18–20 (2003) (unpublished manuscript, on file with the Virginia Law Review Association). For other qualifications to these estimates, see *infra* Section II.E.

stock options reduced corporate taxes but not book income, thereby creating a book-tax disparity unrelated to tax shelters or other possible causes. This Article estimates that the ESO tax benefit increased over 500%, from about \$4.6 billion in 1995 to \$29.0 billion in 2000, with the information technology sector having by far the largest increase (over \$14 billion, representing a more than ten-fold increase).

When the ETRs of the sample were redetermined after controlling for the inconsistent tax and accounting treatment of stock options by conforming their treatment, there remained a notable but less dramatic decline in ETRs over the six-year period. Seven of the ten classified sectors continued to experience a decrease in ETR, led by telecommunication services (11.02 percentage point reduction or a 26.3% decrease), financials (4.91 points, or a 16.3% decrease), and consumer staples (4.03 points, or a 12.5% decrease). Interestingly, the ETRs for the aforementioned sectors, as well as those for energy and industrials, were essentially unaffected by the conformed treatment of options. In contrast, the information technology sector, which had a 12.19 percentage point decrease in ETR pre-conformity, experienced only a very slight decrease in ETR after conformity. Overall, with conformity, the entire sample of companies showed a 2.13 percentage point decrease, from 30.11% ETR in 1995 to 27.98% ETR in 2000, a 7.1% decline. Potentially more revealing, the 1999 ETR was notably lower than the ETRs from the 1995–1998 period (during which time the ETR was virtually unchanged), and the 2000 ETR remained below the 1995–1998 average.

This Article, therefore, confirms the conclusions of earlier studies that, for the S&P 500, there was an increasing gap between corporate taxes and book profits during the period 1995–2000. Whether this change was attributable to widespread use by these corporations of the type of structured transactions described in the Joint Committee's Enron report is uncertain. It is possible that these corporations simply made greater use of provisions or transactions (other than stock options) producing book-tax disparities. It is also possible that they increasingly overstated the amounts of their book income or understated the amounts of their tax liability (whether due to tax shelters or other causes).

To ascertain whether the changes in the estimated ETR remaining after conforming the treatment of options might relate to trends in foreign investment, this Article segmented the sample of corporations based on the amount of their foreign tax expense and the ratio of such expense to their pre-tax book income. The Article then calculated yearly ETRs (with conformed treatment of stock options) for each segment of corporations. This analysis did not reveal any discernible pattern that might help to explain the remaining ETR shifts by reference to the foreign investment parameters tested.

A final, interesting finding relates to the estimated ETRs over the entire six-year period for the ten industry groups examined by this Article. The six-year ETRs were estimated to vary from lows for the energy sector (25.72%) and industrials (25.84%) to highs for the information technology sector (32.48%) and utilities (32.43%). Both the level of taxation (relative to the statutory tax rate of 35%) and the relative uniformity of tax treatment across industries are considerably different from the taxation of industries during the early 1980s.

Part I reviews the results of prior studies and describes potential shortcomings in their approaches. Part II explains how the estimates in this Article were derived and presents the results. The final Part concludes.

I. PRIOR STUDIES

This Part reviews the results of a number of prior studies comparing corporate book and tax information of recent years and describes potential shortcomings in the approaches used. In general, the conclusions of these studies may not be meaningful for multinationals because the studies either focus on corporate “taxable income” rather than taxes, compare U.S. taxes to worldwide book income, or compare U.S. taxes to the U.S. share of worldwide book income.

Table 1: Book-Tax Ratios (Schedule M-1 Data)

year	(1) AT book inc.	(2) Fed inc. tax	(3) (1)+(2) PT book inc. (Plesko)	(4) Tax-ex inc.	(5) (3)-(4) PT book inc. (Treasury)	(6) Tax net inc.	(7) NOL ded	(8) spec. deds	(9) (6)-(7)-(8) Tax inc. (Treasury)	(10) (3)/(6) Plesko ratio	(11) (5)/(9) Treasury ratio
All corporations											
1996	553,497	199,197	752,694	20,492	732,202	660,154	55,019	20,750	584,385	1.14	1.25
1997	599,870	219,712	819,582	20,123	799,459	693,627	60,289	24,258	609,080	1.18	1.31
1998	600,319	216,419	816,738	22,455	794,283	657,708	52,638	24,109	580,961	1.24	1.37
All corporations with net income											
1996	658,001	203,105	861,106	19,430	841,676	791,881	55,015	19,915	716,951	1.09	1.17
1997	709,870	222,707	932,577	19,050	913,527	835,341	59,718	23,211	752,412	1.12	1.21
1998	721,440	218,735	940,175	20,428	919,747	848,195	52,636	22,144	773,415	1.11	1.19
All corporations with assets of \$250 million or more											
1996	531,476	164,235	695,711	17,796	677,915	604,188	28,225	17,900	558,063	1.15	1.21

Source: George A. Plesko, Reconciling Corporation Book and Tax Net Income, Tax Years 1996-1998, Stat. Income Bull., Spring 2002, at 111, 115 fig.C
Money amounts are in millions of dollars.

Details may not add to totals due to rounding.

A. Studies Using Schedule M-1 Data

In 1999, the Treasury Department examined the difference between the book and taxable incomes of a sample of large corporations with assets over \$1 billion in an effort to identify the possible existence of a growing corporate tax shelter problem. Based upon data reported on Schedule M-1 of the corporate tax returns of these corporations, the Treasury found that “[t]he ratio of pre-tax book income to taxable income was 1.82 in 1995 and 1.86 in 1996, substantially above its average of 1.25 during the 1990–1994 period, and considerably higher than at any time since (at least) 1985.”¹³

In subsequent testimony before Congress, the Treasury elaborated on and refined this finding. It explained that its estimates were “based on a balanced panel of 811 [domestic subchapter C] corporations with mean asset size in excess of \$1 billion” (in 1992 dollars) over the period 1991–1996.¹⁴ “Book income” was calculated as after-tax book income plus federal income taxes and less tax-exempt income, all as reported on Schedule M-1.¹⁵ “Taxable income” represented total receipts less total deductions as reported on the corporate tax return.¹⁶ The Treasury later testified that the increasing disparity between book and taxable income continued in 1997.¹⁷

¹³ U.S. Dep’t of the Treasury, *The Problem of Corporate Tax Shelters: Discussion, Analysis and Legislative Proposals* 32 (1999) [hereinafter U.S. Dep’t of the Treasury, *Tax Shelter Study*].

¹⁴ *Corporate Tax Shelters: Hearing Before the House Comm. on Ways and Means, 106th Cong.* 29 n.3 (1999) (statement of Jonathan Talisman, Acting Assistant Sec’y for Tax Policy, U.S. Dep’t of the Treasury).

¹⁵ *Id.* at 30 (statement of Jonathan Talisman, Acting Assistant Sec’y for Tax Policy, U.S. Dep’t of the Treasury).

¹⁶ *Id.* at 31 (statement of Jonathan Talisman, Acting Assistant Sec’y for Tax Policy, U.S. Dep’t of the Treasury). From a figure included by Treasury in this testimony, Professor Mihir Desai inferred the following book-tax ratios for 1991–1996: 1.13, 0.94, 1.15, 1.39, 1.26, and 1.40. Mihir Desai, *The Corporate Profit Base, Tax Sheltering Activity, and the Changing Nature of Employee Compensation* 8–11, app. fig.1b (2002) (unpublished manuscript, on file with the Virginia Law Review Association).

¹⁷ *Penalty and Interest Provisions of the Internal Revenue Code: Hearing Before the Senate Fin. Comm., 106th Cong.* 234–36 (2000) (statement of Jonathan Talisman, Acting Assistant Sec’y for Tax Policy, U.S. Dep’t of Treasury). In this testimony, Treasury indicated that its estimates were “based on a balanced panel of 745 corporations with mean asset size in excess of \$1 billion [in 1992 dollars]” over the period 1991–1997. *Id.* at 234 n.3 (statement of Jonathan Talisman, Acting Assistant Sec’y for Tax Policy, U.S. Dep’t of Treasury).

In 2002, Professor George Plesko reported a similar finding for the period 1996–1998 in an examination of all active C corporations.¹⁸ Based again on Schedule M-1 data, Plesko found that the difference between the pre-tax book income and “tax net income” (taxable income before the net operating loss and other special deductions) of such corporations increased from \$92.5 billion to over \$159 billion between 1996 and 1998, a 71.9% increase.¹⁹ Although Plesko did not calculate the same book income/taxable income (“book-tax”) ratios described in the Treasury study, they can be derived from information contained in his paper. As shown in columns (10) and (11) of Table 1 the book-tax ratio of all corporations, as those terms are used by Plesko, increased from 1.14 to 1.24 between 1996 and 1998. As the terms are defined by Treasury, the same ratios increased from 1.25 to 1.37 during that period. Interestingly, as shown in the second panel of Table 1, when loss corporations are excluded from the sample, the same ratios were basically flat over the same period under either Treasury’s or Plesko’s definition.

Professor Mihir Desai also recently examined the book-tax ratio based on Schedule M-1 information, in this case for C corporations with assets over \$250 million.²⁰ Desai reported that the ratio of book income to taxable income for the years 1993–1998 reflected the following generally increasing trend: 1.12, 1.33, 1.28, 1.40, 1.44, 1.63.²¹

Schedule M-1 requires corporations to reconcile the amount of book income reported for financial purposes with their taxable income reported for tax purposes. As shown below, corporations make essentially four sets of adjustments in the reconciliation process:

¹⁸ George A. Plesko, *Reconciling Corporation Book and Tax Net Income*, Tax Years 1996–1998, Stat. Income Bull., Spring 2002, at 111.

¹⁹ *Id.* at 116.

²⁰ Desai, *supra* note 16, at app. fig.2.

²¹ *Id.* Desai determined his ratios in the same manner as the Treasury. Desai’s ratio for 1996, however, is not confirmed by Plesko’s figures for that year, the one year in which Plesko provides data separately for the subset of corporations examined by Desai. Using Treasury’s definition of book and taxable income, Plesko’s numbers produce a 1996 ratio of 1.21, not the 1.40 reported by Desai for that year. See *supra* tbl.1, panel 3.

Start: Pre-tax book income,²²

Plus: Income subject to tax but not recorded on books;

Plus: Expenses recorded on books but not deducted on tax return;

Less: Income recorded on books but not included on tax return;

Less: Deductions on tax return but not charged against book income;

End: Taxable income for tax purposes.

Unfortunately, a comparison of the starting and ending amounts in this process over a period of time does not necessarily reveal changes in the taxpaying habits of the corporation for the period examined. What is needed is information regarding the *tax effect* of the corporation's income.²³ The following example illustrates this difficulty.

Example 1: *X*, a U.S. corporation, owns all of the stock of *Y*, a foreign corporation. *X* operates two U.S. businesses, *a* and *b*, and *Y* operates a third, non-U.S. business, *c*. In year 1, each of the businesses generates book and taxable income of \$100. At the very end of year 1, *X* moves business *b* offshore, to be operated by *Y*. Thereafter, in year 2, each business again generates book and taxable income of \$100.

In this example, *X* and *Y* together have \$300 of book and taxable income in both years 1 and 2. Thus, it would seem that the ratio of their book to taxable income should remain equal to 1.0 each year. In fact, however, a book-tax comparison taken from *X*'s Schedule

²² Schedule M-1 actually requires corporations to disclose their *after-tax* book income and federal income tax (per books) on lines 1 and 2. Adding these two amounts together produces a measure of pre-tax book income. There is also a separate required disclosure on line 3 for the excess of capital losses over capital gains. This disclosure is needed because the excess is not deductible for tax purposes, I.R.C. § 1211(a) (2002), but reduces book income. This item could have been included in the general category of "expenses recorded on books but not deducted on tax return."

²³ See George K. Yin, *The Problem of Corporate Tax Shelters: Uncertain Dimensions, Unwise Approaches*, 55 *Tax L. Rev.* 405, 416 (2002) (noting that tax savings may not be reflected by reduction in taxable income).

M-1 in years 1 and 2 might not reach that conclusion. Because *Y* is included in *X*'s consolidated group for accounting but not for tax purposes, the *X* group's pre-tax book income would be \$300 but its taxable income would only be \$200 in year 1, assuming that the income from business *c* is not subject to an anti-deferral provision of the U.S. tax law such as subpart F.²⁴ In year 2, the *X* group's pre-tax book income would again be \$300 but its taxable income would only be \$100, assuming again the inapplicability of an anti-deferral provision. Thus, *X*'s book-tax ratio would increase from 1.5 to 3.0 between the two years. In each year, the amount of taxable income earned and retained by *Y* would be included in the adjustment category, "income recorded on books but not included on tax return," to reduce book income to taxable income.²⁵

Moreover, this change in ratio may be completely unrelated to the tax impact of the change between years 1 and 2. What is unknown is the worldwide tax effect of the change. The shift reduces *X* and *Y*'s U.S. tax liability, but that consequence may be more or less than the increase (if any) in foreign taxes resulting from the change.

A similar problem occurs if we assume that, at the very end of year 1, *Y* shifts business *c* to a different foreign jurisdiction, with

²⁴ For the tax rules, see I.R.C. §§ 1501, 1504(a)(1), (b)(3), 951(a)(1)(A)(i) (2002). For the accounting rules, see Fin. Accounting Standards Bd., Statement of Financial Accounting Standards No. 94, Consolidation of All Majority-Owned Subsidiaries ¶¶ 9, 13. *Y* would ordinarily have no U.S. income tax liability in this example. See I.R.C. § 882(a)(1) (2002).

²⁵ See Plesko, *supra* note 18, at 113 fig.B (listing "unrepatriated income from foreign subsidiaries" as one example of the adjustments in that category). Neither the corporate tax return nor its instructions specifically states exactly how the adjustment for the foreign subsidiary's income should be made in Schedule M-1. See also IRS, Publication 542, at 17-18 (2001) (giving no explanation of foreign subsidiary situation in example explaining Schedule M-1). Contrary to the method described in the text, Gil Manzon and George Plesko state that a firm first reports on Schedule M-1 "its after-tax book income on the same consolidated entity as the [tax] return, and then adds back the provision for taxes," Gil B. Manzon, Jr. & George A. Plesko, *The Relation Between Financial and Tax Reporting Measures of Income*, 55 *Tax L. Rev.* 175, 184 (2002), and a study by Lillian Mills and Kaye Newberry suggests that at least some companies employ this reporting procedure, Lillian F. Mills & Kaye J. Newberry, *Hide and Seek: The Search for Transfer-Pricing Evidence Using Public and Private Data*, 92 *Ann. Conf. on Tax'n* 166, 168 (2000). To the extent firms use this alternative reporting method, the book-tax ratio would remain 1.0 in both years of example 1, although the ratios would still provide no indication of the tax effect of the change in business structure between years 1 and 2.

the income from that business taxable only in that jurisdiction. In this situation, *X*'s book-tax ratio from Schedule M-1 would be unchanged from year 1 to year 2 (1.5 in each year), a result again not necessarily indicative of the worldwide tax effect of the change to the corporations.

Plesko's study provided data on the "total income tax" (both before and after credits) during 1996–1998 of the corporations involved.²⁶ This Internal Revenue Service ("IRS") tax information, however, relates only to the U.S. pre- and post-credit tax liability of the companies. If the reporting by firms of their book profits on Schedule M-1 includes the profits earned by their foreign subsidiaries, exclusive consideration of U.S. tax liability might not be particularly meaningful.

Desai attempted to take into account the effect of international investment by increasing U.S. taxable income by an estimate of the net amount of foreign income earned by U.S. corporations, based on Bureau of Economics Analysis data on capital flows. He found that the amount of reinvested foreign earnings for his sample of corporations increased dramatically, from \$17.6 billion in 1991 to \$84.1 billion in 2000, an increase of almost 380%.²⁷ This adjustment, however, does not give any indication of the taxable amount of the foreign income or its worldwide tax effect. Thus, for example, the adjustment would not differentiate income shifts to tax haven countries from those to developed foreign countries imposing the same or higher tax rates than the U.S.

B. Study Using a Combination of IRS and Financial Statement Information

Under a special arrangement with the IRS, Professor Lillian Mills, Professor Kaye Newberry, and economist William Trautman compared the tax return and financial statement information of 1579 large and midsized business firms for the period 1991–1998

²⁶ See Plesko, *supra* note 18, at 115 fig.C.

²⁷ See Desai, *supra* note 16, at 9–10, app. tbl.1. Desai reduced the income earned by U.S. corporations operating abroad (including income earned by their foreign subsidiaries) by the amount of income repatriated to determine the net amount of reinvested foreign income for the period. He scaled the adjustment to conform to his sample of corporations.

based on a match of their employer identification numbers.²⁸ They reported a growing difference during this period between the amount of the firms' worldwide pre-tax book income (from financial statements) and taxable income (from tax returns).²⁹ Although the authors did not report the actual amounts of book and taxable income and book-tax ratios, such information can be inferred from a table and figure included in their paper. Table 2 sets out the necessary calculations, which show an almost steadily increasing book-tax ratio throughout the period, from 1.07 in 1991 to 1.63 in 1998.

