How Much Will Firms Pay for Earnings That Do Not Exist? Evidence of Taxes Paid on Allegedly Fraudulent Earnings

Merle Erickson
University of Chicago

Michelle Hanlon
University of Michigan

Edward L. Maydew
The University of North Carolina at Chapel Hill

ABSTRACT: We analyze a sample of firms accused of fraudulently overstating their earnings and examine the extent, if any, to which they paid additional income taxes on the allegedly fraudulent earnings. Based on restatements of current tax expense adjusted for the tax benefits of stock options, the evidence indicates that many firms included the overstated financial accounting income on their tax returns, thus overpaying their taxes in the process of inflating their accounting earnings. We estimate that the median firm sacrificed eight cents in additional income taxes per dollar of inflated pretax earnings. In aggregate, we estimate that the firms in our sample paid $320 million in taxes on overstated earnings of about $3.36 billion. These results indicate how far managers of firms are willing to go when allegedly inflating earnings.

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As outlined in the criminal indictment of Centennial’s former Chief Executive Officer, the Company’s sales figures were inflated in previous periods. This inflation was achieved by various means, including shipping empty PC card housings; billing customers for nonexistent products; using the delivery of nonproduct materials to generate shipping documents, which were then used to create fictitious invoices; and the payment of these invoices with funds apparently provided by the Company’s former Chief Executive Officer.

As a result of the adjustments made to the Company’s financial statements in connection with its financial review, previous provisions for income taxes have been reversed and the associated payments of approximately $7.4 million are classified as recoverable income taxes at March 31, 1997. Approximately $6.1 million of these tax refunds were received as of June 30, 1997, and substantially all of the remaining refunds are expected to be received by the end of August 1997.

—excerpt from Centennial Technology’s 10-K/A (4/18/1998)

I. INTRODUCTION

Recently, massive overstatements of accounting earnings have captured the attention of the financial press, investors, and prominent government regulators and legislators. To date, the academic literature has for the most part ignored the tax consequences associated with earnings overstatements. This paper examines the tax consequences of allegedly fraudulent earnings overstatements. We investigate two questions: (1) Did firms that overstated their accounting earnings pay income taxes on the earnings overstatements? (2) If firms did pay taxes on overstated earnings, what was the amount of taxes paid by firms on the overstated earnings?

Ex ante, one might expect that firm managers willing to engage in earnings manipulation would also be willing to simultaneously avoid reporting the income on the firm’s tax returns. However, managers may willingly have their firms pay taxes on the earnings overstatements to avoid raising the suspicion of savvy investors, the Securities and Exchange Commission (SEC), or the Internal Revenue Service (IRS). Prior research shows that reporting large book-tax differences can signal low earnings quality to investors or other financial statement users (Chaney and Jeter 1994; Joos et al. 2002; Hanlon 2003a). Further, depending on how the managers are compensated, they may not be concerned about the firm paying taxes on the overstated earnings. For whatever reason, if firms pay taxes on overstated earnings, that suggests, at least for this subset of firms, that managers believe that inflated accounting earnings are more valuable than the taxes transferred to the government. The estimate of taxes paid to the government provides a measure of how much managers of these firms were willing to sacrifice to allegedly inflate accounting earnings.

Our sample is designed to produce estimates of taxes paid on earnings overstatements from firm disclosures. Specifically, we examine firms that restated their financial statements in conjunction with SEC allegations of accounting fraud during the years 1996 to 2002. Like Bonner et al. (1998) and others, we use the issuance of an Accounting and Auditing Enforcement Release (AAER) by the SEC as a proxy for fraud. We further restrict the set of AAERs to those in which the SEC actually makes allegations of fraud. These AAERs typically contain allegations of reporting “nonexistent” and “false” revenues, recording
"fake" inventory and/or engaging in "fraudulent schemes" to inflate "assets, revenues, and net income."\(^1\)

This sample has three main advantages. First, by focusing on restatements we are able to estimate the incremental taxes that were paid as a result of the earnings overstatement. The incremental taxes are estimated by comparing current tax expense originally reported (i.e., the tax on the originally reported income statement) with the restated current tax expense after the earnings overstatement is removed. Second, by examining restatements that were coupled with allegations of fraud by the SEC, we obtain a sample of earnings overstatements without having to rely on models of earnings management. The ability of accruals-based earnings management models to identify and measure earnings management has been the subject of some controversy (see Healy and Whalen 1999). Restatements that occur in the face of SEC allegations of accounting fraud are the least ambiguous sample of earnings management (albeit quite extreme) available for study. Finally, the size and scope of the earnings overstatements that we examine helps to ensure that the restatements are reasonably detailed, which aids our estimation.

Our estimates are subject to the caveat that computing tax costs from the tax expense reported on firms' financial statements is difficult (Erickson et al. 2003; Hanlon and Shevlin 2002; Gleason and Mills 2002; McGill and Outslay 2002; Hanlon 2003b). In addition, we cannot be completely certain that the original tax expense was not also recorded erroneously, either mistakenly or due to fraud, and then corrected upon restatement. However, a series of robustness tests corroborate our general findings that some firms paid income taxes on the overstated earnings. For example, some firms disclose in their subsequent 10-K filings that tax refunds will be or have been received as a result of the restatements of financial accounting earnings. Further, we called sample firms and in the cases where a firm representative could be reached, obtained additional support for our estimates. Thus, while estimating actual tax liabilities from financial accounting statements can be fraught with error, we support our evidence using other methods of analysis. As a result, we conclude that managers of some firms were willing to pay, and did pay, taxes on the overstated financial accounting earnings they reported.

Our results can be summarized as follows.\(^2\) For a sample of 27 firms that were accused by the SEC of fraudulently overstating their earnings by a mean amount of $124.5 million, we estimate that the mean firm paid approximately $11.84 million in taxes on the overstated earnings, an amount equal to 1.3 percent of the market value of the firms (where market value is measured in the year prior to the overstatement of earnings).\(^3\) The mean (median) taxes paid per dollar of earnings overstatement is $0.11 ($0.08). In aggregate, we estimate that these firms paid $320 million to the taxing authorities as a result of overstating earnings by approximately $3.36 billion.\(^4\)

Because we find substantial cross-sectional variation in the taxes paid for our sample of firms, we also calculate our estimates conditional on the firm having paid taxes in order

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\(^1\) Some of the managers and/or firms accused of fraud paid substantial fines to settle litigation with the SEC. However, firms and managers of accused firms often do not admit to wrongdoing as part of a settlement with the SEC. To be in our sample, however, the firm had to have restated its financial statements.

\(^2\) All of the inferences and conclusions in this paper refer to either the average firm in the sample, to the sample in aggregate, or to groups of firms. We are not making inferences or conclusions about individual firms.

\(^3\) Note that the means are equally weighted averages.

\(^4\) Because it is possible that the managers intended to reverse the alleged earnings overstatement in the future even if it had not been detected, we conduct sensitivity tests later in the paper in which we estimate the present value tax cost assuming a corresponding reversal in the tax overpayment.
to obtain an estimate of the cost of overstatement when a trade-off is present.\textsuperscript{5} We estimate that for the 15 firms that paid taxes on overstated earnings, the taxes paid represent approximately 2.4 percent of their market value and are paid at a mean rate of 20 cents per dollar of pretax earnings overstatement. It is also notable that we find that a substantial number of our firms (48 percent) deferred at least some taxes on the earnings overstatements and that 19 percent of our sample recorded the amount of overstatement as a book-tax difference while recording no current tax on the allegedly fraudulent earnings.

Our study contributes to the line of research that examines the set of firms that have allegedly violated Generally Accepted Accounting Principles (GAAP) (e.g., Dechow et al. 1996; DeFond and Jiambalvo 1991; Palmrose et al. 2002). We are aware of no prior study examining the tax consequences of GAAP violations. Our study also contributes to the literature on tax and financial reporting trade-offs, overcoming many of the obstacles that have plagued that literature such as the unobservability of incremental tax effects. (See Shackelford and Shevlin [2001] for an extensive review of this literature.)

