Tax Contingencies: Cushioning the blow to earnings from tax audits and policy changes*

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Abstract

This paper studies the use of tax contingencies (aka tax cushion) in order to smooth earnings. A recent call for corporate tax reform has highlighted the disparity between financial and income tax reporting. Various policy change proposals would impact firms' net income leading some industry leaders to take surprising positions on reform. We argue that cushion can mitigate the financial statement impact of income tax changes. Ultimately, we find that firms use tax cushion to smooth earnings and that tax cushion and forward-looking discretionary accruals are used as complements. We also find cross-sectional variation in tax cushion based on the incentives to smooth earnings. Specifically, tax cushion is used to smooth earnings by firms with more leverage, larger incentive pay as a proportion of total compensation, higher R&D, and larger implicit claims.

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I. Introduction

Although practitioners and academics have always been aware of the differences between income tax and financial reporting, the legislative bodies/public-at-large has only recently become alerted to this disparity due to the recent, large and very public, corporate failures. These failures have highlighted the incongruous reporting and led to a cry for reform as the public seems to be particularly perplexed by the notion that a firm can report profits on its income statement but losses on its tax returns. As such, recent Corporate Tax Reform panels must consider policy changes not only from the perspective of efficiency and fairness, but also with an eye towards financial reporting.

Panel members have been surprised by firms appearing to undertake seemingly irrational positions on tax legislation (i.e., against cutting the corporate income tax rate). However, to the extent that tax policy transforms or muddies information provided to the financial markets, firms may be behaving optimally. This issue is the crux of the debate on whether book/tax conformity would hinder or help users of financial statement information. We do not directly weigh in on the merits/demerits of conformity. Rather, we focus on the ability of the existing financial reporting regime to enable management to weather shocks to its financial statements related to changes in tax policy.

This paper studies the use of tax contingencies (aka tax cushion) in order to smooth earnings. Financial statement reporting (Generally Accepted Accounting Principles or "GAAP") offers management flexibility in the recognition of the timing and the amount of income and expenses. Proponents of GAAP argue that this subjectivity allows the firm to provide incremental information to the capital markets (debt and equity). Critics, however, believe that flexibility increases opportunistic reporting

behavior on the behalf of firm management. Rather than focus on the merits of earnings management, we investigate a specific category of manipulation: Earnings smoothing. Using a new measure of smoothing, tax cushion, across a broad sample of industries, we investigate whether firms appear to be behaving in manner consistent with extant smoothing theory.

Income taxes have also been identified as an area of material weakness by the Public Company Accounting Oversight Board (PCAOB). Accounting for income taxes is a complex calculation made more opaque by purchase accounting, rate changes and multiple jurisdictions. The PCAOB appears particularly concerned with deferred taxes and tax cushion (i.e., tax reserves), both of which typically represent substantial amounts on the balance sheet. Deferred taxes are used to record the timing difference between the recognition of income and expense items on the financial statements and the tax return. Although they are difficult to support using external documentation, adequate justification for the amounts can be provided through the creation of a tax-based balance sheet.

Tax cushion, however, represents a loss contingency as defined in FAS 5 based on the firm's assessment of what its additional tax liability would be after audit by the IRS. Typically, there is no substantiation of the cushion amount because 1) it is based on the tax department's best estimate of the potential liability and 2) specific documentation could provide the IRS with a trail to the firm's aggressive tax positions. So, prior to Sarbanes-Oxley, if a firm has taken an aggressive tax position, it may record cushion based on both a) the probability of detection by the service and b) the amount that it expects to have to pay in settlement. Sarbanes-Oxley has eliminated the ability of the

firm to incorporate the "probability of detection" element when assessing the magnitude of the reserve thereby potentially decreasing the subjective component in measuring the cushion. Though prior literature has alluded to its existence (Schmidt 2006; Dhaliwal, Gleason and Mills 2004), we unaware of any papers that specifically study the smoothing implications of cushion over time.[1]

We measure the tax cushion using reconciling amounts recorded in current tax expense using a sample of S&P1500 firms. One limitation with using the financial statements to estimate the cushion is that a large de facto tax payment, the tax benefit from stock options, is not recorded by Compustat. We have been able to procure the actual tax benefit from stock options recorded by the S&P500 firms for 1997-2004. Using this dataset we have developed a methodology to estimate the tax benefit of stock options using Execucomp data for a broad sample of firms.

Our main prediction is that firms use tax cushion to smooth earnings over time. Relying on extant literature to guide our expectations regarding firms' incentives to smooth earnings, we investigate whether there is cross-sectional variation in our measure of tax cushion based on debt (Smith and Stulz 1985), management compensation (Lambert 1984), and implicit claims from stakeholders (Trueman and Titman 1988, Bowen, DuCharme, and Shores 1995). In addition, we also examine whether tax cushion appears to be a substitute or complement to other methods of earnings smoothing such as discretionary accruals. Finally, we investigate whether the PCAOB mandate affected the accounting for income taxes resulting in a structural shift in the use of tax cushion in the post Sarbanes-Oxley world.

[1] Gleason and Mills (2002) discuss the disclosure of cushion rather than its use in earnings management.

We find that firms use tax cushion to smooth earnings and that tax cushion and forward-looking discretionary accruals are used as complements. We also find cross-sectional variation in tax cushion based on the incentives to smooth earnings. Specifically, tax cushion is used to smooth earnings by firms with more leverage, larger incentive pay as a percentage of total compensation, and with larger implicit stakeholder claims from customers and labor, proxied by the membership in the durable goods industry, R&D expense, and labor intensity.

Our paper contributes to the literature by providing a measure of tax cushion and demonstrating that it is utilized in order to smooth earnings. We believe that tax cushion is a better measure of earnings smoothing via taxes since it is more difficult to measure (and hence to see through) relative to changes in the valuation allowance which is a required disclosure in the footnote (Schrand and Wong, 2003; Bauman et al, 2001; Philips et al, 2003 and Frank and Rego, 2006). Given tax cushion is a specific account that could be used to smooth earnings, it is similar to loan loss reserve used by banks (Beatty, Ke, and Petroni, 2001) and claim loss reserve used by property-casualty insurance companies (Beaver, McNichols, and Nelson, 2000). Therefore, our paper is related to the literature that examines the use of these specific accounts to manage earnings, rather than the use of overall discretionary accruals. However, one important advantage of the tax cushion is that, unlike the loan loss reserve and claim loss reserve, it is not industry specific, hence could be measured for a wide range of firms.

The remainder of this paper is organized as follows. Section 2 provides the literature review and hypothesis development. Section 3 summarizes our data and

variable measurement. Section 4 discusses the results of our analyses and section 5 concludes.