²⁸ See Lillian Mills et al., *Trends in Book-Tax Income and Balance Sheet Differences*, 96 *Tax Notes* 1109 (2002).

²⁹ *Id.* at 1111 tbl.2, panel A, 1119 (2002). Pre-tax book income was determined net of state and other income tax expenses. Taxable income was before net operating loss and special deductions. The authors also compared the book and taxable income of these firms based on their Schedule M-1 information and found a pattern similar to that reported by earlier researchers.

Table 2. Book-Tax Ratios (Tax Return and Financial Statement Data)

	1991	1992	1998	1994	1995	1996	1997	1998
1. Worldwide book income (all corps.)	130	148	188	263	315	342	384	408
2. Net taxable income (all corps.)	122	125	160	187	220	240	280	250
3. WW book inc - net tax. inc. (all corps.)	8	23	28	76	95	102	104	158
4. WW book inc - net tax. inc. (domestic-only corps.)	-5	-9	-3	15	13	8	9	15
5. WW book inc - net tax. inc. (multinationals)	13	32	31	61	82	95	95	144
6. Share of tot. difference attributable to multinationals ((5)/(3))	162.5%	139.1%	110.7%	80.3%	86.3%	93.1%	91.3%	91.1%
7. Book-tax ratio (all corps.) ((1)/(2))	1.07	1.18	1.18	1.41	1.43	1.43	1.37	1.63

Source: Lillian Mills et al., Trends in Book-Tax Income and Balance Sheet Differences, 96 Tax Notes 1109 (2002). Lines 1 and 2 are inferred from id. at 1116 fig.1 and id. at 1111 tbl.2 of the article. Lines 3-5 are from id. at 1111 tbl.2.

Money amounts are in billions of dollars.
Details may not add to totals due to rounding.

Unfortunately, this comparison again does not necessarily reveal the relationship of taxes to book profits during this period, particularly for multinational corporations. “Book income” is a worldwide figure taken from financial statements and would therefore include the income of foreign subsidiaries. In contrast, “taxable income” from tax returns would not include the taxable income or tax effects, including foreign taxes, of those subsidiaries. Hence, some part of the trend reported by the authors may simply be due to an increasing amount of income earned abroad through subsidiaries.

Indeed, the authors provide information in their paper that lends support to that very conclusion. The authors separately report the amount of the book-tax difference attributable to domestic-only and multinational corporations, and those figures are set out on lines 4 and 5 of Table 2.³⁰ The multinationals’ share of the difference during the period was as high as 162.5% (i.e., domestic-only corporations in that year reported an excess of taxable income over book income) and was never lower than 80.3%. As shown on line 4 of Table 2, the book-tax difference of domestic-only corporations was both small in amount and relatively flat over the eight years examined.

C. Studies Using Financial Statement Information

Two studies, one by Professors Gil Manzon and George Plesko and another by Robert McIntyre and Coo Nguyen, compared the book-tax amounts of corporations based exclusively on their financial statement information. Each initially examined the *tax expense* of the corporations, rather than their taxable income, thus potentially permitting consideration of the tax effect of changes in reported book profits. Each, however, compared the *U.S.* tax expense of the corporations to the *U.S.* share of their pre-tax book income.³¹ It is not clear how the geographic segmentation of income for accounting purposes compares to the division for tax purposes, and disclosures of the accounting segmentation are not

³⁰ The authors report that, of the entire dataset examined (not just the panel of 1579 corporations), nearly 50% represented multinational companies. See *id.* at 1118.

³¹ See Robert S. McIntyre & T.D. Coo Nguyen, *Corporate Income Taxes in the 1990s*, at 59 (2000); Manzon & Plesko, *supra* note 25, at 192.

always provided.³² More importantly, for multinational corporations, a focus only on U.S. tax and book income information is incomplete. Indeed, it is possible that certain tax shelter activity engaged in by multinationals might be reflected by a *decrease* in the spread between U.S. book and taxable income.³³ In addition, the payment by a corporation of U.S. residual taxes on repatriated foreign earnings may cause a comparison of U.S. tax to U.S. book profits to yield an inflated estimate of the effective tax rate.³⁴

³² See 17 C.F.R. § 210.4-08(h)(1) (2002) (noting that for accounting purposes “foreign income” is defined as income generated by a reporting entity’s operations located outside of its home country). Fin. Accounting Standards Bd., Statement of Financial Accounting Standards No. 14, Financial Reporting for Segments of a Business Enterprise (1976) [hereinafter FAS 14], was the controlling accounting standard through 1997, when it was superseded by Fin. Accounting Standards Bd., Statement of Financial Accounting Standards No. 131, Disclosures about Segments of an Enterprise and Related Information (1997). Each standard permits a fair amount of management discretion in reporting the geographic segment information. See also Spooner, *supra* note 12, at 301 (“Companies even allocate income between U.S. and foreign sources in more than one way in their financial statements.”); James E. Wheeler, An Academic Look at Transfer Pricing in a Global Economy, 40 Tax Notes 87, 92–95 (1988) (finding large, apparent discrepancies in specific cases between tax and accounting geographic division of income). McIntyre and Nguyen report that they allocated the worldwide profits of corporations into their domestic and foreign components in cases where such allocation was not made by the company, and made certain other adjustments. McIntyre & Nguyen, *supra* note 31, at 59–60. For example, they state that “in a few cases (too few, most likely) we included in domestic profits certain earnings that companies characterized as ‘foreign,’ but which were not subject to foreign income taxes because they were actually U.S. profits shifted offshore on paper.” *Id.* at 60. In this Article’s sample, Compustat failed to provide information on the amount of foreign pre-tax income in almost one-half of the company-years examined. For tax purposes, the source of income rules are generally set forth in I.R.C. §§ 861–865 (2002).

³³ See Yin, *supra* note 23, at 417–18 (contending that in the transaction involved in *Compaq Computer Corp. v. Commissioner*, 277 F.3d 778 (5th Cir. 2001), rev’g 113 T.C. 214 (1999), the decrease in U.S. taxable income of the company may have been matched by an even greater decrease in its U.S. share of book profits, even though worldwide book profits increased).

³⁴ Staff of Joint Comm. on Taxation, 98th Cong., Study of 1983 Effective Tax Rates of Selected Large U.S. Corporations 33 (Comm. Print 1984) [hereinafter JCT 1984 ETR Study]; Mills & Newberry, *supra* note 25, at 169; Spooner, *supra* note 12, at 301. James Mackie has estimated, however, that this distortion may not be significant. James B. Mackie, III, The Puzzling Comeback of the Corporate Income Tax, 92 Ann. Conf. on Tax’n 93, 100 tbl.4, col.5, 101 (2000).

D. Studies Using Data from the National Income and Product Accounts ("NIPA")

Finally, three studies have examined corporate book-tax trends using NIPA information.³⁵ The NIPA data provide an estimate of corporate profits based on a starting point of IRS corporate taxable income. This amount is then adjusted in a process exactly the reverse of the reconciliation process companies follow for Schedule M-1. In general, the adjustments are as follows:³⁶

Start: Taxable income for tax purposes;³⁷

Less: Income subject to tax but not included in domestic income from current production;

Less: Costs of current production that are not deducted on tax return;

Plus: Domestic income from current production that is not included on tax return;

Plus: Deductions on tax return that are not costs of current production;

End: Corporate domestic pre-tax profit.

A further adjustment is made to take into account the "rest-of-the-world" profits of U.S. corporations. This adjustment includes both the distributed and undistributed earnings of foreign affiliates of U.S. investors, which encompasses both foreign branches and

³⁵ Steve Maguire, Cong. Research Serv., Report for Congress: Average Effective Corporate Tax Rates, at CRS-2 (2000); see Cong. Budget Office, The Budget and Economic Outlook: Fiscal Years 2003–2012, at 53 box 3-1, 57 tbl.3-7 (2002); Mackie, *supra* note 34, at 101 nn.9 & 11.

³⁶ See Bureau of Econ. Analysis, U.S. Dep't of Commerce, Corporate Profits: Profits Before Tax, Profits Tax Liability, and Dividends 7–8 (2002), available at <http://www.bea.doc.gov/bea/ARTICLES/NATIONAL/NIPA/Methpap/Methpap2.pdf> (on file with the Virginia Law Review Association) [hereinafter BEA Corporate Profits Paper].

³⁷ The starting point is total receipts less total deductions of all active corporations, as provided by the IRS. There is also an adjustment for the estimated amount of taxable income not reported to the IRS. *Id.* at 7.

subsidiaries owned by U.S. corporations.³⁸ The net result is an estimate of the worldwide pre-tax profits of U.S. corporations.

The Congressional Research Service estimated the ETR of domestic nonfinancial corporations over a range of years based on NIPA data on corporate profits and corporate tax receipts.³⁹ NIPA data on tax receipts, however, are generally limited to U.S. tax liability, whereas, as described above, NIPA profits is a worldwide measure (including profits of foreign subsidiaries).⁴⁰ Thus, this book-tax comparison may not be particularly meaningful for multinational corporations. The same conclusion applies to two other examinations of corporate ETRs, conducted by the Congressional Budget Office and by James Mackie, which are based on NIPA data and which compare the domestic share of NIPA corporate profits to U.S. taxes.⁴¹ As mentioned earlier, a focus on only U.S. tax and book income ignores the potentially different and changing relationship between foreign taxes and profits and therefore provides an incomplete picture for corporations with international operations.⁴²

II. ESTIMATING THE ETRs OF THE S&P 500

This Part explains how the estimates in this Article were made and presents the results.

A. Companies and Years Sampled

The corporations comprising the S&P 500 are included in the stock index based upon their market size, liquidity, and industry representation. They are intended to represent major U.S. public companies in a broad range of industries. As of October 31, 2002, the 423 companies of the index whose shares were traded on the New York Stock Exchange represented 86% of the total market

³⁸ Id. at 1 n.2, 13.

³⁹ Maguire, *supra* note 35, at CRS-2.

⁴⁰ See BEA Corporate Profits Paper, *supra* note 36, at 13. A study of corporate ETRs by Martin Sullivan appears to have been based on the same data as the Congressional Research Service study. See Martin A. Sullivan, Corporate Tax Revenues: Up, Down, and All Around, 95 Tax Notes 25 (2002).

⁴¹ See Cong. Budget Office, *supra* note 35, at 53 box 3-1, 57 tbl.3-7; Mackie, *supra* note 34, at 101 nn.9 & 11.

⁴² See *supra* Section I.C.

capitalization of all of the companies traded on that exchange.⁴³ The 500 companies represented about 81% of the market value of the 7148 public companies tracked by Standard & Poor's.⁴⁴

Because membership on the index changes, this Article identified the companies on the index as of August 2001, and obtained their financial statement information for the years 1995–2000 using S&P's Compustat service, supplemented by a review of the financial statements themselves. Non-U.S. companies and companies for which complete six-year data for either pre-tax book income, current federal income tax expense, or estimated ESO tax benefit could not be obtained were dropped, leaving a sample of 455 corporations.⁴⁵ Table 3 provides data on the number of companies in the sample that had some foreign investment, as reflected by the reporting of current foreign income tax expense, or that are estimated to have obtained some ESO tax benefit during the six-year period. As can be seen, almost three-fourths of the companies reported foreign tax expense in at least one year, with over 50% reporting foreign tax of \$25 million or more and almost one-quarter reporting foreign tax of \$100 million or more in any year. Over 97% of the companies are estimated to have received some ESO tax benefit in at least one year, with almost one-half receiving a benefit of \$25 million or more and almost one-fifth receiving a benefit of \$100 million or more in any year.

⁴³ Overview: Standard and Poor's Global Industry Classification Standard, at [wysiwg://49/http://www.spglobal.com/indexmain500_data.html](http://www.spglobal.com/indexmain500_data.html) (Oct. 31, 2002) (on file with the Virginia Law Review Association) [hereinafter Standard and Poor's].

⁴⁴ *Id.*

⁴⁵ Certain corporations that were foreign-registered during the period examined yet treated by Standard & Poor's as U.S. companies, such as McDermott International, Schlumberger Ltd., and Tyco International, were retained in the sample. Nonessential data fields were treated as equal to zero if information was unavailable.

Table 3. Corporations in Sample Reporting Current Foreign Income Tax Expense or Having ESO Tax

	number	% of sample
Corporations Reporting Current Foreign Income Tax Expense..any year		
greater than zero	334	73.4%
\$5M or more	303	66.6%
\$10M or more	280	61.5%
\$25M or more	228	50.1%
\$50M or more	161	35.4%
\$100M or more	105	23.1%
Corporations Having ESO Tax Benefit (Estimated)..any year		
greater than zero	443	97.4%
\$5M or more	365	80.2%
\$10M or more	308	67.7%
\$25M or more	217	47.7%
\$50M or more	136	29.9%
\$100M or more	84	18.5%

To give some sense of the significance of the sampled corporations, Table 4 sets out the estimated current U.S. income tax expense of the sample after the ESO tax benefit is taken into account, as well as the sample's reported pre-tax book profits. The sample is estimated to have paid U.S. taxes of between \$67 billion (in 1995) and \$106 billion (in 2000), representing an increasing share of total U.S. corporate income tax revenue. By year 2000, the sample is estimated to have paid slightly more than one-half of all such revenue.⁴⁶ Column 4 of Table 4 shows that the reported pre-tax book income of the sampled corporations steadily increased and almost doubled during the six-year period.

The years 1995–2000 were selected in part because there were no major changes in the U.S. corporate income tax laws or pertinent accounting rules during that period. Hence, changes in effective tax rates during this period should be attributable to changing corporate practices affecting the relationship between book income and tax liability and, for multinational corporations, the amount of U.S. and foreign income and U.S. and foreign tax liabilities.

⁴⁶ Compustat groups together in a given year all companies with fiscal years ending after May of the year in question and before June of the next succeeding year. Thus, year 2000 data include information of companies with fiscal years ending after May 31, 2000 and before June 1, 2001. This convention does not match exactly the government's revenue figures, which are provided by the government's fiscal year ending date of September 30 of each year.

Table 4: Estimated Current Federal Income Tax Expense (After ESO Tax Benefit) and Reported Pre-Tax Book Income of Sample Corporations, by Year

year	(1) Fed. Inc. Tax Exp. (after ESO Ben.) - Sample	(2) Fed. Inc. Tax - All Corporations	(3) Tax Share of Sample Corporations ((1)/(2))	(4) Reported Pre-Tax Book Income - Sample
1995	67,276	157,000	42.9%	328,630
1996	73,403	171,800	42.7%	377,156
1997	83,606	182,300	45.9%	420,127
1998	86,392	188,700	45.8%	450,334
1999	95,148	184,700	51.5%	566,633
2000	105,900	207,300	51.1%	643,437
1995-2000	511,725	1,091,800	46.9%	2,786,316
1995 to 2000 change (\$)	38,623	50,300		314,807
1995 to 2000 change (%)	57.4%	32.0%		95.8%

Source: Col. (2) is obtained from Congr. Budget Office, The Budget and Economic Outlook: FYs 2003-2012, at 160 tbl.F-3 (2002).

Money amounts in millions of dollars.

Details may not add to totals due to rounding.

B. Estimating the ESO Tax Benefit

For tax purposes, the granting of a stock option to a corporate employee is generally not a taxable event to either the grantee or grantor. If the stock option is a nonqualified one, however, the exercise of the option usually triggers ordinary income consequences to the holder of the option and a tax deduction to the corporate issuer. The amount of the income and deduction is equal to the difference between the value of the stock at the time of the exercise and the option's exercise price.⁴⁷ Although one might disagree with the timing of the taxable event, the tax treatment to the holder and issuer of the option basically recognizes that the option benefit is a form of compensation provided to the corporate employee.⁴⁸

In contrast, under Accounting Principles Board Opinion number 25 ("APB 25"), a firm that grants fixed compensatory stock options (i.e., options whose number and exercise price are both known at the time of the option grant) must charge its earnings for accounting purposes by only the "intrinsic value" of the options. Intrinsic value is the difference, if any, between the value of the stock and the exercise price *at the time of the grant*. Thus, a firm that grants fixed options at the money (i.e., with exercise price equal to value of the stock at the time of the grant) is treated as having no expense for accounting purposes. The time value of the option privilege is ignored. Moreover, in reporting the amount of its income tax expense, a firm may not take into account the ESO tax benefit relating to an option compensation expense that it did not charge against earnings for accounting purposes. As a result, firms issuing fixed stock options may end up overstating in their financial state-

⁴⁷ See I.R.C. § 83(a), (h) (2002); Treas. Reg. § 1.83-7(a) (1978). Neither the grant nor the exercise of statutory or "qualified" stock options provides any tax benefit to the issuer, although the holder is treated more favorably. See I.R.C. §§ 421(a), 422 (2002). In general, qualified options must be issued pursuant to a plan approved by shareholders, and there are limitations placed on the amount of the benefit provided by such options and the holder's use of the option and the stock once the option is exercised.

