Estimates of the Magnitude of Financial and Tax Reporting Conflicts

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I examine the tax reporting consequences of financial reporting discretion. Using a matched sample of financial statements with tax returns, I estimate the extent discretionary financial accounting accruals are correlated with discretionary federal tax accruals. The methodology takes advantage of the contemporaneous nature of reporting to mitigate the econometric problems identified in earnings management studies. I find the extent tax reporting reflects discretionary financial reporting varies dramatically by industry, profitability, and the sign of discretionary accruals measured under the tax system. Further, focusing on tax reporting, I find managers are able to undertake tax reducing activities with less of an effect on financial reporting than tax increasing accruals, consistent with recent evidence on the differential growth of book and tax income, and with tax avoidance activities.

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Introduction

Companies face inherently conflicting interests in their reporting for financial and tax purposes. While higher financial reporting earnings are generally viewed as favorable, higher taxable income can result in additional tax liabilities. Although differences in the amounts of income reported under each system have existed since the inception of the corporate income tax (Smith and Butters, 1949), over the past decade an increasing disparity has developed between both the levels, and growth rates, of each income measure. In an analysis of the tax returns of large corporations, the U.S. Treasury (1999) reported income for financial and tax accounting purposes diverged sharply during the latter part of the 1990s, a pattern also found in an analysis of publicly-available data by Plesko (2000b) and Manzon and Plesko (2002), and in comparisons of national income account data with tax collections (Sullivan 1999). Plesko (2002) documents that aggregate pretax book income reported by U.S. corporations on their 1996 tax returns was 14 percent higher than its tax accounting equivalent - a difference that increased to more than 24 percent in 1998, nearly $150 billion in the aggregate. This divergence in the amount of income reported under each system has been taken as *prima facie* evidence of increases in tax avoidance activities of firms, and of a breakdown in the tax system.[1]

This paper empirically addresses the conflicting financial and tax reporting incentives for earnings management. Utilizing a standard model of discretionary accruals, I estimate the extent the tax system reflects discretionary actions taken for financial reporting purposes. Differences in accounting rules will yield differences in both the levels, and patterns, of accruals under each

[1]See, generally, Bankman (1999, 2003), Schler (2002) Weisbach (2002), Yin (2002).

reporting system, even though each is driven by the same underlying economic activities. I employ an empirical approach to exploit these differences in order to obtain more precise estimates of discretionary accruals, mitigating concerns over omitted variables and simultaneity. Further, the correlation of the estimated discretionary accruals from each system will provide a measure of the extent to which discretionary actions in one system, such as those taken to increase financial reporting income, will be reflected in the accruals of the other.

The intuitive motivation for this paper is as follows. If tax and financial reporting were based on identical rules, any change in income or expense under one system would be perfectly reflected in the other. Under identical rules, tax reports could not escape being affected by financial reporting-motivated activities and financial accounting choices would have immediate tax consequences. At the other extreme, if tax and financial measures of income were unrelated (e.g., both random draws from some underlying distribution) then tax accounting income measures would not be affected by the financial reporting amounts. Any action taken to change reported book income would not be contemporaneously reflected in the firm's tax accounts, and will result in no tax reporting cost.[2]

In practice, and design, the U.S. tax system is between these two extremes. Although both accounting systems report income measures derived from the same underlying economic transactions, the patterns, and magnitudes, of income and expenses recognized under each system vary. Some aspects of reporting may be identical under both (e.g., LIFO conformity), while others are disparate (e.g., non-qualified stock options). This latter category is inclusive of numerous transactions that have generated concern over companies' abilities to greatly reduce

[2]Deferred tax accounting is ignored for the sake of this example. So long as a system based upon random draws treated all differences as permanent the example would still hold.

tax liabilities without any financial reporting consequences.

I find the degree to which financial reporting reflects discretionary tax activities varies significantly by industry, profitability, and by the sign of discretionary accruals measured under the tax system. These results imply that some managers are able to recognize significant financial reporting income without tax consequences and undertake substantial tax reducing activities without being subject to financial reporting costs. Both of these results are consistent with recent evidence on the differential growth of book and tax income and with tax sheltering activities.

Prior Research

The tension between financial reporting and other firm objectives is a common research theme in accounting choice generally (Fields et. al 2001) and in tax (Shackelford and Shevlin 2001). In examining the financial-tax reporting tradeoff specifically, the empirical literature has not been consistent in its assumptions regarding the linkage of the two, and studies have made conflicting assumptions.[3] For example, in examining the effects of various aspects of the Tax Reform Act of 1986, Scholes, Wilson and Wolfson (1992) test whether firms deferred income to take advantage of declining tax rates, implicitly assuming such deferrals are reflected in taxable income in each period. By contrast, the earnings management literature surrounding the adoption of the book income preference of the corporate alternative minimum tax (Gramlich 1991, Boynton et al. 1992, Manzon 1992) implicitly assumes reductions in book income were

[3]Certain transactions have transparent effects that appear to influence behavior, such as inventory methods (e.g. Hunt et al 1996), the management of stock options (Matsunaga et al 1992) and financing methods (Engel et al 1999). Shackelford and Shevlin (2002), Maydew (2002) and Scholes, et al (2002) chapter 6, all discuss the importance of non-tax considerations in the tax planning process.

generally independent of the amount of contemporaneous taxable income, since only such reductions would affect the book-tax difference of a firm.