This study also contributes to the long line of earnings management research in accounting (e.g., Healy 1985). Like Dechow et al. (1996), we examine firms accused of the most extreme form of earnings management. Prior earnings management studies investigate managers’ motivations to over- or understate earnings. These studies provide evidence that managers manipulate earnings for many reasons, including to increase their compensation (Healy 1995), to avoid debt covenant restrictions (Johnson and Dhaliwal 1988; DeFond and Jiambalvo 1991), and to increase stock price in anticipation of an equity offering (Erickson and Wang 1999; Teoh et al. 1998). While our focus is not on managements’ motivations for the alleged accounting fraud, we note that the SEC’s allegations imply that the accounting fraud was primarily motivated to increase managers’ bonus and option compensation and the value of managers’ stock holdings. Specifically, for 14 of the 27 sample firms, the SEC explicitly indicated that managers sought to increase the value of their options, bonuses or stock holdings or actually did so as a result of the alleged accounting fraud.

The remainder of the paper proceeds as follows. In the second section, we review prior related research. The third section contains the sample description and presents the tax data disclosed by sample firms. In the fourth section, we present our results, and the fifth section concludes.

II. THE TAX CONSEQUENCES OF OVERSTATED EARNINGS AND PRIOR RELATED RESEARCH

Tax Consequences of Earnings Overstatements

Why might managers cause their firms to pay taxes on overstatements of financial accounting earnings? One possibility is to reduce the likelihood of detection. When firms overstate earnings for financial reporting purposes, there are four potential tax treatments that will manifest themselves in different ways in the firms’ financial statements.

First, management could choose not to report the overstated accounting earnings on the firm’s tax return and classify the book-tax difference as temporary. For example, if a firm lengthened the depreciable lives for its fixed assets to an unreasonable (fraudulent) period for financial reporting that would increase book income. However, the change would have no effect on taxable income and income tax payments because depreciable lives are set by statute for tax purposes. This alternative results in no current payment of taxes to

\textsuperscript{5} We acknowledge that the firms that did not pay tax currently are likely incurring a tax cost as well at least at the margin by utilizing current net operating losses to offset the inflated earnings (Shevlin 1990; Graham 1996). For that reason, our estimates are conservative.
the government on overstated earnings but will cause the firm to recognize additional deferred tax expense and a corresponding additional amount of deferred tax liability. This treatment provides temporary relief from the cash flow drain from taxes on the overstatement, but reporting large book-tax differences could attract the scrutiny of shrewd observers, especially for material overstatements. Even if investors did not suspect fraud, there is evidence in prior research consistent with large book-tax differences signaling low earnings quality and/or earnings management (Chaney and Jeter 1994; Mills and Newberry 2001; Joos et al. 2002; Phillips et al. 2003; Hanlon 2003a). Moreover, large book-tax differences could be a red flag for a firm’s external auditors. Thus, managers would likely want to avoid raising such a red flag.

Second, the firm could omit the income from its taxable income and classify the inflated earnings as a permanent book-tax difference. For example, the firm might overstate the income of a foreign subsidiary located in a low-tax country. If the firm made the standard assumption that the earnings will be reinvested abroad indefinitely, then under APB No. 23 the firm would not need to recognize deferred taxes for the U.S. tax that would be paid upon repatriation of the earnings. This accounting treatment avoids both current and deferred tax liabilities, but the book-tax difference would reduce the firm’s effective tax rate, which would show up in the effective tax rate reconciliation in the tax footnote. While this treatment avoids the cash outflow from paying taxes on the earnings overstatement, it could put the firm at risk of being exposed by attracting attention to an unusually low effective tax rate. In addition, as stated above, the large book-tax differences may signal low earnings quality.

The third possible treatment is to pay taxes on the overstated earnings. In this case the firm includes the overstated earnings on its tax return, increasing the firm’s current tax expense and reducing its cash. Since no book-tax difference is created, the overstatement leaves no trace in the deferred tax accounts, the effective tax rate reconciliation, or in the Schedule M-1 of the tax return. While this treatment can be extremely costly to the firm in terms of cash outflow, it likely affords the best chance of avoiding detection of the overstatement and avoiding the perception of low earnings quality.

In a variation on the third scenario, firms with tax losses can include the overstated earnings on their tax returns, but use the tax losses to avoid paying taxes on the overstated earnings. Specifically, a firm may have tax net operating loss carryforwards, perhaps as a result of employee stock option exercises, that reduce the firm’s marginal tax rate to zero or close to zero (Shevlin 1990; Graham 1996; Graham et al. 2003; Hanlon and Shevlin 2002). While the increased taxable income from the overstatement could reduce the firm’s deferred tax asset related to the net operating loss carryforwards, there is no effect on current taxes paid. Under this scenario, there is a low likelihood of the firm’s tax disclosures exposing the overstatement.

Finally, it is possible that managers could have reported fictitious earnings on their financial statements and pretended to actually pay tax on the earnings without actually

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6 It is possible that firms may also be worried about IRS scrutiny. Mills (1998) shows that firms with large book-tax differences are subject to increased IRS scrutiny and IRS audit adjustments. Mills and Sansing (2000) model the role of book-tax differences as signals of tax evasion. In this particular setting of alleged fraud, firms are probably more concerned with book-tax differences signaling low earnings quality than they are with IRS scrutiny.

7 The detection of financial accounting fraud would most likely come from outside analysts, investors, or the SEC. The detection of financial accounting fraud could, however, come from the IRS. Specifically, §6103(i)(3) of the Internal Revenue Code permits the IRS to disclose certain otherwise confidential tax information to other federal agencies if the information may constitute evidence of a violation of any Federal criminal law (not involving tax administration).
doing so. This would involve recording a tax reserve or “tax cushion.” Although this avoids the recording of a book-tax difference in the financial statements, this behavior still increases the chances of detection. In this case, the persons involved in the alleged fraud would have to enlist the help of the tax department. Widening the number of people involved in the alleged fraud would seem to greatly increase the chances of leakage. We note that in none of the AAERs used to identify our sample did the SEC accuse tax personnel of being involved in the alleged fraud. Finally, this behavior would cause the schedule M-1 (i.e., the reconciliation of book to tax income) of the corporate tax return to start with a number that does not tie to the financial accounting earnings of the firm, which could in theory be identified by IRS auditors and result in detection of the fraud at that time. Thus, while it is possible that managers pursued this strategy, it does not appear likely and subsequent tests indicate it was not prevalent.

It is also possible that firms use a combination of these tax treatments to account for the overstatements on their financial statements and tax returns. Thus, a firm could pay cash to the taxing authority on a portion of the overstatement and record a deferred tax liability on the remainder of the overstatement (i.e., not record all of the overstated earnings on the tax return). Our results indicate that this scenario was likely the case for many of our sample firms.

Prior Research

Several prior studies investigate firms that are accused of GAAP violations. For example, Dechow et al. (1996) examine firms subject to enforcement actions by the SEC for alleged violations of GAAP. They find that lowering external financing costs is an important motivation for the earnings manipulations and that the firms investigated by the SEC have weaker governance characteristics (e.g., chief executive officer is more likely the chairman of the board, board of directors is more likely to be dominated by management, and there is less likelihood of an audit committee). Palmrose et al. (2001) investigate the determinants of market reactions to restatement announcements and find that more severe market reactions are associated with indications of management fraud, more material dollar effects and restatements that are attributed to auditors. None of these studies investigate the tax consequences and costs that firms accused of accounting irregularities face.

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8 The tax cushion is a reserve for taxes that may be owed in the future should the IRS find a deficiency in the current year payments. Thus, consistent with the matching principle in financial accounting, firms record an additional reserve for taxes beyond the amount due with the tax return in order to match any related tax expense (including future IRS assessments) related to current year earnings. Note that, in general, under the current accounting standard governing the accounting for income taxes, Statement of Financial Accounting Standard No. 109, Accounting for Income Taxes, the cushion is recorded as a debit to current tax expense rather than deferred tax expense (FASB 1992). Thus, in the above mentioned action, where management records fictitious earnings, management could simultaneously record a “fictitious” tax reserve against these earnings (in current tax expense) but the additional tax would not actually be paid in the current year.