⁴⁸ The compensation generally qualifies as performance-based and, therefore, the amount of the corporate deduction is not capped at \$1 million for each compensated employee. See I.R.C. § 162(m)(4)(C) (2002); Treas. Reg. § 1.162-27(e)(2)(vi) (as amended in 1996).

ments the amounts of both their book income and income tax expense.⁴⁹

This disconnect between the tax and accounting treatment of nonqualified stock options is especially sharp. For example, even though the benefit from such options ordinarily does not reduce book earnings, the IRS has concluded that the amount of the benefit (at the time the option is exercised) *does* reduce the corporation's earnings and profits. As a result, corporations are able to deduct the benefit for purposes of the minimum tax as well as the regular corporate income tax.⁵⁰

Statement of Financial Accounting Standards number 123 ("SFAS 123"), which superceded APB 25, requires firms to charge earnings by the fair value of its options at the time of the grant. SFAS 123, however, permits firms to continue using APB 25 with appropriate footnote disclosure of the financial impact of SFAS 123.⁵¹ During the years in question, the vast majority of the corporations sampled continued to use the APB 25 approach.⁵²

As noted, the tax law determines the amount of the option benefit based on its value at the time the option is exercised, whereas SFAS 123 determines the value of the benefit at the time of the grant. Thus, the pro forma disclosure mandated by SFAS 123 does not help to identify the amount of the firm's ESO tax benefit. Explicit disclosures of that amount are made elsewhere in the financial statements, but not in a uniform manner. For example, there

⁴⁹ See Accounting Principles Bd., Opinion No. 25: Accounting for Stock Issued to Employees ¶¶ 10, 16–17 (1972) [hereinafter APB 25]; Fin. Accounting Standards Bd., Statement No. 109: Accounting for Income Taxes ¶¶ 36(e), 143 (1992) [hereinafter SFAS 109]; Michelle Hanlon & Terry Shevlin, Accounting for Tax Benefits of Employee Stock Options and Implications for Research, 16 *Acct. Horizons* 1, 2–3 (2002); McGill & Outslay, *supra* note 12, at 1129.

⁵⁰ See I.R.C. § 56(g)(1), (3), (4)(C)(i) (2002); Rev. Rul. 2001–1, 2001–1 C.B. 726.

⁵¹ See Fin. Accounting Standards Bd., Statement No. 123: Accounting for Stock-Based Compensation ¶¶ 11, 16, 17, 19, 45 (1995) [hereinafter SFAS 123].

⁵² Of the sample, only Boeing and Winn-Dixie were found to use the SFAS 123 approach. See also Bear Stearns, Accounting Issues: Employee Stock Options 7 (July 6, 2000) (stating that only Boeing and Winn-Dixie were found to use the SFAS 123 approach). As of November 21, 2002, Standard and Poor's reported that sixty-six of the corporations on its S&P 500 index, including Citigroup, Coca-Cola, General Electric, General Motors, Home Depot, Merrill Lynch, Proctor & Gamble, and Wal-Mart, had agreed to follow the SFAS 123 approach in the future. None of the companies in the information technology sector, however, had agreed to do so as of that date. See Standard & Poor's, *supra* note 43.

was a disclosure of the ESO tax benefit amount in only 1179 company-years of the sample, representing just over 40% of all company-years.⁵³ A further problem is that, for firms with tax losses and a valuation allowance (information not uniformly available from the financial statements), the amount of tax benefit disclosed by a firm may not represent the actual ESO tax benefit of the firm for the current period.⁵⁴

To estimate the amount of a firm's ESO tax benefit, I first calculated a "default" estimate of such benefit based on the following formula: "default" ESO tax benefit = (# options exercised) x (GP - EP) x .35, where "GP" is the weighted-average exercise price of new options granted by the firm and "EP" is the weighted-average exercise price of options exercised during the year, all as disclosed in the company's stock option footnote.⁵⁵ The default estimate assumed that most firms grant options at the money in order to avoid having to reduce their earnings by the intrinsic value of the option.

⁵³ Cf. McGill & Outslay, *supra* note 12, at 1132 (reporting Enron's incomplete disclosures of its ESO tax benefit). A disclosure appeared most often in the statement of shareholders' equity, but some disclosures were made in the stock option footnote, the tax footnote, and the statement of cash flows (both operating and financing activities). There were a total of 1637 separate disclosures by the sampled corporations, but some related to the same company-year. In the few instances where disclosures for the same company-year were not the same, the shareholders' equity disclosure was given priority.

⁵⁴ See Hanlon & Shevlin, *supra* note 49, at 5. A valuation allowance reduces the value of a firm's deferred tax assets, such as a net-operating-loss ("NOL") carryforward, if it is more likely than not that some or all of the asset will not be realized in the future. See SFAS 109, *supra* note 49, at ¶¶ 8(d), 17(e). When a firm with tax losses has a valuation allowance, the time that it recognizes a tax benefit for financial purposes may differ from the time it recognizes the benefit for tax purposes. See Hanlon & Shevlin, *supra* note 49, at 5.

⁵⁵ In some instances, the company failed to report a weighted-average exercise price for options granted or exercised during the year but instead merely provided a range of high and low prices. In those cases, I calculated the exercise price as the numerical average of the range provided by the company. If the weighted-average exercise price of new options granted was less than such price for options exercised, I estimated the ESO tax benefit under the default method to be zero. (Explicit, reliable disclosures of negative amounts of ESO tax benefit, however, were retained.) Neither the stock option footnote information nor the explicit ESO tax benefit disclosures were compiled by Compustat for the years sampled. Thus, all of this information was obtained through examinations of the pertinent financial statements of the companies.

Thus, the estimate treated GP as a reasonable proxy for the fair market value of the firm's stock at the time of exercise.⁵⁶

The default estimate of the tax benefit for a company-year was then compared to "reliable," explicit disclosures of the amount of the benefit in such year. This comparison was made for the subset of firms with reliable disclosures in all six years. Because of uncertainty regarding the existence of a valuation allowance, the disclosure of any company with a tax loss was assumed to be unreliable in that year.⁵⁷ There were seventy-four companies with reliable disclosures in all six years, representing 444 company-years, and Table 5 compares the ESO tax benefit amounts of those companies by year. As Table 5 shows, taking into account data from all of the years, the "default" estimate of the benefit is within about 3% of the disclosed amounts, indicating that the default formula is quite accurate. The year-by-year comparisons show only slightly greater variances. These yearly variations were used as "adjustment fac-

⁵⁶ According to one study, the exercise price of about 95% of options is the fair market value of the stock at the time of the grant. See Brian J. Hall & Jeffrey B. Liebman, *The Taxation of Executive Compensation*, in *Tax Policy and the Economy* 1, 7 (James M. Poterba ed., 2000); see also Hanlon & Shevlin, *supra* note 49, at 6 (discussing Microsoft's policy of granting options with an exercise price equal to the price of the stock at the time of the grant); Martin A. Sullivan, *Let the Good Times Roll: Options and Tax-Free Profits*, 87 *Tax Notes* 1185, 1188 (2000) (treating weighted-average exercise price of options granted during a year as a proxy for fair market value of a company's stock in that year). I considered using other possible proxies for the fair market value of option shares, including the average price of the common stock of the company based upon beginning and end-of-year prices or the prices at the end of each quarter. The latter is a common time for the exercise of stock options. Financial statement information, however, is restated to take into account stock splits and similar events taking place during the period information is provided. Hence, it was difficult to identify nonfinancial statement data that was consistent with the information on option exercises taken from the statements. Cf. Desai, *supra* note 16, at app. (using volume-weighted average daily closing stock price during year for value of option shares at time of exercise).

⁵⁷ The Compustat indicator for the existence of a tax loss carryforward (item #52) is apparently itself not always reliable. See Debra S. Callihan, *Corporate Effective Tax Rates: A Synthesis of the Literature*, 13 *J. Acct. Literature* 1, 18 (1994); Lillian F. Mills et al., *Reducing Error in Measures of Corporate Tax Incentives* 2, (2002) (unpublished manuscript, on file with the Virginia Law Review Association). Accordingly, I treated a firm as a loss company if either it was identified as such by Compustat or its estimated "default" ESO tax benefit exceeded its reported current federal income tax expense for the year.

tors” to modify the amount of all of the default estimates.⁵⁸ The estimated ESO tax benefit for every company-year was then based upon a reliable, explicit disclosure of that amount for the year, if available, or else from the default estimate of that amount, as so adjusted.

Table 5: Comparison of Estimated ESO Tax Benefit (Default Method) and Reliable ESO Tax Benefit Disclosures, 74 Companies, by Year

<u>year</u>	<u>Default Estimate</u>	<u>Disclosed Amount</u>	<u>Disclosed Amount/Default Estimate</u>
1995	945.23	1,040.71	110.10%
1996	1,731.58	1,925.11	111.18%
1997	2,972.20	3,189.24	107.30%
1998	5,244.31	5,759.38	109.82%
1999	9,287.88	9,438.81	101.62%
2000	15,324.61	15,261.03	99.59%
all years	35,505.81	36,614.28	103.12%

Money amounts are in millions of dollars.

Details may not add to totals due to rounding.

⁵⁸ It was a little surprising that the default estimates were generally slightly *less* than the amount of the explicit ESO tax benefit disclosures because the former include data on the exercise of qualified stock options, which do not provide any tax benefit to the company. Although most stock options are thought to be nonqualified, because of this factor, the default estimate was expected to be a little too high, not too low. See Hall & Liebman, *supra* note 56, at 7 (finding that qualified options account for only about 5% of option grants). A greater potential source of inaccuracy of the default estimate, however, is the use of the exercise price of new grants as a proxy for the fair market value of the stock at the time of exercise, and this factor may have swamped any other.

A firm, however, was not necessarily able to use the full amount of the estimated ESO tax benefit in the year it arose if the firm did not have enough taxable income in that year. I therefore limited the estimated amount of the benefit in any company-year to the company's reported current U.S. income tax expense in that year.⁵⁹ Any excess benefit was carried forward to the next succeeding year and taken into account in that year, subject to the same limitation.⁶⁰ Table 6 shows the impact of the two adjustments in estimating the amount of the ESO tax benefit. Column 1 of that table presents the estimated amount of the benefit determined from reliable financial statement disclosures or the default method. Column 2 shows the amount actually taken into account in my estimates, after applying the "adjustment factors" (to the default amounts) and the limitation just described. Overall, about 88% of the unadjusted amount of benefit was taken into account. This portion fell, however, throughout the period, apparently because the large growth in the

⁵⁹ This limitation is too restrictive for companies with credits for foreign taxes paid on foreign branch or portfolio income or dividend income distributed (or deemed distributed) by foreign subsidiaries. For such companies, current U.S. tax expense does not reflect the pre-credit U.S. tax liability and taxable income of the company, against which an ESO tax benefit and deduction could potentially be applied. If the estimated ESO tax benefit were taken into account up to the company's U.S. and foreign tax expense for the year, however, the limitation would be too loose for companies reporting the foreign taxes paid by their foreign subsidiaries on *undistributed* income. The U.S. parent company would ordinarily not be entitled to a credit for such taxes until they are deemed paid by the parent in conjunction with a dividend distribution by the subsidiary. See I.R.C. § 902(a) (2002). To the extent the ESO tax benefit amount is restricted too much as a result of this limitation, the estimated ETRs of the companies are overstated.

⁶⁰ This carryforward of the excess ESO tax benefit should not be affected by the possibility that the company may have had an unknown amount of tax loss independent of the ESO benefit in a given year. For example, assume that independent of the ESO tax benefit, a company had a \$100 tax loss in year 1 (which is not carried back to an earlier year) and \$200 of taxable income in year 2 (before any NOL carryforward). Assume further that based on my estimates, the company had a \$15 ESO tax benefit in both years 1 and 2. Under these facts, the company should have reported zero income tax expense in year 1. As a result, my estimates would not take any of the ESO tax benefit into account in that year. In year 2, the company should have reported income tax expense of \$35 ($(\$200 - \$100) \times .35$). Thus, my estimates would take into account a \$30 ESO tax benefit in year 2, representing the current year's benefit and the amount carried forward from year 1. As is customary, NOL carrybacks were ignored, and therefore the few instances of negative reported income tax expense (U.S. or foreign) were reset to zero.

amount of the benefit made an increasing portion of it unusable in the later years.⁶¹

Table 6: Impact of Adjustments and Limitation to Estimated Amount of ESO Tax Benefit

	(1)	(2)	(3)
<u>year</u>	amt. of ESO tax benefit from reliable disclosures and default method <u>(unadjusted and unlimited)</u>	amt. of ESO tax benefit taken <u>into account</u>	<u>col. (2)/col. (1)</u>
1995	4,508.77	4,608.90	102.2%
1996	6,970.51	7,017.06	100.7%
1997	11,741.33	11,729.34	99.9%
1998	19,103.44	17,977.34	94.1%
1999	27,021.78	22,228.21	82.3%
2000	36,270.92	28,959.22	79.8%
1995–2000	105,616.75	92,520.08	87.6%

Money amounts are in millions of dollars.

Details may not add to totals due to rounding.

⁶¹ The “adjustment factors” in the later years of the period were also smaller than those in the earlier years. See *supra* tbl.5.

Table 7 presents the estimates of the amount of ESO tax benefit utilized each year, broken down by industry sector.⁶² Table 7 shows that the ESO tax benefit for all of the sampled companies increased over 500% between 1995 and 2000. This finding is consistent with Professor Desai's estimate of an approximately 500% increase over the same period in the amount of the ESO tax deduction of firms included in the Execucomp database.⁶³ The information technology sector experienced the greatest growth during this period, both in dollar amount (over a \$14 billion increase) and rate of change (over a ten-fold increase). Dollar increases were next largest in the health care (\$3.9 billion increase), financial (\$2.3 billion), and consumer cyclicals (\$1.3 billion) sectors. The companies in the information technology sector had an average benefit per year during the period of almost \$88 million, the largest of any sector. Average yearly benefits were next largest for companies in the health care (\$63 million), telecommunication services (\$41 million), and financial and consumer staples (\$31 million) sectors. Overall, the companies had total benefits in all six years of about \$92.5 billion, with an increased benefit of \$24.4 billion from 1995 to 2000. The average benefit of each company per year during the period was almost \$34 million.

⁶² All industry information in this Article is presented based on the S&P 500 Global Industry Classification Standard. See Standard and Poor's, *supra* note 43. Appendix A, *infra*, contains a list of the companies included in each sector. One problem with using this classification is that most of the sampled corporations crossed industry lines.

⁶³ See Desai, *supra* note 16, at app. tbl.2. Desai took into account between 1435 and 1920 firms during the period 1995–2000. The Execucomp database reports stock option grant and exercise behavior of only the top five executives of each firm, but Desai extrapolated from these figures to provide firm-wide estimates. His estimates, however, did not take into account the possibility that the firm was unable to use the tax benefit in the year it arose. In addition, his estimates apparently reflect the amount of the ESO tax deduction each year adjusted to current dollars. *Id.* at app. tbls.1–2. Based on a sample of forty firms, Martin Sullivan estimated that the ESO tax benefit obtained by all corporations in 2000 (\$56.4 billion) was more than twice the benefit in 1998 (\$27.6 billion). Martin A. Sullivan, *Stock Options Take \$50 Billion Bite Out of Corporate Taxes*, 94 *Tax Notes* 1396, 1397 (2002). As shown on the last line and last column of Table 7 of this Article, the sampled corporations had an increased ESO tax benefit of only 61.1% over the same period as Sullivan's study. *Infra* tbl.7.