II. Literature Review and Hypothesis Development

Previous studies have shown evidence that there are benefits to having smoother earnings. For example, Kirschenheiter and Melumad (2001) and Sankar and Subramanyam (2001) find that earnings smoothing would result in higher coefficients in price-earnings regressions because smoothed earnings do a better job in measuring permanent earnings. Barth et al. (1999) find that firms with patterns of increasing earnings have higher P/E multiples, and the multiples decrease when the pattern is broken. Thomas and Zhang (2004) find that volatility of reported earnings is negatively associated with forward P/E ratios, regardless of whether low earnings volatility is due to low cash flow volatility or income smoothing. Likewise, Hunt, Moyer, and Shevlin, (2000) find that both discretionary and non-discretionary earnings smoothing increase the coefficient of earnings in price-earnings regressions. These findings suggest that smooth earnings, even the kind achieved through discretionary income smoothing efforts, are desirable for firms.

We predict cross-sectional variation in the use of tax cushion based on the level of incentives to smooth earnings. Prior literature has identified various such incentives. Smith and Stulz (1985) show that contracts that are written as a function of accounting earnings will provide incentives to management to undertake hedging activities. Therefore, we expect firms with high leverage (proxy for debt covenants which are

written as a function of accounting numbers) to have an incentive to smooth earnings and hence utilize the tax cushion.[2]

Consistent with Smith and Stulz's expectation that contracts written as a function of accounting numbers would motivate earnings smoothing, Lambert (1984) shows that compensation contracts could provide such an incentive. Similarly, Gaver, Gaver, and Austin (1995) find evidence that managers smooth earnings due to the bonus component of their compensation. Furthermore, Moses (1987) finds that earnings smoothing is associated with the existence of bonus plans Therefore, we expect that firms with a larger proportion of incentive pay to total compensation to use the tax cushion to smooth earnings.

A firm would have incentives to smooth earnings if volatility of earnings has a negative effect on the future claimants of the firm (Trueman and Titman, 1988). For example, management, through income smoothing, could affect the claimants' (e.g. customers and labor) evaluation of the volatility of earnings. In their paper Trueman and Titman (1988) show that the incentive to smooth earnings exists independent of the risk preference of the manager and restrictions to access capital markets. Hence, we expect that firms with large implicit claims to make use of tax cushion to smooth earnings. We rely on Bowen, DuCharme, and Shores (1995) to measure the implicit claims. We use their labor intensity variable to capture the claims by the employees. We use the membership in the durable goods industry as a proxy for implicit claims by customers, since the services the customers expect over the relatively longer useful life of the durable goods are likely to make the claims of customers more significant. Finally, we

[2] For example, see Sweeney (1994) for various accounting-based covenants used in debt contracts, including net income.

incorporate also their R&D variable to capture the claims by the customers, since firms with higher R&D are those that generate more unique products and it is difficult for customers of such products to find a substitute for servicing their products, which increases the implicit claims of the customers. As these authors also point out, R&D can also capture the claims by the employees, since employees at high R&D firms are likely to have job-specific skills.

In this paper, we focus on the use of tax accounts in order to smooth earnings. Miller and Skinner (1998) was the first paper to search for evidence of earnings management via the tax account. These authors along with several others (Kumar and Visvanathan 2003, Bauman et al 2001 and Visvanathan 1998) fail to find evidence that firms are managing earnings through the valuation allowance. Rather, their results suggest that the valuation allowance is established in accordance with SFAS 109. However, Schrand and Wong (2003) and Frank and Rego (2006) find evidence consistent with firms managing earnings towards analysts' forecasts through changes in the valuation allowance.

There are three main shortcomings with the valuation allowance literature. First, the use of the valuation allowance for earnings management assumes that financial statement users fail to understand the implications of changes in the valuation allowance on net income. It is not clear that firms would manage earnings with an account that is so transparent (i.e., the valuation allowance is a required disclosure in the tax footnote). Second, even though the changes in the valuation allowance may fluctuate in a manner consistent with earnings manipulation, this could also indicate that the firm is setting aside an allowance for all of its net deferred tax assets. Third, the majority of the

valuation allowance papers treat the entire valuation allowance as discretionary. However, many firms provide a valuation allowance for a particular unusable/expiring tax attribute (e.g. state NOLs, federal NOLs, credits). As this portion of the valuation allowance is not discretionary, it should not be incorporated in a measure of earnings management.[3]

Another series of papers investigates whether deferred taxes serve as an indicator of earnings management. Phillips, Pincus, and Rego (2003) study whether the deferred tax provision is a better indicator of earnings management than other measures, such as discretionary accruals, in the literature (Dechow et al (1995)). The authors point out that there are two fundamental types of earnings management: a) the type that affects both taxable and financial reporting income ("real") and b) the type that only affects financial reporting income ("discretionary"). As management exploits the discretion available under generally accepted accounting principles, they would prefer to manage those items that do not affect taxable income since a change to taxable income has an impact on cash flow. Therefore, when firms are manipulating earnings, they prefer to do so in a manner that creates timing differences, which lead to deferred tax assets/liabilities. They find evidence that the deferred tax expense appears to dominate other discretionary accrual measures (Jones model) in detecting earnings management to avoid reporting an earnings decline. Badertscher, Phillips, Pincus and Rego (2006) extends Phillips et al (2003) by investigating whether the audit relationship hinders a firm's ability to manipulate

[3] Frank and Rego 2006 break out NOLs in their analysis of the valuation allowance. However, they do not separately identify credits, which is another major reason for changes in the valuation allowance. Furthermore, their methodology does not control for firms whose valuation allowance effectively reduces their net deferred taxes to zero on their balance sheets.

earnings via discretionary mechanisms leading to more instances of "real" earnings management.

Dhaliwal et al (2004) and Myers et al (2005) study changes in effective tax rates to determine whether they are correlated with meeting analyst's forecasts. These papers find evidence consistent with firms managing total tax expense around the mean analyst forecast and quarterly earnings targets, respectively. Their research designs, however, cannot distinguish between which components of total tax expense influence reported earnings. Furthermore, these papers consider only benchmark meeting/beating, not the contractual reasons we focus on, as an incentive to manage earnings.

Finally, Gleason and Mills (2002) studies whether firms disclose their tax contingency. Studying the proposed adjustments for firms under audit, the authors find that only about 25% of their sample of 100 firms disclosed the existence of a tax contingency. Although they are studying the tax cushion, they do not explicitly estimate the total cushion recorded in the financial statements.[4] Since their results suggest that firms are hesitant/resistant to disclosing their tax cushion, we believe that this is prima facie evidence that tax cushion could be used to manipulate earnings.

Although prior literature has found some evidence regarding the use of tax accounts in order to manage earnings towards analysts' forecasts, none has found evidence consistent with contractual reasons to smooth earnings. Our paper aims to fill this gap by relying on a measure of tax cushion, an account not as transparent as the valuation allowance. The main prediction of our paper is that firms use tax cushion in

[4] The authors do estimate the balance of the portion of cushion that is attributable to federal income taxes. Using private IRS data, the authors compare the total taxes paid on the Form 1120 income tax for all open audit years to the total federal current tax expense (Compustat item #63) for the same period.

order to smooth earnings. We also examine whether firms use tax cushion as a complement or a substitute to discretionary accruals.