9 We say “in theory” because firms are not required to start with book income from the 10-K when filling out their schedule M-1. For example, foreign subsidiaries generally are not consolidated for tax but they are for book purposes if they are over 50 percent owned by the parent. Thus, different entities are reported on the 10-K versus the Form 1120. See Mills and Plesko (2003), who call for public disclosure of M-1 information, for additional information on the data currently contained in the M-1 as it relates to publicly filed financial statements.

10 This study is subject to the same types of limitations as these prior studies. Namely, sample firms include those firms accused of a violation. There may be other firms that have not yet been accused that are excluded from the sample. In addition, the results of these studies may not be generalizable to other firms because the sample firms may be considered to be more extreme than other firms.
We also add to the literature that investigates actions firms take and costs they bear in order to report higher accounting earnings in general. For example, Bens et al. (2003) investigate management actions (i.e., repurchases of stock) taken to avoid dilution of earnings per share (EPS). Even though the repurchases consume cash that could be used for positive net present value investments, Bens et al. (2003) find that firms instead use the cash to repurchase stock and avoid dilution of accounting earnings per share. Graham and Harvey (2001), in a survey of corporate executives, find that managers are very concerned about the earnings consequences of corporate finance decisions. Lys and Vincent (1995) find that AT&T was willing to pay a premium to NCR shareholders to achieve pooling of interests accounting because managers believed analysts and investors would value the firm more highly if it avoided goodwill amortization charges. Our work is closely related to these prior studies because we investigate the taxes a firm is willing to pay to inflate accounting earnings. Because we focus on firms that restate their earnings, we are able to quantify this cost using the firm’s own disclosures.

Finally, we also contribute to the literature examining how firms make trade-offs between financial reporting and tax objectives. In the past ten years, researchers have made significant attempts to understand how firms make these trade-offs (see Shackelford and Shevlin [2001] for a summary). Such exercises, however, have been fraught with difficulty. For the most part these studies assume, without proof, that whatever incremental income the firm reports on its financial statements it also reports on its tax return. For example, Scholes et al. (1992), Guenther (1994), and Maydew (1997) each examine incentives to defer taxable income and possible disincentives to defer financial reporting income. Because none of those studies can observe the shifting of taxable income, the conclusions in those studies are dependent upon the assumption that shifting financial accounting income results in shifting of taxable income.

The LIFO adoption papers are probably the first examples of the book-tax trade off literature (see, for example, Biddle 1980; Hunt 1985; Davis et al. 1984; Abdel-khalik 1985; Morse 1980; and Shackelford and Shevlin 2001, Section 2). In sum, this literature provides evidence consistent with some firms incurring tax costs to increase financial accounting earnings: (1) by remaining on FIFO when they could switch to LIFO, (2) by switching to FIFO from LIFO, and (3) in inventory management decisions. In addition, Johnson and Dhaliwal (1988) investigate LIFO abandonments and find that firms that abandon LIFO are more leveraged, closer to violating working capital restrictions, and have larger net operating loss carryforwards. The authors conclude that abandonments are motivated by management’s desire to avoid debt covenant constraints and that these incentives dominate the tax costs. Our paper is similar to the LIFO/FIFO literature as it investigates a condition under which firms may choose to incur tax costs to increase financial accounting earnings. However, there are several key differences between the LIFO/FIFO choice and our setting. First, the LIFO/FIFO choice is between two accepted accounting methods—the methods are both within GAAP—while the firms in our study are (allegedly) operating well outside of GAAP. Second, the LIFO choice is observable to investors and a potential signal of firm type (see Hughes and Schwartz 1988) whereas booking fictitious income is something done in secret and not made public unless and until the fraud is revealed.

Finally and most importantly, the LIFO/FIFO choice is a case where the tax code mandates book-tax conformity (the familiar rule that if you use LIFO for tax you must use it for book). But clear-cut trade-offs are rare outside of inventory methods because for most income and expense items GAAP and the tax code merely resemble each other but are not identical to each other (see Guenther et al. 1997). Thus, there can be cases where firms are
able to “have their cake and eat it too” by reporting one set of numbers to the IRS and a different set to the market.

A methodological limitation of existing book-tax trade-off studies, noted by Shackelford and Shevlin (2001), is that such studies rely on knowing the tax and financial reporting outcomes of two alternative transactions (e.g., taxable versus nontaxable mergers or divestitures). Since researchers typically only observe the actual action that was taken by the firm and not the alternative actions, this makes it difficult to separate taxes paid for financial reporting benefits from taxes paid to achieve some other objective that also differs across the transaction alternatives. Shackelford and Shevlin (2001, 327) summarize the problem as follows:

Authors must make “... assumptions about what the firm’s economic balance sheet, income statement, and taxable income would be if the alternative choice were made. This is commonly known as as-if calculations. Such calculations often unavoidably bias the findings in favor of the alternative hypothesis.”

The research setting in our paper avoids these problems. Restatements give us actual disclosures for both the originally reported amounts and the restated numbers for the same firm and the same year.

III. SAMPLE SELECTION AND METHODOLOGY

Sample Selection

Our sample selection is designed to produce a sample for which we have relatively clean measures of earnings overstatement and the taxes paid on the earnings overstatement. Briefly, we require two things for firms to be included in our sample. One, the firm and/or its management must have been accused of fraud by the SEC. Focusing on firms accused of fraud by the SEC gives us the best chance of having a sample of intentional misstatements as opposed to genuine disagreements about the application of GAAP.

Two, the firm must have filed restated financial statements to correct the alleged fraud. Comparing the originally filed financial statements to the restated financial statements gives us a measure of the earnings overstatement as well as a measure of the incremental taxes on the earnings overstatement. Again, because of this methodology, we do not have to rely on a model of discretionary accruals to identify or quantify earnings overstatements.

We begin by collecting SEC Accounting and Auditing Enforcement Releases (AAERs). AAERs are summaries of the SEC’s accounting-based enforcement actions and describe the SEC’s investigations of alleged violations of accounting provisions of the securities laws. AAERs allege several types of violations by firms and/or their employees including fraud, nonfraudulent but reckless or grossly negligent disclosure, and instances where the company failed to comply with reporting provisions of the Securities Acts but was neither fraudulent nor grossly negligent (Feroz et al. 1991).11 From the list of AAERs during the period January 1, 1996 to June 30, 2002, we identify 228 in which the SEC uses the word “fraud.”12 This does not mean that the SEC accused 228 firms of fraud because it is common for more than one AAER to be issued against a single firm; sometimes there are separate AAERs issued against the firm and individuals (managers) associated with the

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11 For more detail on AAER and the SEC’s process in investigating firms, see Pincus et al. (1988), Feroz et al. (1991) and Dechow et al. (1996).

12 We begin the sample period on January 1, 1996 to assure that all tax disclosures analyzed are made under FAS No. 109.
firm. Of the 228 AAERs we initially identify, there are 88 duplicates leaving a base sample of 140 fraud accusations.

We require that the AAER be related to alleged earnings overstatement, and we exclude 28 AAERs that do not mention an overstatement of earnings or an accounting irregularity. In addition, we require the overstatement of earnings to have occurred in years after 1992 so the tax disclosure for all observations is made under the same accounting standard for income taxes, Statement of Financial Accounting Standard No. 109. We exclude 11 AAERs as a result of this sample selection criterion.

We also require sufficient disclosure to compute our estimates. Specifically, our estimates of taxes paid on the earnings overstatements rely on the firm restating the financial statements in question. Obtaining restated financial statements following an allegation of fraud by the SEC is more difficult than it might first appear. For 34 firms, the restated financial statements are simply unavailable. We can only presume that many of these firms were financially distressed to begin with and either filed for bankruptcy, liquidated, or were acquired. We recognize that firms for which we do not have adequate data could have behaved differently than our sample firms and thus care must be exercised in generalizing our results. Finally, we exclude 40 AAERs due to lack of sufficient tax footnote detail in the restatement. After applying these screens, we have a final sample of 27 firms for which we can obtain the necessary restatement data. Table 1 summarizes our sample selection procedure.