Table 7. Estimated ESO Tax Benefit Utilized, by Year and Industry Sector

(# Companies)	Consumer. Cyclicals		Consumer. Staples		Energy		Financials		Health Care		Industrials		Information. Technology		Materials		Telecom. Services		Utilities		Unclassified		All Companies	
	81	34	34	23	61	40	66	68	35	9	34	4	4	455										
1995	583.89	569.27	105.59	506.77	775.25	532.31	1,246.53	142.29	110.20	36.33	0.48	4,608.90												
1996	799.03	947.16	226.48	506.39	1,298.15	909.61	1,613.95	218.25	167.27	58.74	72.04	7,017.06												
1997	1,174.99	1,285.19	285.17	1,853.67	2,151.29	1,317.27	3,006.73	313.27	211.10	78.84	51.82	11,729.34												
1998	2,252.67	1,417.69	327.32	2,819.85	3,221.87	1,900.52	4,960.12	154.61	659.35	161.47	101.86	17,977.34												
1999	2,232.36	1,142.88	245.35	2,939.15	3,082.87	2,028.33	9,337.40	308.62	745.48	81.80	83.97	22,228.21												
2000	1,929.96	978.81	431.48	2,805.87	4,664.33	1,492.13	15,510.18	153.94	346.24	289.03	357.25	28,959.22												
all years	8,972.89	6,341.01	1,621.39	11,431.70	15,193.75	8,180.17	35,874.92	1,290.99	2,239.65	706.21	667.41	92,520.08												
average per company (all six years)	110.78	186.50	70.50	187.40	379.84	123.94	527.57	36.89	248.85	20.77	166.85	203.34												
average per company per year	18.46	31.08	11.75	31.23	63.31	20.66	87.93	6.15	41.47	3.46	27.81	33.89												
1995 to 2000 change (\$)	1,346.07	409.54	325.90	2,299.10	3,889.08	959.82	14,263.64	11.66	236.04	356.77	356.77	24,350.32												
1995 to 2000 change (%)	230.5%	71.9%	308.7%	453.7%	501.7%	180.3%	1144.3%	8.2%	214.2%	695.5%	74909.4%	528.3%												
1998 to 2000 change (%)	-14.3%	-31.0%	31.8%	-0.5%	44.8%	-21.5%	212.7%	-0.4%	-47.5%	79.0%	250.7%	61.1%												

Industry sectors are based on S&P 500 Global Industry Classification Standard. Money amounts are in millions of dollars. Details may not add to totals due to rounding.

C. Treatment of Foreign Income and Taxes

Table 3 shows that an important segment of the sampled corporations might be classified as “multinational corporations” based on their reporting of foreign income tax expense during the period examined. As discussed in Part I, earlier examinations of the corporate book-tax relationship in recent years may not be meaningful for multinationals because they either focus on corporate “taxable income” rather than on taxes, compare U.S. taxes to worldwide book income, or compare U.S. taxes to the U.S. share of book income. This Article attempts to make a more comprehensive assessment of the book-tax relationship of such companies by comparing the worldwide taxes of the sampled corporations to their worldwide pre-tax book income.⁶⁴

One potential problem with considering worldwide income tax liabilities is that it may cause changes in the estimated ETR to be affected by systemic changes in foreign tax laws. Although fluctuations in worldwide tax liabilities resulting from behavioral responses of U.S. taxpayers to foreign tax laws, such as the shifting of greater amounts of income to low-tax foreign jurisdictions, would presumably be of keen interest to U.S. policymakers, fluctuations caused by systemic changes in foreign laws may be less revealing. As noted, the U.S. corporate tax laws were relatively stable during the period examined, but the same may not have been true for the tax laws of other countries.⁶⁵ A further potential problem is that

⁶⁴ Prior ETR studies of the General Accounting Office and the Joint Tax Committee compared worldwide taxes to worldwide pre-tax income, U.S. taxes to the U.S. share of pre-tax income, and foreign taxes to the foreign share of pre-tax income. See JCT 1984 ETR Study, *supra* note 34, at 3; U.S. Gen. Accounting Office, Tax Policy: 1988 and 1989 Company Effective Tax Rates Higher Than in Prior Years, GAO/GGD-92-111, at 14 (1992) [hereinafter GAO 1992 Study]; U.S. Gen. Accounting Office, Tax Policy: 1987 Company Effective Tax Rates Higher Than in Prior Years, GAO/GGD-90-69, at 16–17 (1990) [hereinafter GAO 1990 Study].

⁶⁵ According to one report, both statutory corporate income tax rates and corporate ETRs remained relatively stable or fell slightly between 1995 and 2001 for the E.U. countries and those with other developed economies. See Eric Engen & Kevin A. Hassett, Does the U.S. Corporate Tax Have a Future?, in *The Future of American Taxation: Essays Commemorating the 30th Anniversary of Tax Notes* 15, 18 tbl.1, 21 tbl.3 (2002).

high foreign tax liabilities may be indicative of economic expenses not actually borne by the taxpayer.⁶⁶

To address these concerns, this Article attempts to estimate and take into account only the *creditable portion* of foreign income taxes. Under current law, U.S. corporations are taxed by the U.S. on their worldwide income, but they are allowed to credit foreign income taxes against their U.S. tax liability to avoid international double taxation. The amount of the credit is generally limited, however, to the U.S. tax on the corporation's foreign source income.⁶⁷ The foreign tax credit basket limitations further restrict the amount of the allowable foreign tax credit.⁶⁸ Finally, as a result of the corporate minimum tax, a corporation generally may not use the foreign tax credit to reduce more than 90% of its pre-credit U.S. minimum tax liability.⁶⁹ In effect, U.S. tax law disregards the noncreditable portion of foreign income taxes, and it is therefore appropriate to do likewise for purposes of calculating a corporation's ETR.⁷⁰ For foreign branch or portfolio income of a U.S. corporation, or for dividend income distributed (or deemed distributed) by a foreign subsidiary, this Article's ETR estimate is thus the ratio between the *pre-credit* U.S. tax liability that would be imposed on worldwide taxable income, and worldwide pre-tax book income. For undistributed income of a foreign subsidiary not subject to an anti-deferral regime such as subpart F, ETR is the ratio of the creditable portion of the subsidiary's foreign taxes to the subsidiary's book income. The following examples illustrate this treatment.

Example 2: *X* is a U.S. corporation with both domestic operations and a foreign branch. The corporation earns \$100 of book and taxable income from each of its domestic and foreign activities

⁶⁶ See Staff of Joint Comm. on Taxation, 100th Cong., General Explanation of the Tax Reform Act of 1986, 864-65 (Comm. Print 1987) (explaining rationale for separate foreign tax credit basket for high withholding tax interest). This same concern was evident in the government's position in *I.R.S. Notice 98-5*, 1998-1 C.B. 334; *Compaq Computer Corp. v. Commissioner*, 277 F.3d 778, 782 (5th Cir. 2001); and *IES Industries v. United States*, 253 F.3d 350, 353 (8th Cir. 2001).

⁶⁷ I.R.C. §§ 901(a), 904(a) (2002).

⁶⁸ *Id.* § 904(d).

⁶⁹ *Id.* §§ 55(b)(1)(B), 59(a)(2).

⁷⁰ Cf. Spooner, *supra* note 12, at 300-01 (noting that ETR may be overstated if it is based on foreign taxes paid rather than the creditable portion of such taxes).

in both years 1 and 2. *X* is subject to a 35% U.S. tax rate in both years. Due to a change in foreign law, *X* pays \$35 in foreign taxes in year 1 and \$40 in year 2.

In this example, *X*'s worldwide tax liability is \$70 in year 1 (\$35 each of U.S. and foreign tax), the same as its pre-credit U.S. tax liability ($\$200 \times 35\%$). In year 2, however, U.S. tax law treats *X* as having paid only \$35 in foreign taxes for purposes of the foreign tax credit. Thus, the U.S. would impose an additional \$35 in U.S. tax on *X*'s year 2 income, bringing *X*'s total tax liability (from the U.S.'s standpoint) to \$70, *X*'s pre-credit liability ($\$200 \times 35\%$). *X* reports for accounting purposes, however, foreign tax expense of \$40 and U.S. tax expense of \$35 in year 2. This Article's estimates attempt to trim the foreign tax expense back to \$35, the creditable portion of the tax, and therefore treat *X* as having paid \$70 in worldwide tax in year 2 (its pre-credit U.S. liability). As a result, *X*'s ETR remains 35% in both years 1 and 2.

Example 3: Assume the same facts as in the previous example, except that at the beginning of year 2, *X* shifts its foreign branch activities to a newly formed foreign subsidiary. Assume that the subsidiary pays \$25 in foreign income tax in year 2 and that its income is not currently taxed by the U.S. in that year.

In this example, *X*'s U.S. tax liability in year 2 is only \$35 ($\$100 \times 35\%$). The foreign subsidiary would not be included in *X*'s consolidated tax return and, assuming no anti-deferral regime applied, the subsidiary's income would not be subject to current residual U.S. taxation. For accounting purposes, however, the subsidiary would be included in *X*'s consolidated financial statement.⁷¹ Therefore, *X* would still report \$200 of book income in year 2, \$35 of U.S. tax expense, and \$25 of foreign tax expense. My estimates would compare the \$60 of worldwide tax expense to the \$200 of book income to produce an ETR for *X* of 30% in year 2.⁷² Thus, the estimate potentially enables identification of changes in ETR resulting from

⁷¹ See *supra* note 24 and accompanying text.

⁷² In theory, because of the low rate of foreign tax paid by the subsidiary, all of that tax would have been creditable by *X* if it had undertaken the subsidiary's activities directly through a foreign branch in year 2. As described *infra* at notes 73–74 and accompanying text, however, because one of my adjustment factors is not firm-specific, my estimates would trim a small portion of *X*'s foreign tax amount in this case as well.

the shifting of income to foreign jurisdictions in situations where there is no current residual U.S. tax imposed.

To estimate the creditable portion of foreign income taxes, I reduced reported current foreign income tax expense in two ways. First, only 96.3% of the reported amount was taken into account to reflect the average foreign tax credit utilization rate for the years 1993–1997.⁷³ This rate reflects the impact of most of the foreign tax credit limitation rules in those years.⁷⁴ Although this rate is incorrect for any particular company, on average for all of the companies sampled, it is approximately correct if the 1993–1997 experience is repeated for them. Second, I limited the amount of foreign taxes taken into account in any company-year to no more than 90% of the pre-credit minimum tax liability of the corporation for that year, as determined by multiplying the adjusted pre-tax income of the corporation by the corporate minimum tax rate of 20%. This second limitation, which approximates the minimum tax restriction on the amount of the allowable foreign tax credit, was not incorporated in the overall foreign tax credit utilization rate.⁷⁵ Table 9 shows that the combined impact of these two restrictions was to limit the amount of foreign taxes taken into account to about 80% of the reported amount, with approximately the same portion limited each year.

⁷³ The foreign tax credit utilization rate is the ratio of the foreign tax credit claimed to current foreign income taxes paid, deemed paid, or accrued. The average rate for 1993–1997 is taken from Kathryn A. Green & Scott Luttrell, *Corporate Foreign Tax Credit*, 1997, Stat. Income Bull., Winter 2001–2002, at 103, 105 fig.A. See *infra* tbl.8.

⁷⁴ The impact of the foreign tax credit limitation rules is actually more severe than is suggested by a 96.3% utilization rate. The ratio in 1997 of foreign tax credits claimed to foreign taxes *available for credit*, including unused, prior-year foreign taxes carried over to 1997, was only 84.5%. Compare Green & Luttrell, *supra* note 73, at 123 tbl.1, col.12, with *id.* at 131 tbl.1, col.40. Because reported current foreign income tax expense for accounting purposes generally does not include prior-year foreign taxes, I have used the higher, 96.3% utilization rate.

⁷⁵ See *id.* at 114. The derivation of “adjusted pre-tax income” is described *infra* at notes 81–84 and accompanying text.

Table 8: Overall Foreign Tax Credit Utilization Rate

<u>year</u>	<u>current-yr for. taxes</u>	<u>FTC claimed</u>	<u>FTC claimed/current-yr for. taxes</u>
1993	23,716	22,895	96.5%
1994	26,470	25,419	96.0%
1995	30,930	30,416	98.3%
1996	41,177	40,255	97.8%
1997	45,080	42,223	93.7%
1993–1997	167,373	161,208	96.3%

Source: Kathryn A. Green & Scott Luttrell, Corporate Foreign Tax Credit, 1997, Stat. Income Bull., Winter 2001–2002, at 103, 105 fig.A.

Money amounts are in millions of dollars.

Details may not add to totals due to rounding.

Table 9: Impact of Limitations on Foreign Income Tax Expense

<u>year</u>	<u>for. inc. tax reported</u>	<u>for. inc. tax taken into account</u>	<u>amt. taken into acct./amt. reported</u>
1995	28,287.87	23,066.01	81.5%
1996	33,153.77	26,994.20	81.4%
1997	36,385.22	29,835.44	82.0%
1998	36,496.36	28,515.32	78.1%
1999	43,801.77	34,658.16	79.1%
2000	53,132.98	42,419.42	79.8%
1995–2000	231,257.97	185,488.55	80.2%

Money amounts are in millions of dollars.

Details may not add to totals due to rounding.

Financial accounting rules require corporations to disclose in their financial statements the amount of deferred U.S. taxes resulting from an accumulation of earnings in a foreign subsidiary.⁷⁶ This information, if available, would be useful in identifying trends in the investment strategies of multinational corporations during the period examined. Unfortunately, exceptions to this accounting rule and permissible flexibility in its application end up allowing the vast majority of public companies to avoid making this disclosure.⁷⁷

D. Estimated ETRs of the S&P 500

Consistent with prior government studies, this Article defines the corporate ETR as the ratio between the current portion of income tax expense and pre-tax book income.⁷⁸ For reasons discussed above, I included both U.S. federal income tax and the creditable portion of reported foreign income tax in a corporation's "income tax expense." In addition, I reduced tax expense by the estimated amount of ESO tax benefit utilized in the year.⁷⁹

⁷⁶ Accounting Principles Bd., Opinion No. 23: Accounting for Income Taxes—Special Areas ¶ 10 (1972) [hereinafter APB 23], as amended by SFAS 109, *supra* note 49, ¶ 288f.

⁷⁷ APB 23, *supra* note 76, ¶ 12; SFAS 109, *supra* note 49, ¶ 44c; McGill & Outslay, *supra* note 12, at 1129.

⁷⁸ See JCT 1984 ETR Study, *supra* note 34, at 28; GAO 1992 Study, *supra* note 64, at 31; GAO 1990 Study, *supra* note 64, at 37–38. Consistent with these studies, I ignored the deferred portion of income tax expense. There is a large body of academic literature on the proper measure of the corporate ETR. See, e.g., Callihan, *supra* note 57; Dworin, *supra* note 12; Thomas C. Omer et al., Measurement of Effective Corporate Tax Rates Using Financial Statement Information, 13 J. Am. Tax'n Ass'n 57 (1991) (discussing alternative approaches to measuring the ETR); Thomas M. Porcano, Corporate Tax Rates: Progressive, Proportional, or Regressive, 7 J. Am. Tax'n Ass'n 17 (1986); Spooner, *supra* note 12; Patrick J. Wilkie & Stephen T. Limberg, Measuring Explicit Tax Dis(Advantage) for Corporate Taxpayers: An Alternative to Average Effective Tax Rates, 15 J. Am. Tax'n Ass'n 46 (1993) (finding flaws in the prevailing ETR estimates); George A. Plesko, An Evaluation of Alternative Measures of Corporate Tax Rates (Apr. 2000) (unpublished manuscript, on file with the Virginia Law Review Association) (evaluating properties of common average tax measures); Terry Shevlin, A Critique of Plesko's "An Evaluation of Alternative Measures of Corporate Tax Rates," (Oct. 1999) (unpublished manuscript, on file with the Virginia Law Review Association) (responding to Professor Plesko's analysis).

⁷⁹ In the few instances where there was no breakdown between current federal, state and local, and foreign income tax expense, the entire disclosed amount was treated as federal tax, and state and local and foreign tax were both treated as zero. If, however, the corporation failed to differentiate between the current and deferred elements of its income tax expense in any year, the corporation was excluded from the sample. In

Because corporations usually report extraordinary items net of the income tax effect, I limited pre-tax book income to income from continuing operations.⁸⁰ In addition, as in the prior government studies, I made two further modifications to reported pre-tax income.⁸¹ First, I reduced the reported amount by the current portion of state and local income taxes to reflect the fact that those taxes are normally deductible for federal income tax purposes.⁸² Second, in certain cases where a corporation's investments in affiliates (generally, 20% to 50% subsidiaries of the corporation) are accounted for by the equity method, I adjusted pre-tax income to exclude the corporation's portion of the affiliates' income or loss. This adjustment is appropriate because the corporation's provision for "[current] income taxes generally does not include the tax attributable [to the corporation's share of the affiliates' income or loss]."⁸³ Thus, failure to make this adjustment would cause the estimate of a corporation's ETR to be understated (if affiliate income is reported by the corporation for financial accounting purposes) or overstated (if an affiliate loss is reported). In cases where the corporation's share of the affiliates' income or loss was not included in its pre-tax income, no adjustment to that figure was made.⁸⁴ The resulting amount after these adjustments, "adjusted pre-tax income," was the denominator for the ETR calculations and also the base for estimating the corporation's minimum tax liability.

the few cases where, either due to SFAS 123 being followed or the method of disclosure used, a corporation reported its federal income tax expense *after* taking into account the ESO tax benefit, tax expense was not further reduced to account for that benefit. See Hanlon & Shevlin, *supra* note 49, at 11 n.21.

