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Auditor Independence, and Corporate
Governance

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ABSTRACT

We examine whether the FIN 48 reserve for contingent income tax liabilities reflects a firm's tax sheltering activities, and whether that informativeness depends on monitoring mechanisms. Understanding the relation between tax shelters and the tax reserve is important to researchers, investors, and regulators keen to use the reserve to measure corporate tax aggressiveness. By linking confidential IRS tax shelter data with firms' tax reserves, we find that, on average, tax shelter incidence is associated with an \$11 million increase in the reserve and that each dollar of book-tax differences generated by tax shelters is associated with a 40¢ increase in the reserve. Increased auditor-client bonding, but not strong corporate governance, improves the ability of the reserve to reflect tax shelters. Our results support theoretical predictions on auditor independence that the reputation cost of an audit failure is a significant determinant of client accrual quality.

Keywords: FIN 48, ASC 740-10-25, tax aggressiveness, tax shelters, firm monitoring, accrual quality, corporate governance, auditor independence

Confidential tax return data are obtained from the Internal Revenue Service, Large and Mid-Size Business Division (LMSB), Research and Workload Identification Division (RWI), and Office of Tax Shelter Analysis (OTSA); these data are not publicly available. Because tax return data are confidential and protected by data non-disclosure agreements under the Internal Revenue Code, all statistics are presented in the aggregate; no statistics with three or fewer observations are disclosed. Any opinions are those of the authors and do not necessarily reflect the views of the Internal Revenue Service. The authors thank Paul Beck, Lillian Mills, Mark Peecher, Jeff Pittman, and Jeri Seidman for helpful comments, Feng Li who provided data on financial statement disclosure quality, workshop participants at the University of Illinois at Urbana-Champaign, and members of the Texas Tax Readings group. Finally, the authors thank Monika Dubiel, Tommy Pan, Victoria Ruppert, and Jennifer Wu for excellent research assistance. This manuscript was formerly titled, "What Does FIN 48 Tell Us About Tax Shelters?"

1. Introduction

In this study, we examine the extent to which reserves for contingent income tax liabilities disclosed pursuant to *Financial Interpretation No. 48* (FIN 48), reflect underlying tax shelter activities, and how firm monitoring affects the relation between tax shelters and tax reserves. Coupling public tax reserve disclosures with confidential tax shelter data from the Internal Revenue Service (IRS), we find that, on average, tax shelter incidence is associated with an \$11 million increase in the reserve and that each dollar of total book-tax income differences generated by tax shelters is associated with a 40¢ increase in the reserve.¹ When we examine the effect of firm monitoring on the relation between tax shelter activity and tax reserves, our results suggest that tax reserves are *stronger* indicators of tax shelter activity when the client is economically important to the auditor; this result implies a strong auditor independence effect. In contrast, strong corporate governance has *no* effect on the relation between tax shelter activity and tax reserves.

Economists, regulators, accounting professionals, researchers, and the investing community have a significant interest in the tax avoidance activities of large, publicly-held corporations (see Shackelford and Shevlin [2001]; Slemrod [2004]; Hanlon, Mills, and Slemrod [2007]). Hanlon and Heitzman [2009] call for more research on the use of tax reserves as a measure of corporate tax aggressiveness and, more generally, on the conditions under which various measures of tax avoidance fairly represent firms' underlying tax avoidance activities.²

¹ Total book-tax income differences reflect the temporary (timing) and permanent differences between financial income and taxable income. Temporary differences represent transactions that will be recorded in both financial and taxable income, but the timing of recognition differs. They are typically recorded in financial statements as deferred taxes. Permanent book-tax differences represent transactions that will be recorded for financial or taxable income, but not both. Therefore, permanent book-tax differences will affect the firm's financial effective tax rate.

² The definition of tax "aggressiveness" that we adopt in this study is consistent with the notion of tax avoidance activities falling along a continuum, with municipal bond investments (perfectly legal) at the benign end of the continuum and tax shelters at the most aggressive end (see Hanlon and Heitzman [2009], p. 79). In particular, we operationalize the most extreme case of tax aggressiveness by using IRS data on tax shelters. While Gupta, Mills,

This second issue gains importance for tax reserves in particular if firms that engage in tax shelters are also likely to use aggressive financial reporting practices, i.e., they do not reflect these aggressive tax positions in their tax reserve (Frank, Lynch, and Rego [2009]).

Strict compliance with FIN 48 *should* result in a positive association between tax shelter activities and tax reserves. However, like many accounting accruals, tax reserves are subject to managers' judgment. To see if a direct empirical association exists between tax shelters and tax reserves, we test for a link between the change in a firm's public FIN 48 tax reserve due to tax positions taken in the current year (2007), and tax shelter activity disclosed in a firm's (2007) tax return. Specifically, we estimate the change in the firm's tax reserve as a function of current period tax shelter activity, controlling for the nature and extent of the firm's non-sheltering tax minimization activities, tax complexity, and financial reporting incentives to misstate the reserve. We find a positive association between current period tax shelter activity and current period changes in the tax reserve suggesting that, on average, firms are complying with FIN 48 with respect to tax reserve accruals for underlying tax shelter activity. This basic finding provides opportunities for future research to examine tax aggressiveness in large samples, without the need to gain access to tax shelter data.³

It is important to consider whether incentives to under-reserve for aggressive tax positions may contaminate the reserve as a reliable measure of underlying tax shelter activity. As one tax director of a large multinational firm notes, tax planning strategies are "home runs" when they are coupled with an increase in earnings per share via a decrease in the firm's effective tax rate (which would not be the case if the firm was required to recognize a tax reserve accrual).

and Towery [2009] examine the FIN 48 reserve in terms of jurisdiction (i.e., "where" is the underlying risk), we examine the FIN 48 reserve in terms of risk activity (i.e., "what" is the underlying risk).

³ Graham and Tucker [2006], Wilson [2009], and Hanlon and Slemrod [2009] use small samples of known tax shelter participants identified through public information, while Lisowsky [2009b] uses a large sample of tax shelter participants, but obtains this sample through access to confidential IRS tax shelter data.

Armstrong, Blouin, and Larker [2009] and Robinson, Sikes, and Weaver [2009] report that tax directors are rewarded for effective tax rate reductions rather than for cash tax rate reductions. Strategic tax compliance issues between taxpayers and the government also provide firms with incentives to under-reserve for aggressive tax positions (Mills, Robinson, and Sansing [2009]). While our examination of the link between tax shelters and tax reserves controls for financial reporting incentives, the inherent difficulty in identifying, measuring, and controlling for these incentives leads us to examine whether firm monitoring enables or constrains a manager's ability to improperly reflect tax shelters in the firm's tax reserve. These analyses contribute to the literature examining the relation between auditor oversight, independence, earnings quality, and corporate governance (e.g., Larcker and Richardson [2004]), but in a tax setting.

To examine the effects of monitoring, we separate external mechanisms (e.g., auditor oversight) from internal ones (e.g., corporate governance). An extensive literature examines whether strong corporate governance improves the quality of financial reporting (e.g., Carcello, Hollingsworth, and Klein [2006]). With respect to auditor oversight, the economic importance of a client may impair independence (Becker, DeFond, Jiambalvo, and Subramanyam [1998]; Magee and Tseng [1990]), which in our setting would weaken the relation between tax shelters and tax reserves by enabling the firm to under-reserve for its tax shelter activity. However, the economic and reputation risks of an audit failure may cause the auditor to ensure a more proper accrual (DeAngelo [1981], Simunic [1984]), which in our setting would strengthen the relation between tax shelters and tax reserves.

Our findings compliment those of Gaver and Paterson [2007], who use a specific accrual setting to test the effects of auditor oversight and client importance on accrual quality. In our setting, we infer accrual quality as the association between the underlying tax shelter activity and

the tax reserve. Consequently, we interpret an increase in this association for economically important clients (well-governed firms) as indicative of strong auditor oversight via auditor independence (strong corporate governance) that leads to higher accrual quality. In our tax setting, we adapt Reynolds and Francis [2001] by using a regional office-level client importance measure to capture an auditor's incentive to compromise its independence. Our results show that the association between tax shelters and tax reserves is *stronger* for economically important clients, even beyond what can be explained by any knowledge spillover effects from auditor-provided tax services (e.g., Kinney, Palmrose, and Scholz [2004], Fortin and Pittman [2008], Gleason and Mills [2009]). This finding implies that the reputation cost of an audit failure overcomes the threat to independence brought about by the increased economic bonding between client and auditor. We find no support that strong corporate governance improves the quality of the tax reserve accrual with respect to tax shelters.