In an attempt to directly measure the link between accounting choices, Erickson et al. (2002) analyzed a small sample of firms subject to SEC actions for overstating revenue. They conclude these firms also increased their reported taxable income, with firms apparently willing to pay approximately 11 cents per each dollar of overstated earnings, based on revisions to the tax expense. There is no indication these results can be generalized beyond their small and unique sample, given these firms not only aggressively overstated earnings, but did so in a way so as to attract regulatory scrutiny. Further, given their reliance on the tax expense, they cannot quantify the extent to which additional taxes were actually paid beyond some disclosures of expected tax refunds.

Other evidence of potential costs is found in Mills (1998), who reports firms with greater book-tax differences are subject to greater scrutiny by the IRS and to greater proposed adjustments in their returns. The full extent of the cost of differential reporting cannot be inferred from her results, however, given that final change in taxes paid are only a small percentage of such adjustments. Nonetheless, large book tax differences will draw the attention of auditors, to the extent that they are reflected in the tax return. Mills and Plesko (2003), however, document significant shortcomings in the reporting of book income for tax purposes, leaving open the possibility that many reporting differences can go undetected by tax authorities.

Even if explicit tax sheltering is not the goal, other accounting practices, such as the treatment of non-qualified stock options, can cause substantial differences in the amount of income reported for financial and tax purposes - differences not necessarily reflected in the tax

accounts of a company's financial reports[4] and supported by recent analyses of aggregate financial and tax return data. In addition to these accounting differences, methodological concerns have been raised over the empirical approaches used to test for tax and non-tax costs (Shackelford and Shevlin, 2001).

Methodology

To examine the reporting relation between the two accounting systems I focus on differences in accruals under each system as the amount of cash collected by a company in any given period is independent of the accounting method.

Pretax financial reporting total accruals for company *I* in period *t* ($TA_{i,t}^{F}$) can be written as:

$$TA_{i,t}^{F} = RBI_{i,t} - CF_{i,t} \qquad \textbf{(1)}$$

where $RBI_{i,t}$ is pretax reported book income and $CF_{i,t}$ equals pretax cash flows.

Similarly, tax reporting total accruals for company *I* in period *t* can be defined as:

$$TA_{i,t}^{T} = TI_{i,t} - CF_{i,t} \qquad \textbf{(2)}$$

where $TI_{i,t}$ equals reported taxable income. Assuming cash flows are the same under each system, tax accruals will differ from pretax book accruals to the extent pretax book income

[4]Hanlon and Shevlin (2000) and Manzon and Plesko (2001) both discuss the accounting treatment of stock options and their distortionary effects on the tax accounts of financial statements.

differs from taxable income, that is

$$TA_{i,t}^{F} - TA_{i,t}^{T} = RBI_{i,t} - TI_{i,t} \quad \textbf{(3)}$$

As a result, tax accounting accruals can be estimated from financial accounting accruals if one knows the difference between reported book and taxable income. Such differences will depend on both timing differences (such as the differences in depreciation patterns) and scope (such as the inclusion or exclusion of unrepatriated foreign income).[5]

Following McNichols and Wilson (1988) total accruals under each accounting system can be decomposed into their non-discretionary (NDA) and discretionary (DA) components:

$$TA_{i,t}^{F} = NDA_{i,t}^{F} + DA_{i,t}^{F} \quad \textbf{(4)}$$

$$TA_{i,t}^{T} = NDA_{i,t}^{T} + DA_{i,t}^{T} \quad \textbf{(5)}$$

where the estimate of NDA_i is defined as the predicted value from an accruals equation, and DA_i is defined as the equation's residual.

The specification and estimation of accruals models has been the subject of significant discussion, with critical reviews of earnings management methodologies performed by Dechow et al. (1995), Thomas and Zhang (1999), McNichols (2000), Fields (2001), and Kothari (2001).

[5]"Tax accounting accruals" is a bit of a misnomer in that firms are not as easily able to affect taxable income through non-cash means. However, actions a firm might engage in to manipulate taxable income without affecting book income would exploit the differential treatment of a transaction by the accounting systems. For example, repatriating foreign earnings will not affect the total amount of pre-tax cash a firm has, but will increase tax net income without affecting pretax book income.

Thomas and Zhang (1999) compare a number of empirical approaches to estimating accruals models, inclusive of the specifications tested by Dechow et al. (1995). While they conclude none of the models are particularly strong, an the industry level version of the Jones (1991) model was found to outperform the original Jones (1991). As a result, the specific model for financial accruals is:

$$\frac{TA_{i,t}^{F}}{A_{i,t-1}} = \alpha_{F0} + \alpha_{F1}\frac{1}{A_{i,t-1}} + \beta_{F}\frac{\Delta Sales_{i,t-(t-1)}}{A_{i,t-1}} + \gamma_{F}\frac{PPE_{i,t}}{A_{t-1}} + \rho_{F}\frac{TA_{i,t-1}^{F}}{A_{i,t-2}} \qquad \textbf{(6)}$$

where *ΔSales* is the change in sales from the past year (adjusted for changes in accounts receivables) , *PPE* is gross property, plant and equipment, and A_{t-1} is prior year total assets. A lag of total accruals is included to capture mean reversion. For tax accruals, the empirical model is specified as

$$\frac{TA_{i,t}^{T}}{A_{i,t-1}} = \alpha_{T0} + \alpha_{T1}\frac{1}{A_{i,t-1}} + \beta_{T}\frac{\Delta GrossReceipts_{i,t}}{A_{i,t-1}} + \gamma_{T}\frac{PPE_{i,t}}{A_{i,t-1}} + \rho_{T}\frac{TA_{i,t-1}^{T}}{A_{i,t-2}} \qquad \textbf{(7)}$$

with all variables the same as those used in equation (6) with the exception of *ΔGross Receipts*, which is the tax accounting equivalent of sales. The predicted values from these models are taken as estimates of nondiscretionary accruals, and the residuals as estimates of discretionary accruals (DA).