⁸⁰ Walter T. Harrison, Jr. & Charles T. Horngren, *Financial Accounting* 504 (4th ed. 2001); Callihan, *supra* note 57, at 16.

⁸¹ JCT 1984 ETR Study, *supra* note 34, at 3, 29; GAO 1992 Study, *supra* note 64, at 32.

⁸² No adjustment was made if the reported state and local tax amount was negative.

⁸³ JCT 1984 ETR Study, *supra* note 34, at 29; see also Joe B. Hoyle, *Advanced Accounting* 26–28 (3d ed. 1991) (making the same observation).

⁸⁴ Prior studies have also made adjustments to reverse provisions relating to minority interests in greater than 50% but less than 100% subsidiaries. JCT 1984 ETR Study, *supra* note 34, at 29; GAO 1990 Study, *supra* note 64, at 38–39. Because the pre-tax income figure used in this analysis (Compustat item #170) excludes that item, no further adjustment was made.

Table 10 (first panel) presents the estimated ETRs of the sample corporations, broken down by year and industry sector.⁸⁵ Table 10 shows that eight of the ten classified sectors experienced a decline in ETR over the period examined. The information technology sector had the largest decline of 12.19 percentage points (from 27.81% ETR in 1995 to 15.62% ETR in 2000), followed by telecommunication services (10.78 percentage point decline), financials (5.55), and health care (4.59). In terms of rate of change, information technology again experienced the greatest decrease over the period (43.8% decline), followed again by telecommunication services (26.4%), financials (18.9%), and health care (15.5%). The only sectors with ETR increases, both quite modest, were consumer cyclicals (1.70 percentage point increase) and utilities (1.12 point increase). For the entire sample of corporations, there was an almost steady decline in ETR for the period, with a 4.64 total percentage point drop (from 28.85% ETR in 1995 to 24.20% ETR in 2000), representing a decrease of about 16%.

⁸⁵ ETR estimates for all firms and by industry group were calculated by dividing aggregate tax items by the aggregate pre-tax book income items.

Table 10: Estimated Effective Tax Rates, by Year and Industry Sector

	Consumer Cyclicals 81	Consumer Staples 34	Energy 23	Financials 61	Health Care 40	Industrials 66	Information Technology 68	Materials 35	Telecom- municational Services 9	Utilities 34	Unclassified All Companies 4	455
1. # Companies												
2. Reported Pre-Tax Book Inc. (6 yrs.)	406,820.34	274,812.68	182,295.40	549,242.96	260,275.88	335,396.96	356,751.42	115,954.19	162,584.18	126,129.26	14,052.93	2,786,316.18
3. Estim. ESO Expense (6 yrs.)	25,636.83	18,117.17	4,632.54	32,662.00	43,410.71	23,371.91	102,499.77	3,668.53	6,399.00	2,017.74	1,906.87	264,343.08
4. ESO Expense/PT Book Inc. (line 3/line 2)	6.3%	6.6%	2.5%	5.9%	16.7%	7.0%	28.7%	3.2%	3.9%	1.6%	13.6%	9.5%
5. Reported For. Tax Exp. (6 yrs.)	28,471.63	31,095.61	43,067.29	27,489.58	23,322.06	21,289.65	38,551.53	15,120.23	779.00	1,644.04	427.36	231,257.97
6. For. Tax Exp./PT Book Inc. (line 5/line 2)	7.0%	11.3%	23.6%	5.0%	9.0%	6.3%	10.8%	13.0%	0.5%	1.3%	3.0%	8.3%
ETR = Tax (aft. ESO)/PI (bef. ESO)												
1995	26.51%	30.83%	28.89%	29.35%	29.60%	26.08%	27.81%	27.41%	40.80%	31.64%	8.33%	28.85%
1996	29.74%	28.09%	25.80%	27.99%	24.71%	26.18%	30.56%	25.44%	28.09%	29.73%	-5.27%	27.91%
1997	33.50%	29.87%	24.34%	26.30%	26.80%	26.19%	26.92%	29.05%	25.41%	34.34%	8.47%	28.09%
1998	21.82%	29.23%	24.14%	27.80%	27.28%	22.46%	28.07%	28.21%	31.04%	33.61%	-4.38%	26.58%
1999	25.96%	28.93%	19.80%	22.26%	24.57%	21.17%	19.91%	29.19%	30.13%	29.70%	1.07%	23.70%
2000	28.20%	26.73%	26.14%	23.80%	25.01%	23.43%	15.62%	26.42%	30.02%	32.76%	15.00%	24.20%
1995-2000 change (percentage points)	1.70	-4.11	-2.75	-5.55	-4.59	-2.65	-12.19	-0.99	-10.78	1.12	6.67	-4.64
1995-2000 change (%)	6.4%	-13.3%	-9.5%	-18.9%	-15.5%	-10.2%	-43.5%	-3.6%	-26.4%	3.5%	80.1%	-16.1%
ETR = Tax (aft. ESO)/PI (aft. ESO)												
1995	27.43%	32.28%	29.53%	30.21%	32.00%	27.13%	30.85%	27.85%	41.91%	31.81%	8.34%	30.11%
1996	31.17%	30.04%	26.47%	28.70%	27.54%	27.70%	35.05%	26.26%	28.72%	29.98%	-4.66%	29.56%
1997	35.55%	32.64%	25.05%	28.32%	32.03%	28.25%	32.45%	30.68%	26.11%	34.75%	9.79%	30.63%
1998	23.67%	32.42%	26.04%	30.49%	34.68%	24.89%	40.96%	29.13%	33.31%	34.35%	-3.56%	30.17%
1999	28.22%	30.91%	20.45%	23.87%	30.06%	23.36%	29.23%	30.96%	32.35%	30.00%	1.10%	26.81%
2000	30.51%	28.25%	26.71%	25.30%	33.00%	24.92%	30.13%	27.11%	30.89%	34.43%	17.43%	27.98%
1995-2000	29.07%	30.94%	25.72%	27.12%	31.60%	25.84%	32.48%	28.46%	31.45%	32.43%	12.24%	27.98%
1995-2000 change (percentage points)	3.09	-4.03	-2.82	-4.91	1.00	-2.21	-0.72	-0.74	-11.02	2.62	9.09	-2.13
1995-2000 change (%)	11.2%	-12.5%	-9.6%	-16.3%	3.1%	-8.2%	-2.3%	-2.7%	-26.3%	8.2%	108.9%	-7.1%

Industry sectors are based on S&P 500 Global Industry Classification Standard. Money amounts are in millions of dollars.

Table 11. Estimated Effective Tax Rates, by Year and Largest 25 Companies (Based on Reported Pre-Tax Book Income)

1. Industry Sector	EXXON MOBIL CORP	GENERAL ELECTRIC CO	FORD MOTOR CO	PHILIP MORRIS COS INC	CITIGROUP INC	INTEL CORP	INTL BUSINESS MACHINES CORP		MERCCK & CO	
							energy	industrials		consumer
2. Reported Pre-Tax Book Inc. (6 yrs.)	84,276.00	80,992.00	69,093.00	66,851.00	63,141.00	59,737.00	57,758.00	44,438.30		
3. Estim. ESO Expense (6 yrs.)	3,119.07	7,149.86	1,295.30	1,369.15	5,815.16	6,697.14	4,862.86	5,026.85		
4. ESO Expense/PT Book Inc. (line 3/line 2)	3.7%	6.8%	1.9%	2.0%	9.2%	11.2%	8.5%	11.3%		
5. Reported For. Tax Exp. (6 yrs.)	20,659.00	7,203.00	4,366.00	9,130.00	6,071.00	2,222.00	14,081.00	3,072.60		
6. For. Tax Exp./PT Book Inc. (line 5/line 2)	24.5%	8.9%	6.3%	13.7%	9.6%	3.7%	24.4%	6.9%		
ETR = Tax (aft. ESO)/PI (bef. ESO)										
1995	26.77%	20.32%	22.09%	33.68%	28.20%	25.65%	18.44%	30.74%		
1996	26.46%	19.62%	20.43%	32.48%	25.41%	27.54%	24.69%	25.00%		
1997	26.80%	20.17%	26.31%	35.71%	34.61%	30.03%	18.00%	24.66%		
1998	20.67%	15.70%	7.63%	33.33%	32.64%	25.45%	26.45%	28.46%		
1999	20.14%	14.34%	14.18%	34.80%	28.61%	29.72%	28.57%	35.88%		
2000	27.74%	19.05%	16.25%	28.39%	22.93%	23.00%	19.66%	27.06%		
1995-2000 change (percentage points)	0.97	-1.27	-5.84	-5.29	-5.27	-2.65	1.25	-3.67		
1995-2000 change (%)	3.6%	-6.2%	-26.4%	-15.7%	-18.7%	-10.3%	6.8%	-12.0%		
ETR = Tax (aft. ESO)/PI (aft. ESO)										
1995	27.52%	20.82%	22.24%	34.52%	29.81%	27.31%	18.79%	33.61%		
1996	27.27%	20.56%	20.65%	34.08%	27.62%	29.71%	26.14%	28.72%		
1997	27.84%	22.10%	26.50%	36.89%	43.21%	32.02%	18.99%	29.95%		
1998	22.78%	17.89%	8.01%	34.21%	35.35%	29.41%	29.96%	33.72%		
1999	21.36%	16.37%	14.65%	35.12%	30.90%	34.29%	33.05%	40.42%		
2000	28.70%	20.99%	16.61%	28.39%	25.68%	27.79%	22.03%	30.35%		
1995-2000 change (percentage points)	1.18	0.17	-5.63	-6.12	-4.12	0.48	3.23	-3.26		
1995-2000 change (%)	4.3%	0.8%	-25.3%	-17.7%	-13.8%	1.8%	17.2%	-9.7%		

Money amounts are in millions of dollars.

1. Industry Sector	GENERAL MOTORS CORP		MICROSOFT CORP		BANK OF AMERICA CORP		WAL-MART STORES		VERIZON COMMUNICATIONS		J.P. MORGAN CHASE & CO		AT&T CORP	
	consumer cyclical		information technology		financials		consumer cyclical		telecommunications services		financials		telecommunications services	
2. Reported Pre-Tax Book Inc. (6 yrs.)	44,161.30	44,143.00	44,143.00	43,472.00	41,206.00	39,699.00	38,511.30	37,744.00	35,966.00	1,906.74	5.3%	516.00	1.4%	
3. Estim. ESO Expense (6 yrs.)	700.68	30,648.57	69.4%	2,190.00	5.4%	1,062.00	2.1%	870.85	1,699.57	4.3%	4.00	4.3%	5.3%	
4. ESO Expense/PT Book Inc. (line 3/line 2)	1.6%	69.4%	2.1%	5.0%	1.3%	2.4%	1.3%	2.1%	4.3%	0.3%	0.0%	4.3%	1.4%	
5. Reported For. Tax Exp. (6 yrs.)	9,256.20	2,190.00	5.0%	2,190.00	1,062.00	517.00	517.00	517.00	105.00	4.00	4.00	4.00	5.3%	
6. For. Tax Exp./PT Book Inc. (line 5/line 2)	21.0%	5.0%	5.0%	5.0%	2.4%	1.3%	1.3%	1.3%	0.3%	0.0%	0.0%	0.0%	1.4%	
ETR = Tax (aft. ESO)/PI (bef. ESO)														
1995	14.55%	22.35%	22.35%	27.60%	32.17%	40.76%	15.90%	33.02%	264.31%					
1996	18.00%	31.41%	31.41%	23.50%	36.06%	34.67%	31.86%	48.54%	26.18%					
1997	34.20%	24.74%	24.74%	23.28%	34.53%	29.37%	31.23%	26.11%	22.24%					
1998	18.00%	20.66%	20.66%	26.36%	43.99%	25.63%	23.73%	29.70%	34.66%					
1999	15.66%	10.01%	10.01%	13.34%	37.21%	19.20%	28.47%	29.31%	29.87%					
2000	13.81%	3.61%	3.61%	29.15%	29.97%	23.54%	27.08%	44.63%	95.29%					
1995-2000 change (percentage points)	-0.74	-18.74	-18.74	1.54	-2.21	-17.22	11.17	11.61	-169.02					
1995-2000 change (%)	-5.1%	-83.9%	-83.9%	5.6%	-6.9%	-42.2%	70.2%	35.1%	-63.9%					
ETR = Tax (aft. ESO)/PI (aft. ESO)														
1995	14.55%	29.26%	29.26%	28.04%	32.27%	40.83%	16.10%	35.17%	431.56%					
1996	18.00%	44.73%	44.73%	24.08%	38.14%	38.02%	32.05%	41.26%	27.19%					
1997	34.94%	34.94%	34.94%	25.46%	30.87%	30.87%	33.27%	24.89%	22.76%					
1998	18.09%	54.91%	54.91%	31.07%	45.51%	28.88%	26.13%	31.02%	36.51%					
1999	16.43%	39.50%	39.50%	13.92%	38.37%	21.38%	30.03%	31.54%	32.29%					
2000	14.07%	71.49%	71.49%	29.36%	30.82%	23.88%	28.22%	37.22%	103.57%					
1995-2000 change (percentage points)	-0.48	42.23	42.23	1.34	-1.45	-16.95	12.12	2.05	-327.99					
1995-2000 change (%)	-3.3%	144.3%	144.3%	4.8%	-4.5%	-41.5%	75.2%	5.8%	-76.0%					

Money amounts are in millions of dollars.

	AMERICAN INTERNATIONAL GROUP	PROCTER & GAMBLE CO	BELLSOUTH CORP	JOHNSON & JOHNSON	MORGAN WITTER COCA-COLA CO	CHEVRONTEXA CO CORP	BRISTOL MYERS SQUIBB	HEWLETT-PACKARD CO
	financials	consumer staples	telecommunications services	health care	financials	energy	health care	information technology
1. Industry Sector								
2. Reported Pre-Tax Book Inc. (6 yrs.)	33,679.47	31,000.00	30,577.00	28,570.00	28,368.00	26,783.00	26,410.00	24,691.00
3. Estim. ESO Expense (6 yrs.)	985.90	2,449.09	96.37	3,172.35	4,305.03	154.26	3,499.59	3,162.86
4. ESO Expense/PT Book Inc. (line 3/line 2)	2.9%	7.9%	0.3%	11.1%	15.2%	0.6%	13.3%	12.8%
5. Reported For. Tax Exp. (6 yrs.)	2,289.53	4,285.00	149.00	3,162.00	2,443.00	7,617.00	2,467.00	5,497.00
6. For. Tax Exp./PT Book Inc. (line 5/line 2)	6.8%	13.8%	0.5%	11.1%	8.6%	28.4%	9.3%	22.3%
ETR = Tax (aft. ESO)/PI (bef. ESO)								
1995	29.24%	26.90%	41.77%	24.74%	33.43%	30.42%	33.00%	31.76%
1996	26.40%	24.35%	30.96%	24.31%	43.87%	27.01%	20.46%	31.52%
1997	26.72%	31.16%	29.73%	26.10%	30.57%	25.56%	20.45%	26.91%
1998	19.26%	29.85%	30.94%	28.03%	25.68%	18.00%	11.62%	40.26%
1999	22.66%	30.69%	34.51%	23.08%	30.56%	21.65%	11.54%	18.00%
2000	13.84%	-22.87%	28.50%	25.88%	29.64%	29.34%	21.55%	23.35%
1995-2000 change (percentage points)	-15.40	-4.02	-13.27	1.15	-3.79	-1.08	-11.45	-8.40
1995-2000 change (%)	-52.7%	-15.0%	-31.8%	4.6%	-11.3%	-3.6%	-34.7%	-26.5%
ETR = Tax (aft. ESO)/PI (aft. ESO)								
1995	29.56%	27.73%	41.91%	26.92%	36.97%	30.57%	33.65%	34.24%
1996	26.63%	25.34%	31.04%	25.81%	51.73%	27.16%	21.48%	34.90%
1997	27.19%	33.66%	29.91%	29.46%	35.91%	25.73%	22.93%	29.80%
1998	19.58%	33.45%	31.04%	33.98%	32.54%	18.00%	17.39%	45.32%
1999	23.52%	34.58%	34.60%	26.25%	35.74%	22.08%	13.76%	19.20%
2000	14.67%	25.29%	28.55%	29.02%	35.46%	29.46%	23.38%	33.80%
1995-2000 change (percentage points)	-14.89	-2.45	-13.36	2.09	-1.51	-1.11	-10.27	-0.44
1995-2000 change (%)	-50.4%	-8.8%	-31.9%	7.8%	-4.1%	-3.6%	-30.5%	-1.3%

Money amounts are in millions of dollars.