The different effects of internal versus external monitoring raise interesting questions for future research. Internal governance structures—acting in the interest of the firm's shareholders—likely consider the costs and benefits of providing information about tax risk to shareholders in the form of a public disclosure. Evidence from Hanlon and Slemrod [2009], Wilson [2009], and Desai and Dharmapala [2006] suggest that shareholders are more tolerant of tax aggressiveness in well-governed firms. Thus, demand for public information about tax risk may be lower in well-governed firms, as the benefit of reflecting tax shelter activity in the tax reserve may not exceed the cost of providing a “roadmap” of tax risk to the taxing authorities. Auditors are not likely to make the same trade-offs between costs and benefits. As third party providers of financial statement assurance, the independent auditor must ensure that the financial statements fairly reflect the firm's economic activity. Our results imply that protecting the

auditor's reputation seems to be the dominant incentive. The evidence that external, but not internal, firm monitoring affects the quality of a specific accrual, the tax reserve, suggests that future research should consider the monitoring mechanisms in place at a firm when using the tax reserve to measure corporate tax aggressiveness.

Section 2 provides background and motivation for our analysis. Section 3 develops our hypotheses and describes our research design. Section 4 reports the sample selection procedure, descriptive statistics, and main results. Section 5 concludes.

2. *Motivation and Background*

2.1 RELEVANT LITERATURE AND MOTIVATION

Researchers have developed a variety of measures to infer corporate tax avoidance, aggressiveness, and sheltering activities. Hanlon and Heitzman [2009] assert, and we agree, that these measures capture various increments along the continuum of tax minimization activities. The challenge is that, without reliable, standardized, publicly available information about corporate tax aggressiveness, we must rely on measures that represent different things in different contexts. In examining corporate tax avoidance, the underlying construct that many studies try to capture is tax 'aggressiveness', activities at the far end of the tax minimization continuum. Figure 1 illustrates our interpretation of where the existing measures reside on the continuum.⁴

[Insert Figure 1 about here.]

Many recent studies use multiple measures of tax avoidance. Chen, Chen, Cheng, and Shevlin [2010] examine tax planning in family firms, relying on the effective tax rate (ETR), the cash ETR, and total book-tax income differences (BTD) to assess tax aggressiveness.

⁴ In interpreting our placement of tax avoidance measures along the continuum in Figure 1, each measure is associated with the portion of the continuum on which it is placed *inclusive of the portion to its right*.

Khurana and Moser [2009] examine the effect of institutional ownership on tax aggressiveness, using the firm's cash ETR and permanent BTDs. Frischmann, Shevlin, and Wilson [2008] rely on the cash ETR and total BTDs to examine whether the market reaction to key FIN 48 announcements turns on whether firms are tax aggressive. Graham [2006], Wilson [2009], Hanlon and Slemrod [2009], and Lisowsky [2009b] gather samples of firms with tax shelters to examine, among other things, shareholder perceptions of tax aggressiveness and leverage choices of tax aggressive firms. Lisowsky [2009b] employs data on reportable, listed, and non-listed tax shelter transactions.⁵

Most measures used to proxy for tax aggressiveness may in fact capture a broad set of activities. Manzon and Plesko [2002] and Seidman [2009] suggest that BTDs are explained largely by factors unrelated to tax avoidance, while Lisowsky [2009b] does not find a positive relation between tax shelters and either the cash ETR or discretionary permanent book-tax differences (i.e., DTAX, from Frank, Lynch, and Rego [2009])⁶ in univariate tests, or with total BTDs in multivariate tests. The results may not be surprising as Dyreng, Hanlon, and Maydew [2008] explain that the cash ETR is defined “broadly as anything that reduces the firm's cash ETR” (p.62), including depreciation, stock options, and tax credits.

We argue that tax shelters best capture the notion of tax aggressiveness. These tax minimization activities are positioned at the most aggressive end of the continuum and are the most cleanly measured and focused proxies relative to other tax aggressiveness proxies. However, they have in the past confined the researcher to small samples and/or require access to confidential IRS data.

⁵ See Section 3.3 for a more extensive discussion of these tax shelter transactions.

⁶ Frank, Lynch, and Rego [2009] develop a proxy for tax aggressiveness based on measuring the discretionary portion of permanent book-tax differences; they validate it on a small sample of tax shelter firms. However, the measure remains subject to much of the criticism leveled at discretionary accrual models (Hanlon and Heitzman [2009]).

The recent availability of tax reserves disclosed pursuant to FIN 48 has raised the possibility of a unifying measure of tax aggressiveness. Some studies are already using the disclosed reserve. Frischmann, Shevlin, and Wilson [2008] estimate a regression of the tax reserve on the cash ETR and total BTDs to examine whether the latter two measures “capture some degree of variation in the level of tax aggressiveness among firms” (p. 16). Song and Tucker [2008] state that “because of the manner in which the language of FIN 48 is crafted it is almost certainly the case that the non sheltering component of the reserve is relatively small,” and that “the FIN 48 liability is a better, more explicit proxy for tax sheltering activity than [book-tax differences]” (p. 11).

Implicit in these studies is the assumption that the reserve *is* a reliable measure of tax aggressiveness.⁷ We view the link between tax shelters and tax reserves as an open empirical question. For example, Gleason and Mills [2002] establish that IRS audit adjustments, a proxy for tax risk, are positively related to a *pre*-FIN 48 estimate of the tax reserve, but they do not pinpoint the underlying source of the tax risk; whether it be tax shelters or legitimate uncertainty from applying ambiguous tax law. By coupling confidential IRS tax shelter data with FIN 48 tax reserve data in the largest sample to date, we are uniquely positioned to provide evidence on the extent to which tax shelter activity is reflected in the publicly available FIN 48 tax reserve.

The tax reserve accrual requires a significant amount of judgment and is therefore subject to potential manipulation; financial reporting incentives may reduce or even eliminate the link

⁷ Similarly, concurrent research by Cazier, Rego, Tian, and Wilson [2009] examines whether tax reserves reflect tax avoidance activity. However, their study examines the association between the tax reserve and firm characteristics known to be *associated with* tax sheltering, whereas we use *actual* instances of tax sheltering.

between tax shelter activity and tax reserves.⁸ Both empirical and anecdotal evidence suggest that incentives to poorly reflect tax shelter activity in the firm's tax reserve are strong.

Armstrong, Blouin, and Larcker [2009] and Robinson, Sikes, and Weaver [2009] suggest that compensation contracts provide incentives for tax planning strategies that reduce the firm's ETR. Current period reductions to cash taxes will not lower the firm's ETR if the firm recognizes a tax reserve. Frank, Lynch, and Rego [2009] find that tax aggressive firms are also more likely to be aggressive with financial reporting. Thus, firms that engage in tax shelters may be the same firms that significantly under-reserve for their risky tax positions. Finally, taxpayer concerns that the disclosed reserve will provide a roadmap to the IRS for tax disputes creates incentives to under-reserve for tax shelter activities because they have the least likelihood of success if challenged.

Because managers have incentives to engage in tax shelters and not reserve for them in the financial statements, we are interested in whether strong corporate governance improves the quality of the tax reserve accrual in reflecting underlying tax shelter activity. As IRS Commissioner Doug Shulman noted in recent remarks to the National Association of Corporate Directors (NACD) on FIN 48 and corporate oversight of the tax function:

Taxes are an important expense, and like any important expense, management responsible will try to control it. In the case of taxes, controlling it can expose the company to challenge, which can result in reputational damage and perhaps large, unexpected expenses. So you need to understand how management controls this expense and how it decides how aggressive to be. You also need to be certain that reporting is effective. (IRS [2009])

Strong governance is believed to prevent managers from diverting tax savings to themselves (Desai and Dharmapala [2006]). Yet if corporate governance ensures that tax

⁸ Dhaliwal Gleason, and Mills [2004] and Gupta and Laux [2009], in a pre FIN 48 environment, find that the tax reserve is used to manage earnings. To date, there is no evidence on whether the transparency of the reserve post-FIN 48 has altered this behavior. However, we conjecture that the use of a tax reserve as a "cookie jar" (i.e., over-reserving) seems very unlikely given firms' stated concerns in FASB comment letters that large reserves provide a red flag to the taxing authority.

sheltering benefits accrue to shareholders and not managers (Wilson [2009]), the cost of providing a signal to the taxing authority via the public tax reserve disclosure may outweigh the benefit of increased transparency to shareholders. Thus, the effect of corporate governance on the quality of the tax reserve accrual in reflecting tax shelters is an open empirical question.