For each of the sample firms, we collected the disclosure of the source and amount of earnings overstatement as documented by the SEC. In Panel A of Table 2, we summarize the types of alleged accounting manipulations used by sample firms to overstate earnings. As this table indicates, the SEC accused 81.5 percent of firms of overstating their revenue. Specific SEC accusations include: reporting “false revenues,” “improperly recognizing” revenue, “channel stuffing,” “prematurely recognizing revenue,” “inflating revenue,” “recording revenue from the sale ... prior to shipment,” and recognizing revenue on “invalid or nonexistent sales.” Sixty-three percent of the firms were accused of various types of cost or expense understatement. Examples of such expense understatement accusations contained

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**TABLE 1**

**Summary of Sample Selection Process**

<table>
<thead>
<tr>
<th>Description</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEC AAERs that mention fraud during the period January 1, 1996 to June 30, 2002</td>
<td>140</td>
</tr>
<tr>
<td>Exclusion of allegations not pertaining to an overstatement of earnings</td>
<td>(28)</td>
</tr>
<tr>
<td>Exclusion of firms where overstatement was prior to SFAS No. 109</td>
<td>(11)</td>
</tr>
<tr>
<td>Exclusion of firms for which no restatement of the financial statements could be found</td>
<td>(34)</td>
</tr>
<tr>
<td>Exclusion of firms for insufficient tax footnote detail in the statement</td>
<td>(40)</td>
</tr>
<tr>
<td>Final Sample</td>
<td>27</td>
</tr>
</tbody>
</table>

*a* This excludes duplicate Accounting and Auditing Enforcement Releases (AAERs) issued for the same company.

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13. The AAERs excluded were often related to the auditor, insider trading, or errors in accounting for acquisitions.
14. One of the firms excluded for insufficient tax footnote data had sufficient detail for our calculations, but the firm appeared to pay taxes on overstated earnings at a rate twice as high as the next highest firm. We called the company and while they could confirm that significant taxes were paid on the overstated earnings, they could not provide us with a more precise number. As a result, we excluded this firm from the sample to be conservative.
15. Requests for data underlying this table will be considered by the authors.


TABLE 2
Sources and Magnitudes of Earnings Overstatements for 27 Earnings Overstatements during 1996–2002

Panel A: Source of Accounting Manipulation Causing the Overstatement of Earnings

<table>
<thead>
<tr>
<th>Accounting Construct Manipulated</th>
<th>Number of Observations</th>
<th>Percentage of Firms</th>
<th>Number of Firms that Paid Taxes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overstatement of Revenue</td>
<td>22</td>
<td>81.5</td>
<td>11</td>
</tr>
<tr>
<td>Understatement of Costs/Expenses</td>
<td>17</td>
<td>63.0</td>
<td>10</td>
</tr>
<tr>
<td>Overstatement of Inventory</td>
<td>7</td>
<td>25.9</td>
<td>5</td>
</tr>
<tr>
<td>Merger Charges or Purchase Accounting Issues</td>
<td>3</td>
<td>11.1</td>
<td>2</td>
</tr>
<tr>
<td>Improper Capitalization of Expenses</td>
<td>4</td>
<td>14.8</td>
<td>2</td>
</tr>
<tr>
<td>Lease Accounting Issues</td>
<td>3</td>
<td>11.1</td>
<td>2</td>
</tr>
<tr>
<td>Revenue Recognition</td>
<td>4</td>
<td>14.8</td>
<td>3</td>
</tr>
<tr>
<td>Overstatement of Assets</td>
<td>3</td>
<td>11.1</td>
<td>3</td>
</tr>
<tr>
<td>Environmental Accounting Issues</td>
<td>1</td>
<td>3.7</td>
<td>1</td>
</tr>
<tr>
<td>Barter Transactions</td>
<td></td>
<td>3.7</td>
<td></td>
</tr>
<tr>
<td>Total Sample</td>
<td>65</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Panel B: Magnitude of Earnings Overstatements

<table>
<thead>
<tr>
<th></th>
<th>Millions of Dollars</th>
<th>Per Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total for all firms</td>
<td>$3,361.52</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>$124.50</td>
<td>$2.14</td>
</tr>
<tr>
<td>Median</td>
<td>$12.81</td>
<td>$0.74</td>
</tr>
</tbody>
</table>

\(a\) Source: AAERs filed by the SEC.
\(b\) The number of observations does not sum to the total because some sample firms announced multiple sources of income overstatement.
\(c\) Percentage of firms is the percentage of times this reason was listed for the total number of firms (27).
\(d\) The amount of the overstatement was collected from the restated financial statements in the firms; 10-K/A filings.
\(e\) Total for all firms is the sum over all firms of the amount of restated pre-tax book income.
\(f\) To calculate the mean (median) we sum the earnings overstatements over all the years that are restated for each firm and include that sum as the observation for the firm.
\(g\) The per share calculations are done using the number of shares in the year prior to the first year of earnings overstatements included in the sample. Thus, for some firms the per share amount is a sum of two or three years of earnings overstatements over the number of shares outstanding the year prior to the firm starting to overstate earnings.

in SEC AAERs include: “created fictious assets,” “overstating inventory,” “improperly capitalizing expenses,” “improper capitalization of millions of dollars of company expenses,” and “including fake items in inventory.” Other more specific sources of overstatement include purchase accounting or merger related accounting entries (e.g., “cookie jar reserves”), barter transactions, lease accounting manipulation, and overstatement of inventory. Table 2 also presents, by source of earnings overstatement, the number of firms that we estimate paid tax on their earnings overstatements. For example, for 22 firms overstating
revenues (17 firms understating costs), we estimate that 11 firms (10 firms) paid taxes on their overstated earnings.16

We also examine the level of management accused in the AAER. For our sample firms, we identified the individuals accused by the SEC of fraudulently overstating earnings by position (e.g., CEO). For 52 percent of the sample, the CEO was accused of participating. Fifty-six percent of the time, the CFO was an alleged perpetrator. In 22 percent of the sample, the Chairman of the Board was accused of assisting in the alleged accounting fraud. Other individuals accused of perpetrating the alleged fraud include the President (18.5 percent of the sample), Controller (26 percent of the sample), Director of Sales or Vice President of Sales (18.5 percent), Chief Operating Officer (11 percent), subsidiary corporation executive (26 percent of the sample), and Vice President of Finance (11 percent).17 For one transaction, the SEC named no specific individuals; rather, the SEC indicated “senior management” involvement. Overall, the data indicate that the overstatements in the sample are associated with alleged accounting fraud by the most senior members of management.

We next tabulate the magnitude of earnings overstatements by sample firms in Panel B of Table 2. As these data indicate, the aggregate amount of pretax earnings overstatement is $3.36 billion. In per share terms, the mean (median) pretax earnings overstatement is $2.14 ($0.74), while the mean stock price for sample firms was about $21.50 per share.18 Thus, it is clear from the data that the sample includes large earnings overstatements.

**Methodology**

Our primary analysis focuses on the contemporaneous and restated tax reporting associated with the overstated earnings. Included in the sample firms’ subsequent financial statements are footnote disclosures that quantify the size and source of the overstatement. Also included in the restatement footnotes, specifically the tax footnote, is the amount of income tax expense reported contemporaneously with the restated income. The restated income tax expense figure is the corrected income tax expense after removing the tax expense on overstated earnings. We use the amount of the restated income tax expense as the basis for our analyses.19

The tax footnote adjustments can affect both current income tax expense and deferred income tax expense. Because we are concerned with whether firms sacrificed cash as part of overstating earnings, our analysis focuses on current tax expense. It is possible that firms would eventually pay taxes on overstatements and would record such future taxes through the recognition of deferred taxes. We do not know when or if these deferred taxes would be paid in cash, and for that reason we do not include deferred taxes in our tax cost

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16 A Chi-square test does not reject the null that the frequency of paying tax is unrelated to the source of overstatement (p > 0.10). This is likely because the same firm is often accused by the SEC of both overstating revenues and understating expenses. For example, six of the tax-paying firms overstated revenues and understated expenses.