Table 11 (first panel) presents the same information for the twenty-five largest corporations in the sample, based on the total pre-tax book income reported over the six years.⁸⁶ Nineteen of the twenty-five corporations, or over three-quarters of them, experienced a decline in ETR during the six years. In terms of percentage points, the largest declines were those of Microsoft (18.74 point decline, from 22.35% ETR in 1995 to 3.61% ETR in 2000), Verizon Communications (17.22 points), American International Group (15.40 points), BellSouth (13.27 points), and Bristol Myers Squibb (11.45 points).⁸⁷ The largest percentage decrease was again that of Microsoft (83.9% decrease), followed by American International Group (52.7% decrease), Verizon (42.2%), Bristol Myers Squibb (34.7%), and BellSouth (31.8%). The only companies with a large ETR increase from 1995 to 2000 were J.P. Morgan Chase & Co. (11.61 points, or 35.1% increase), and SBC Communications (11.17 points, or 70.2% increase).

Because information technology among the sectors, and Microsoft among the companies, had the largest ETR decreases over the six-year period, I tested to see how much of the decline could be explained by the inconsistent tax and accounting treatment of employee stock options. As noted in Table 7, the information technology sector had by far the largest increase in the estimated ESO tax benefit utilized during the period. Unfortunately, as previously discussed, conformity between the tax and accounting treatment of options is not achieved even if SFAS 123 is followed because the two sets of rules measure the value of the option benefit at different times. To control for this item, I estimated the amount of each corporation's pre-tax book income if the expense equivalent of the ESO tax benefit (that is, the estimated ESO tax benefit divided by 35%) was charged against earnings at the same time the tax benefit arose. I then recalculated ETRs based on the ratio between current

⁸⁶ Due to a variety of factors, the value of a point estimate of the ETR for a particular company-year may be limited. Spooner, *supra* note 12, at 299.

⁸⁷ This statement ignores AT&T, which was estimated to have a 169.02 percentage point decline from a 269.31% ETR in 1995 to a 95.29% ETR in 2000. Extraordinarily high ETRs, like those estimated for AT&T, may occur if a reversal of a prior timing benefit for tax purposes occurs in a year in which reported book income is low. This situation illustrates the potentially limited utility of point estimates of the ETR for a particular company-year.

tax expense and pre-tax book income, as reduced by the ESO expense described in the previous sentence.

The second panels of Tables 10 and 11 present the results of this recalculation of the ETR after the treatment of stock options is conformed. Table 10 shows that, with conformity, there was still a decline in ETR over the six-year period, but that the decline was not as dramatic. Seven of the ten classified sectors experienced a decrease in ETR, led by telecommunication services (11.02 percentage point reduction, or 26.3% decrease), financials (4.91 points, or 16.3% decrease), and consumer staples (4.03 points, or 12.5% decrease). Interestingly, those sectors, as well as energy and industrials, had decreases in ETRs which were essentially unaffected by the conformed treatment of options. In contrast, the information technology sector, which had a 12.19 percentage point (43.8%) decrease in ETR pre-conformity, had basically no change in ETR after conformity. The health care sector also showed a sharp change, from a 4.59 percentage point decline before conformity to a 1.00 point increase after conformity. As indicated on line 4 of Table 10, over the six years, the expense equivalent of the estimated ESO tax benefit for those two sectors represented the largest share of reported pre-tax book earnings among the ten sectors. The companies in the information technology sector, for example, would have reduced their pre-tax book income by over 28% had they charged earnings with that expense. Overall, with conformity, the entire sample of companies showed a 2.13 percentage point decrease, from 30.11% ETR in 1995 to 27.98% ETR in 2000, a 7.1% decline.

The second panel of Table 11 sets out the recalculated ETRs for the twenty-five largest corporations by their originally reported book income. Sixteen of the twenty-five companies, or 64%, still show decreases in ETR. Companies with ETR declines not very affected by the conformed treatment include Verizon (17.22 and 16.95 percentage point declines pre- and post-conformity), American International Group (15.40 and 14.89 point declines), Bell-South (13.27 and 13.36), and Bristol Myers Squibb (11.45 and 10.27). Microsoft is the clear exception, changing from an 18.74 percentage point decline in ETR before conformity to an estimated 42.23 point *increase* in ETR (from 29.26% ETR in 1995 to 71.49% ETR in 2000) after conformity. Hewlett-Packard also experienced

a sharp change, from an 8.40 point decline prior to conformity to an 0.44 point decline after conformity. Over the six years, Microsoft's pre-tax book income would have declined by almost 70% if it had reduced earnings by the expense equivalent of the ESO tax benefit (Table 11, line 4).

Table 12 converts the tax information used in the ETR estimates to "taxable income" by dividing the former amounts by 35%. Table 12 then calculates the book income/taxable income ratios ascertained by prior studies. Column (6) shows that the book-tax ratio almost steadily increased over the six-year period, from 1.21 in 1995 to 1.45 in 2000. Column (10) shows that the ratios still increase, though not as sharply, after the tax and accounting treatment of stock options is conformed. Column (11) calculates the "unexplained percentage," which is the remaining spread between book and taxable income (after option treatment is conformed) as a percentage of taxable income. Column (11) shows that this percentage was higher in 1999 and 2000 relative to the earlier four years, with the cause for this greater book-tax deviation being something other than stock options.

Figure 1 depicts these results (after conversion of all numbers to 2002 dollars). The top and bottom lines reflect the growing spread between book and taxable income over the six years. The middle line represents book income after reduction for the ESO expense. As can be seen, this line parallels taxable income fairly closely through 1998, but moves apart from that measure in 1999 and 2000. This analysis highlights the fact that, after controlling for the disparate treatment of stock options, there remained an important reduction in ETR in 1999, with the 2000 ETR remaining below the 1995–1998 average ETR.⁸⁸

⁸⁸ See *supra* tbl.10, panel 2, col.12.

Table 12. Comparison of Pre-Tax Book Income to Taxable Income. All Sampled Corporations, by Year

year	(1) Adjusted Pre-Tax Book Income	(2) Fed. Inc. Tax (after ESO Tax Benefit)	(3) For. Inc. Tax (Creditable Portion)	(4) Tot. Inc. Tax ((2)+(3))	(5) Tax. Income (after ESO Inc. Deduction) ((4)/(35))	(6) Book Inc. (bef. ESO Exp./Tax. Ded.) ((1)/(5))	(7) ESO Tax Benefit Taken into Account	(8) ESO Expense Taken into Account ((7)/(35))	(9) Adjusted Pre-Tax Book Income (aft. ESO Expense) ((1)-(8))	(10) Book Inc. (aft. ESO Exp./Tax. Inc. (aft. ESO Ded.)) ((9)/(5))	(11) Unexplained % ((9)-(5))/(5)
1995	313,189.55	67,276.47	23,066.01	90,342.48	258,121.38	1.21	4,608.90	13,168.30	300,021.25	1.16	16.23%
1996	359,663.26	73,402.67	26,994.20	100,396.87	286,946.20	1.25	7,017.06	20,048.74	339,614.53	1.18	18.40%
1997	403,870.35	83,606.05	29,835.44	113,441.49	324,118.55	1.25	11,729.34	33,512.41	370,357.94	1.14	14.27%
1998	432,233.64	86,391.51	28,515.32	114,906.63	328,305.23	1.32	17,977.34	51,363.82	380,869.82	1.16	16.01%
1999	547,617.98	95,148.05	34,658.16	129,806.21	370,874.88	1.48	22,228.21	63,509.18	484,108.81	1.31	30.53%
2000	612,774.61	105,899.76	42,419.42	148,319.17	423,769.07	1.45	28,959.22	82,740.64	530,033.97	1.25	25.08%
1995-2000	2,669,349.39	511,724.51	185,488.55	697,213.06	1,992,037.31	1.34	92,520.08	264,343.08	2,405,006.31	1.21	20.73%

Money amounts are in millions of dollars. Details may not add to totals due to rounding.

Figure 1: Comparison of Pre-Tax Book Income (Before and After ESO Expense) to Taxable Income (After ESO Deduction), All Sampled Corporations, by Year (2002 Dollars)

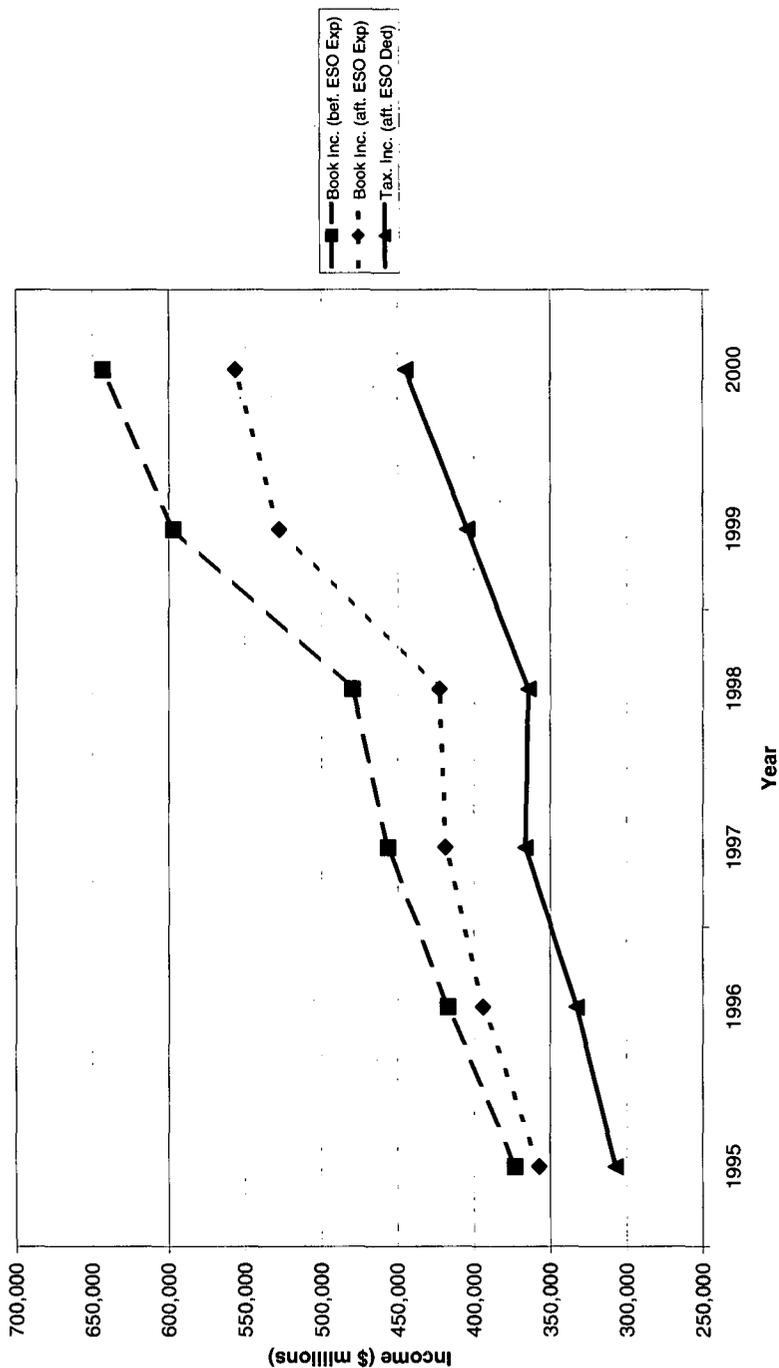


Table 13 sets forth a back-of-the-envelope estimate of the potential revenue impact of the decline in ETR in 1999 and 2000 (after ESO conformity) relative to the 1995–1998 period. This table assumes that the entire decline in 1999 and 2000 was attributable to a reduction in taxes. The average ETR of the sampled companies during the 1995–1998 period was 30.12%. Column (7) shows that had the companies maintained this ETR in 1999 and 2000, they would have paid approximately \$16 billion and \$11 billion more in federal income taxes in those years. If this trend was representative of the taxes paid by all corporations during the period, column (10) shows that the corporate sector would have paid roughly \$31 billion and \$22 billion more in federal income taxes in 1999 and 2000, respectively.

Table 13: Estimated Potential Revenue Impact of Decline in ETR, 1995 and 2000, After ESO Conformity

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Average ETR, 1995-1998 - Sample	Adjusted Pre-Tax Book Inc. (aft ESO) - Sample	Hypothetical Worldwide Tax - Sample	Foreign Income Tax (creditable portion) - Sample	Hypothetical Federal Income Tax - Sample	Actual Federal Income Tax - Sample	Reduction in Federal Income Tax - Sample	Federal Income Tax - All Comps.	(8)/(6)	(7) x (9)
1999	484,108.81	145,806.13	34,658.16	111,147.97	95,148.05	15,999.92	184,700	1.94	31,058.80
2000	530,033.97	159,638.08	42,419.42	117,218.66	105,899.76	11,318.91	207,300	1.96	22,156.89
Year	ETR								
1995	30.11%								
1996	29.56%								
1997	30.63%								
1998	30.17%								
1999	26.81%								
2000	27.98%								
1995-1998 avg.	30.12%								

Money amounts are in millions of dollars. Details may not add to totals due to rounding.

Certain of the sectors with declining ETRs over the period, both before and after the control for the treatment of stock options, reported significant amounts of foreign income-tax expense. For example, the companies in the energy sector, which had a decrease in ETR of about 9.5% both with and without the control, reported foreign tax expense for the six years equal to almost one-fourth of their reported pre-tax book income, the highest share of any sector.⁸⁹ To examine the extent to which changes in ETR may have been attributable to companies with foreign investment, I first divided the sample in four different ways, depending upon whether a corporation reported current foreign income tax expense of more or less than \$10 million, \$25 million, \$50 million, or \$100 million in any one of the six years. I then calculated the ETRs (with the controlled treatment of stock options) for the set of corporations falling within these categories.

The results of this test are presented in Table I4. Columns (1) and (2) first set out the same data presented in Table 10 providing the yearly ETRs for the entire sample of corporations, both before conformity—column (1)—and after conformity—column (2). Columns (3) through (10) then present the estimated ETRs after the four different divisions of the sample. For example, column (3) presents the annual ETRs for the 280 corporations that reported at least \$10 million of foreign tax expense in any one of the six years, and column (4) presents the ETRs of the remaining 175 companies that did not satisfy that condition. My objective was to segment the corporations based on their reported foreign tax expense to see whether that had any effect on their ETR patterns.

As is evident from Table 14, there is no discernible distinction in the ETR patterns of the different groups of corporations. Between 1995 and 2000, each group had a percentage point decrease in ETR of between 1.66 and 2.42 points, a fairly small range. In percentage terms, the declines varied from 5.6% to 7.9%. All of these figures are quite close to the decrease in ETR for all corporations after the stock option treatment is controlled (column (2)). Even within the six-year period, the pattern for each segment of corporations follows closely that for the entire sample, with a fairly sharp drop in ETR between 1998 and 1999 followed by a slight rise in 2000.

⁸⁹ See *supra* tbl.10, col.3, row 6.

Table 14: Estimated Effective Tax Rates, by Year and Amount of Foreign Tax Expense.

	(1) ETR (Tax aft. ESOP/PI del. ESQ)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1. # Companies		455	280	175	228	227	161	294	105	350
2. Reported Pre-Tax Book Inc. (6 yrs.)		2,786,316.18	2,194,606.98	591,709.20	2,083,858.08	702,458.09	1,904,080.15	882,236.03	1,713,481.88	1,072,834.30
3. Reported For. Tax Exp. (6 yrs.)		231,257.97	230,569.90	688.08	228,061.08	3,196.89	219,952.14	11,305.84	205,994.03	25,263.94
4. For. Tax Exp./PT Book Inc. (line 3/line 2)		8.3%	10.5%	0.1%	10.9%	0.5%	11.6%	1.3%	12.0%	2.4%
1995	28.85%	30.11%	30.31%	29.38%	30.26%	29.69%	30.22%	29.90%	29.90%	30.42%
1996	27.91%	29.19%	29.19%	31.07%	29.04%	31.23%	28.93%	30.95%	28.80%	30.81%
1997	28.09%	30.63%	30.61%	30.72%	30.78%	30.15%	30.67%	30.55%	30.48%	30.89%
1998	26.58%	30.17%	29.70%	31.75%	29.73%	31.34%	29.33%	31.86%	28.70%	32.35%
1999	23.70%	26.81%	26.95%	26.38%	27.00%	26.32%	27.11%	26.25%	27.32%	26.08%
2000	24.20%	27.98%	28.17%	27.33%	28.06%	27.76%	27.87%	28.23%	27.97%	28.01%
1995-2000 change (percentage points)	-4.64	-2.13	-2.15	-2.05	-2.21	-1.92	-2.35	-1.66	-1.93	-2.42
1995-2000 change (%)	-16.1%	-7.1%	-7.1%	-7.0%	-7.3%	-6.5%	-7.8%	-5.6%	-6.5%	-7.9%

Cols. (3), (5), (7), and (9) represent corporations with indicated amount of foreign income tax expense, any year.
 Cols. (4), (6), (8), and (10) represent corporations with indicated amount of foreign income tax expense, every year.
 Money amounts are in millions of dollars.
 Details may not add to totals due to rounding.