Firms are also monitored by independent auditors, and a large literature seeks to understand the relation between auditor independence and earnings quality. Our setting is well-suited to test theoretical predictions on audit quality, where auditor independence may be strengthened or weakened depending on the client's economic importance to the auditor. As a client becomes more economically important, the auditor's independence could be compromised; the auditor may become more reluctant to challenge management's estimates (e.g., Becker, DeFond, Jiambalvo, and Subramanyam [1998], Magee and Tseng [1990]). Yet the same auditor will face significant economic and reputation costs in the event of an audit failure (DeAngelo [1981] and Simunic [1984]). Tests of these theories are mixed: Studies find that as the economic bond increases between client and auditor, earnings quality suffers (Frankel, Johnson, and Nelson [2002]); is not affected (Ashbaugh, LaFond, and Mayhew [2003]; Chung and Kallapur [2003]); or even improves (Reynolds and Francis [2001]; Larcker and Richardson [2004]; Gaver and Paterson [2007]).

Gaver and Paterson [2007] analyze the effect of auditor oversight on the loss-reserving practices in the insurance industry. They find that in their unique, focused setting, the tendency to under-reserve is reduced when the client is economically important to the auditor. We also use a single accrual setting in which the central issue is whether the auditor remains independent for economically important clients when accruing for tax shelter activities in the financial statements. We have an ex-ante objective measure of accrual quality, that is, there *should be* a

significantly positive *contemporaneous* association between tax shelters and tax reserves if firms are complying with FIN 48. The advantage of our approach is that we are not bound to measure accruals quality using a Jones-type model (McNichols [2000]), and thus can more reliably conclude that our results are driven by auditor behavior rather than by measurement error.

2.2 BACKGROUND ON FIN 48 TAX RESERVE DISCLOSURES

Financial Interpretation No. 48, *Accounting for Uncertainty in Income Taxes* (FIN 48), effective for fiscal years beginning after December 15, 2006, establishes uniform recognition, measurement, and disclosure guidelines for the tax reserve.⁹ If the tax return is audited by the taxing authority, the outcome of a dispute could result in the firm retaining all, some, or none of the tax benefit originally claimed on the tax return. The financial reporting problem that FIN 48 seeks to address is how to reflect these *uncertain* tax benefits in firms' financial statements during the time that potential tax disputes remain unresolved.¹⁰ The relevant accounting question is: How much of the current benefit claimed on the tax return from an *uncertain* position should the firm recognize as a reduction to current period income tax expense in the financial statements (with the remaining portion being held in reserve)?

FIN 48 outlines a two-step process to recognizing and measuring tax benefits. First, in order for tax benefits to be recognized in the financial statements, a tax position must be more-likely-than-not able to be sustained based solely on the technical merits. Here, the taxpayer must assume that the taxing authority has all relevant information; it ignores the probability of audit or the firm's settlement history. Second, if the recognition threshold is met, the firm will measure

⁹ Previously, tax reserves were governed by Statement on Financial Accounting Standards No. 5, *Accounting for Contingencies* (SFAS 5). SFAS 5 requires that firms recognize a loss contingency (reserve) if it is probable and reasonably estimable and disclose any material unrecognized loss if it is reasonably possible that the firm has incurred such a loss. The tax reserve is similar in spirit to other loss contingencies because it represents a firm's estimate of potential additional income tax payments due upon audit by the taxing authority.

¹⁰ Tax uncertainty arises because of the difficulty in applying ambiguous tax laws to a set of circumstances. Thus, taxpayers cannot perfectly anticipate the consequences of an audit (see Graetz, Reinganum, and Wilde [1986]; Beck and Jung [1989a]; Beck and Jung [1989b]).

the tax benefits as the largest amount of benefit that has a greater-than-50% likelihood of being realized upon settlement. This recognized benefit reduces current tax expense. The amount of tax benefits taken on the tax return, but *not* recognized in the financial statements, becomes the *un*recognized tax benefit (“UTB”), or tax reserve. As a result of this two-step process, the most aggressive tax minimization activities (e.g., tax shelters) *should be* captured in the tax reserve.¹¹

The mandatory disclosure requirements of FIN 48 require each firm to reconcile changes in the tax reserve in its 10-K. This reconciliation classifies tax reserve changes into four categories: (a) increases due to current-year tax positions; (b) increases or decreases due to prior-year tax positions; (c) decreases due to audit settlements; and (d) decreases due to the expiration of the statute of limitations. Our focus is the amount reported in category (a), because current period tax shelter activities are current period tax positions and thus should be reflected specifically in this category of current period tax reserve changes.

2.3 BACKGROUND ON IRS TAX SHELTER DISCLOSURES

The U.S. Department of the Treasury white paper on tax shelters (Treasury [1999]) defines a tax shelter as an endeavor principally designed to avoid taxation without exposure to economic risk or loss and estimates that tax shelters cost the government approximately \$10 billion annually.¹² Slemrod [2004] estimates that tax shelters account for about half of the corporate tax gap.¹³ To combat the rise of tax shelters during the 1990s and early 2000s, the

¹¹ The outcome of this two-step process results in a tax reserve that reflects both genuine uncertainty on non-tax sheltering activities and uncertainty arising specifically from tax sheltering. Thus, it is unclear exactly how much of the reserve reflects tax sheltering activities in particular. If genuine uncertainty is significant relative to uncertainty arising from sheltering, we may not find a strong contemporaneous relation between tax shelters and changes in the tax reserve. In our tests, we control for a variety of potential non-sheltering tax uncertainties. See Figure 1 for an illustration of the activities FIN 48 may capture along the tax minimization continuum.

¹² Tax shelters are illegal when they do not exhibit “economic substance” or a “business purpose,” that is, they are created for the sole aim of evading tax rather than filling a non- (or pre-) tax economic need.

¹³ The tax gap is an estimate of the difference between taxes owed and taxes paid. The total net federal tax gap is estimated to be approximately \$290 billion, of which 9 percent is attributable to corporations (Treasury [2006] and GAO [2007]). Half of the corporate tax gap would put the Slemrod [2004] estimate of tax shelters at costing the Treasury approximately \$13 billion in lost tax revenues.

Internal Revenue Code (IRC §6011) requires taxpayers to disclose them as “reportable transactions” that, in the IRS’s view, are potentially abusive. The general rule embodied in §6011 is that every taxpayer who has participated in a reportable transaction, regardless of intent, must disclose that transaction on its federal income tax return via the IRS Form 8886. This information is compiled and analyzed by the Office of Tax Shelter Analysis (OTSA).¹⁴

In an effort to improve taxpayer reporting compliance on Form 8886, the U.S. Congress, through the American Jobs Creation Act of 2004 (AJCA), provided the IRS with the ability to impose two penalties. First, the disclosure penalty for corporate taxpayers is \$200,000 for non-disclosed listed transactions (those specifically identified as abusive) and \$50,000 for non-disclosed non-listed transactions (those that exhibit features of abusive transactions) (§6707A).¹⁵ Second, the failure to disclose increases the accuracy penalty from 20 percent to 30 percent of the understatement of the tax liability (§6662A). The penalty regime helps ensure that corporate tax shelter participants report these activities on Form 8886.

The IRS can also use the Form 1120 Schedule M-3 (Part II Line 12) to identify the dollar value of book-tax income differences generated from the reportable transactions. We use information from both Form 8886 and Schedule M-3 to identify and measure tax shelter activity.

3. *Hypotheses and Methodological Approach*

3.1 HYPOTHESES

We test the following hypothesis, stated in null form:

H1: FIN 48 tax reserves do not reflect tax sheltering activity.

¹⁴ See Section 3.3 and Lisowsky [2009b] for a more extensive discussion of OTSA data.

¹⁵ Note that the IRC §6707A penalty applies to each transaction each year. Therefore, a corporation that engages in a listed transaction which gives rise to a deduction over the course of three years but failed to report the transaction may be subject to a \$200,000 disclosure penalty per year, for a total disclosure penalty of \$600,000. The penalty is applied *even if* the deduction is ultimately allowed by the IRS. If it is not allowed, an additional 30% of the understatement is applied as an accuracy penalty. Thus, the dual disclosure and accuracy penalty regime enacted by the AJCA is quite intimidating.

We state the hypothesis in null form because FIN 48 reserves may, in practice, be positively *or* negatively associated with tax shelters. Two themes capture the expectation of a *positive* association. First, tax shelters represent inherently risky transactions whose tax benefits would likely be disallowed upon audit by the taxing authorities; firms with tax shelters disclosed on Form 8886 should by all expectation also be accruing them in the FIN 48 reserve.¹⁶ Second, we believe that because a firm's financial statements, especially the tax accounts, are subject to greater scrutiny post-Sarbanes Oxley (SOX), risky tax behavior, including tax shelters, has a lower likelihood of escaping the tax reserve. Recent litigation against tax shelter firms and promoters, including auditors, as well as the severe disclosure and accuracy penalty regime of AJCA 2004, support this assertion (IRS [2005]). However, this relation holds only if information about the firm's risky tax positions is relayed from the manager to the firm's monitors.