17 In several instances, one individual held multiple positions during the period of overstatements (e.g., CEO and President or Chairman of the Board and CEO).

18 Some firms in our sample overstated earnings over multiple years and some firms only overstated earnings in one year. We calculate the overstatement of $2.14 as the sum of all overstatements made by the firm scaled by the number of common shares in the year prior to any earnings overstatements. Thus, for a firm that overstated earnings in 1996–1999 we sum the overstatements during the three years and scale by the number of shares at the end of 1995.

19 This methodology assumes that the years in the SEC AAERs are the only years of fraud. To the extent that fraud extends to other years, our results may underestimate the actual amount of the overstatement of income and taxes.
estimates. Thus, our estimates may understate the true tax cost borne by firms overstating their financial statement earnings.

Current tax expense reflects an estimate of taxes currently payable on the current year’s income.\textsuperscript{20} If firms did not pay taxes to the taxing authority on allegedly fraudulently overstated earnings, then the firm’s restated tax footnote should indicate no change in current income tax expense relative to the originally reported income tax expense. In general, if they paid taxes on the overstated earnings, then the restated tax footnote will indicate a decrease in current income tax expense as a result of restating earnings.\textsuperscript{21}

In Figure 1, we present a detailed illustration of the procedure we use to estimate the tax treatment of overstated earnings based on one of the sample firm’s disclosures. The figure also presents the types of restatement disclosures we use to complete our analysis. In the example, Material Sciences disclosed that it overstated pretax income by $5.638 million in 1996. In its originally filed 1996 10-K, Material Sciences recorded a current federal and state income tax expense of $6.012 million on 1996 earnings.\textsuperscript{22} In its restated 1996 10-K, dated 2/28/97, Material Sciences reported that current income tax expense on correctly reported 1996 earnings was $3.856 million. The $2.156 million difference in the current tax expense reported on 1996’s overstated earnings ($6.012 million) and the correct amount after adjusting for the overstatement ($3.856 million) is the estimated amount of income taxes Material Sciences paid on its overstated earnings.

Hanlon and Shevlin (2002) find that income tax disclosures often do not completely portray the amount of income tax incurred by a firm or the amount of cash paid to the government for taxes in a specified period. Stock option expense generally is not reported on a firm’s income statement, but is a deduction on the income tax return. While this constitutes a difference between financial and tax reporting, this difference is not recorded as a permanent difference when the current tax expense is calculated but rather is shown as a credit to additional paid-in capital in the equity statement. As a result, for such firms the current tax expense is overstated relative to the amount of tax the firm actually paid in cash. To obtain a more accurate estimate of taxes paid, we reduce the reported current tax expense by the estimated tax benefits received from the deduction for stock option compensation expense.\textsuperscript{23} Finally, we review the sample firms’ net operating loss status to obtain some assurance that NOLs do not offset any incremental tax effects associated with overstating earnings.\textsuperscript{24}

\begin{itemize}
  \item There are some exceptions to the general statement that current tax expense on the firm’s financial statements is equivalent to the taxes paid on the firm’s current period earnings. Two common exceptions include the accounting for employee stock options and the tax cushion.
  \item In addition, some firms explicitly disclose that they did seek or are seeking a refund on taxes paid on overstated earnings.
  \item We include total current tax expense in our calculations; thus, the taxing authorities to which the taxes are paid include the U.S. Treasury, state treasuries, and the taxing authorities in foreign jurisdictions.
  \item We use one of two methods to obtain the amount of the tax benefits from stock options, both of which are outlined in Hanlon and Shevlin (2002). First, for firms that have: (1) a positive Federal current tax expense, (2) do not disclose domestic nonacquired net operating losses, and (3) disclose the amount of the tax benefit of stock option either in the firm’s statement of stockholder’s equity or in separate discussion in the tax note, we use the amount disclosed by the firm as the tax benefit of stock options. In these cases, it is likely the firm is receiving the full deduction and associated tax benefit from the stock option exercises. Second, for firms that: (1) do not disclose separately the tax benefits of stock option exercises, or (2) disclose an amount of tax benefits of stock options but also have a domestic nonacquired net operating loss and valuation allowance, which may indicate they did not recognize the same amount for financial statement purposes as they deducted on the tax return, we estimate the deduction by multiplying the number of shares exercised during the year shown in the stock option note by the difference between the market price and exercise price for the options.
  \item If the firm reports that it is seeking or received a refund for taxes paid on overstated earnings, we use the lower of the refund amount or our estimate of cash taxes paid in all computations.
\end{itemize}
FIGURE 1

Example of Disclosure and Calculations of the Tax Consequences of Earnings Overstatement
Material Sciences’ Restatement of 1996 Results as Presented in Its 1997 10-K

Panel A: Excerpts from Tax Footnotes—Material Sciences

Note 13: Income Taxes (2/29/1996 Financials)—As Originally Reported:

<table>
<thead>
<tr>
<th>Tax Provision ($000s)</th>
<th>1996</th>
<th>1995</th>
<th>1994</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Federal</td>
<td>$5,136</td>
<td>$8,130</td>
<td>$7,053</td>
</tr>
<tr>
<td>State</td>
<td>876</td>
<td>1,363</td>
<td>1,246</td>
</tr>
<tr>
<td><strong>Total Current Provision</strong></td>
<td>$6,012</td>
<td>$9,493</td>
<td>$8,299</td>
</tr>
<tr>
<td><strong>Deferred:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Federal</td>
<td>1,215</td>
<td>852</td>
<td>(907)</td>
</tr>
<tr>
<td>State</td>
<td>191</td>
<td>134</td>
<td>(162)</td>
</tr>
<tr>
<td><strong>Total Deferred Provision</strong></td>
<td>$1,406</td>
<td>$986</td>
<td>(1,069)</td>
</tr>
<tr>
<td><strong>Total Provision</strong></td>
<td>$7,418</td>
<td>$10,479</td>
<td>$7,230</td>
</tr>
</tbody>
</table>

Note 11: Income Taxes (2/28/1997 Financials)—Corrected for Overstatement:

<table>
<thead>
<tr>
<th>Tax Provision ($000s)</th>
<th>1997</th>
<th>1996 (Restated)</th>
<th>1995</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Federal</td>
<td>$7,166</td>
<td>$3,291</td>
<td>$8,130</td>
</tr>
<tr>
<td>State</td>
<td>1,209</td>
<td>565</td>
<td>1,363</td>
</tr>
<tr>
<td><strong>Total Current Provision</strong></td>
<td>$8,375</td>
<td>$3,856</td>
<td>$9,493</td>
</tr>
<tr>
<td><strong>Deferred:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Federal</td>
<td>1,546</td>
<td>1,215</td>
<td>852</td>
</tr>
<tr>
<td>State</td>
<td>243</td>
<td>191</td>
<td>134</td>
</tr>
<tr>
<td><strong>Total Deferred Provision</strong></td>
<td>$1,789</td>
<td>$1,406</td>
<td>$986</td>
</tr>
<tr>
<td><strong>Total Provision</strong></td>
<td>$10,164</td>
<td>$5,262</td>
<td>$10,479</td>
</tr>
</tbody>
</table>