One reason for these similar patterns is that the four divisions separate the corporations into quite comparable segments. This can be seen by examining lines 1 through 4 of columns (3), (5), (7), and (9), and then columns (4), (6), (8), and (10). Although the *number* of companies reporting foreign tax expense of at least \$10 million, \$25 million, \$50 million, and \$100 million in any year changes fairly significantly (line 1), the total amount of their reported pre-tax book income and foreign tax expense does not (lines 2–4). It would seem that there are some major corporations dominating all of the “high foreign tax expense” segments.

I therefore segmented the sample in a different way, based on the ratio of a corporation’s current foreign income tax expense to its reported pre-tax book income over the six years. I divided the sample into the top three quintiles and the bottom 40% of corporations along this parameter. The results of this division are set out in Table 15. Columns (1) and (2) again show the ETR results for all corporations, both before—column (1)—and after—column (2)—the control for stock options. Columns (3) through (6) present the ETRs of the corporations in the top three quintiles and the bottom 40%, respectively. As expected, lines 3 and 4 show that these groups are quite different in the amount of their reported foreign tax expense and the ratio of that expense to pre-tax book income.

The ETR patterns of these groups differed, although in inexplicable ways. As shown in Figure 2, which presents a pictorial view of the data set out in columns (2)–(6) of Table 15, the quintile of corporations with the highest foreign-tax-to-book-income ratios shows a peak in 1998, resulting from a significant increase in ETR from 1997 to 1998 followed by an even sharper decline from 1998 to 1999. In contrast, the second quintile has a smaller peak in 1997 followed by a dramatic *dip* in 1998. The third quintile has an estimated 36.16% ETR in 1995, almost six percentage points higher than the ETR of any other group and the sample as a whole in that year. As a result, the third quintile of corporations has by far the largest drop in ETR from 1995 to 2000. Like the third quintile, the bottom 40% of corporations has a sharp drop in ETR in 1999 before an increase to 2000. Overall, these results do not provide evidence of a connection between the changing ETR pattern of the

sampled corporations and their ratios of foreign tax to book income.⁹⁰

Finally, Figure 3 presents the ETRs (with stock option conformity) of the ten classified industry groups for the entire six-year period. Because these estimates are for the full period, they should be the most accurate measures of ETRs, with anomalous, year-to-year fluctuations smoothed out. One sees relatively little variation in the six-year ETRs of the groups, with the lowest being the energy sector (25.72%) and industrials (25.84%), and the highest being information technology (32.48%) and utilities (32.43%). Both the level and relative uniformity of taxation during this period should be contrasted with 1980–1983, when the ETRs of sixteen industry groups were estimated to vary between 2.4% and 40.9% compared to the top statutory tax rate for corporations of 46%.⁹¹

⁹⁰ In order to isolate those corporations that shelter from worldwide taxation significant amounts of income through their foreign operations, it would have been preferable to segment the sample based upon the amount of the corporations' foreign pre-tax income rather than their reported current foreign income tax expense. Unfortunately, in almost one-half of the 2730 company-years considered, Compustat failed to provide information on the amount of foreign pre-tax income.

⁹¹ See JCT 1984 ETR Study, *supra* note 34, at 23 tbl.3.

Table 15: Estimated Effective Tax Rates, by Year and Ratio of Foreign Tax Expense to Pre-Tax Book Income

	(1)	(2)	(3)	(4)	(5)	(6)
	ETR (Tax aft.					
	ESO/PI bef.	ESOs)	all	Top 20% of	21-40% of	41-60% of
		corporations	For. Tax/PI	For. Tax/PI	For. Tax/PI	Bottom 40% of
		455	For. Tax/PI	For. Tax/PI	For. Tax/PI	For. Tax/PI
		corporations	91	91	91	182
1. # Companies						
2. Reported Pre-Tax Book Inc. (6 yrs.)		2,786,316.18	758,482.34	714,220.05	492,122.42	821,491.36
3. Reported For. Tax Exp. (6 yrs.)		231,257.97	154,776.37	57,598.13	16,614.23	2,269.24
4. For. Tax Exp./PT Book Inc. (line 3/line 2)		8.3%	20.4%	8.1%	3.4%	0.3%
	1995	28.85%	29.11%	28.29%	36.16%	30.30%
	1996	27.91%	29.84%	27.67%	28.83%	31.35%
	1997	28.09%	31.36%	31.39%	28.41%	30.50%
	1998	26.58%	30.17%	23.68%	31.06%	32.21%
	1999	23.70%	26.81%	26.20%	26.60%	26.30%
	2000	24.20%	27.98%	27.23%	29.57%	27.75%
1995-2000 change (percentage points)		-4.64	-1.04	-1.05	-6.59	-2.55
1995-2000 change (%)		-16.1%	-3.6%	-3.7%	-18.2%	-8.4%

Money amounts are in millions of dollars.
 Details may not add to totals due to rounding.

Figure 2: Estimated Effective Tax Rates, by Year and Corporate Groups, Based on Foreign Tax/Pre-Tax Book Income (Tax and Accounting Treatment of Stock Options Conformed)

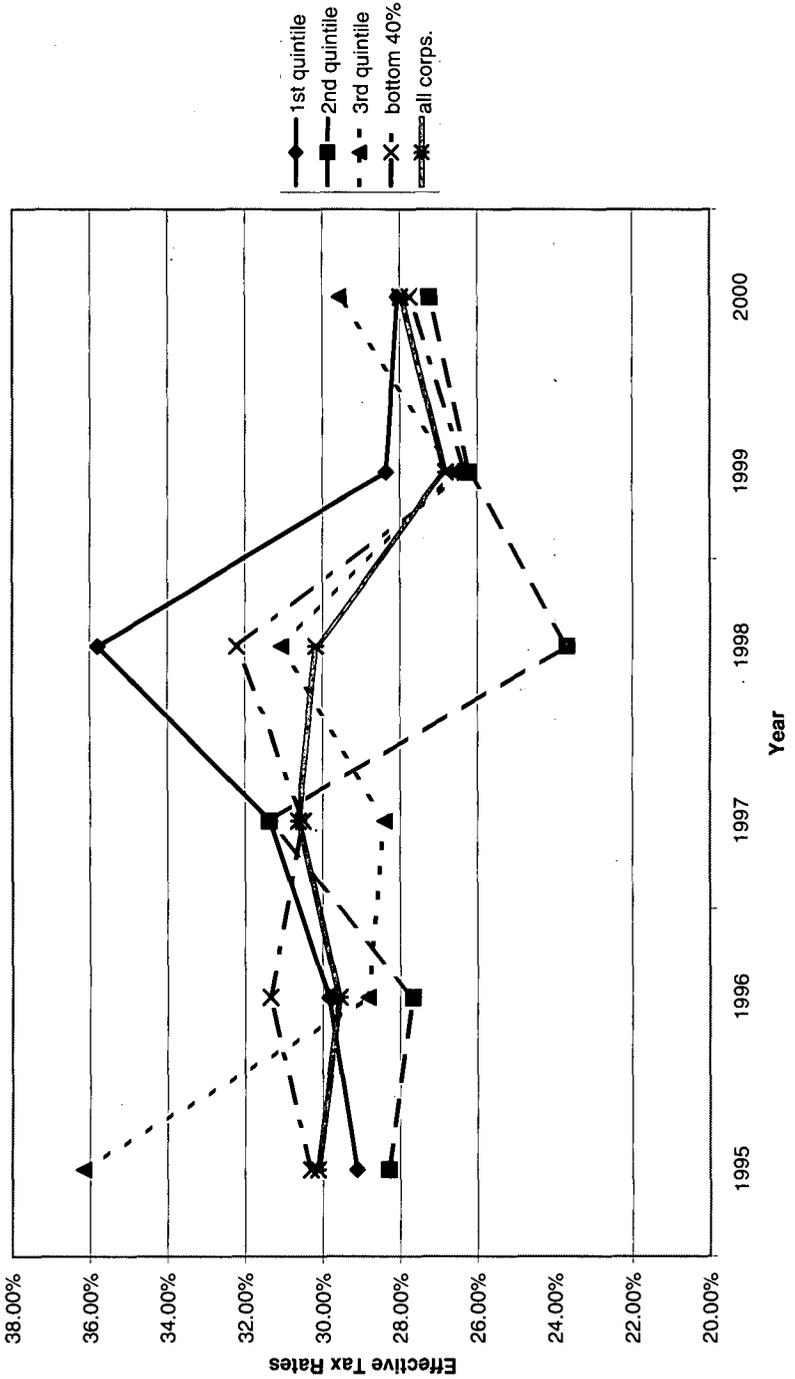
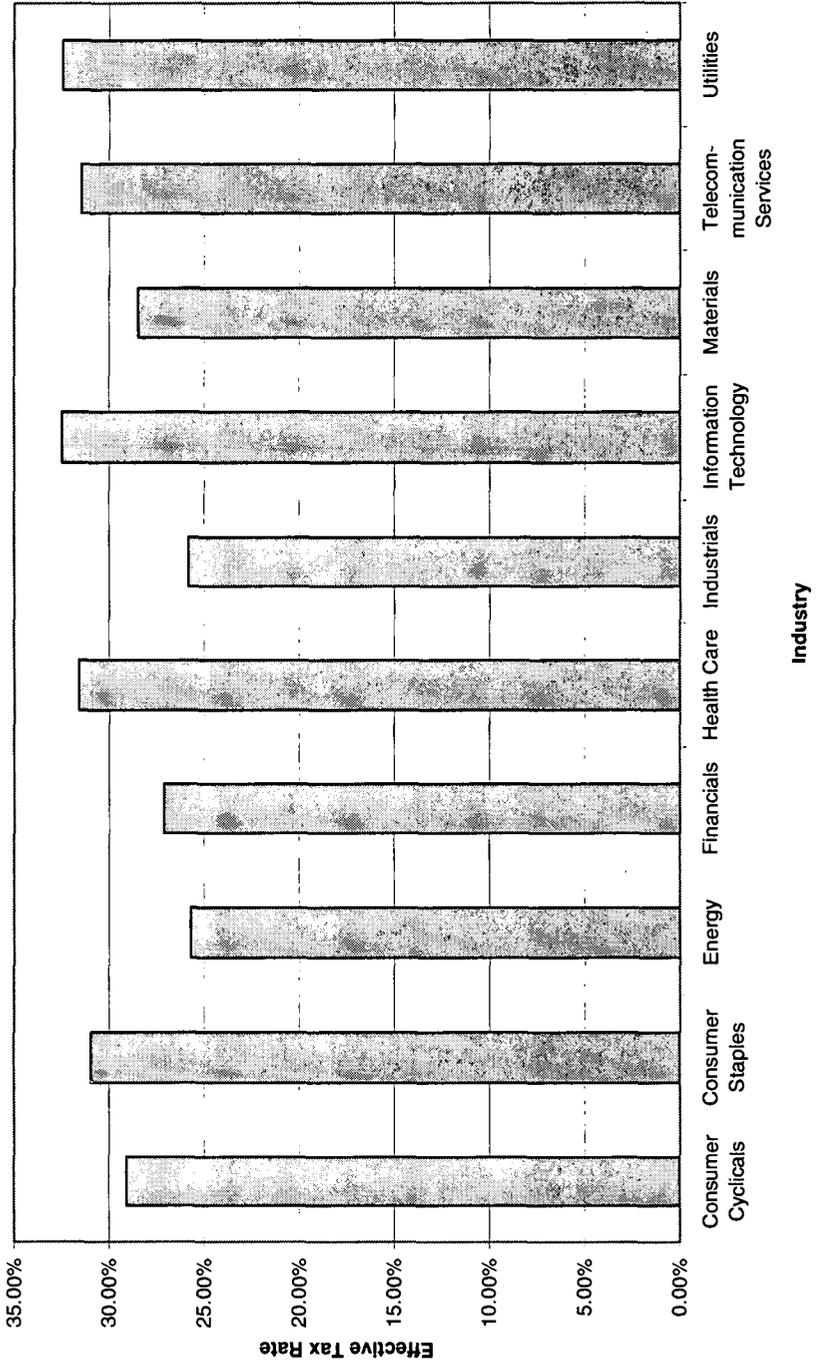


Figure 3: Estimated Effective Tax Rates (with Stock Option Conformity), 6 Years, by Industry



E. Qualifications and Other Considerations

A number of factors might cause the ETR estimates in this paper to be either overstated or understated. The estimates are overstated to the extent corporations included in their reported current income tax expense a reserve amount or “cushion” to take account of anticipated future tax deficiencies.⁹² Similarly, the estimates are overstated if the limitation placed on the utilized portion of the ESO tax benefit is too tight.⁹³ The estimates are understated if the estimated creditable portion of foreign tax expense is too restrictive or if the exclusive focus on current tax expense (and disregard of any portion of the deferred tax account) is inappropriate.⁹⁴

The existence of corporate arrangements or transactions that affect taxes but are not reported on the consolidated financial statement may also influence the accuracy of the estimated ETRs. Although, in theory, this factor could cause the estimates to be either overstated or understated, the former outcome is more likely.⁹⁵

More generally, aside from estimation errors or data limitations, ETR estimates may be misleading because of their sensitivity to economic conditions. Because the amount of certain tax benefits is unaffected by the level of profits, ETRs may rise simply due to an increase in profits and fall simply due to a profit decrease.⁹⁶ Indeed, this factor makes the estimated decline in ETR over the six-year period that much more surprising, given the steadily increasing amounts of book profits reported by the sample corporations dur-

⁹² See *supra* note 12 and accompanying text.

⁹³ See *supra* note 59 and accompanying text.

⁹⁴ See JCT 1984 ETR Study, *supra* note 34, at 1.

⁹⁵ Cf. Mills et al., *supra* note 28, at 1121 (reporting anecdotal evidence of off-financial statement transactions or special purpose entities that either create tax deductions or shelter taxable income); Hanlon, *supra* note 12 (observing potential use of special purpose entities to produce higher book income and lower taxable income).

⁹⁶ For example, assume that a corporation has a fixed tax deduction (such as depreciation) of \$100 in years 1 and 2 during which time there is an increase in book profits as well as taxable income (prior to the tax deduction) from \$400 to \$500. In year 1, the corporation's tax liability is \$105 (35% of \$300 taxable income), and its ETR is therefore 26.25% (\$105/\$400). In year 2, the corporation's tax liability is \$140 (35% of \$400 taxable income), and its ETR is 28% (\$140/\$500). ETR rises even though the example assumes that all \$100 of the additional profits earned in year 2 were included in taxable income in that year. See Alan J. Auerbach & James M. Poterba, *Why Have Corporate Tax Revenues Declined?*, in 1 *Tax Policy and the Economy* 1, 7-8 (Lawrence H. Summers ed., 1987).

ing the period.⁹⁷ In addition, ETRs may also be misleading because they reflect only the explicit tax amounts reported by corporations, not their real tax burdens.⁹⁸ Finally, corporate ETRs ignore taxes paid by the shareholders of the corporations.

CONCLUSION

The corporate governance scandals, continuing concern about corporate tax shelters, and the Bush administration's proposal to exempt dividends from income have all generated keen interest in the amount of taxes paid by public corporations on the profits they report to their investors. Several recent studies have indicated that there is a growing gap between corporate taxes and reported book income. A close examination of those studies, though, reveals the difficulty of ascertaining the precise relationship between those two items, especially for corporations with significant foreign investment. Generally, the conclusions of these studies may lack meaning for multinationals because they either focus on corporate "taxable income" rather than on taxes, compare U.S. taxes to worldwide book income, or compare U.S. taxes to the U.S. share of worldwide book income.

To overcome these shortcomings, this Article used financial statement information to estimate the ETRs of the S&P 500 over the period 1995–2000, based on a comparison of their worldwide taxes to their worldwide book income. It found that after controlling for the disparate tax and accounting treatments of stock options, and after adjusting to take into account only the creditable portion of foreign taxes, the ETR of the sample of corporations declined slightly, from 30.11% in 1995 to 27.98% in 2000. Potentially more revealing was a sharp drop in the 1999 ETR relative to that in years 1995–1998 (during which period the ETR was virtually unchanged). The ETR increased in 2000 but remained below the 1995–1998 average.

This Article, therefore, confirms the findings of earlier studies that, for the S&P 500, there was an increasing gap between corporate taxes and book profits during the period 1995–2000. Whether this change was attributable to widespread use by these corpora-

⁹⁷ See *supra* tbl.4, col.4.