An important concern highlighted in the reviews of empirical accruals models has been the extent to which the estimation of total accruals equations, such as (6) and (7), using ordinary least squares (OLS) are affected by omitted variables and the simultaneity of the explanatory

variables with the methods available to manage earnings.[6] In this setting, pretax total accruals under each accounting system are driven by the same underlying economic activity of the firm. Under the assumption these accruals are determined contemporaneously, rather than simultaneously, a more efficient approach is to jointly estimate the two equations using a system of seemingly unrelated regressions.[7] In such a setting, cross-correlations and the omitted variables affecting each equation will be captured in the covariance matrix, and the independence of the errors across the two equations can be explicitly tested. Further, unlike the residuals from OLS, the residuals from FGLS will not be jointly correlated with the omitted variables affecting both equations, eliminating any induced correlation of concern to previous authors. Finally, any correlated regularity in the two different accruals processes will lead to more efficient estimates of the parameters. Thus, the use of FGLS residuals in place of OLS residuals addresses the same set of econometric issues as Kang and Sivaramakrishnan (1995), but potentially provides an easier to implement alternative to both their instrumental variables approach, and the need to search for additional covariates to include in Jones (1991) based models.

After obtaining the discretionary accruals (DA) estimates from the joint estimation of (6) and (7) the relation between discretionary accruals across the two accounting systems can be estimated as

$$\frac{D\hat{A}_i^T}{A_{i,t-1}} = \phi + \omega \frac{D\hat{A}_i^F}{A_{i,t-1}} \qquad \textbf{(8)}$$

[6]Kang and Sivaramakrishnan (1995), in particular, propose an instrumental variables approach to address these issues. McNichols (1999) suggests that additional variables be included to control for long-term growth.

[7]Greene (1997) discusses Zellner's method of estimating a feasible generalized least squares regression (FGLS) of seemingly unrelated regressions.

While ϕ will capture mean differences in accruals across the two systems, ω provides an estimate of the amount by which estimated discretionary accruals for financial reporting are contemporaneously related to discretionary accruals related to taxable income. If $\omega=0$, then discretionary tax accruals are unrelated to discretionary financial accruals. If $\omega \neq 0$ the size of the coefficient will capture the change in the tax accrual associated with a change in pretax book accruals, and provides a measure of the extent of tax reporting costs associated with earnings management. Additional covariates can then be added to test for difference due to other characteristics.

Data

I use a matched sample of firms' financial statement and tax return data for tax years 1994 to 2001. To construct the sample, I begin with the Internal Revenue Service's Statistics of Income's (SOI) corporation file, containing tax return information annually for more than 80,000 corporations. Tax return data are recorded as filed, and validated for accuracy, but do not reflect any subsequent amendments or audit adjustments. Firms filing 1120-A, the corporate short form, as well as pass-through entities, such as subchapter S corporations, REITs and RICs were dropped.

Financial statement information was drawn from Compustat[8] and matched to the tax return data by employer identification number. Non-matched firms were deleted, as were firms with missing or zero assets, leaving approximately 5,000 firms each year. To reduce the effects

[8]Scaled pretax total accruals were calculated as pretax book income (data123+data16) less cash flows from operations adjusted for deferred taxes (data308-data126). Other Compustat variables used in the regressions are assets (6), the change in sales (data 12) adjusted for the change in accounts receivables (data302), and gross property plant and equipment (7).

of consolidation, and focus solely on accounting differences, the value of total assets on the tax return balance sheet were compared to that reported in the financial statements. The balance sheet of the tax return (Schedule L) should reflect the assets and liabilities of the tax filing entity, regardless of GAAP consolidation.[9] If the difference between the two values exceeded 0.01 of the smaller value the record was deleted. A total of 6,064 firm-year observations remained in the 1996 to 2001 sample. Observations for 1994 and 1995 were lost owing to the need to have lagged values in the construction of the variables, and the presence of a lagged dependent variable in the regression.

The tax return contains two different measures of income. Tax net income (LINE28) is conceptually equivalent to pretax book income while income subject to tax (IST) is determined after the deduction for net operating losses and dividends received. Unlike tax net income, IST cannot be negative. I modify line 28 by subtracting special deductions (dividends received and net operating losses) to obtain a measure of taxable income that can be negative.[10]

Because tax return information is not publicly available, I include an estimate of taxable income, GROSS63, defined as the grossed-up amount of federal income taxes, (data item 63), plus the change in net operating loss carryforwards (item 52) and test its ability to proxy for tax

[9]See Dworin (1985), Manzon and Plesko (1996, 2002), Mills (1998), Hanlon (2003), Plesko (2003), and Mills and Plesko (2003) for discussions of consolidation issues. The effect of imposing a consolidation rule should be to bias the estimation towards finding close links between the two systems. With more complicated firms, particularly those with multiple tax and financial entities, the ability of either set of data to capture changes in the other will be reduced.

[10]Arguably, any change in IST as defined in the tax code will be the result of a change in tax net income. However, the opposite need not be true as any decrease in net income for a company with negative net income would not affect IST, and an increase in net income would only change IST if it were large enough to make it positive. The modified definition allows for the possibility that firms could increase the amount of income reported to the IRS without affecting their taxable income.

return information.[11]

To obtain total accruals under tax accounting the difference between pretax book and taxable income was subtracted from book total accruals. For tax accruals based on Compustat item 63, GROSS63, the difference between estimated taxable income and book income was subtracted from book total accruals. The top half of Table 1 provides the correlations between pretax book income, modified taxable income (line28) and the financial statement-based equivalent. The first column provides the correlations between pretax book income and the two measures of taxable income, with both having a correlation of 0.77. Interestingly, column 2 shows that, although both measures are equally correlated with pretax book income, their correlation with each other is only 0.714.