Panel B: Calculation of Tax Paid on Overstated Earnings

<table>
<thead>
<tr>
<th>Tax Provision ($000s)</th>
<th>Original 1996 Tax Provision as Stated in 2/29/96 Financials</th>
<th>Restated per the 2/28/97 Financials</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Federal</td>
<td>$5,136</td>
<td>$3,291</td>
<td>$1,845</td>
</tr>
<tr>
<td>State</td>
<td>876</td>
<td>565</td>
<td>311</td>
</tr>
<tr>
<td><strong>Total Current Tax Provision</strong></td>
<td>$6,012</td>
<td>$3,856</td>
<td>$2,156</td>
</tr>
<tr>
<td>Less: Tax Benefit of Stock Options*</td>
<td>(664)</td>
<td>(664)</td>
<td>0</td>
</tr>
<tr>
<td><strong>Estimate of Tax Paid</strong></td>
<td>$5,348</td>
<td>$3,192</td>
<td>$2,156</td>
</tr>
<tr>
<td><strong>Deferred:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Federal</td>
<td>$1,215</td>
<td>$1,215</td>
<td>0</td>
</tr>
<tr>
<td>State</td>
<td>191</td>
<td>191</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total Deferred Tax Provision</strong></td>
<td>$1,406</td>
<td>$1,406</td>
<td>0</td>
</tr>
</tbody>
</table>

* Tax Benefit from Stock Options is reported in the Statement of Shareholder’s Equity (not presented here)
Our estimates for Material Sciences indicate that stock-option-related tax deductions were insufficiently large to reduce Material Sciences taxable income (pre-restatement and post-restatement) below zero. Therefore, our estimates of the incremental income taxes paid on the overstated earnings ($2.156 million) are unaffected by tax benefits from stock options, as shown in Panel B of Figure 1. Thus, Material Sciences provides an example of a firm that apparently did pay taxes to the taxing authority (as noted in the “Robustness Tests” subsection, Material Sciences recorded an income tax receivable in association with the restatement of its earnings).

IV. RESULTS

Primary Results

In Table 3, we present our primary results. Table 3 reports estimates of the income taxes paid to the taxing authority on overstated earnings for the 27 sample firms. The estimates in Table 3 assume that the earnings overstatement was permanent. That is, we assume that at the time they chose to overstate their firm’s earnings, managers did not expect to reverse the earnings overstatement at some future period. However, we relax this assumption below and tabulate the more conservative estimates of the present value of the increase in taxes paid to the government on the overstated earnings, assuming that managers intended to reverse the overstatement in some future period.

As Table 3 indicates, after adjusting for the stock option deduction, the mean estimated income taxes paid on inflated earnings was $11.84 million, while the median was $1.06 million. For one dollar of overstated pretax earnings, we estimate that mean income taxes paid were about 11 cents, while the median was about eight cents.

These estimates suggest that firms bear significant costs when they overstate their earnings. We next express the costs as the percentage of a firm’s market value paid to the taxing authority to overstate earnings. We measure market value prior to the actual earnings overstatement. Table 3 shows that the mean of our estimate of taxes paid is equal to about 1.3 percent of market value, while the overstatement of pretax income is equal to about 12.8 percent of market value (untabulated). The mean (median) tax paid on overstated earnings is equal to 11 (2) percent of operating cash flow.

Table 3 also presents information on the cross-sectional variation in the taxes paid on the earnings overstatements. In Table 3, 56 percent of firms (15 of 27 firms) paid current taxes on overstated earnings (denoted “tax paid firms”). The other 44 percent of firms (denoted “no tax paid firms”) did not pay taxes on overstated earnings because the firm either: (1) reported deferred taxes on the inflated earnings without incurring any current taxes, or (2) had net operating losses for tax purposes sufficient to offset the earnings overstatement.

We also estimate, in Table 3, the amount of taxes paid conditional on the firm having paid taxes on the earnings overstatement. We estimate that the mean amount of taxes paid per dollar of pretax overstated earnings for all firms in which taxes were paid is $0.20. For these 15 firms, the mean tax paid on overstated earnings is equal to 2.4 percent of firm market value (where market value is measured in the year prior to the first year of overstatement included in our sample). Thus, the analyses and estimates in Table 3 suggest that

---

25 The overstatements of pretax book income and the current and deferred tax expenses are calculated using the originally filed and restated numbers gathered by hand. We rely on hand collection of the data because in some cases, Compustat uses the restated numbers rather than the originally reported (incorrect) numbers. In fact, in our sample of 45 firm years, we find Compustat reports restated amounts in ten of the firm years (22 percent).

26 If we use market value of equity measured contemporaneously with the earnings overstatement, the mean taxes paid as a percentage of firm market value is 1.0 percent and the median is 0.17 percent.
### TABLE 3
Estimates of Taxes Paid on Overstated Earnings and Other Financial Information for 27 Firms Accused of Fraud by the SEC  
(in millions of dollars)

<table>
<thead>
<tr>
<th>Description</th>
<th>Full Sample</th>
<th>No Tax Paid Firms</th>
<th>Tax Paid Firms</th>
<th>t-statistic for Difference in Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimate of income taxes paid to all taxing authorities on overstated earnings (before NOLs and stock option expense)</td>
<td>Mean: $12.15, Median: $1.06</td>
<td>Mean: $0.00, Median: $0.00</td>
<td>Mean: $21.86, Median: 4.16</td>
<td>1.88</td>
</tr>
<tr>
<td>Estimate of income taxes paid to all taxing authorities on overstated earnings adjusted for NOLs and stock option expense (excludes overstated current tax expense on tax loss firms and adjusts for the tax benefit of stock options)</td>
<td>Mean: $11.84, Median: $1.06</td>
<td>Mean: $0.00, Median: $0.00</td>
<td>Mean: $21.32, Median: 2.51</td>
<td>1.82</td>
</tr>
<tr>
<td>Income taxes paid on overstated earnings/overstated earnings (% of overstated earnings)</td>
<td>11.3%</td>
<td>7.7%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Income taxes paid on overstated earnings/market value of equity</td>
<td>1.3%</td>
<td>0.1%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>NOL balance (in millions, average over the years if multiple years)</td>
<td>Mean: $116.44, Median: $3.96</td>
<td>Mean: $121.61, Median: $20.40</td>
<td>Mean: $113.33, Median: $0.00</td>
<td>$0.07</td>
</tr>
<tr>
<td>Income taxes paid on overstated earnings/contemporaneous cash flows from operations</td>
<td>10.6%</td>
<td>1.6%</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Total effective tax rate on original financial statements</td>
<td>30%</td>
<td>38%</td>
<td>15%</td>
<td>0%</td>
</tr>
<tr>
<td>Total effective tax rate on restated financial statements</td>
<td>26%</td>
<td>38%</td>
<td>6%</td>
<td>0%</td>
</tr>
<tr>
<td>Cash income taxes paid per cash flow statement (total over alleged fraud years)</td>
<td>$69.31</td>
<td>$3.60</td>
<td>($3.73)</td>
<td>$0.04</td>
</tr>
<tr>
<td>Cash income taxes paid per cash flow statement/pre-tax book income (ave. over alleged fraud years)</td>
<td>32%</td>
<td>31%</td>
<td>21%</td>
<td>0%</td>
</tr>
<tr>
<td>Cash income taxes paid per cash flow statement (total over alleged fraud years and one year following the alleged fraud)</td>
<td>$96.07</td>
<td>$6.32</td>
<td>($4.99)</td>
<td>$0.01</td>
</tr>
<tr>
<td>Assets</td>
<td>Mean: $2,163.39, Median: $85.68</td>
<td>Mean: $177.82, Median: $40.59</td>
<td>Mean: $3,751.86, Median: $172.36</td>
<td>Mean: $1,672.68, Median: $85.68</td>
</tr>
<tr>
<td>Net income</td>
<td>Mean: $48.17, Median: $2.20</td>
<td>Mean: $1.63, Median: $0.73</td>
<td>Mean: $85.41, Median: $13.79</td>
<td>Mean: $85.41, Median: $13.79</td>
</tr>
<tr>
<td>% Foreign (pretax book income allocation, ave. over fraud-years)</td>
<td>6%</td>
<td>0%</td>
<td>4%</td>
<td>0%</td>
</tr>
<tr>
<td>Decrease (Increase) in deferred tax expense</td>
<td>$21.39</td>
<td>$0.00</td>
<td>$3.23</td>
<td>$0.11</td>
</tr>
</tbody>
</table>
some firms were willing to sacrifice a substantial amount of cash in order to inflate their earnings.