III. Data and Variable Measurement

We obtain our data from Compustat and ExecuComp. Our sample contains the S&P 1500 firms over 1994-2003. We focus on the S&P 1500 firms because these are the firms for which we can more easily estimate the tax benefit of stock options, which is a component of tax cushion. We require firms to have been in ExecuComp for the period 1995 to 2003 resulting in 1,580 firms. Next, we eliminate 500 firms who have zero for income taxes payable (using either Compustat item #305 or Compustat item #71 – Compustat item #161) for at least half of their sample years. Finally, we lose another 150 firms because they do not have three consecutive years of data. Our final sample contains 930 firms.

Tax Cushion

Cushion is the term for tax contingencies. Tax contingencies include probable tax liabilities related to tax positions that may ultimately be overturned by the IRS. It is not necessary for a firm to be under audit in order to book a tax contingency. Tax contingencies associated with permanent differences are recorded through the current tax provision. Note that an incremental tax contingency is only required for permanent differences. Any aggressive tax position attributable to timing differences is already accrued for as a deferred tax liability, which implies no incremental amount is recorded upon audit (except for potential interest and penalties). If a firm finds that it has not

recorded adequate cushion, it is required to book current tax expense to increase the contingent tax liability to the appropriate level.

While SFAS 109 focuses on the balance sheet, the tax provision computation (the current tax provision plus the deferred tax provision) results from managements' analysis of the change in the income taxes payable (refundable) account and the change in deferred taxes. The deferred portion of the provision is the change in the net deferred tax assets (liabilities) including any change to the valuation allowance. Since cushion is recorded through current tax expense, we focus our reconciliation on the current provision. Firms report current tax expense, cash paid (refund received) for taxes and their income taxes payable account in their financial statements.

One additional reconciling item is the tax benefit from the exercise of stock options. During our sample period, firms do not record any compensation expense related to out-of-the-money stock option grants. However, for income tax purposes, firms receive a compensation deduction upon and employee's option exercise for the difference between the exercise and strike price. Since this deduction results in a de facto tax payment, we extrapolate the tax benefit using ExecuComp data.[5]

Our main measure of tax cushion is *Cushion* and is calculated as follows:[6]

Cushion =(Cur_Prov – Cash Paid for Taxes – Tax Benefit - ChITP)/Lagged Total Assets

where

[5] Appendix II discusses how we measure the tax benefit of stock options.
[6] We explain our alternative measures of tax cushion in Appendix I.

Cur_Prov = the current portion of the tax provision (total tax provision (Compustat item #16) less deferred tax provision (Compustat item #50))

Cash Paid for Taxes = cash paid for taxes from the SOCF (#317)

Taxbenefit = the estimated tax benefit from stock options using ExecuComp data. We multiply the firm's effective tax rate by the compensatory element per an option as determined from ExecuComp. The number of options exercised is assumed to be the total options granted to all employees (number of options granted to executives divided by the percentage of total options granted to executives). The compensatory element per an option is the spread between the weighted average price of the stock in the current year (estimated using CRSP) less the weighted average stock price over the prior three years (estimated using CRSP).

ChITP = change in income taxes payable from the SOCF (#305)

Lagged Total Assets = prior year's ending total asset balance (#6).

Note that a positive amount of *Cushion* indicates that the cushion recorded in the current period decreases earnings. See Figure 1 for an example of the estimation of cushion.

Descriptive Statistics

Table 1 presents descriptive statistics for our sample of firms. Our average (median) firm has $7,447 ($1,284) million in market capitalization (Compustat Item # 199 x #25), whereas its book value of equity (#60) is $1,913 ($495). Average (median) ROA (#172 divided by lagged #6) is 6.5 (6.4) percent, while average (median) income before taxes (#170) comprises 11 (10) percent of the beginning total assets. Long-term debt (LTD) (computed as debt (#9) to lagged assets (#6)) is 0.19 (0.15) for the average (median) firm. The change in tax cushion on average is -0.1 percent of beginning total assets. For the 19 firms that disclosed a dollar amount for the total tax contingency in the

footnotes to the 10-K, the average (median) is 1.7 (0.8) percent of beginning total assets. For the 96 firms that disclosed a dollar amount for the change in tax contingency in the footnotes to the 10-K, the average (median) is -0.9 (-0.6) percent of assets. Average (median) ETR (#16 divided by #170) is 31 (36) percent. 26 percent of 930 firms disclosed that they keep a tax contingency, but only 124 firms disclosed a dollar amount for either for the level of or change in the contingency. 4 percent of our sample of firm years report net operating losses (#52). Deferred tax expense represents 0.04 percent of beginning total assets. Finally, discretionary accruals of the average firm in our sample is 1.4, 4.5, and 3.5 percent of lagged total assets based on the forward-looking, modified Jones, and lagged models described in Dechow, Richardson, and Tuna (2003), respectively.[7]

IV. Results

We commence our analyses by examining univariate correlations among our variables of interest. Income before taxes is positively correlated (0.026) with tax cushion (p-value 0.009). All else equal, this is consistent with firms setting aside (using) the tax contingency reserve when earnings are high (low). For example, as income before taxes is increasing, firms increasing their tax contingency, only to release it on a rainy day. Likewise, ROA and cushion are positively correlated (0.027, p-value 0.006). Cushion is positively correlated with the natural logarithm of total assets (0.032, p-value 0.0016), but it does not seem to be associated with the market capitalization or the book value of equity (correlation coefficients are 0.012 and 0.020, and both insignificant).

[7] The mean discretionary accruals are not equal to zero since we fitted the discretionary accruals models using all available Compustat data, rather than our own sample only.

Cushion is also negatively associated with the deferred tax provision (-0.034, p-value 0.0008), suggesting that our estimate of tax cushion and deferred taxes behave as substitutes, i.e. a firm has the option to smooth earnings via the valuation allowance or cushion. Finally, there is no clear pattern in terms of the association between discretionary accruals and tax cushion. The correlation between forward-looking discretionary accruals and cushion is negative and significant (-0.010, p-value 0.0200), whereas the correlation between modified-Jones (lagged) discretionary accruals and cushion is insignificant. Therefore, there is only weak evidence that when income-increasing forward-looking discretionary accruals are used, firms also release amounts out of the tax cushion, indicated by the negative correlation between the two, suggesting that they are used as complements.

Table 3 reports the results of t-tests that compare the volatility of various income measures. The purpose of this table is to document evidence about the main prediction of our paper that firms use tax cushion in order to smooth earnings. We first calculate the volatility (standard deviation) of three income measures; net income (#172), income before cushion (#172 plus *Cushion*), and income before taxes (# 170). We use at least three and up to five years of data to calculate these standard deviations. We find some preliminary evidence consistent with our prediction. The average difference between the volatility of net income and volatility of income before cushion is negative (-0.003) and significant (p-value < 0.0001), which suggests that tax cushion is used to smooth the net income number. Furthermore, the average difference between the volatility of income before taxes and volatility of income before cushion is positive (0.015) and significant (p-value < 0.0001) suggesting that firms may use other below the line items to smooth

earnings. Interestingly, we find some preliminary evidence that cushion is used to smooth effective tax rates (ETRs). The standard deviation of firms ETRs is less than the standard deviation of the firm ETRs without cushion (-0.429, p-value < 0.0001).