The second panel of Table 1 provides the correlations of scaled total accruals for each definition. Of the two tax income accruals, GROSSS63 is more highly correlated with pretax book income accruals - not a surprising result given that both are drawn from the same set of financial statements. The correlations of the tax measures with pretax book income total accruals are both lower than the correlation of the income levels, but have a similar cross-correlation (0.710). All correlation in Table 1 are significant at at least 1 percent. The next section presents and compares the results of jointly estimating each of these three measures with book total accruals.

Results

Table 2 provides a description of the sample's industry distribution along with the

[11]Plesko (2000a, 2003) discusses the limits of financial statement information to capture different attributes of the tax return and the efficacy of alternative financial statement constructs. Mills, Newberry, and Novack (2003) evaluate the ability of Compustat to capture the correct amount of net operating loss carryforwards.

correlations of the residuals in the two equations.[12] While it is usual for both regulated industries and financial services to be omitted from accruals models, I include both as benchmarks. Regulated industries are often excluded because the nature of the regulatory process makes them less interesting to study. In this setting, however, regulated industries should have relatively high correlations, and their inclusion allows for this hypothesis to be examined. Similarly, while the Jones (1992) model is viewed as less representative for non-manufacturing industries, the applicability of the model can be directly tested. Further, any mis-specification due to omitted variables will be mitigated through the use of FGLS.

The correlation of the residuals provides information on whether the assumptions of the ordinary least squares model are violated and an improvement can be made via joint estimation. A Breusch-Pagan test of the independence of each set of residuals was performed for each set of equations, and independence of the residuals can be rejected in all but one case (Public Administration for GROSS63), confirming the appropriateness of the FGLS approach over OLS with either set of data.[13]

Table 3 provides the Pearson correlation coefficients of the FGLS discretionary accruals estimated at the industry level, and then pooled. Coefficients in bold were estimated within the same system of equations. Within the first system, which uses tax return information, the correlation of financial and tax discretionary accruals is 0.487 and statistically significant. GROSS63, however, yields a much lower correlation (0.091) . The estimates of BOOKDA across the two systems are highly correlated (0.936), and LINE28DA is nearly equally correlated with

[12]Coefficient estimates from the accruals equations have been omitted in the interest of spaces.

[13]Here and throughout the rest of the text, accepting or rejecting statistical tests are relative to a 1 percent significance level.

BOOKDA in each model (0.487 and 0.510). Of note, the correlation between LINE28DA and GROSS63 is essentially zero, and not statistically significant.

Tables 4 and 5 present the results from estimating equation (8), the relation between DA across the two systems. Because firms potentially face immediate costs in recognizing income increasing accruals for tax and immediate benefits in recognizing income decreasing accruals, the sample was split based on the sign of the financial DA. In each, the first part presents the results of equation (8) for firms estimated to have income increasing financial discretionary accruals and the bottom half for those with negative discretionary accruals. Two additional covariates are a binary variable equal to one if the firm has negative taxable income (tax loss), and an interaction of tax loss with the estimate of discretionary accruals. These additional covariates allow loss firms to have both a separate intercept and slope coefficient, and are motivated by the common assumption that loss firms have different reporting incentives. The second part of each table replicates the estimation of the top half for firms with negative financial discretionary accruals.

The first column of Table 4 provides the results for the pooled tax return sample. Examining the two sets of results shows a statistically significant difference in the coefficients between the two equations. The estimated coefficient for BOOK28DA when BOOK28DA>0 suggests that for each dollar of income increasing discretionary accrual recognized for financial reporting purposes, taxable income is increased by 0.326 dollars. By contrast, firms with income decreasing accruals are estimated to reduce taxable income by 0.630 of the amount. The relative magnitude of these coefficients suggests that firms either take tax advantage of opportunities to recognize greater financial reporting income when the tax costs are small, or that firms are able

to minimize the tax effects of increased financial reporting income through other mechanisms. The estimated coefficient for taxable firms, 0.326, when multiplied by the statutory tax rate of 35 percent, is 11.4 - essentially the same number as found by Erickson et al (2002) Similarly, to the extent that firms recognize income decreasing accruals, they appear to be able to take greater advantage of the tax system to reduce taxable income.

This general conclusion is reinforced by the introduction of the two additional covariates for a firm's tax status in the equations. Firms with negative taxable income face no change in their current period tax liability if they recognize greater income. For BOOK28DA>0, firms with negative taxable income are estimated to have a negative mean intercept (0.044-0.084), and a much larger coefficient on BOOK28DA. For non-taxed firms, approximately 76 percent of the financial accounting accruals are reflected in tax accruals (0.326+0.433), more than double the amount for taxed firms. For BOOK28DA<0, the amount that taxable income is affected by a negative bok discretionary accrual is much smaller. While the intercept for tax loss firms becomes negative, the coefficient on the interaction is also negative, reducing the combined coefficient to 0.271. These coefficients are consistent with the tax benefits of negative discretionary accruals being smaller for loss firms than for profitable firms.