⁹⁸ See Auerbach & Poterba, *supra* note 96, at 8; Spooner, *supra* note 12, at 299–300.

tions of the type of structured transactions described in the Joint Committee staff's Enron report is uncertain. It is possible that these corporations simply made greater use of provisions or transactions (other than stock options) that created book-tax disparities. It is also possible that they increasingly overstated the amounts of their book income or understated the amounts of their tax liability (whether due to tax shelters or other causes). To examine whether the ETR changes might relate to increased sheltering of income by multinational corporations through use of foreign subsidiaries, this Article segmented the sample of corporations based upon the amount of their foreign tax expense and the ratio of such expense to their pre-tax book income. It then calculated yearly ETRs for each segment of corporations. This analysis did not reveal any discernible pattern that might help to explain the ETR shifts by the foreign tax parameters tested.

Finally, the Article estimated the six-year ETR of ten industry groups and found fairly little variation among the groups. The six-year ETRs ranged from a low for the energy sector (25.72%) and industrials (25.84%) to a high for the information technology sector (32.48%) and utilities (32.43%). Both the level and relative uniformity of taxation during this period should be contrasted with 1980–1983, when the ETRs of sixteen industry groups were estimated to vary between 2.4% and 40.9% compared to the top statutory tax rate for corporations of 46%.

Appendix A: Corporations by Industry Sectors**Consumer Cyclicals (81)**

AMERICAN GREETINGS -CL A
 AUTOZONE INC
 BED BATH & BEYOND INC
 BEST BUY CO INC
 BIG LOTS INC
 BLACK & DECKER CORP
 BRUNSWICK BANCORP INC
 CENTEX CORP
 CIRCUIT CITY STR CRCT CTY GP
 CLEAR CHANNEL COMM-PROFORMA
 COMCAST CORP -CL A SPL
 COOPER TIRE & RUBBER
 COSTCO WHOLESALE CORP
 DANA CORP
 DARDEN RESTAURANTS INC
 DILLARDS INC -CL A
 DISNEY (WALT) CO
 DOLLAR GENERAL CORP
 DOW JONES & CO INC
 EASTMAN KODAK CO
 FEDERATED DEPT STORES
 FORD MOTOR CO
 FORTUNE BRANDS INC
 GANNETT CO
 GAP INC
 GENERAL MOTORS CORP
 GOODYEAR TIRE & RUBBER CO
 HARCOURT GENERAL INC
 HARLEY-DAVIDSON INC
 HARRAHS ENTERTAINMENT INC
 HASBRO INC
 HILTON HOTELS CORP
 HOME DEPOT INC
 INTERPUBLIC GROUP OF COS
 JOHNSON CONTROLS INC
 K MART CORP
 KB HOME
 KNIGHT-RIDDER INC
 KOHLS CORP
 LEGGETT & PLATT INC
 LIMITED INC

LIZ CLAIBORNE INC
 LOWES COS
 MARRIOTT INTL INC
 MATTTEL INC
 MAY DEPARTMENT STORES CO
 MAYTAG CORP
 MCDONALDS CORP
 MCGRAW-HILL COMPANIES
 MEREDITH CORP
 NEW YORK TIMES CO -CL A
 NEWELL RUBBERMAID INC
 NIKE INC -CL B
 NORDSTROM INC
 OFFICE DEPOT INC
 OMNICOM GROUP
 PENNEY (J C) CO
 PULTE HOMES INC
 RADIOSHACK CORP
 REEBOK INTERNATIONAL LTD
 SEARS ROEBUCK & CO
 SHERWIN-WILLIAMS CO
 SNAP-ON INC
 STANLEY WORKS
 STAPLES INC
 STARBUCKS CORP
 STARWOOD HOTELS&RESORTS WRLD
 TARGET CORP
 TIFFANY & CO
 TJX COMPANIES INC
 TOYS R US INC
 TRIBUNE CO
 TRICON GLOBAL RESTAURANTS
 TRIW INC
 TUPPERWARE CORP
 UNIVISION COMMUNICATIONS INC
 VF CORP
 VIACOM INC -CL B
 WAL-MART STORES
 WENDY'S INTERNATIONAL INC
 WHIRLPOOL CORP

Consumer Staples (34)

ALBERTO-CULVER CO -CL B
 ALBERTSONS INC
 ANHEUSER-BUSCH COS INC
 ARCHER-DANIELS-MIDLAND CO
 AVON PRODUCTS
 BROWN-FORMAN -CL B
 CAMPBELL SOUP CO
 CLOROX CO/DE
 COCA-COLA CO
 COCA-COLA ENTERPRISES
 COLGATE-PALMOLIVE CO
 CONAGRA FOODS INC
 COORS (ADOLPH) -CL B
 CVS CORP
 GENERAL MILLS INC
 GILLETTE CO
 HEINZ (H J) CO
 HERSHEY FOODS CORP
 KELLOGG CO
 KIMBERLY-CLARK CORP
 KROGER CO
 LONGS DRUG STORES INC
 PEPSICO INC
 PHILIP MORRIS COS INC
 PROCTER & GAMBLE CO
 OUAKER OATS CO
 RALSTON PURINA CO
 SAFEWAY INC
 SARA LEE CORP
 SUPERVALU INC
 UST INC
 WALGREEN CO
 WINN-DIXIE STORES INC
 WRIGLEY (WM) JR CO

Energy (23)

AMERADA HESS CORP
 ANADARKO PETROLEUM CORP
 APACHE CORP
 ASHLAND INC
 BAKER-HUGHES INC
 BURLINGTON RESOURCES INC
 CHEVRONTEXACO CORP
 DEVON ENERGY CORP
 EOG RESOURCES INC
 EXXON MOBIL CORP
 HALLIBURTON CO
 KERR-MCGEE CORP
 MARATHON OIL CORP
 NABORS INDUSTRIES
 NOBLE DRILLING CORP
 OCCIDENTAL PETROLEUM CORP
 PHILLIPS PETROLEUM CO
 ROWAN COS INC
 SCHLUMBERGER LTD
 SUNOCO INC
 TEXACO INC
 TOSCO CORP
 UNOCAL CORP

Health Care (40)

ABBOTT LABORATORIES
 AETNA INC
 ALLERGAN INC
 ALZA CORP
 AMERICAN HOME PRODUCTS CORP
 AMGEN INC
 APPLERA CORP APPLIED BIOSYS
 BARD (C.R.) INC
 BAUSCH & LOMB INC
 BAXTER INTERNATIONAL INC
 BECTON DICKINSON & CO
 BIOGEN INC
 BIOMET INC
 BOSTON SCIENTIFIC CORP
 BRISTOL MYERS SQUIBB
 CARDINAL HEALTH INC
 CHIRON CORP
 CIGNA CORP
 FOREST LABORATORIES -CL A
 GUIDANT CORP
 HCA INC
 HEALTHSOUTH CORP
 HUMANA INC
 JOHNSON & JOHNSON
 LILLY (ELI) & CO
 MANOR CARE INC
 MCKESSON CORP
 MEDIMMUNE INC
 MEDTRONIC INC
 MERCK & CO
 PFIZER INC
 PHARMACIA CORP
 QUINTILES TRANSNATIONAL CORP
 SCHERING-PLOUGH
 ST JUDE MEDICAL INC
 SUN MICROSYSTEMS INC
 TENET HEALTHCARE CORP
 UNITEDHEALTH GROUP INC
 WATSON PHARMACEUTICALS INC
 WELLPOINT HLTH NETWORK -CL A

Financials (61)

AFLAC INC
 ALLSTATE CORP
 AMBAC FINANCIAL GP
 AMERICAN EXPRESS
 AMERICAN GENERAL CORP
 AMERICAN INTERNATIONAL GROUP
 AMSOUTH BANCORPORATION
 AON CORP
 BANK OF AMERICA CORP
 BANK OF NEW YORK CO INC
 BB&T CORP
 BEAR STEARNS COMPANIES INC
 CAPITAL ONE FINL CORP
 CHARTER ONE FINL INC
 CHUBB CORP
 CINCINNATI FINANCIAL CORP
 CIT GROUP INC
 CITIGROUP INC
 COMERICA INC
 CONSECO INC
 FIFTH THIRD BANCORP
 FIRST UNION CORP
 FLEETBOSTON FINANCIAL CORP
 FRANKLIN RESOURCES INC
 GOLDEN WEST FINANCIAL CORP
 HARTFORD FINL SVCS GRP INC
 HOUSEHOLD INTERNATIONAL INC
 HUNTINGTON BANCSHARES
 J P MORGAN CHASE & CO
 JEFFERSON-PILOT CORP
 LEHMAN BROTHERS HOLDINGS INC
 LINCOLN NATIONAL CORP
 LOEWS CORP
 MARSH & MCLENNAN COS
 MBIA INC
 MELLON FINANCIAL CORP
 MERRILL LYNCH & CO
 MGIC INVESTMENT CORP/WI
 MORGAN STANLEY DEAN WITTER
 NATIONAL CITY CORP
 NORTHERN TRUST CORP
 PNC FINANCIAL SVCS GROUP INC
 PRICE (T. ROWE) GROUP
 PROVIDIAN FINANCIAL CORP
 REGIONS FINL CORP
 SAFECO CORP
 SCHWAB (CHARLES) CORP
 SOUTHTRUST CORP
 ST PAUL COS
 STATE STREET CORP
 STRYKER CORP
 SUNTRUST BANKS INC
 SYNOVUS FINANCIAL CP
 TORCHMARK CORP
 U S BANCORP
 UNION PLANTERS CORP
 UNIMPROVIDENT CORP
 USA EDUCATION INC
 WACHOVIA CORP
 WASHINGTON MUTUAL INC
 WELLS FARGO & CO

Industrials (66)

ALLIED WASTE INDS INC
 AMERICAN PWR CNVRSION
 AMR CORP/DE
 AUTOMATIC DATA PROCESSING
 AVERY DENNISON CORP
 BLOCK H & R INC
 BOEING CO
 BURLINGTON NORTHERN SANTA FE
 CATERPILLAR INC
 CENDANT CORP
 CINTAS CORP
 CONCORD EFS INC
 COOPER INDUSTRIES INC
 CRANE CO
 CSX CORP
 CUMMINS INC
 DANAHER CORP
 DEERE & CO
 DELTA AIR LINES INC
 DELUXE CORP
 DONNELLEY (R R) & SONS CO
 DOVER CORP
 EATON CORP
 ECOLAB INC
 EMERSON ELECTRIC CO
 EQUIFAX INC
 FEDEX CORP
 FIRST DATA CORP
 FISERV INC
 FLUOR CORP
 GENERAL DYNAMICS CORP
 GENERAL ELECTRIC CO
 GENUINE PARTS CO
 GOODRICH CORP
 GRAINGER (W W) INC
 HONEYWELL INTERNATIONAL INC
 ILLINOIS TOOL WORKS
 INGERSOLL-RAND CO LTD
 ITT INDUSTRIES INC
 LOCKHEED MARTIN CORP
 MASCO CORP
 MCDERMOTT INTL INC
 MINNESOTA MINING & MFG CO
 NAVISTAR INTERNATIONAL
 NORFOLK SOUTHERN CORP
 NORTHROP GRUMMAN CORP
 PACCAR INC
 PALL CORP
 PARKER-HANNIFIN CORP
 PAYCHEX INC
 PITNEY BOWES INC
 RAYTHEON CO
 ROBERT HALF INTL INC
 ROCKWELL AUTOMATION
 RYDER SYSTEM INC
 SABRE HLDGS CORP -CL A
 SOUTHWEST AIRLINES
 TEXTRON INC
 THERMO ELECTRON CORP
 THOMAS & BETTS CORP
 TIMKEN CO
 TYCO INTERNATIONAL LTD
 UNION PACIFIC CORP
 UNITED TECHNOLOGIES CORP
 US AIRWAYS GROUP INC
 WASTE MANAGEMENT INC

Information Technology (68)

ADC TELECOMMUNICATIONS INC
 ADOBE SYSTEMS INC
 ADVANCED MICRO DEVICES
 ALTERA CORP
 ANALOG DEVICES
 ANDREW CORP
 AOL TIME WARNER INC
 APPLE COMPUTER INC
 APPLIED MATERIALS INC
 AUTODESK INC
 BMC SOFTWARE INC
 BROADVISION INC
 CABLETRON SYSTEMS
 CISCO SYSTEMS INC
 CITRIX SYSTEMS INC
 COMPAQ COMPUTER CORP
 COMPUTER ASSOCIATES INTL INC
 COMPUTER SCIENCES CORP
 COMPUWARE CORP
 COMVERSE TECHNOLOGY INC
 CORNING INC
 DELL COMPUTER CORP
 ELECTRONIC DATA SYSTEMS CORP
 EMC CORP/MA
 GATEWAY INC
 HEWLETT-PACKARD CO
 INTEL CORP
 INTL BUSINESS MACHINES CORP
 INTUIT INC
 JABIL CIRCUIT INC
 JDS UNIPHASE CORP
 KLA-TENCOR CORP
 LEXMARK INTL INC -CL A
 LINEAR TECHNOLOGY CORP
 LSI LOGIC CORP
 LUCENT TECHNOLOGIES INC
 MAXIM INTEGRATED PRODUCTS
 MERCURY INTERACTIVE CORP
 MICRON TECHNOLOGY INC
 MICROSOFT CORP
 MILLIPORE CORP
 MOTOROLA INC
 NATIONAL SEMICONDUCTOR CORP
 NETWORK APPLIANCE INC
 NOVELL INC
 NOVELLUS SYSTEMS INC
 ORACLE CORP
 PARAMETRIC TECHNOLOGY CORP
 PEOPLESOFT INC
 PERKINELMER INC
 QLOGIC CORP
 QUALCOMM INC
 SANMINA-SCI CORP
 SAPIENT CORP
 SCIENTIFIC-ATLANTA INC
 SIEBEL SYSTEMS INC
 SOLETRON CORP
 SYMBOL TECHNOLOGIES
 TEKTRONIX INC
 TELLABS INC
 TERADYNE INC
 TEXAS INSTRUMENTS INC
 UNISYS CORP
 VERITAS SOFTWARE CO
 VITESSE SEMICONDUCTOR CORP
 XEROX CORP
 XILINX INC
 YAHOO INC

Materials (35)

AIR PRODUCTS & CHEMICALS INC
 ALCOA INC
 ALLEGHENY TECHNOLOGIES INC
 BALL CORP
 BEMIS CO
 BOISE CASCADE CORP
 DOW CHEMICAL
 DU PONT (E I) DE NEMOURS
 EASTMAN CHEMICAL CO
 ENGELHARD CORP
 FMC CORP
 FREEPRT MCMOR COP&GLD -CL B
 GEORGIA-PACIFIC CORP
 GREAT LAKES CHEMICAL CORP
 HERCULES INC
 HOMESTAKE MINING
 INTL FLAVORS & FRAGRANCES
 INTL PAPER CO
 LOUISIANA-PACIFIC CORP
 MEAD CORP
 NEWMONT MINING CORP
 PHELPS DODGE CORP
 POTLATCH CORP
 PPG INDUSTRIES INC
 PRAXAIR INC
 ROHM & HAAS CO
 SEALED AIR CORP
 SIGMA-ALDRICH
 TEMPLE-INLAND INC
 UNITED STATES STEEL CORP
 VULCAN MATERIALS CO
 WESTVACO CORP
 WEYERHAEUSER CO
 WILLAMETTE INDUSTRIES
 WORTHINGTON INDUSTRIES

Unclassified (4)

APPLIED MICRO CIRCUITS CORP
 CITIZENS COMMUNICATIONS CO
 MOLEX INC
 WORLDCOM INC-CONSOLIDATED

Telecommunications Services (9)

ALLTEL CORP
 AT&T CORP
 BELLSOUTH CORP
 CENTURYTEL INC
 NEXTEL COMMUNICATIONS
 QWEST COMMUNICATION INTL INC
 SBC COMMUNICATIONS INC
 SPRINT FON GROUP 1998
 VERIZON COMMUNICATIONS

Utilities (34)

AES CORP
 ALLEGHENY ENERGY INC
 AMEREN CORP
 AMERICAN ELECTRIC POWER
 CALPINE CORP
 CENERGY CORP
 CMS ENERGY CORP
 CONSOLIDATED EDISON INC
 DOMINION RESOURCES INC
 DTE ENERGY CO
 DUKE ENERGY CORP
 DYNEGY INC
 EDISON INTERNATIONAL
 EL PASO CORP
 ENRON CORP
 ENTERGY CORP
 EXELON CORP
 FPL GROUP INC
 KEYSpan CORP
 KINDER MORGAN INC
 NICOR INC
 NISOURCE INC
 ONEOK INC
 PEOPLES ENERGY CORP
 PG&E CORP
 PPL CORP
 PROGRESSIVE CORP-OHIO
 PUBLIC SERVICE ENTRP
 RELIANT ENERGY INC
 SEMPRA ENERGY
 SOUTHERN CO
 TXU CORP
 WILLIAMS COS INC
 XCEL ENERGY INC