Table 4 reports the results of our regression analysis on the cross-sectional determinants of income smoothing. The following model is estimated with OLS using pooled data.

$$Smoothing = \alpha + \beta_1 LTD + \beta_2 IP + \beta_3 Durable + \beta_4 R\&D + \beta_5 Labor + \varepsilon$$

where

Smoothing = Volatility of Net Income –Volatility of Income before Cushion. The volatility of Net Income is the standard deviation of Net Income (#172) scaled by lagged assets (#6) for at least three but no more than five consecutive years. The volatility of Income before Cushion is the standard deviation of (Net Income + *Cushion*) scaled by lagged assets for at least three but no more than five consecutive years.

LTD = Long-term debt (#9 divided by lagged #6)

IP = Incentive pay, calculated as bonus (BONUS) plus value of stock option grants (SOPTVAL), divided by total compensation (TDC1), obtained from ExecuComp.

Durable = This is an indicator variable that is equal to 1 if the firm belongs to the following three-digit SICs: 150-179, 245, 250-259, 283, 301, and 324-399, proxy for implicit claims by customers.

R&D = Research and development expense (#46), scaled by lagged assets, proxy for implicit claims by customers and employees.

Labor = Labor intensity, measured as 1 minus gross property, plant, and equipment (#7) divided by lagged total assets, proxy for implicit claims by employees.

We expect our dependent variable, *Smoothing*, which is the difference between the volatility of net income and the volatility of income before cushion, to be positively associated with the incentives to smooth earnings. As expected, we find a positive

(0.011) and significant (p-value < 0.064) coefficient on LTD. This is consistent with prior literature that shows that contracts such as debt covenants, written as a function of accounting numbers, provide the firm an incentive to smooth earnings (e.g. Smith and Stulz, 1985). We also find that firms with a larger portion of total compensation based on incentive pay use more tax cushion to smooth earnings (coefficient 0.029, p-value < 0.0001). This finding is consistent with the findings of Gaver et al. (1995) and Moses (1987). Furthermore, *R&D*, a proxy for the implicit claims by customers and employees, is positively associated with the use of tax cushion to smooth earnings, with a coefficient of 0.089 and p-value less than 0.0001. As another proxy of the claims of the stakeholders on the firm, *Labor* is positively associated with tax cushion. The results on *R&D* and *Labor* are consistent with Bowen, et al. (1995), and also with Trueman and Titman (1988) suggesting that volatility of earnings has a negative effect on these stakeholders.

We also estimate the following regression in order to evaluate whether PCAOB's identification of taxes as a potential material weaknesses has had an impact on (i) the income smoothing behavior and (ii) the association between the incentives to smooth earnings and earnings smoothing.

$$Smoothing = \alpha + \beta_1 LTD + \beta_2 IP + \beta_3 Durable + \beta_4 R\&D + \beta_5 Labor + \beta_6 PCAOB + \beta_7 LTD * PCAOB + \beta_8 IP * PCAOB + \beta_9 Durable * PCAOB + \beta_{10} R\&D * PCAOB + \beta_{11} Labor * PCAOB + \varepsilon$$

We expect that these incentives' effect on income smoothing using tax cushion will be weaker in the period after PCAOB's inclusion of taxes as an area of material weakness. Consistent with our expectations, *LTD* has a weaker association with *Smoothing* in the post PCAOB period (coefficient = -0.014, p-value= 0.006). The

association between *IP* and *Smoothing* is only marginally weaker in the post-PCAOB period (coefficient= -0.006, p-value=0.125). The other interaction variables are not statistically significant.

In an unreported analysis, we re-estimate the two regression models above using a smoothing variable calculated with the tax benefit from stock options disclosed in firms' financial statements (Cushion3 measure from Appendix I). We have this data for the S&P 500 firms for 1997 to 2003. After our data filters, we are left with 318 firms on which to perform the Table 4 analyses. Our results are largely similar using this alternative measurement of *Smoothing*, with the exception that *IP* and *Labor* are no longer significant.

We also estimate the model above using logistic regression and replacing *Smoothing* by *Cont_Dum* (results not tabulated). *Cont_Dum* is an indicator variable that is equal to 1 for firm years where the firm disclosed that it has a tax contingency, and zero otherwise. We searched the population of 10-Ks for our sample for the keyword "tax w/5 (conting! or cushion or reserve)" using the Lexis-Nexis research software to identify these disclosures. In this regression, *R&D* is positively significant and *Durable* is positively significant only at 0.10 level (one-tailed). Interestingly, the PCAOB indicator is positive and significant (p-value < 0.001), suggesting that firms are more likely to disclose that they have a tax contingency since PCAOB has identified taxes as an additional area of material weakness and that firms are more transparent with respect to their tax accounting as a result of additional monitoring encouraged by the PCAOB.

In summary, our preliminary analysis indicates that (i) firms use tax cushion to smooth earnings, (ii) tax cushion and forward-looking discretionary accruals are used as

complements, (iii) tax cushion is used to smooth earnings by firms with more leverage, larger incentive pay as a percentage of total compensation, with higher R&D, and larger claims from their workforce, (iv) the effect of some of these variables on income smoothing using tax cushion is muted in the post-PCAOB period, and (v) firms are more likely to disclose that they have a tax contingency in the post-PCAOB period.

V. Tax Aggressiveness

Another characterization of the tax cushion could be that it represents some measure of tax aggressiveness. As discussed above, tax cushion primarily represents the extent to which the firm has continent tax liabilities related to permanent differences (e.g., tax shelters). Whereas, deferred tax liabilities represent some notion of aggressiveness related to timing differences. As such, we are curious as to whether firms who are aggressive in reporting their deferred taxes are also aggressive in reporting their permanent differences.

To investigate whether firms appear to be aggressive overall we compare the level of cumulative cushion to total deferred taxes on the balance sheet. Untabulated data show that firms have mean (median) net deferred tax assets of 3.0 (1.3) percent of average assets. As such, if firms are aggressive in general, we would expect a negative correlation between the level of deferred taxes and the cumulative level of cushion. Interestingly, we find that cumulative cushion and deferred taxes are marginally positively correlated (0.016, p-value 0.097) suggesting that cushion and deferred taxes are substitutes.

VI. Conclusions

Prior research has documented various benefits to reporting smoother earnings (e.g. Kirschenheiter and Melumad, 2001; Sankar and Subramanyam, 2001; Barth et al, 1999; Thomas and Zhang, 2004, and Hunt et al., 2000). In this paper, we focus on the use of tax accounts, in particular the tax contingency (aka tax cushion) to smooth earnings.

Our results indicate that firms use tax cushion to smooth earnings. We find some weak evidence that tax cushion and forward-looking discretionary accruals are used as complements. Finally, we find that firms use tax cushion to smooth earnings more when they have bigger incentives to do so. More specifically, firms with higher leverage, firms where a larger percentage of total compensation is in the form of incentive pay (e.g. bonus and stock options), and firms with larger implicit claims utilize tax cushion in order to report smooth earnings.