In contrast, two themes introduce the possibility of a *negative* association. First, the tax reserve accrual requires a significant amount of judgment, and it is possible that FIN 48 compliance is dominated by aggressive financial reporting practices. That is, if firms that engage in tax shelters also engage in aggressive financial reporting practices, then they may under-reserve more generally for all uncertain tax positions arising from both sheltering and non-sheltering activities. Second, managers may not accrue for tax shelters for fear of providing information to the taxing authorities. Disclosing the *existence* of a tax shelter is substantially

¹⁶ Statement on Standards for Tax Services No. 1 (2000) (SSTS No. 1) and Interpretations No. 1-1 (2000) and 1-2 (2003) provide standards as to whether a paid tax preparer can sign a client's tax return. One of those conditions is that a tax position with a less than a "realistic possibility of being sustained administratively or judicially on its merits if challenged" (SSTS No. 1, Para. 2a) must be disclosed to the taxing authorities, including tax planning strategies (SSTS Interpretation No. 1-2, Para. 4), such as tax shelter transactions on Form 8886. This "realistic possibility" standard is interpreted as about a one-in-three chance (Treasury Reg. 1.6694-2(b)). However, the FIN 48 accrual standard is more stringent in that tax positions with a "more-likely-than-not" (50%) chance of being sustained can be recognized in reducing tax expense, with the remaining amount accrued for in the tax reserve. We also assume that the U.S. federal tax positions are significant enough to be materially represented in the FIN 48 disclosure, and thus provide enough power for our tests. We have no reason to believe that this is not the case. However, because of the different disclosure standards between FIN 48 and SSTS No. 1, uncertain *non*-shelter tax positions would also be reflected in FIN 48. We control for this potential in subsequent tests.

different than disclosing the *level of the uncertainty* associated with that tax shelter. Like a litigation reserve, a tax reserve conveys private information regarding a specific dollar amount that the taxpayer views at risk, thereby weakening the taxpayer's position in the audit process. Thus, there is an incremental cost to disclosing a tax reserve in the financial statements even if the firm disclosed the tax shelter's existence on Form 8886.¹⁷

We extend our first analysis by examining whether the tax reserve becomes increasingly informative in tax shelter firms with stronger monitoring mechanisms; specifically, whether monitoring affects the relation between current year tax shelter activity and current year increases to the tax reserve. Thus, we test the following hypotheses, stated in null form:

H2a: The degree to which tax shelter activity is reflected in the FIN 48 tax reserve is not affected by auditor client importance.

H2b: The degree to which tax shelter activity is reflected in the FIN 48 tax reserve is not affected by corporate governance.

3.2 MODEL SPECIFICATION

To test our hypotheses, we examine tax reserves as a function of tax shelter activity, controlling for other factors that may affect the tax reserve. As tax reserves reflect benefits from uncertain tax positions taken on tax returns over multiple years, we believe that confining our examination to a contemporaneous association provides the most powerful setting. That is, we focus on linking the change in the disclosed FIN 48 tax reserve related to 2007 current year tax positions to tax positions from tax shelter activities reported on the 2007 tax return. We focus on

¹⁷ This notion is consistent with the lower level of compliance that we observe on Schedule M-3 relative to Form 8886. Less than half of the firms that disclose the *existence* of a tax shelter on Form 8886 provide any description of the *dollar value* of the book-tax income differences generated from their reportable transactions on Schedule M-3. The tax reserve would provide *even more* information regarding how much of the total tax benefits generated from the tax shelter the taxpayer believes it might lose upon audit.

2007 because it is both the first full year of FIN 48 reporting in the 10-K, and the latest year for which tax shelter data from Form 8886 and Form M-3 are made available by the IRS.

To examine our first hypothesis, we estimate a cross-sectional OLS regression of Equation (1) as follows (firm subscripts suppressed):

$$\Delta ReserveCY = \beta_0 + \beta_1 TaxShelterCY + \beta_k TaxAvoidance + \sum \beta_l TaxComplexity + \sum \beta_m AcctQuality + \varepsilon \quad (1)$$

where:

$\Delta ReserveCY$ = Change in tax reserve related to current year tax positions

$TaxShelterCY$ = *Reportable* = 1 if firm discloses a reportable transaction, 0 otherwise
Listed = 1 if firm discloses a listed transaction, 0 otherwise
Non-Listed = 1 if firm discloses a non-listed transaction, 0 otherwise
 $\$M3TotalBTD$ = Absolute dollar value of total book-tax income difference from reportable transactions
 $\$M3PermBTD$ = Absolute dollar value of permanent book-tax income difference from reportable transactions¹⁸

A positive coefficient on β_1 would suggest that tax shelters are reflected in tax reserves, implying reasonable compliance with FIN 48, on average. A negative or insignificant coefficient on β_1 would suggest that tax shelters are not reflected in tax reserves because financial reporting, strategic tax compliance, or other incentives dominate FIN 48 compliance.

TaxAvoidance, *TaxComplexity*, and *AcctQuality* are vectors of control variables that capture determinants of changes in tax reserves unrelated to tax sheltering. *TaxAvoidance* uses measures from prior literature to control for firms' overall tax avoidance behavior.¹⁹

TaxComplexity controls for the presence of non-sheltering business transactions that naturally

¹⁸ We do not scale our variables for two reasons. First, we aim to interpret coefficients as indicative of the dollar effect of tax shelters on the change in tax reserves related to current-year positions ($\Delta ReserveCY$). Second, Barth and Kallapur [1996] state that scaling can exacerbate bias in the coefficient. Because careful interpretability of coefficients is desired, we follow Barth and Kallapur [1996] by leaving the variables unscaled, but include an independent variable for size (*LogAssets*) and use White [1980] robust standard errors. This approach also follows Lisowsky [2009a] who models tax liability reported on the tax return as a function of financial statement information, and subsequently interprets the coefficients.

¹⁹ As these tax avoidance measures are correlated and overlap conceptually, we include them one at a time in our models.

produce circumstances where tax law is ambiguous, thus requiring tax reserves.²⁰ *TaxAvoidance* and *TaxComplexity* are conceptually similar, however, the former controls for firm *actions* that create tax uncertainty, while the latter controls for *characteristics* of the firm’s environment that create tax uncertainty.²¹ Finally, controlling for the quality of the firm’s financial reporting (*AcctQuality*) recognizes that tax reserves require significant judgment by management. Our variable of interest, *TaxShelterCY*, and the set of control variables that capture *TaxAvoidance*, *TaxComplexity*, and *AcctQuality* are discussed further in the next section and summarized in Figure 2.²²

[Insert Figure 2 about here.]

To examine our second set of hypotheses, we introduce into Equation (1) a variable that captures the monitoring mechanisms in place at the firm, as well as an interaction term. Since we are interested in testing for the effects of external (H2a) and internal (H2b) monitoring separately, we specify two models. To test for an effect of auditor oversight and independence, we estimate Equation (2a) as follows:

$$\Delta ReserveCY = \beta_0 + \beta_1 TaxShelterCY + \beta_2 ClientImportance + \beta_3 ClientImportance \times TaxShelterCY + \beta_4 AuditorTaxSvc + \beta_5 AuditorTaxSvc \times TaxShelterCY + \beta_k TaxAvoidance + \sum \beta_l TaxComplexity + \sum \beta_m AcctQuality + \varepsilon \quad (2a)$$

ClientImportance is the ratio of the client’s total fees paid to the total fees earned for the auditor’s office region.²³ A positive coefficient on β_3 would indicate that auditors allow *less*

²⁰ It is also important to control for the overall tax complexity of each firm’s operating environment because tax reserves are likely to capture non-tax shelter-related uncertainties and risks due to the different disclosure standards between FIN 48 and SSTS No. 1 (e.g., “more likely than not” versus “realistic possibility”), respectively.

²¹ The generation of tax uncertainty is conditional on both engaging in tax minimization activities and ambiguity in the tax law as it relates to those tax minimization activities. By including both *TaxAvoidance* and *TaxComplexity* in our model, we control for the *extent* and *nature* of the firm’s tax minimization activities, respectively.

²² Note that all continuous variables are winsorized at 1 and 99 percent to mitigate the influence of outliers.

²³ Reynolds and Francis [2001] argue that client importance is appropriately assessed at the local practice office level rather than at the firm-wide level, either because auditors are more closely tied to revenues of their local office or because the office responsible for a failed audit suffers more than the rest of the firm. We define client importance

accounting discretion to economically important clients, consistent with the idea that the economic and reputation risks of an audit failure ensures audit independence and improves accrual quality. A negative coefficient on β_3 would indicate that auditors allow *more* accounting discretion to economically important clients, consistent with the idea that larger fees impair audit independence and decrease accrual quality. We do not predict a sign on β_3 because it is theoretically ambiguous whether the economic importance of the client will improve or impair auditor independence.