Columns 2 through 11, show the results for each two-digit SIC industry. For BOOK28DA>0 the coefficient on BOOK28DA is statistically significant in all industries but manufacturing, and ranges from 0.234 (services) to 1.114 (wholesale trade). Consistent with expectations, regulated industries has a coefficient close to one (0.941), suggesting a close tie between financial and tax reporting of positive accruals. The binary variable for a tax loss has a point estimate that is negative in all but one industry, but is significant in only four (agriculture,

manufacturing, finance, and service industries). The loss interaction is significant in three industries (regulated industries, services, and public administration), but is positive only for services. For regulated industries, the effect of a tax loss is to reduce the amount of the increase in income reflected in current taxable income. For manufacturing firms, which comprise the largest number of observations, income increasing discretionary accruals are not estimated to be related to contemporaneous tax discretionary accruals.

For income decreasing DA, presented in the bottom half of the table, seven of the industry coefficients on the BOOKDA are statistically significant (agriculture, mineral, and public administration are the exceptions). Controls for loss firms are significant in only four of the industries. Income reducing discretionary accruals are less related to tax discretionary accruals than in the case of income increasing accruals (0.460 versus 0.941), with the exception of tax loss firms, which have a coefficient of 0.995. Manufacturing, with statistically insignificant coefficients for positive discretionary accruals, is estimated to have both a positive and statistically significant coefficient on BOOK28DA and on the interaction of BOOK28DA with the tax loss variable, suggesting that while positive discretionary accruals are not related to tax discretionary accruals, income decreasing financial accruals are associated with reductions in taxable income.

Taken together, the results of Table 4 provide evidence that financial reporting discretionary accruals and tax discretionary accruals are related, that the relation varies significantly by industry, and that income increasing book accruals are reflected less in taxable income than income decreasing accruals.

Moving away from the use of proprietary data, Table 5 examines the relation between

book and tax accruals when a financial statement based measure of taxable income is used. For positive DA firms, only the intercept is statistically significant, implying no relation between book and tax DA, even though all but two of the individual industries have statistically significant slope coefficients. This lack of significance appears to be driven by manufacturing, which has more than half of the observations. For the pooled negative DA firms the results are similar to those for BOOK28DA, with a positive coefficient on the book discretionary accrual measure, largely offset for firms that are not taxable.

The most important conclusion from examining Table 5 is not related to the significance of individual coefficient estimates in each industry, but the general result that financial statement-based measures of tax discretionary do not appear to be appropriate substitutes for estimates based on the underlying tax return. Recent research questioning the usefulness of tax information drawn for financial statements is supported by these results.

To further explore this result, Table 6 presents attenuation estimates of the financial statement-based measures of discretionary accruals. These estimates are obtained by regressing BOOK28DA, the measure obtained from the tax return, on the financial statement-based measure, GROSS63DA. The coefficient estimate obtained from the regression yields an estimate of the extent of measurement error in GROSS63DA, with values closer to one suggesting less error.[14] While the coefficient for the entire sample is statistically indistinguishable from zero, this result does not extend to all of the industries. Of the 10 SIC groups, all but three have significant coefficients, ranging from 0.143 to 0.765, again consistent with financial statements providing incomplete information about firm's tax positions. The coefficient for manufacturing, which

[14]See Greene (1997) for details, and Plesko (2003) for an application.

contains nearly half of the sample, is statistically insignificant. To summarize, while the joint estimation of a financial statement -based tax accruals model with a financial statement measure of book accruals will yield more efficient estimates of the parameters of the model, the residuals from the tax equation will not necessarily be useful in determining the contemporaneous effects on tax reporting

Reverse Regressions: The financial reporting costs of tax minimizing behavior

Up to this point, I have focused on the relation of financial reporting to tax reporting. However, from a tax policy perspective, the increase in book-tax differences over time, evidence of increased tax sheltering activities, and most recently the Joint Committee on Taxation's (2003) report on Enron, have highlighted the abilities of firms to aggressively manage their tax reporting income using transactions that affect only taxable income, with no (or very little) consequence for the amount of pretax income reported to shareholders. Bankman (1999) provides anecdotal evidence on a variety of tax shelter schemes that do not reduce book income. Weisbach (2001), in commenting on the proliferation of tax reduction activities of concern to the U.S. Treasury asserts that "[v]irtually no shelters in the current market reduce book income." According to the JCT (2003) report, twelve Enron transactions between 1995 and 2001 yielded more than $2 billion in additional financial accounting income through a reduction in the tax expense.

While Enron's ability to separately manipulate its book and taxable income is striking, it might be considered an outlier given the spectacular collapse of the company. However, from both a financial and tax reporting perspective, the mechanisms used by Enron are not particularly

exotic, and many are widely marketed "retail" schemes. Bankman (2003) reports that the ability to engage in aggressive tax shelters has not only become more available to the masses but that such tax sheltering activities, even those with a very high chance of detection, remain profitable after a settlement agreement is reached with the IRS.

This anecdotal evidence on firm behavior suggests the statistical relations documented above for the contemporaneous behavior of the tax return to financial statements may not be symmetric in reverse. While the incentive to report less income to tax authorities leads to the prediction that income increasing book accruals will have smaller coefficients than income decreasing book accruals, the opposite will be true of tax motivated transactions. If the tax return is the starting point, then recent experience with tax shelters suggests that tax income increasing DA will be reflected in financial statements, while discretionary accruals that decease taxable income will not.

To test this, equation (8) is run in reverse, with BOOKDA as the dependent variable and the LINE28DA as the explanatory variable. As in Tables 4 and 5, the sample is split on the sign of the explanatory variable, in this case the tax discretionary accrual, LINE28DA. Table 7 presents these results for the three sets of data.