Our findings contribute to the literature that demonstrates the use of tax accounts in managing earnings. To our knowledge, ours is the first paper that attempts to measure tax cushion for a wide sample of firms. Our paper is similar to the papers that examine the use of these specific accounts to manage earnings, such as loan loss reserve or claim loss reserve. However, tax cushion as a measure of income smoothing provides one important advantage. This measure, unlike loan loss reserve or claim loss reserve, is not industry specific. Therefore, it could be measured for a wide range of firms rather than for specific industries, such as banking and property and casualty insurance.

Our finding that tax cushion, which is a much more opaque account that the tax valuation allowance, is used to smooth earnings, justifies the inclusion of income taxes as

an area of material weakness by the PCAOB. This smoothing behavior suggests that firms are able to somewhat insulate their financial statements from earnings shocks attributable to minor changes in tax policy.

Appendix I – Measuring Tax Cushion

We estimated several measures of tax cushion using two measures of the tax benefit from stock options and two measures of the change income the income taxes payable account.

Cushion1 = (*Cur_prov – Cash Paid for Taxes – ExecuComp_taxbenefit – ChITP2*)/ *Lagged Total Assets*;

Cushion2 = (*Cur_prov – Cash Paid for Taxes – ExecuComp_taxbenefit – ChITP1*)/ *Lagged Total Assets*;

Cushion3 = (*Cur_prov – Cash Paid for Taxes – Taxbenefit – ChITP1*)/ *Lagged Total Assets*;

Where:

Cur_Prov = the current portion of the tax provision (total tax provision (Compustat item #16) less deferred tax provision (Compustat item #50))

Cash Paid for Taxes = cash paid for taxes from the SOCF (#317)

ExecuComp_taxbenefit = the estimated tax benefit from stock options using ExecuComp data (see Appendix II).

Taxbenefit = the actual tax benefit from stock options as reported by the firm in its financial statements.

ChITP1 = change in income taxes payable from the SOCF (#305)

ChITP2 = change in income taxes payable using the payable (refundable) account from the balance sheet (#71 - #161)

Lagged Total Assets = prior year's ending total asset balance (#6).

Ultimately, each of these versions provides results similar to those presented in the paper.

Appendix II – Estimating the Tax Benefit of Stock Options

By detailing how the compensation expense generated from stock options is omitted from the tax accrual, Hanlon and Shevlin (2002) describe why the tax provision really does not represent the true economics of a firm's tax situation. Since the tax benefit for options is recorded through equity, options do not affect the income statement and therefore have largely been ignored in the earnings smoothing studies. However, the option benefit is critical to studies that investigate smoothing through the valuation allowance and tax cushion.

Until 2001 there was no conformity in the reporting of the tax benefit. As such, a firm could disclose it either on its statement of cash flows, statement of stockholder's equity or in its tax footnote. For years beginning in 2001, a firm must report the tax benefit from stock options as an increase to operating cash flows. Currently, researchers who are interested in the tax benefit from stock options must hand collect the information from the statement of cash flows. Since researchers have documented that grants of new options and exercises of existing options are highly correlated, we are attempting to determine whether we can use information gathered from 10-Ks and ExecuComp data in order to estimate the benefit for large sample studies.

Methodology

We have stock option exercises, weighted average exercise price, weighted average grant price and the tax benefit realized from the exercise of stock options for seven years for all firms in the S&P 500. We supplemented this data with ExecuComp data on the option grant and exercises of the five officers disclosed in the proxy statement. In general, firms are allowed a compensation deduction on the exercise of non-qualified stock options of the difference between the price at exercise and the strike price.

Various Measures

First, we compared the actual tax benefit to the estimate of the tax benefit using the information from the 10-K (found either in the tax footnote or on the statement of stock holders equity). We then developed two measures – estimated tax benefit (ETB) and statutory estimated tax benefit (SETB) – that use information available in the option footnote.

ETB – Estimated tax benefit - The effective tax rate times the value from exercised options. The value from exercised options in the total options exercised times the difference between the current year's weighted average grant price on granted options and the weighted average exercise price on exercised options as reported in the equity compensation footnote in the 10-K.

SETB – Statutory estimated tax benefit – The statutory tax rate times the value from exercised options. The value from exercised options in the total options exercised times the difference between the current year's weighted average grant price on granted options and the weighted average exercise price on exercised options as reported in the equity compensation footnote in the 10-K.

Second, we compared the actual tax benefit to several measures using ExecuComp data. The issue with using ExecuComp is that we don't know how many shares employees exercise. Although the proportion of executive grants to all employee grants is reported, only total options exercises by executives (including the gain inherent in the exercises) are reported. Therefore, we used a number of techniques to proxy for shares exercised, the weighted average exercise price and the weighted average price at exercise.

ExTB1 – Extrapolated Tax Benefit 1 – The effective tax rate times the value from exercised options (options exercised times the compensatory element per an option) as determined from ExecuComp. Options exercised are assumed to be the total options granted to all employees (number of options granted to executives/percentage of total options granted to executives). The value received per an option (and hence the compensatory element) is the average spread per option across all executives exercising options during the year (value received from option exercises/options exercised).

ExTB2 – Extrapolated Tax Benefit 2 – The effective tax rate times the value from exercised options (options exercised times the compensatory element per an option) as determined from ExecuComp. Options exercised are assumed to be the total options

granted to all employees (number of options granted to executives/percentage of total options granted to executives). The value received per an option (and hence the compensatory element) is the spread between the weighted average price of the stock in the current year (estimated using CRSP) less the average exercise price of executive options exercised in the current period. The average exercise price of executive options exercised is estimated by taking the difference between the exercise price of options granted to executives during the year less the value received per exercised option (value received from option exercises/options exercised).

ExTB3 - Extrapolated Tax Benefit 3 – The effective tax rate times the value from exercised options (options exercised times the compensatory element per an option) as determined from ExecuComp. Options exercised are assumed to be the total options granted to all employees (number of options granted to executives/percentage of total options granted to executives). The value received per an option (and hence the compensatory element) is the spread between the weighted average price of the stock in the current year (estimated using CRSP) less the weighted average stock price over the prior three years (estimated using CRSP).

ExTB4 - Extrapolated Tax Benefit 4 – The effective tax rate times the value from exercised options (options exercised times the compensatory element per an option) as determined from ExecuComp. Options exercised are assumed to be the total options granted to all employees (number of options granted to executives/percentage of total options granted to executives) three years prior to the current period. The value received per an option (and hence the compensatory element) is the spread between the weighted average price of the stock in the current year (estimated using CRSP) less the average exercise price of stock options granted to executives fifth preceding year.

ExTB5 - Extrapolated Tax Benefit 5 – The effective tax rate times the value from exercised options (options exercised times the compensatory element per an option) as determined from ExecuComp. Options exercised are assumed to be the average of options granted to all employees (number of options granted to executives/percentage of total options granted to executives) over the three preceding years. The value received per an option (and hence the compensatory element) is the spread between the average exercise price of options granted to executives in the current year less the weighted average exercise price of options granted to executives over the preceding three years.