To ensure that our interpretation on β_3 is due to auditor independence alone, we include the ratio of tax fees to total fees paid to the auditor (*AuditorTaxSvc*) and its interaction with our tax shelter variable. These variables control for the possibility that the observed effect is due to the auditor's superior knowledge of the firm's tax positions.²⁴

Next, to test for an effect of corporate governance on tax reserve accruals relating specifically to tax shelters, we estimate Equation (2b) as follows:

$$\Delta ReserveCY = \beta_0 + \beta_1 TaxShelterCY + \beta_2 GoodGov + \beta_3 GoodGov \times TaxShelterCY + \beta_k TaxAvoidance + \sum \beta_l TaxComplexity + \sum \beta_m AcctQuality + \varepsilon \quad (2b)$$

In measuring corporate governance, we rely on the Gompers, Ishii, and Metrick [2003] G-Index, as used in previous empirical studies on governance in tax shelter firms (e.g., Wilson [2009], Hanlon and Slemrod [2009], Desai and Dharmapala [2009]). We set *GoodGov* equal to 1 if the firm has a G-Index score equal to or better than the sample median; 0 otherwise. A positive

at the office regional level (using the 6 regions of the U.S. from Audit Analytics) because anecdotal evidence suggests that, because of their technical nature, audit decisions regarding the tax reserve are more likely to reside in a regional (than city) office that has the necessary tax expertise to make proper assessments.

²⁴ Prior research has shown that auditor-provided tax services (APTS) may be increasing in earnings quality (Kinney, Palmrose, Scholz [2004]; Gleason and Mills [2009]), or be a signal of an increased economic bond that may impair auditor independence (Omer, Bedard, and Falsetta [2006]), even in a post-SOX environment (Cook, Huston, and Omer [2008]). We are interested in isolating the role of client importance to the quality of the tax reserve, beyond the effects of APTS's knowledge spillover effects, so we control for APTS in our post-SOX sample.

(negative) coefficient on β_3 would indicate that strong corporate governance allows less (more) accounting discretion with respect to reserving for tax shelters in the firm's financial statements.

3.3 MEASUREMENT OF TAX SHELTER ACTIVITY

A primary contribution of our study is determining whether the tax reserve disclosed according to FIN 48 is a reliable measure of tax aggressiveness. We use confidential IRS data from OTSA to capture tax shelter activity, ensuring high construct validity of our tax aggressiveness measure. A strong positive association between tax shelter usage and changes in tax reserves would support use of the reserve as a measure of tax aggressiveness, since tax shelters are the most extreme form of tax aggressiveness. We capture information from IRS Form 8886 and IRS Schedule M-3 to construct five alternative measures of current year tax shelter activity in *TaxShelterCY*.

Three variables, *Reportable*, *Listed*, and *Non-listed*, indicate the *incidence* of a tax shelter position in the firm's 2007 tax return (as disclosed on Form 8886). During 2007, Form 8886 required taxpayers to disclose six categories of reportable transactions: i) listed, ii) confidential, iii) contractual protection, iv) loss, v) brief asset-holding period, and vi) transactions of interest. *Reportable* is set equal to 1 if the firm disclosed engaging in *any* of these six types of transactions; 0 otherwise. *Listed* is set equal to 1 if the firm disclosed engaging in a listed transaction (category i); 0 otherwise. *Non-listed* is set equal to 1 if the firm disclosed engaging in a non-listed transaction (categories ii through v); 0 otherwise. Listed transactions are identified as abusive transactions and are deemed by the IRS to be the most egregious, whereas non-listed transactions exhibit certain features of abusive transactions.²⁵ Therefore, it is informative to differentiate between these two types of tax shelters in our analyses.

²⁵See <http://www.irs.gov/businesses/corporations/article/0,,id=120633,00.html> for a current list of listed transactions. Features of abusive non-listed transactions include limiting disclosure of the tax structure or treatment

To supplement Form 8886, we use information from Schedule M-3 to capture the (pre-tax) *dollar* effects of reportable transactions on the total and permanent book-tax differences between financial earnings and taxable income. We examine book-tax differences relating to reportable transactions because we are especially interested in how the accounting for tax benefits of tax shelters relates to differences in reporting between financial earnings and taxable income. Prior research has shown that book-tax differences represent underlying tax risk (Gleason and Mills [2002]). Therefore, we use total book-tax differences from reportable transactions (*\$M3Total/BD*) because they indicate the extent to which tax shelters achieve benefits in reducing taxable income while preserving relatively higher levels of financial income. In addition, we use *\$M3PermBD* to isolate the potentially egregious tax shelters that not only reduce taxable income relative to financial income in the current year, but that also result in a reduction in the reported effective tax rate in the financial statements that permanent book-tax differences (but not temporary differences) afford.

By using both total and permanent book-tax differences arising from reportable transactions, we aim to focus directly on the tax risk that may be embedded in the differential reporting of tax shelters for financial versus tax purposes.²⁶ Additionally, using a dollar value tax shelter measure is conceptually appealing because the dependent variable in our regressions, *ΔReserveCY*, captures the dollar magnitude of the firm's uncertain tax benefits. Because the Form 8886 and Schedule M-3 each report slightly different information on tax shelters

to protect the confidentiality of the advisor (category ii), or promising the taxpayer a refund of fees if the intended tax consequences are not realized (category iii).

²⁶ We take the absolute value to capture the dollar magnitude of tax shelters and to control for the fact that the book-tax differences are reported as negative values in the Schedule M-3, i.e., they reduce taxable income relative to financial income. Using the absolute value also sets up the tests, in that a positive coefficient on either *\$M3Total/BD* or *\$M3PermBD* would mean that the change in tax reserve is increasing in the dollar magnitude of tax shelters.

(incidence and dollar magnitude, respectively), we use both to triangulate the resulting linkage between tax shelters and tax reserves.²⁷

3.4 MEASUREMENT OF CONTROL VARIABLES

Tax Avoidance

In separate regressions, we include five commonly used measures of corporate tax avoidance—the effective tax rate (*ETR*), the cash effective tax rate (*CashETR*, see Dyreng, et al. [2008]), total book-tax income differences (*TotalBTD*, see Mills [1998]), permanent book-tax income differences (*PermBTD*, see Frank et al. [2009]), and discretionary permanent book-tax differences (*DTAX*, see Frank et al. [2009]).²⁸ We examine each measure in individual regressions because, as seen in Figure 1, they overlap conceptually. Tax reserves may arise from a multitude of tax minimization activities; if these activities are sufficiently large, relative to tax sheltering, the relation between tax shelters and tax reserves may be insignificant.

Tax Complexity

We include six measures to capture the tax complexity of the firm's operating environment. We control for research and development expenditures (*R&D*) and foreign sales (*ForeignSales*); these are associated with increased opportunities for tax avoidance and higher proposed deficiencies (Hanlon, Mills, and Slemrod [2007]). The subjective nature of the transfer pricing of intangibles or products across taxing jurisdictions may also give rise to tax uncertainties. Next, corporate reorganizations often create uncertain tax positions (Mills,

²⁷ A limitation of our data overall is the possibility that firms engage in reportable transactions, but do not report them anywhere, either intentionally or inadvertently. However, due to the high price of failing to disclose, described above, we believe corporate taxpayers exercise reasonable diligence, and thus that we are capturing most of the tax sheltering activity in our sample. To the extent firms use tax shelters but do not disclose them, our tests will suffer from weaker power and work against finding results for our hypotheses.

²⁸ We compute the tax avoidance measures on a single-year basis because we are interested in tax avoidance activities in the current year tax return. As more tax avoidance raises the possibility of more uncertain tax positions, we predict a negative sign on *ETR* and *CashETR*. In contrast, we predict a positive sign on *TotalBTD*, *PermBTD*, and *DTAX* because larger book-tax differences imply more tax avoidance.

Robinson, and Sansing [2009]); thus we set *M&A* equal to 1 if, according to the Securities Data Company database, the firm engaged in a merger or acquisition during 2007; 0 otherwise.

Finally, we include three measures that proxy for differences in consolidation accounting for book and tax—*IntDiff*, *MinorityInt*, and *EquityEarn*. Mills and Newberry [2005] find that debt-equity hybrid instruments, off balance-sheet financing, synthetic leases, derivatives, and equity interests in partnerships, all of which may be consolidated for tax but not financial purposes, may represent aggressive, but non-shelter, tax positions. Following Mills and Newberry [2005], we calculate *IntDiff* as the difference between interest deductions on the tax return (IRS Form 1120 Line 18) and interest expense on the financial statement. We measure *MinorityInt* and *EquityEarn* as minority interest and equity earnings income (loss), respectively.