Column 1 reports the estimated effects of income increasing discretionary accruals relaed to LINE28 on the contemporaneous reporting of pretax book income for the entire pooled sample. Comparing the top panel of Table 7 to the bottom, taxable income-increasing accruals of taxable firms have a greater contemporaneous effect with book income than taxable income decreasing accruals (1.217 versus 0.646), although the effect is smaller for positive LINE28DA firms that are not taxable (0.573). For taxable firms, the average increase in book income is estimated to

exceed the amount of the increase in taxable income. These results are consistent with the observation that firms are able to mitigate the financial reporting effects of tax reducing activities.

Examining the individual industries in the two panels finds all of the coefficients to be statistically significant with two exception: for income increasing accruals the mineral industries show only a difference in means, and for income decreasing accruals of public administration firms. Further, consistent with firms being able to mitigate the financial reporting effects of tax reducing activities, all of the industry coefficients with the exception of mineral industries are larger for income increasing discretionary accruals than for income decreasing accruals.

Conclusions

The extent of trade-offs between financial and tax reporting is an important issue in understanding firms' behavior. Using a matched sample of financial statements with tax returns, I estimate the extent to which discretionary financial reporting accruals are correlated with discretionary tax accruals. The methodology takes advantage of the contemporaneous nature of financial and tax reporting to mitigate the econometric problems identified in earlier earnings management studies.

I find the degree to which tax reporting is affected by discretionary financial activities varies significantly by industry, profitability, and by the sign of discretionary accruals measured under the tax system. These results imply that managers may be able to undertake substantial income increasing activities without being subject to immediate tax reporting costs, consistent with recent evidence on the differential growth of book and tax income, and with tax sheltering

activities. Further, the results suggest that the extent to which tax discretionary accruals are affected by book discretionary accruals varies by both the sign of the accrual and the firms tax status. This suggests that the nature of discretionary accruals are such that many managers can opportunistically mitigate tax consequences of such activities, such as by recognizing more earnings that would be taxed when the tax costs are low.

Further, focusing on tax reporting, the evidence suggests an asymmetric effect, with taxable income increasing accruals more likely to be reflected in financial reporting income than those activities that decrease income.

There are a number of extensions to these results for future research to address. First, industry-based studies are commonplace, and the results here show differences by industry, the specific characteristics of individual firms are likely to be important in determining the reporting trade-offs of firms. As a result, future research on the magnitude and components of book tax differences may shed light on where reporting tradeoffs are likely to be high or low.

Second, evidence of earnings management has been derived from the distribution of earnings(Burgstahler and Dichev, 1997), and Phillips et al. (2003) have shown the deferred tax expense is incrementally useful in detecting earnings management. The results of this paper, while addressing the link between income reported under each system, does not address how such differences affect the reporting of current and deferred tax expenses. The paper does provide a start for such research, however, by documenting the similarity in results when financial reporting data is used in place of tax return information.

Separately, the paper suggests a new methodological approach to address concerns with discretionary accruals-based earnings management. Easier to implement than the instrumental

variables approach suggested by Kang and Sivaramakrishnan (1995), it takes advantage of the contemporaneous determination of financial and tax income to control for omitted variables.

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Table 1
Pretax Income and Total Accruals Correlations
(sample size in parentheses)

	Pretax Book Income (data170)	Tax Net Income (LINE28)
Tax Net Income (LINE28)	0.770 (6094)	1.000
Grossed-up Federal Income Taxes (data63/.35)	0.771 (3125)	0.714 (3125)

	Book Total Accruals (BOOKTA)	Tax Net Income Total Accruals (LINE28TA)
BOOKTA	1.000	
LINE28TA	0.523	1.000
GROSS63TA	0.660	0.710

Correlations between pretax book income and tax net income are for 6,094 observations, 3,125for grossed-up federal income taxes; all correlations are significant at 1%
Definitions: *data170* pretax income, *GROSS63* federal income taxes grossed-up by the statutory tax rate adjusted for the change in net operating loses (data 52), *LINE28* tax net income (net income before net operating loss deduction and special deductions).

Table 2
Correlation of Accruals Residuals, Pooled and by Industry
(Standard deviations in parentheses)

Mnemonic	Industry	SIC	Observations	Correlation matrix of residuals from the total accruals regressions	
				Book Income and Tax Net Income	Book Income and Grossed-up Federal Taxes
All	Complete Sample		6094	0.503	0.116
Agric	Agriculture, Forestry and Fisheries	01 - 09	20	0.962	0.827
Mineral	Mineral Industries	10-14	310	0.621	0.415
Constr	Construction Industries	15-17	77	0.862	0.828
Mfg	Manufacturing	20-39	2638	0.361	0.054[a]
RegInds	Transportation, Communication, and Utilities	41-49	770	0.889	0.470
Whole	Wholesale Trade	50-51	320	0.931	0.887
Retail	Retail Trade	52-59	663	0.697	0.805
FIRE	Finance, insurance, and Real Estate	60-67	239	0.838	0.923
Service	Service Industries	70-89	1037	0.499	0.307
PubAdm	Public Administration	91-97	20	0.460	0.503[b]

All correlations are significant at greater than 1% with he exception of (a) 10 percent, and (b) which is insignificant.