ExTB6 – Extrapolated Tax Benefit 6 - The effective tax rate times the value from exercised options (options exercised times the compensatory element per an option) as determined from ExecuComp. Options exercised are assumed to be the total options granted to all employees (number of options granted to executives/percentage of total options granted to executives) three years prior to the current period. The value received per an option (and hence the compensatory element) is the spread between the average exercise price of options granted to executives in the current year less the average exercise price of stock options granted to executives fifth preceding year.

Correlations

Ultimately, we compared the actual tax benefit reported to each of our estimates of total tax (ETB, SETB, ExTB1-ExTB6). The correlation between ETB and SETB is 97%. The correlation between both of these measures and tax benefit is 90%. This suggests that the estimates of the stock option tax benefit using data found in the stock option footnote closely approximates the true tax benefit.[8] However, our goal was to find some methodology to estimate the tax benefit of a broad sample of firms using ExecuComp data. As such, we compared the measures of both tax benefit and ETB and SETB to our extrapolated measures. ExTB3 provided the highest correlation between the reported tax benefit (53%) and ETB (65%) and SETB (65%). For the purpose of estimating tax cushion, we used the ExTB3 as our measure of the cash tax benefit from stock option exercises.

[8] This assumes that the tax benefit reported in the financial statements is the true tax benefit. To the extent that the financial statement tax benefit is incorrect due to adjustments to goodwill and the valuation allowance (see Hanlon and Shevlin 2002), the tax benefits estimated using the stock option benefit may be a closer approximation of the true benefit.

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Table 1
Descriptive Statistics
This table provides descriptive statistics on various firm characteristics.

Variable Name	N	Mean	Q1	Median	Q3	Std. Dev.
Cushion	9,805	-0.001	-0.006	0.000	0.005	0.024
Assets	11,262	7.092	5.943	6.967	8.082	1.595
MVE	10,950	7,447	459	1,284	4,349	25,239
BV	11,036	1,913	195	495	1434	5,454
ROA	11,005	0.065	0.024	0.065	0.110	0.115
incb4	11,005	0.108	0.040	0.100	0.169	0.145
LTD	12,061	0.192	0.005	0.154	0.291	0.217
IP	12,124	0.611	0.472	0.649	0.789	0.228
Labor	10,957	0.522	0.373	0.554	0.697	0.237
R&D	12,143	0.032	0.000	0.000	0.037	0.062
NI	11,053	272	13	50	180	1,250
Etr	11,053	0.314	0.294	0.357	0.388	2.242
NOL	11,262	0.041	0.000	0.000	0.004	0.258
Cont	19	0.017	0.002	0.008	0.031	0.021
Cont_delta	96	-0.010	-0.006	-0.002	0.000	0.067
Cont_dum	12143	0.047	0.000	0.000	0.000	0.213
Deferred_ provision	10,695	0.0004	-0.006	0.001	0.008	0.022
Goodwill_delt	11209	0.019	0.000	0.000	0.005	0.116
Fwd	8286	0.014	-0.020	0.014	0.048	0.070
Mod	8287	0.045	-0.016	0.020	0.058	0.375
lagged	8287	0.035	-0.019	0.015	0.050	0.346

Cushion =(Cur_Prov – Cash Paid for Taxes – Tax Benefit - ChITP)/Lagged Total Assets
where *Cur_Prov* = the current portion of the tax provision (total tax provision (Compustat item #16) less deferred tax provision (Compustat item #50)), *Cash Paid for Taxes* = cash paid for taxes from the SOCF (#317), *Taxbenefit* = the estimated tax benefit from stock options using ExecuComp data, *ChITP* = change in income taxes payable from the SOCF (#305).
Lagged Total Assets = prior year's ending total asset balance (#6).
Assets = natural logarithm of total assets.
Mve = Market value of equity (Compustat Item # 199 x #25)
Bv = Book value of equity (#60)
ROA = return on assets (#172 divided by lagged #6)
Incb4 = income before taxes (#170 divided by lagged #6)
LTD = Long-term debt (#9 divided by lagged #6)
IP = Incentive pay, calculated as bonus (BONUS) plus value of stock option grants (SOPTVAL), divided by total compensation (TDC1), obtained from Execucomp.

Labor = Labor intensity, measured as 1 minus gross property, plant, and equipment (#7) divided by lagged total assets

R&D = Research and development expense (#46), scaled by lagged assets.

NI = net income (#172)

ETR = effective tax rate (#16 divided by #170)

Nol = If net operating loss (#52) > then NOL = 1, else 0.

Cont = dollar amount of tax contingency reported in the footnotes to 10-K.

Cont_delta = change in tax contingency reported in the footnotes to 10-K.

Cont_dum = This is an indicator variable that is equal to 1 if the company disclosed in footnotes to 10-K that it has a tax contingency.

Deferred_Provision = deferred tax expense (#50) scaled by lagged total assets (#6)

Goodwill_delt = change in goodwill (#204) scaled by lagged total assets (#6).

Fwd = forward-looking discretionary accruals computed as the residuals from the regression model I below as in Dechow, Richardson, and Tuna (2003).

Lagged = Lagged discretionary accruals computed as the residuals from the regression model II below as in Dechow, Richardson, and Tuna (2003).

Mod = modified Jones discretionary accruals computed as the residuals from the regression model III below as in Defond and Subramanyam (1998).

$$TA = \alpha+\beta_1((1+k)\,\Delta Sales-\Delta Rec)+\beta_2 PPE+\beta_3 LagTA+\beta_4 GR\_Sales+\varepsilon \quad (I)$$

$$TA = \alpha+\beta_1((1+k)\,\Delta Sales-\Delta Rec)+\beta_2 PPE+\beta_3 LagTA+\varepsilon \quad (II)$$

$$TA = \alpha+\beta_1(\Delta Sales-\Delta Rec)+\beta_2 PPE+\varepsilon \quad (III)$$

where TA = operating cash flows (#308) minus income before extraordinary items (#123), scaled by average total assets (#6).

LagTA = lagged value of TA.

ΔSales = change in sales (#12), scaled by average total assets (#6).

ΔRec = change in receivables (#302), scaled by average total assets (#6).

PPE = gross amount of property, plant, and equipment (#7), scaled by average total assets (#6).

GR_Sales = change in sales for the next year, scaled by current sales (#12).

k = coefficient on ΔSales in the following regression, estimated for each two-digit SIC, and is restricted to be between 0 and 1.

$\Delta Rec = \alpha = k\Delta Sales+\varepsilon$

Table 2
Correlations

This table provides the Pearson correlation coefficients. The number of observations used in the computation of the correlations are reported in italics. Correlations marked with [a], [b], and [c] are significant at 0.01, 0.05, and 0.10 level respectively.