Accounting Quality

The tax reserve can also be subject to financial reporting pressures. We draw from Gleason and Mills [2002], who study tax reserve accruals in a pre-FIN 48 environment, by including *USDefTax*, *LogAssets*, *Newcap*, *Litigious*, and *DisclosQual*. The amount of federal deferred taxes (*USDefTax*) controls for the possibility that tax contingencies are reported in deferred, rather than current tax expense (and so excluded from the tax reserve). FIN 48 guidelines specifically prohibit this type of reporting, but we include *USDefTax* to allow for the possibility of continued misreporting. *LogAssets* controls for firm size; we expect larger firms to record larger tax reserves. Firms operating in litigious industries (*Litigious*) may have incentives to record higher reserves, and firms that raise new debt or equity capital in

the following year (*Newcap*) may want to record lower reserves to maintain higher earnings. Finally, we include a measure of overall disclosure quality (*DisclosQual*).²⁹

We extend Gleason and Mills [2002] to include four additional measures.

Discretionary accruals (*DiscAccrual*) (Kothari, Leone, and Wasley [2005]) is a measure of general financial reporting aggressiveness; we expect it to be negatively related to the tax reserve accruals. Managing earnings upwards through discretionary accruals implies that management would *decrease* the tax reserve to boost earnings. We also control for debt constraints (*Leverage*), profitability (*ROA*), and investment opportunities (*MTB*). If debt constraints become binding on firms with greater leverage and increase the need to signal economic health via increased earnings, then we expect a negative coefficient on *Leverage*. Profitable firms and firms with greater investment opportunities may accrue more tax reserves because they have a greater incentive to shield income.

4. *Data and Results*

4.1 SAMPLE AND TAX SHELTER ACTIVITY

We begin our sample selection with the 1,048 calendar year-end firms in the S&P 1500 index as of January 1, 2007 (see Table 1 Panel A). We eliminate 42 real estate investment trusts (REITs) and 50 firms for which an SEC filing was unavailable as of December 31, 2007. We lose 63 observations by requiring reliable matches between SEC and IRS data, and 32 due to missing regression variables for our main tests. Finally, because we focus on the portion of the change in the tax reserve that relates to current year tax positions, we eliminate 13 firms that

²⁹ Gleason and Mills [2002] utilize Financial Analyst Federation (FAF) scores to measure disclosure quality, but they are not available for our sample period. Therefore, we use a measure of annual report readability (FOG index) from computational linguistics from Li [2008]. We multiply the FOG index by -1 to have higher values indicating better disclosure quality.

report a net reduction in the reserve due to current year tax positions, resulting in a final sample of 848 firms.³⁰

[Insert Table 1 about here.]

Table 1 Panel B describes our sample in terms of tax shelter activity. During 2007, 101 firms (12 percent) disclose a total of 951 reportable transactions. For those 101 firms, the mean (median) number of reportable transactions is nine (one), suggesting that the distribution in our sample is skewed. In fact, 51 firms disclose only one reportable transaction, 37 firms disclose between two and ten reportable transactions, and 13 firms disclose more than ten reportable transactions. For firms with greater than ten reportable transactions, the mean (median) number of tax shelters used is 58 (26).

Regarding the types of reportable transactions on Form 8886, the most frequent are Loss transactions (n=58). Loss transactions result in a gross loss under §165 that exceeds \$10 million in a single year or \$20 million over a six year period. The second most frequent are listed transactions, the reportable transactions deemed most abusive. Nearly 30 percent of our tax shelter sample (28/101) thus engages in the most egregious form of tax aggressiveness during 2007, a year characterized by increased transparency of the tax reserve.

Table 1 Panel B also describes the dollar values associated with the tax shelters in our sample.³¹ Data from Schedule M-3 reveal that our tax shelter firms reduce their taxable income *relative* to book income by a mean (median) amount of \$92.60 (\$19.37) million, and in aggregate by \$3.9 billion. Of this total book-tax difference, the mean (median) amount of temporary

³⁰ We eliminate these 13 observations on the premise that the data are inaccurate. It is conceptually flawed that a firm could experience a *net* reduction in the reserve at December 31, 2007 related to current year tax positions (e.g., those taken on the 2007 tax return). Firms can accrue and reverse the reserve through the year related to current year tax positions, but it is not possible to reverse an amount that exceeds the accrual. See Dunbar and Schultz [2009].

³¹ Due to seemingly limited compliance on Schedule M-3 relative to Form 8886, we highlight the number of our 101 tax shelter firms that also report dollar values associated with their reportable transactions on Schedule M-3. We find that only 48 out of 101 firms provide *any* description of the dollar value of the book-tax income differences generated from their reportable transactions.

differences are \$66.07 (\$22.76) million, with an aggregate amount of \$2.5 billion; the mean (median) amount of permanent differences are \$114.87 (\$10.78) million, with an aggregate amount of \$1.4 billion. Contrary to popular belief, more firms report that tax shelters generate a temporary rather than a permanent difference (38 versus 12). While the mean value of the permanent difference is much higher (\$114.87 versus \$66.07), the median is much lower (\$10.78 versus \$22.76). Reportable transactions thus appear to reduce taxable income primarily through temporary or timing differences, although the sample's permanent differences are large.

Where data are available, Schedule M-3 shows that the majority of firms (≥ 24) reduce *both* book and taxable income. In aggregate, the amounts show a \$6.7 and \$10.6 billion reduction to book and taxable income, respectively. Assuming a 35 percent corporate tax rate in 2007, our findings suggest approximately \$3.7 billion ($\$10.6 \times 35\%$) in lost tax revenue to the U.S. Treasury attributable to our sample firms' tax sheltering activities.³²

Although in most cases reportable transactions reduce taxable income more than book income, six firms exhibit the most extreme form of aggressiveness, that is, their tax sheltering activities increase book income *and* reduce taxable income. No firms report a decrease in book income and an increase in taxable income, and only up to three firms report an increase in both.³³

Table 1 Panel C reports the historical tax shelter activity (e.g., pre-FIN 48) reported on Form 8886 for the 848 firms in our sample. The total number of tax shelter firms (reportable transactions) was 274 (1,499) during 2003 and steadily decreased over time, suggesting perhaps that the AJCA penalty regime and the regulatory improvements surrounding firm oversight around this time deterred firms from engaging in tax shelters. Both the number of firms reporting tax shelters *and* the number of tax shelters used increased significantly from 2006 (pre-FIN 48)

³² As a reference point, the most widely cited estimate of the annual revenue loss from the population of abusive corporate tax shelters is \$10 billion (Treasury [1999]).

³³ IRS policy does not allow disclosure of statistics using three or fewer observations.

to 2007 (post FIN 48); we see a 66 percent increase in the number of firms (61 to 101) and a 463 percent increase (169 to 951) in the number of tax shelters reported.³⁴

Finally, Table 1 Panel D shows the number of years our 101 tax shelter firms engaged in reportable transactions between 2003 and 2007. Twelve firms disclosed reportable transactions each year. Twenty firms disclosed reportable transactions in three or four of the five years. One fifth (21 firms) reported tax shelters in only the year 2007. The results reveal that a large majority of firms engaging in reportable transactions in 2007 engaged in these transactions in past year(s) as well.

4.2 DESCRIPTIVE STATISTICS

Table 2 Panel A reports descriptive statistics for our regression variables. Here we focus only on the variables of interest. During 2007, the mean (median) increase in the tax reserve related to current year tax positions ($\Delta ReserveCY$) is \$17.52 (\$1.41) million. As noted in the previous section, approximately 12% of the sample disclosed a reportable transaction to the IRS; 3.3% (28 firms) have listed transactions, 10.5% (89 firms) have non-listed transactions, and 1.9% (16 firms) have both. The mean (median) absolute dollar magnitude of total book-tax differences arising from reportable transactions is \$2.02 (\$0) million, while the mean (median) absolute dollar magnitude of permanent book-tax differences is \$0.07 (\$0) million. Note that the numbers are significantly lower than in Table 1 because of our 848 firms only 48 reported an amount on Schedule M-3.

[Insert Table 2 about here.]

In terms of the client's importance to an auditor, the mean (median) client accounts for 1.4% (0.6%) of the total fees earned of the auditor's office region. The mean (median) firm

³⁴ We believe further research is needed to better understand the time-series trend in these reporting patterns.

spends 8% (4.3%) of its total audit fees on tax services.³⁵ Finally, 55% of our sample reports at the median or stronger in terms of corporate governance using the G-Index.