Table 3
Pearson Correlation Coefficients of Discretionary Accruals Estimates

		System 1		System 2	
		BOOKDA	LINE28DA	BOOKDA	GROSS63DA
System 1	BOOKDA	**1.000**			
	LINE28DA	**0.487*****	**1.000**		
System 2	BOOKDA	0.936***	0.510***	**1.000**	
	GROSS63DA	0.085***	-0.002	**0.091*****	**1.000**

***Significant at 1 percent. Bold entries are correlations from within the same estimation system

Table 4
The Reflection of Book Discretionary Accruals in Tax Discretionary Accruals

BOOK28DA>0	(1) All	(2) Agric	(3) Mineral	(4) Constr	(5) Mfg	(6) RegInds	(7) Whole	(8) Retail	(9) FIRE	(10) Service	(11) PubAdm
BOOK28DA	0.326***	1.038***	0.824***	0.866***	0.289	0.941***	1.114***	0.812***	0.879***	0.234***	0.353**
	(0.098)	(0.090)	(0.121)	(0.066)	(0.181)	(0.116)	(0.117)	(0.159)	(0.060)	(0.046)	(0.107)
tax loss	-0.084***	-0.049***	-0.000	0.015	-0.068**	0.012	-0.035	-0.010	-0.064***	-0.143***	-0.105
	(0.017)	(0.013)	(0.029)	(0.028)	(0.027)	(0.019)	(0.027)	(0.015)	(0.024)	(0.028)	(0.138)
tax loss*BOOK28DA	0.433***	0.000	-0.404	-0.459	0.310	-0.581***	0.020	-0.347	0.071	0.870***	-0.239*
	(0.164)	(0.000)	(0.345)	(0.280)	(0.247)	(0.187)	(0.122)	(0.230)	(0.075)	(0.237)	(0.117)
Constant	0.044***	-0.004	-0.017	-0.002	0.049***	-0.011*	-0.009	-0.001	0.025***	0.051***	0.104
	(0.010)	(0.014)	(0.016)	(0.008)	(0.018)	(0.006)	(0.012)	(0.010)	(0.008)	(0.008)	(0.122)
Observations	3530	9	209	35	1534	432	155	361	124	660	11
Adjusted R-squared	0.24	0.89	0.26	0.78	0.16	0.65	0.87	0.47	0.83	0.30	0.46
BOOK28DA<0											
BOOK28DA	0.630***	0.868	0.157	0.805***	0.459***	0.460***	1.235***	0.696***	0.872***	0.925***	-0.028
	(0.115)	(0.427)	(0.254)	(0.143)	(0.115)	(0.137)	(0.080)	(0.099)	(0.185)	(0.203)	(0.237)
tax loss	-0.061***	-0.050***	-0.020	-0.027	-0.072***	0.057***	-0.013	-0.039	-0.036	-0.073**	0.000
	(0.017)	(0.012)	(0.041)	(0.021)	(0.021)	(0.016)	(0.019)	(0.030)	(0.041)	(0.033)	(0.000)
tax loss*BOOK28DA	-0.359**	-0.213	0.235	-0.400**	-0.296*	0.535***	-0.184	-0.329	-0.012	-0.686***	0.000
	(0.147)	(0.236)	(0.274)	(0.186)	(0.168)	(0.167)	(0.141)	(0.292)	(0.214)	(0.226)	(0.000)
Constant	-0.008	0.023***	-0.015	-0.011	-0.017**	-0.005	0.021***	-0.002	0.010	-0.001	-0.125
	(0.007)	(0.000)	(0.032)	(0.014)	(0.009)	(0.005)	(0.004)	(0.006)	(0.009)	(0.015)	(0.101)
Observations	2564	11	101	42	1104	338	165	302	115	377	9
Adjusted R-squared	0.18	0.71	0.19	0.40	0.06	0.86	0.78	0.24	0.41	0.26	-0.14

Robust standard errors in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

Table 5
The Reflection of Book Discretionary Accruals in Book-based Tax Discretionary Accruals

GROSS63DA>0	(1) All	(2) Agric	(3) Mineral	(4) Constr	(5) Mfg	(6) RegInds	(7) Whole	(8) Retail	(9) FIRE	(10) Service	(11) PubAdm
GROSS63DA	0.096	1.641**	-0.188**	0.940***	0.021	2.020***	0.992***	0.854***	0.785***	0.608***	
	(0.152)	(0.099)	(0.075)	(0.106)	(0.111)	(0.571)	(0.043)	(0.114)	(0.130)	(0.082)	
NEG63	-0.042	0.017	-0.112***	-0.022	-0.066**	0.049	-0.031	-0.040***	-0.064	-0.015	0.197
	(0.029)	(0.006)	(0.032)	(0.022)	(0.033)	(0.047)	(0.021)	(0.013)	(0.044)	(0.031)	(0.421)
NEG63*GROSS63DA	-0.173	-0.463	0.451*	0.147	-0.148	-1.053	0.269	0.187	0.256*	-0.588***	-2.309
	(0.203)	(0.099)	(0.260)	(0.583)	(0.184)	(0.666)	(0.211)	(0.186)	(0.139)	(0.111)	(3.694)
Constant	0.062***	-0.026	0.088***	0.013	0.068***	-0.070***	0.001	0.009*	0.008	0.033***	0.125***
	(0.017)	(0.006)	(0.012)	(0.016)	(0.016)	(0.023)	(0.004)	(0.005)	(0.012)	(0.007)	(0.000)
Observations	1716	5	60	21	895	163	92	186	60	229	5
Adjusted R-squared	0.04	0.98	0.12	0.54	0.08	0.36	0.82	0.56	0.91	0.32	-0.84
GROSS63DA<0											
GROSS63DA	0.569***	2.345	0.050	0.779***	0.473*	0.904***	0.965***	0.794***	0.865***	0.672***	
	(0.117)	(1.064)	(0.040)	(0.154)	(0.259)	(0.295)	(0.036)	(0.097)	(0.180)	(0.160)	
NEG63	-0.118***	-0.000	0.107*	-0.045	-0.125***	-0.031	-0.077	-0.028	0.039	-0.156***	
	(0.016)	(0.047)	(0.062)	(0.042)	(0.030)	(0.046)	(0.049)	(0.021)	(0.043)	(0.026)	
NEG63*GROSS63DA	-0.563***	0.389	1.252***	-0.493	-0.468*	-0.329	-0.582	-0.076	0.077	-0.742***	
	(0.117)	(1.284)	(0.228)	(0.380)	(0.259)	(0.679)	(0.483)	(0.198)	(0.248)	(0.171)	
Constant	-0.005	0.043	0.015	-0.016	0.000	0.017	-0.004	-0.004	-0.005	0.009	
	(0.007)	(0.043)	(0.029)	(0.013)	(0.012)	(0.016)	(0.003)	(0.005)	(0.020)	(0.012)	
Observations	1132	7	27	21	408	127	93	169	49	229	
Adjusted R-squared	0.04	0.52	0.69	0.16	0.01	0.11	0.59	0.35	0.66	0.19	