	Incb4	Cushion	MVE	BV	LTD	Assets	ETR	fwd	mod	lagged	NI	ROA	Cont	Cont_ delta	Cont_ Dum	Deferred_ provision
Incb4		**0.026**[a]	**0.103**[a]	**0.023**[b]	**-0.164**[a]	**-0.148**[a]	**0.021**[b]	**0.240**[a]	**0.008**	**0.024**[b]	**0.188**[a]	**0.925**[a]	**-0.373**[a]	**-0.000**	**-0.034**[a]	**0.138**[a]
		9,805	*10,945*	*10,987*	*10,971*	*11,005*	*11,005*	*8,282*	*8,283*	*8,283*	*11,005*	*11,005*	*19*	*96*	*11,005*	*10,695*
cushion			**0.012**	**0.020**	**-0.022**[b]	**0.033**[a]	**-0.000**	**-0.010**[b]	**0.000**	**-0.008**	**0.009**[c]	**0.027**[a]	**0.445**[b]	**0.006**[a]	**0.019**[c]	**-0.034**[b]
			9,726	*9,745*	*9,729*	*9,761*	*9,761*	*7,863*	*7,863*	*7,863*	*9,761*	*9,761*	*19*	*94*	*9,761*	*9,671*
mve				**0.813**[a]	**-0.045**[a]	**0.479**[a]	**0.005**	**0.016**	**0.024**[b]	**0.007**	**0.727**[a]	**0.098**[a]	**0.091**	**0.044**	**0.019**[c]	**-0.002**
				10,933	*10,913*	*10,947*	*10,948*	*8,269*	*8,270*	*8,270*	*10,948*	*10,945*	*18*	*95*	*10,950*	*10,651*
bv					**-0.014**[b]	**0.563**[a]	**0.008**	**0.019**[c]	**0.039**[a]	**0.010**	**0.734**[a]	**0.030**[a]	**0.048**	**0.060**	**0.045**[a]	**0.023**[b]
					10,972	*10,989*	*11,034*	*8,270*	*8,271*	*8,271*	*11,034*	*10,9873*	*19*	*96*	*11,036*	*10,678*
ltd						**0.126**[a]	**0.005**	**-0.019**[c]	**-0.010**	**-0.001**	**-0.030**[a]	**-0.147**[a]	**-0.030**	**0.098**	**0.005**	**0.023**[b]
						11,228	*10,971*	*8,266*	*8,267*	*8,267*	*10,971*	*10,971*	*19*	*96*	*12,061*	*10,661*
logass							**0.004**	**0.008**	**0.021**[b]	**0.009**	**0.381**[a]	**-0.116**[a]	**0.053**	**0.155**[b]	**0.099**[a]	**0.055**[a]
							11,005	*8,282*	*8,283*	*8,283*	*11,005*	*11,005*	*19*	*96*	*11,262*	*10,695*
etr								**-0.012**	**-0.006**	**-0.005**	**0.002**	**0.015**	**-0.425**[a]	**-0.027**	**0.001**	**0.024**[b]
								8,282	*8,283*	*8,283*	*11,053*	*11,005*	*19*	*96*	*11,053*	*10,661*
fwd									**0.135**[a]	**0.190**[a]	**0.083**[a]	**0.273**[a]	**-0.061**	**-0.186**	**0.009**	**0.105**[a]
									8,286	*8,286*	*8,282*	*8,282*	*4*	*57*	*8,286*	*8,067*
mod										**0.849**[a]	**0.026**[b]	**0.014**	**-0.990**[a]	**0.050**	**0.043**[a]	**0.029**[a]
										8,287	*8,283*	*8,283*	*4*	*57*	*8,287*	*8,068*
lagged											**0.021**[b]	**0.034**[a]	**0.198**	**-0.051**	**0.043**[a]	**0.034**[a]
											8,283	*8,283*	*4*	*57*	*8,287*	*8,068*
NI												**0.217**[a]	**-0.155**	**0.007**	**0.027**[a]	**0.051**[a]
												11,005	*19*	*96*	*11,053*	*10,965*
ROA													**-0.446**[b]	**-0.010**	**-0.024**[b]	**0.081**[a]
													19	*96*	*11,005*	*10,965*
cont														**0.117**	**N/A**	**-0.247**[c]
														32	*50*	*46*
Cont_ delta															**0.009**	**0.014**
															96	*96*
Cont_ Dum																**0.031**[a]
																10,965
Deferred_ provision																

Variable definitions on next page.

Incb4 = income before taxes (#170 divided by lagged #6)
Cushion =(Cur_Prov – Cash Paid for Taxes – Tax Benefit - ChITP)/Lagged Total Assets
where *Cur_Prov* = the current portion of the tax provision (total tax provision (Compustat item #16) less deferred tax provision (Compustat item #50)), *Cash Paid for Taxes* = cash paid for taxes from the SOCF (#317), *Taxbenefit* = the estimated tax benefit from stock options using ExecuComp data, *ChITP* = change in income taxes payable from the SOCF (#305).
Lagged Total Assets = prior year's ending total asset balance (#6).
MVE = Market value of equity (Compustat Item # 199 x #25)
BV = Book value of equity (#60)
LTD = Long-term debt (#9 divided by lagged #6)
Assets = natural logarithm of total assets.
ETR = effective tax rate (#16 divided by #170)

Fwd = forward-looking discretionary accruals computed as the residuals from the regression model I below as in Dechow, Richardson, and Tuna (2003).
Lagged = Lagged discretionary accruals computed as the residuals from the regression model II below as in Dechow, Richardson, and Tuna (2003).
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$$TA = \alpha+\beta_1((1+k)\ \Delta Sales-\Delta Rec)+ \beta_2 PPE+ \beta_3 LagTA+ \beta_4 GR\_Sales+\varepsilon \quad (I)$$
$$TA = \alpha+\beta_1((1+k)\ \Delta Sales-\Delta Rec)+ \beta_2 PPE+ \beta_3 LagTA +\varepsilon \quad (II)$$
$$TA = \alpha+\beta_1(\Delta Sales-\Delta Rec)+ \beta_2 PPE+ \varepsilon \quad (III)$$

where TA = operating cash flows (#308) minus income before extraordinary items (#123), scaled by average total assets (#6).
LagTA = lagged value of TA.
ΔSales = change in sales (#12), scaled by average total assets (#6).
ΔRec = change in receivables (#302), scaled by average total assets (#6).
PPE = gross amount of property, plant, and equipment (#7), scaled by average total assets (#6).
GR_Sales = change in sales for the next year, scaled by current sales (#12).
k = coefficient on ΔSales in the following regression, estimated for each two-digit SIC, and is restricted to be between 0 and 1.
$\Delta Rec = \alpha = k\Delta Sales+ \varepsilon$
NI = net income (#172)
ROA = return on assets (#172 divided by lagged #6)
Cont = dollar amount of tax contingency reported in the footnotes to 10-K.
Cont_delta = change in tax contingency reported in the footnotes to 10-K.
Cont_dum = This is an indicator variable that is equal to 1 if the company disclosed in footnotes to 10-K that it has a tax contingency.
Deferred_Provision = deferred tax expense (#50) scaled by lagged total assets (#6)

Table 3
Comparison of Income Volatility
This table presents the comparison of various measures of income volatility in order to evaluate whether tax cushion is used to smooth income.