Simple correlations in Table 2 Panel B show a strong positive relation between the FIN 48 tax reserve related to current-year positions ($\Delta ReserveCY$) and each of our five main measures of *TaxShelterCY* (i.e., *Reportable*, *Listed*, *Non-listed*, $\$M3TotalBTD$, and $\$M3PermBTD$; all $p < 0.01$). However, simple correlations show a consistent, significantly positive relation between $\Delta ReserveCY$ and only *two* of the five other tax aggressiveness proxies, that is, *TotalBTD* and *PermBTD* (both Pearson and Spearman $p < 0.01$). Pearson correlations show a positive relation between $\Delta ReserveCY$ and *DTAX* ($p < 0.01$), while Spearman correlations show a negative relation between $\Delta ReserveCY$ and *ETR* ($p < 0.01$). Note that *CashETR* is not related to $\Delta ReserveCY$ in either Pearson or Spearman correlations.

Also note in Table 2 Panel B that there is no simple correlation between the five *TaxShelterCY* variables and either *ETR* and *CashETR*. There is a very weak to no relation between *DTAX* and the five *TaxShelterCY* variables. The *CashETR* results confirm the pre-FIN 48 examination of Lisowsky [2009b] that did not find a significant relation between *CashETR* and tax shelters. Our results show slight support for using *DTAX* as a measure for tax sheltering; *DTAX* is significant in only two of the ten simple correlations with tax shelter variables. Using a pre-FIN 48 sample, Lisowsky [2009b] found no significant relation between *DTAX* and tax shelters in univariate tests. *DTAX* may in fact capture more avoidance activities than tax shelters on the tax minimization continuum.

4.3 ASSOCIATION BETWEEN TAX SHELTERS AND TAX RESERVES

³⁵ In untabulated tests, over 93% of the sample is audited by a Big4 auditor; we do not include a control for this variable as the sample is rather homogenous in terms of auditor choice.

Table 3 reports results from estimating Equation (1), which tests for tax sheltering activities in the FIN 48 tax reserves. We do not make sign predictions on our variable of interest, *TaxShelterCY*, because FIN 48 compliance may be dominated by financial reporting and/or strategic tax compliance incentives. Panels A and B report results using *PermBTD* and *DTAX*, respectively, as our *TaxAvoidance* control variable. With respect to H1, we find a significantly positive association between $\Delta ReserveCY$ and tax shelter activities, using *Reportable* (column 1), *Non-listed* (column 3), and *\$M3TotalBTD* (column 4) as our measures of *TaxShelterCY*. The positive association suggests that, on average, firms are complying with FIN 48 with respect to accruing tax reserves in the financial statement for their underlying tax shelter activities.³⁶

The coefficient on *Reportable* in column (1) of Panel A (Panel B) implies that the incidence of a tax shelter is associated with a \$10.50 (\$10.56) million increase in the tax reserve. The coefficient on *\$M3TotalBTD* in column (4) of Panel A (Panel B) implies that for each dollar of total book-tax differences generated by tax shelter activity, 51¢ (39¢) is held in reserve. However, we find no association between $\Delta ReserveCY$ and tax shelter activity using *Listed* (column 2) and *\$M3PermBTD* (column 5) as our measures of *TaxShelterCY*. It is possible that the most egregious forms of tax avoidance may not be reflected in the firm's tax reserve on average because these aggressive firms also under-reserve for their risky tax positions. We examine this issue more closely in subsequent tests on firm monitoring.

[Insert Table 3 about here.]

Two tax avoidance measures, *PermBTD* and *DTAX*, are significant determinants of tax reserve changes *incremental* to those explained by tax shelters. The significantly positive coefficients on *PermBTD* and *DTAX* in all columns of Panels A and B suggest that, while the

³⁶ The multivariate models report R^2 's of about 60%. In univariate regressions of $\Delta ReserveCY$ on each of the five measures of *TaxShelterCY*, we obtain adjusted R^2 's of between 4% (for *Listed* [p<0.05]) and 7% (for *Reportable* [p<0.01], *Non-listed* [p<0.01], and *\$M3TotalBTD* [p<0.05]) (untabulated).

FIN 48 tax reserve does capture tax sheltering, the reserve also contains a significant non-tax sheltering component; this component arises from less aggressive business transactions that generate tax uncertainty. In contrast, as shown in Panel C, *ETR*, *CashETR*, and *TotalBTD* are not significantly associated with uncertain tax positions when our tax shelter measures are included in the model, suggesting that these tax avoidance measures capture tax minimization more broadly. These results are consistent with Figure 1. In terms of our control variables, *R&D*, *IntDiff*, *EquityEarn*, *LogAssets*, and *Litigious* are positively associated with the change in the firm's tax reserve. The sign and significance on our control variables are qualitatively similar in our summary estimations reported in Panel C.

Summarizing our main tests in Table 3, the results suggest that tax shelter incidence is associated with about an \$11 million increase in the reserve and that each dollar of total book-tax income differences generated by tax shelters is associated with a 40¢ increase in the reserve.

4.4 EFFECT OF FIRM MONITORING

Tables 4 and 5 report summary results from estimating Equations (2a) and (2b), respectively, that test for an effect of firm monitoring on the association between tax shelters and tax reserves. In Table 4, we consider an external auditor's oversight of economically important clients. Again, we do not make sign predictions on our variable of interest, *TaxShelterCY*, because the effect of client importance on auditor independence is theoretically ambiguous. All ten estimations in Table 4 show a positive coefficient on the interaction term, *ClientImportance* × *TaxShelterCY*, suggesting that auditors constrain the ability of economically important clients to under-reserve for tax shelter activities in the tax reserve.³⁷

[Insert Table 4 about here.]

³⁷ We obtain qualitatively identical results when *ClientImportance* equals (1) audit fees paid by firm to total audit fees of auditor office region; or (2) audit fees paid by firm to total audit and non-audit fees of auditor office region.

In terms of magnitude, the coefficient of 829.46 on *Reportable* in column (1) suggests that a one standard deviation increase in *ClientImportance* is associated with a \$25.8 million increase to the tax reserve for firms that engage in a reportable transaction. Notably, the coefficients on the main effects of *Listed* (column 2) and *\$M3PermBTD* (column 5) are *negative* and significant, suggesting that financial reporting and/or strategic tax compliance incentives dominate FIN 48 compliance when auditors are *not* sufficiently bonded to the client, and therefore managers have more ability to *under-reserve*. This result pertains to the two measures of *TaxShelterCY* that did not previously exhibit a positive association with $\Delta ReserveCY$, on average. Absent auditor oversight, it appears that firms engaging in the most aggressive types of tax shelter activities—listed transactions and those that generate permanent book-tax differences—are also those that appear to be aggressive in (under-) accruing tax reserves related to uncertain tax positions that arise from both sheltering and non-sheltering activities. These results imply a link between tax and financial aggressiveness consistent with Frank, Lynch, and Rego [2009].

In Table 5, we test for a monitoring effect of the firm's corporate governance structure. Although we find some evidence of a positive relation between tax shelters and the tax reserve on average, we do not find conclusive evidence that the degree to which tax shelters are reflected in the FIN 48 tax reserve turns on corporate governance. Only total book-tax income differences (*\$M3TotalBTD*) generated from tax shelters seem to be better reflected in tax reserves as corporate governance strengthens.

[Insert Table 5 about here.]

The difference between internal (corporate governance) and external (auditor) monitoring supports the idea that the demand for information about tax risk is lower in well-governed firms.

It also suggests that independent auditors, with their reputations at stake, are not likely to consider the same trade-offs between the benefit of reflecting tax shelter activity to shareholders and the cost of providing a roadmap of tax risk to taxing authorities. In summary, the effect of firm monitoring on the quality of the tax reserve accrual needs to be considered when answering future questions about tax aggressiveness and tax sheltering if one is using the FIN 48 reserve as a proxy.

5. *Conclusion*

To increase our understanding of corporate tax avoidance, we examine the extent to which reserves for contingent income tax liabilities disclosed pursuant to *Financial Interpretation No. 48* (FIN 48) reflect underlying tax shelter activities. By combining public tax reserve disclosures with confidential tax shelter data, we find that, on average, tax shelter incidence is associated with an increase in the reserve of \$11 million, and that each dollar of total book-tax income differences generated by tax shelters is associated with an approximately 40¢ increase in the reserve. In doing so, we control for general tax avoidance behavior, tax complexity, and incentives to under-reserve, such as financial reporting pressures or fears of disclosing a roadmap of tax risk to the taxing authorities. Our findings suggest that, on average, firms are complying with FIN 48 with respect to tax reserve accruals for underlying tax shelter activity. These results offer conceptual support for research that seeks to use the reserve as a measure of corporate tax aggressiveness. This fundamental finding opens opportunities for future research to examine tax aggressiveness in larger samples, without the need to gain access to tax shelter data or to rely on proxies whose measurement has been called into question.