To further investigate the firms in our sample, we examine the frequency of overstatements of both current and deferred taxes associated with the overstated earnings. While deferred taxes do not represent cash taxes paid, if there are deferred taxes associated with the earnings overstatements, this indicates that the firm reported the overstatement differently for book and tax purposes. As discussed earlier in the paper, there are four potential tax treatments for an earnings overstatement: the firm could: (1) report a temporary book-tax difference (thus not pay taxes currently on the overstatement); (2) report a permanent book-tax difference (again not pay taxes currently); (3) pay taxes on the earnings overstatement; or (4) not report a book-tax difference, but use prior or contemporaneous tax losses to offset the overstatement of earnings.

Of the 15 firms in our sample that we estimate paid current taxes on their earnings overstatement, we find that eight did not report a decrease in deferred tax expense upon restatement. This indicates that the firm did not defer any taxes on the overstated earnings and paid taxes on at least a portion of the overstatement. The remaining seven firms report both current taxes paid as well as deferred taxes on the earnings overstatements. Thus, these firms paid tax on the overstatements but were able to classify at least a portion of the earnings overstatements as book income, but not current taxable income. As a result, these firms escape current taxation on that portion of the earnings overstatement.

For the 12 firms that we estimate paid no current tax on their overstatement, there were six that did show a restatement of the deferred tax expense. For these firms, it appears that they were either: (1) able to classify the amount of the earnings overstatement as a temporary book-tax difference and escape current taxation on all of the earnings overstatement, or (2) loss firms with no current tax expense but deferred tax liabilities in excess of their tax loss carryforwards. Thus, we find that a substantial number of our firms (48 percent) deferred at least some taxes on the earnings overstatements and that 22 percent of our sample recorded the amount of overstatement as a book-tax difference while recording no current tax expense on the allegedly fraudulent earnings.28

Finally, we have six firms that neither paid taxes on the overstatement nor showed a restated deferred tax amount.29 After a review of these six firms we find that each of these firms had tax losses and recorded no net tax provision in any of the years examined. In sum, while on average we find firms paid taxes to overstate earnings, we also find that our sample has substantial heterogeneity in the tax treatment of overstated earnings.

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27 We refrain from saying they paid taxes on the entire overstatement because we cannot be certain the firm did not use a permanent difference to avoid some of the tax without doing a detailed analysis of the rate reconciliation. Even with a detailed analysis of the rate reconciliation it is difficult to determine if permanent differences were used for a portion because: (1) disclosures presented in rate reconciliations are limited, and (2) the transaction used to shelter the income may not have reversed.

28 Care should be used in interpreting the deferred tax implications above because we include tax loss firms with tax loss carryforwards in our sample. These firms likely have a valuation allowance established against the deferred taxes and this may mask actual activity in the deferred tax asset and liability line items. Thus, while for some firms we see no deferred tax expense changes upon restatement, the firm may be changing its deferred tax assets and liabilities, but offsetting these changes with changes in the valuation allowance so that the net effect on the expense is zero. Thus, our data likely understates the changes to the deferred tax accounts. Note that we cannot specifically investigate this because while all restatements show the restated current and deferred tax expense, not all reveal in detail the restated amounts of deferred tax assets, deferred tax liabilities, and the valuation allowance, if any.

29 We also have one firm that reported current tax expense on overstated earnings, but that firm’s statement of cash flows indicated that it paid no cash to the taxing authority during that period. To be conservative, we classify this firm as not paying cash income taxes on overstated earnings.
We also examine information about sample firm profitability (defined as positive net income in the year prior to the alleged fraud; sample summary statistics are shown in Table 3). This variable provides additional explanation for the cross-sectional variation in the tax alternatives firms choose to make when overstating financial accounting earnings. Consistent with the analysis above, most of the loss firms report no tax expense at all and restate neither deferred nor current taxes. The 15 firms that we estimate paid taxes on the overstated earnings are all profitable firms. Of the five profitable firms that did not pay taxes on overstated earnings, four of them restated deferred taxes consistent with the firm recording a book-tax difference for the overstated earnings while only one of the firms restated neither current nor deferred taxes.

The estimates in Table 3 assume that the overstatements were intended to be permanent. In Table 4 we assume that even in the absence of detection by the SEC the managers would have reversed the overstatement in 3, 5, or 7 years. Thus, for this analysis we view the taxes as simply prepaid rather than paid unnecessarily. We compute the cost in terms of time value of money of paying cash to the government today rather than deferring the same amount of income taxes until some date in the future (i.e., lost earnings on the cash taxes prepaid). Although we believe that there is good reason not to view the overstatement of earnings and, thus, the taxes as temporary, the sensitivity estimates in Table 4 provide a floor of the amount of corporate resources expended to overstate earnings.\textsuperscript{30} We use a 6 percent discount rate in Table 4.\textsuperscript{31} As Table 4 indicates, even when viewing the overstatements as temporary, the lost income on the taxes paid to overstate earnings is substantial. For example, assuming five years until reversal of the overstatement, the mean estimated cost in terms of time value of money is $2.99 million, calculated as the mean total taxes paid ($11.84 million) less the present value of those taxes. Under this assumption, firms

---

### TABLE 4

<table>
<thead>
<tr>
<th></th>
<th>In $ millions</th>
<th>As a Percentage of Pretax Earnings Overstatement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean Median</td>
<td>Mean Median</td>
</tr>
<tr>
<td>Estimate of income taxes paid</td>
<td>$11.84 $1.06</td>
<td>11.3 7.7</td>
</tr>
<tr>
<td>to all taxing authorities on</td>
<td></td>
<td></td>
</tr>
<tr>
<td>overstated earnings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower Bound Estimate of Tax</td>
<td>1.90 0.17</td>
<td>1.8 1.2</td>
</tr>
<tr>
<td>Cost\textsuperscript{a} (3-year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>reversal period)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower Bound Estimate of Tax</td>
<td>2.99 0.27</td>
<td>2.8 1.9</td>
</tr>
<tr>
<td>Cost\textsuperscript{a} (5-year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>reversal period)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower Bound Estimate of Tax</td>
<td>3.97 0.35</td>
<td>3.8 2.6</td>
</tr>
<tr>
<td>Cost\textsuperscript{a} (7-year</td>
<td></td>
<td></td>
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<td>reversal period)</td>
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\textsuperscript{a} Lower bound is estimated as the difference between the tax cost today and the present value (calculated at 6 percent) of the tax cost if the taxes were paid three, five, and seven years into the future, respectively.

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\textsuperscript{30} The main reason we believe the costs are permanent is that many firms in our sample allegedly recorded fictitious sales rather than just an acceleration of sales. Further, even if sales recognition was accelerated, it is uncertain whether the expected future sales would have materialized.

\textsuperscript{31} We follow Hand (2001), who computes the discount rate as the real risk-free rate of 2.25 percent (mean over 1980–2000) and a risk premium of 3.75 percent.

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incurred an estimated cost of $0.028 per $1.00 of overstated pretax earnings. If one discounts income taxes for the time value of money, similar discounting of the earnings overstatements is necessary for consistency. However, if we were to discount both taxes on the overstatement and the overstatements themselves (numerator and denominator), then our estimates of the taxes paid per dollar of overstatement would be nearly the same as those presented in Table 3. The only difference would come from differences in the timing of tax payments for firms manipulating their income over several years. Thus, the estimates in Table 4 are conservative.

**Additional Tests and Analyses**

As mentioned above, identifying a firm’s tax status can be difficult. Several teams of authors (e.g., see Erickson et al. 2003; Graham et al. 2003; McGill and Outslay 2002) note that firms that appear to be paying income taxes on earnings, in fact did not pay income taxes. Thus, it is possible that some of our estimates overstate the true amount of cash paid to the taxing authority on allegedly fraudulently overstated earnings. While we include an adjustment for the stock option deduction and assume firms with negative current tax expense did not pay any tax, as a robustness test we also perform additional analyses in search of evidence of taxes paid on the earnings overstatement.