	N	Mean Difference	t-Statistic	p-Value
Vol_NI – Vol_IBC	930	-0.003	-3.82	< 0.0001
Vol_IBT – Vol_IBC	930	0.015	12.83	< 0.0001
Vol_ETR – Vol_ETRBC	930	-0.429	3.89	< 0.0001

Vol_NI (volatility of Net Income) – Vol_IBC (volatility of Income before Cushion). The volatility of Net Income is the standard deviation of Net Income (#172) scaled by lagged assets (#6) for at least three but no more than five consecutive years. The volatility of Income before Cushion is the standard deviation of (Net Income + *Cushion*) scaled by lagged assets for at least three but no more than five consecutive years.

Vol_IBT (volatility of Income before tax) – Vol_IBC (volatility of Income before Cushion). The volatility of Net Income before tax is the standard deviation of Net Income (#170) scaled by lagged assets (#6) for at least three but no more than five consecutive years. The volatility of Income before Cushion is the standard deviation of (Net Income + *Cushion*) scaled by lagged assets for at least three but no more than five consecutive years.

Vol_ETR (volatility of the Effective Tax Rate) – Vol_ETRBC (volatility of the Effective Tax Rate before Cushion). The volatility of the Effective Tax Rate is the standard deviation of the current tax provision (#16 – #50) scaled by Income before tax (#170) for at least three but no more than five consecutive years. The volatility of the Effective Tax Rate before Cushion is the standard deviation of the current tax provision (#16 – #50) – *Cushion* scaled by Income before tax (#170) for at least three but no more than five consecutive years.

Table 4
Regression Analysis
This table provides evidence on the cross-sectional determinants of tax cushion usage in order to smooth earnings.

$$Smoothing = \alpha + \beta_1 LTD + \beta_2 IP + \beta_3 Durable + \beta_4 R\&D + \beta_5 Labor + \varepsilon$$

$$Smoothing = \alpha + \beta_1 LTD + \beta_2 IP + \beta_3 Durable + \beta_4 R\&D + \beta_5 Labor + \beta_6 PCAOB + \beta_7 LTD * PCAOB + \beta_8 IP * PCAOB + \beta_9 Durable * PCAOB + \beta_{10} R\&D * PCAOB + \beta_{11} Labor * PCAOB + \varepsilon$$

	Model I		**Model II**	
	Coefficient	**t-Statistic and *p-value***		**t-Statistic and *p-value***
Intercept	-0.004	-2.25	-0.005	-2.60
		0.024		*0.009*
LTD	0.001	2.11	0.002	1.14
		0.035		*0.253*
IP	0.006	3.21	0.007	3.49
		0.001		*<0.001*
Durable	-0.006	-6.22	-0.005	-5.11
		<0.001		*<0.001*
R&D	0.072	9.41	0.075	8.63
		<0.001		*<0.001*
Labor	0.007	4.00	0.007	3.20
		<0.001		*0.001*
PCAOB			0.005	1.40
				0.162
LTD*PCAOB			-0.014	-2.77
				0.006
IP*PCAOB			-0.006	-1.53
				0.125
Durable*PCAOB			-0.001	-0.43
				0.665
R&D*PCAOB			-0.020	-1.06
				0.288
Labor*PCAOB			0.003	0.79
				0.432
N	5,729		5,729	
Adj. R^2	0.025		0.027	

Variable definitions on next page.

Smoothing = Vol_NI (volatility of Net Income) – Vol_IBC (volatility of Income before Cushion). The volatility of Net Income is the standard deviation of Net Income (#172) scaled by lagged assets (#6) for at

least three but no more than five consecutive years. The volatility of Income before Cushion is the standard deviation of (Net Income + *Cushion*) scaled by lagged assets for at least three but no more than five consecutive years.

Cushion = *(Cur_Prov – Cash Paid for Taxes – Tax Benefit - ChITP)/Lagged Total Assets*
where *Cur_Prov* = the current portion of the tax provision (total tax provision (Compustat item #16) less deferred tax provision (Compustat item #50)), *Cash Paid for Taxes* = cash paid for taxes from the SOCF (#317), *Taxbenefit* = the estimated tax benefit from stock options using ExecuComp data, *ChITP* = change in income taxes payable from the SOCF (#305).

LTD = Long-term debt (#9 divided by lagged #6)

IP = Incentive pay, calculated as bonus (BONUS) plus value of stock option grants (SOPTVAL), divided by total compensation (TDC1), obtained from Execucomp.

Durable = This is an indicator variable that is equal to 1 if the firm belongs to the following three-digit SICs: 150-179, 245, 250-259, 283, 301, and 324-399.

R&D = Research and development expense (#46), scaled by lagged assets.

Labor = Labor intensity, measured as 1 minus gross property, plant, and equipment (#7) divided by lagged total assets.

PCAOB = This is an indicator variable that is equal to 1 for fiscal years after 2001

Figure 1
Tax Cushion Calculation: Example
Scientific Atlanta 2000

The following details how we estimate tax cushion using data from Scientific Atlanta's 2000 10-K.

Using data from Scientific Atlanta:

Consolidated Balance Sheet

	In Thousands	
	2000	1999
Liabilities and Stockholders' Equity		
Current liabilities		
Income taxes currently payable	18,264	5,211

Consolidated Statements of Stockholders' Equity and Comprehensive Income

	2000	1999	1998
Additional Paid-in Capital			
Tax benefit related to the exercise of stock options	45,867	15,317	5,719

Tax Footnote

10. Income Taxes

Income tax provision (benefit) includes the following:

	2000	1999	1998
Current tax provision			
Federal	$ 70,760	$ 46,638	$ 7,306
State	4,009	7,708	251
Foreign	10,748	5,107	18,783
	85,517	59,453	26,340
Deferred tax provision (benefit)			
Federal	(17,786)	(14,094)	9,602
State	(1,728)	(3,317)	1,709
Foreign	772	1,820	(3,025)
	(18,742)	(15,591)	8,286
Total provision for income taxes	$ 66,775	$ 43,862	$34,626

Total income taxes paid include settlement payments for federal, state and foreign audit adjustments. The total income taxes paid were $31,386, $54,178 and $19,134 in fiscal years 2000, 1999 and 1998, respectively.

Using the formula on page 11, we estimate the change in tax cushion for 2000 to be $(4.789) million (85,517 – 31,386 – 45,867 – 13,053).

Interestingly, Scientific-Atlanta discloses the impact of their cushion on their effective tax rate:

The tax provision differs from the amount resulting from multiplying earnings before income taxes by the statutory federal income tax rate as follows:

<TABLE>
<CAPTION>

	2000	1999	1998
<S>	<C>	<C>	<C>
Statutory federal tax rate	35.0%	35.0%	35.0%
State income taxes, net of state credits and federal tax benefit	0.7	2.0	1.1
Tax contingencies and settlements	**(2.7)**	**(2.3)**	**(0.4)**
Research and development tax credit	(2.3)	(3.7)	(4.8)
Other, net	(0.7)	(1.0)	(0.9)
	30.0%	30.0%	30.0%

Since pre-tax income in 2000 was $222,583, it appears that the change in the tax cushion resulted in a $(6.009) million increase to taxable income, which is reasonably close to our $(4.789) million estimate.