Robust standard errors in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

Table 6
Attenuation Estimates of Financial Statement Measures of Tax Discretionary Accruals

	(1) All	(2) Agric	(3) Mineral	(4) Constr	(5) Mfg	(6) RegInds	(7) Whole	(8) Retail	(9) FIRE	(10) Service	(11) PubAdmin
LINE28DA	-0.006	0.415**	0.765***	0.754***	-0.090	0.143***	0.615***	0.781***	0.870***	-0.253	0.128
	(0.202)	(0.133)	(0.152)	(0.089)	(0.328)	(0.028)	(0.106)	(0.040)	(0.055)	(0.336)	(0.066)
Constant	0.000	-0.005	-0.008	0.003	0.001	0.003	-0.016*	-0.006**	-0.044***	0.007	-0.012
	(0.015)	(0.009)	(0.021)	(0.007)	(0.033)	(0.007)	(0.009)	(0.003)	(0.011)	(0.013)	(0.048)
Observations	2848	12	87	42	1303	290	185	355	109	458	7
Adjusted R-squared	-0.00	0.37	0.20	0.76	-0.00	0.13	0.53	0.63	0.82	0.06	-0.13

Robust standard errors in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

Table 7
Financial Reporting Effects of Tax Discretionary Accruals

LINE28DA>0	(1) All	(2) Agric	(3) Mineral	(4) Constr	(5) Mfg	(6) RegInds	(7) Whole	(8) Retail	(9) FIRE	(10) Service	(11) PubAdmin
LINE28DA	1.217***	0.905***	0.289	1.002***	0.840***	0.876***	0.847***	0.902***	0.924***	2.724***	2.094**
	(0.295)	(0.056)	(0.247)	(0.084)	(0.113)	(0.098)	(0.051)	(0.038)	(0.078)	(1.001)	(0.655)
tax loss	0.012	0.048**	-0.057**	-0.069	-0.033	-0.024	-0.040**	0.067	-0.023	0.138	0.366
	(0.028)	(0.014)	(0.029)	(0.072)	(0.024)	(0.024)	(0.018)	(0.051)	(0.017)	(0.104)	(0.444)
tax loss*LINE28DA	-0.864***		0.225	0.468	-0.465**	-0.262	0.017	-1.257	0.096	-2.444**	-3.076*
	(0.316)		(0.274)	(0.873)	(0.217)	(0.325)	(0.134)	(0.902)	(0.087)	(1.010)	(1.290)
Constant	-0.012	0.006	0.072***	0.006	0.023***	0.006	0.005	0.002	-0.017***	-0.144	-0.102
	(0.025)	(0.016)	(0.024)	(0.017)	(0.006)	(0.005)	(0.006)	(0.003)	(0.007)	(0.101)	(0.281)
Observations	3332	10	181	37	1439	449	165	345	137	559	10
Adjusted R-squared	0.27	0.88	0.10	0.64	0.15	0.54	0.88	0.39	0.88	0.46	-0.12
LINE28DA<0											
LINE28DA	0.646***		0.520*	0.993***	0.686***	0.748***	0.721***	0.424	0.848***	0.507***	1.563
	(0.092)		(0.288)	(0.281)	(0.210)	(0.177)	(0.067)	(0.283)	(0.123)	(0.112)	(1.281)
tax loss	-0.044	0.073**	-0.060	0.010	-0.087***	-0.002	-0.003	-0.012	-0.045	0.006	
	(0.027)	(0.025)	(0.042)	(0.035)	(0.026)	(0.014)	(0.016)	(0.016)	(0.038)	(0.081)	
tax loss*LINE28DA	-0.041	0.894**	0.260	0.306	-0.414*	0.158	0.019	0.346	-0.396*	0.641	
	(0.202)	(0.294)	(0.386)	(0.572)	(0.236)	(0.178)	(0.104)	(0.296)	(0.238)	(0.518)	
Constant	0.004	-0.081	0.021	0.013	0.004	0.007	-0.015**	-0.013	-0.008	0.020*	0.098
	(0.005)	(0.000)	(0.028)	(0.014)	(0.011)	(0.008)	(0.007)	(0.013)	(0.017)	(0.011)	(0.212)
Observations	2762	10	129	40	1199	321	155	318	102	478	10
Adjusted R-squared	0.19	0.47	0.26	0.55	0.07	0.87	0.75	0.37	0.36	0.29	0.10

Robust standard errors in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%