**Robustness Tests**

In order to corroborate and calibrate our estimates, we perform two procedures. First, we personally phoned investor relations representatives for each of the sample firms that we estimate paid taxes on overstated earnings. Second, we investigate tax footnote disclosures for evidence of tax refunds.

When calling the firms, whenever possible, we asked to speak with their tax director or other knowledgeable tax department personnel. We explained that we were trying to determine the cash taxes paid on their earnings overstatement. We asked firm personnel to verify our estimates and explain any differences between their figures and our estimates. Some people were surprisingly forthcoming with us, probably as a result of management turnover since the alleged frauds. Other individuals were hesitant to talk.

Of the 15 firms that we estimate paid taxes, four were acquired subsequent to the restatement. Thus, we were unable to speak with individuals at the subject firm. Three of the firms we contacted via telephone were uncooperative and unwilling to provide information about our estimates (one flatly refused to talk to us, while the other two refused by saying they were too busy to answer our questions). Three firms did not return repeated phone calls. In three cases, either an investor relations person or someone in the firm’s tax department disclosed to us the tax refund or tax credit received as a result of the earnings restatement.32 The amount of the tax refund/credit calibrated closely to our estimate in all three cases.

We also investigate the firms’ footnote disclosures. We find that five sample firms have footnote disclosures that indicate that they received tax refunds as a result of restating their earnings (some of these five firms overlap with those that we called). For example, Centennial Technologies reported in its April 28, 1998 10-K/A that it was seeking a refund of $7.4 million of income taxes paid on restated earnings in 1994, 1995, 1996, and the first 6 months of fiscal 1997. Of the $7.4 million in overpaid taxes, Centennial reported that

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32 We did not call two of the firms because at the time of making the calls we had identified a financial statement disclosure by each of the two firms that indicated they had received or would receive a tax refund on overstated earnings. We subsequently identified additional disclosures by other sample firms.
$3.778 million related to the first six months of fiscal 1997, meaning that the other $3.662 million related to the 1994–1996 restatements. Based on the firm’s tax disclosures and using the methodology presented in Figure 1, we estimated that the firm paid $3.497 in taxes on its restated earnings for fiscal years 1994–1996. Material Sciences, discussed previously, reported that it recorded an income tax receivable of $2.156 million when it restated its earnings.\textsuperscript{33} Thus, we have confirmation that seven of the 15 firms that we estimate paid taxes on overstated earnings did so.\textsuperscript{34} Moreover, this evidence corroborates our primary data analysis and supports the conclusion that some firms paid substantial amounts of taxes on overstated earnings.

Finally, both the financial press and Congress recently focused on the economic phenomenon we study. The Wall Street Journal recently reported that WorldCom, Enron, HealthSouth, and QWEST were seeking or planned to seek income tax refunds for taxes paid on allegedly fraudulently overstated earnings.\textsuperscript{35} In response to the refund claims of WorldCom and Enron, Congress proposed legislation that would prevent firms from receiving a refund for taxes paid on fraudulently overstated earnings.\textsuperscript{36} The evidence reported by The Wall Street Journal and the associated Congressional proposal both provide support for our main conclusion that some firms paid substantial amounts of taxes on overstated earnings.

**Disclosures of Total Cash Taxes Paid**

In addition to the tests above that support the evidence of taxes paid on overstated earnings, we examine the financial statements for each of the sample firms to determine whether the firm reports paying positive amounts of taxes for the years of the alleged fraud. Specifically, we examine the amount of cash taxes paid from the cash flow statement, where available. These data make useful but not perfect comparisons with the current tax expense measures that form the primary results in the paper.

One complicating factor when examining total cash taxes paid is the timing difference between recording tax expense and the actual tax payments. Suppose the firm overstated income late in the fourth quarter of year 0 and also recorded the income on the year 0 tax return. Then the firm’s current tax expense for year 0 would increase, but the actual payment of the fourth quarter estimated taxes would likely not take place until early in year 1. Thus, looking at cash tax payments for a given year can include payments that relate to the prior year.

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\textsuperscript{33} The amount of the income tax receivable reported by Material Sciences ties to our estimate of the cash income taxes paid on the overstatement as presented in Figure 1.

\textsuperscript{34} One of the firms from which we received verbal confirmation of our estimates also made an explicit disclosure in its financial statements of a claim for a tax refund.

\textsuperscript{35} See Wall Street Journal (2003a). The Wall Street Journal stated the HealthSouth’s refund claim could be as much as $300 million. The story also noted that a former HealthSouth employee stated that the firm had to borrow funds to pay these taxes. None of these four firms are in our sample because they had not filed a restatement at the time of our analysis.

\textsuperscript{36} See for example, Wall Street Journal (2003b), which states: “The amendment will raise the criminal penalties for this type of fraud to the amount of tax at issue in case of overpayment due to misreported earnings. The penalty is not retroactive; it is based on a company’s activity after enactment of the tax bill. The amendment was inspired by reports that Enron Corp. (ENRNQ) would seek a tax refund based on its overstated earnings. As such, the measure would apply to future tax years and probably not Enron’s past conduct, a Senate aide said.” This amendment had not made its way into law at the time this paper was written.

The article quotes Senator Grassley, who said he intended to contact the Justice Department’s corporate fraud task force “to ensure that full and proper attention is given to these cases where payment of taxes was just part of the bag of tricks to fool shareholders.” Grassley also stated that “even though my proposal can’t be retroactive, I don’t intend to stand by and let today’s boardroom con men slink into the shadows untouched ... This will ensure that corporate con artists pay their full freight for duping shareholders.” Grassley has also said that companies that seek refunds based on overstated earnings “... have basically made the IRS an unwitting accomplice to their fraud.”
year and exclude payments made the following year that relate to the present year’s income. Nevertheless, if our current tax estimates are reliable, our firms should at least be paying a positive amount of cash taxes and this amount should be close to or in excess of our estimates of taxes paid on overstated earnings.

For all firms that disclose taxes paid in the cash flow statements or the related notes and that we estimate an amount of taxes paid on overstated earnings, we find the firm discloses a positive cash taxes paid amount. Thus the firms are indeed tax-paying firms. We further compare the total cash taxes paid to our estimate to see if at least such an amount was paid in tax during the alleged fraud years. In comparing the cash income taxes paid per the cash flow statement to the estimate of income taxes paid to all taxing authorities on overstated earnings (adjusted for the stock option deduction), we note that for all except two of these firms our estimates of taxes paid on overstated earnings are less than the firm’s disclosure of cash taxes paid. In addition, for the two firms where we estimate a greater amount of tax paid on overstated earnings than was actually paid in total, we have independent verification of the cash taxes paid on overstated earnings either from the financial statements or via verification over the phone as described above. Thus, overall the evidence supports our finding that some firms paid income taxes on overstated earnings.

V. CONCLUSION

We provide evidence on the tax consequences of allegedly fraudulent earnings overstatements using a set of firms that were both accused of fraudulently overstating their earnings by the SEC and which subsequently filed restated financial statements. For these firms, we examine the tax disclosures associated with the restatement. Based on these disclosures, we estimate that firms paid $320 million in income taxes on pretax earnings overstatements of more than $3.36 billion. Our estimates suggest that at least some managers are willing to pay substantial amounts of additional taxes for earnings that have little or no economic content.

Our study contributes to two lines of research. First, research on firms accused of overstating earnings have generally examined the ex post costs after the overstatement was discovered and made public. Our evidence suggests that some firms also bear costs at the time of the overstatement, in the form of overpayments of taxes. We are aware of no prior study regarding GAAP violations that examines the tax consequences of those violations. We conjecture that firm managers engage in this tax overpayment behavior to reduce the chances that outsiders will discover that their financial accounting earnings are overstated. Our study also contributes to the literature on tax and financial reporting trade-offs, overcoming many of the methodological obstacles that have plagued that literature such as the unobservability of incremental tax effects.

REFERENCES
Taxes Paid on Allegedly Fraudulent Earnings