This paper also examines the extent to which firm monitoring, external or internal, affects the association between tax shelters and tax reserves. We find tax reserves to be

stronger indicators of tax shelter activity when the client is economically important to an external auditor, implying a strong auditor independence effect. For clients with low oversight, it appears that tax shelters are under-reserved in the financial statements. The results in this setting support the Frank, Lynch, and Rego [2009] idea that firms that are aggressive in their tax positions are also aggressive for financial reporting. We also extend Gaver and Paterson [2007] by finding, in a tax setting, that the client's economic importance does not impair an auditor's independence; it does not enable a firm to under-reserve for its tax shelter activity. It appears that economic and reputation risks from an audit failure may cause the auditor to ensure a more proper tax reserve accrual for tax shelters (DeAngelo [1981], Simunic [1984]).

Internal monitoring in the form of strong corporate governance, however, has *no* effect on the relation between tax shelter activity and tax reserves. Our findings here extend the literature examining the effectiveness of corporate governance in improving the quality of financial reporting (e.g., Carcello, Hollingsworth, and Klein [2006]). In our setting, we do not find that the ability of the tax reserve to reflect tax shelters is affected by corporate governance. This finding is consistent with Desai and Dharmapala [2009] and Wilson [2009] whose work suggests that shareholder demand for information about tax risk may be lower in well-governed firms; public tax reserve disclosures provided information about tax shelter activities to both shareholders (a benefit) and the taxing authority (a cost).

Although we ensure high construct validity in measuring tax aggressiveness by using IRS data on tax shelters, and provide a unique setting in which to test the quality of a particular accrual under various contexts, our study suffers from three potential limitations. First, monitoring mechanisms and tax shelter usage are endogenous variables. As in prior research (Larcker and Richardson [2004]), we are forced to be silent on this issue because structural

selection models with well-developed exogenous variables have not yet been developed for addressing this problem, and the use of *ad hoc* models may lead to unreliable inferences (see Larcker and Rusticus [2008] and Francis and Lennox [2008] for a detailed discussion). Second, because of data constraints associated with both hand-collection of disclosures and access to IRS data, we only examine the first year of FIN 48 tax reserve disclosures. This caveat is important because firm behavior in the first year of FIN 48 might not be indicative of later years when firms have fully adjusted to these issues. Finally, to the extent that tax sheltering and tax reserving behavior is systematically different for non-calendar year-end firms, or for firms outside the S&P 1500, our results may not be generalizable to a greater population. Nevertheless, our results support the use of the FIN 48 tax reserves as a proxy for a firm's tax aggressive activities, especially when auditor oversight is taken into account.

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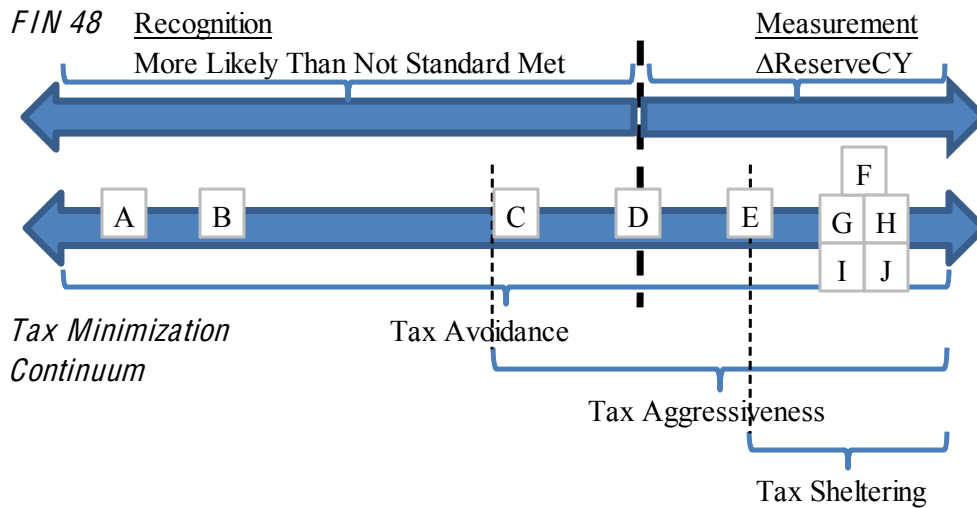
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FIGURE 1
Tax Minimization Continuum for Current-Year Tax Positions



Each measure is associated with the portion of the continuum on which it is placed *inclusive* of the portion to its right.

Measures. In Order of Least to Most Aggressive with Placement on Continuum:

Tax Avoidance	ETR	[A]
	Cash ETR	[B]
Tax Aggressiveness	TotalBTD	[C]
	PermBTD	[D]
	DTAX	[E]
Tax Sheltering	Reportable	[F]
	Non-listed	[G]
	Listed	[H]
	\$M3TotalBTD	[I]
	\$M3PermBTD	[J]

Δ ReserveCY is the change in the tax reserve (disclosed pursuant to FIN 48) relating specifically to current year tax positions. Reportable = reportable tax shelter transaction from IRS Form 8886; Listed = listed tax shelter transaction from IRS Form 8886; Non-listed = non-listed tax shelter transaction from IRS Form 8886; \$M3TotalBTD = dollar value of total book-tax income differences generated from reportable transactions from IRS Schedule M-3; \$M3PermBTD = dollar value of permanent book-tax income differences generated from reportable transactions from IRS Schedule M-3; ETR = total tax expense divided by pre-tax income from 10-K; CashETR = cash taxes paid divided by pre-tax income before special items from 10-K; TotalBTD = total book-tax differences from 10-K; PermBTD = permanent book-tax differences from 10-K; DTAX = discretionary permanent book-tax differences from 10-K.

FIGURE 2
Variable Definitions

<u>Dependent Variable</u>	
<i>ΔReserveCY</i>	Change in the tax reserve during 2007 (disclosed pursuant to FIN 48) relating specifically to 2007 tax positions. (Source: Hand collected from 10-K)
<u>Variables of Interest</u>	
<i>TaxShelterCY</i>	
<i>Reportable</i>	Indicator variable equal to 1 if firm discloses a reportable transaction during 2007; 0 otherwise. (Source: IRS Form 8886, Item C, Line 2, Categories a through f)
<i>Listed</i>	Indicator variable equal to 1 if firm discloses a listed, reportable transaction during 2007; 0 otherwise. (Source: IRS Form 8886, Item C, Line 2, Category a only)
<i>Non-listed</i>	Indicator variable equal to 1 if firm discloses a non-listed, reportable transaction during 2007; 0 otherwise. (Source: IRS Form 8886, Item C, Line 2, Categories b through f)
<i>\$M3TotalBTD</i>	Absolute dollar value of total difference between book and taxable income from reportable transactions during 2007. (Source: IRS Form M-3, Line 12, Columns b and c)
<i>\$M3PermBTD</i>	Absolute dollar value of permanent difference between book and taxable income from reportable transactions during 2007. (Source: IRS Form M-3, Line 12, Column c)
<i>FirmMonitoring</i>	
<i>ClientImportance</i>	Ratio of total fees paid by the client to its auditor's total fees for its office region. (Source: Audit Analytics)
<i>AuditorTaxSvc</i>	Ratio of tax fees to total fees paid by the client to its auditor. (Source: Audit Analytics)
<i>GoodGov</i>	Set equal to 1 if the firm's Gompers, Ishii, and Metrick [2003] corporate governance index (G-Index) is at or below the sample median (indicating strong governance); 0 otherwise. (Source: RiskMetrics)
<u>Control Variables</u>	
<i>TaxAvoidance</i>	
<i>ETR</i>	Total income tax expense divided by pre-tax income, winsorized at [0,1]. (Source: Compustat [TXT/PI])
<i>CashETR</i>	Cash taxes paid divided by pre-tax income minus special items, winsorized at [0,1]. (Source: Compustat [TXPD/(PI-SPI)])
<i>TotalBTD</i>	Pre-tax book income (PI) minus taxable income (estimated as the sum of total current tax expense (TXFED+TXFO) grossed up by the statutory tax rate (.35) minus the change in NOL carryforwards (TLCF) during 2007). If TXFED is missing, the total current tax expense is equal to total taxes (TXT) minus the sum of deferred taxes (TXDI), state income taxes (TXS) and other income taxes (TXO). (Source: Compustat)
<i>PermBTD</i>	TotalBTD (defined above) minus temporary book-tax income differences. (Source: Compustat: [TXDI/.35])
<i>DTAX</i>	Residual from regression of <i>PermBTD</i> (defined above) on INTAN (goodwil and other intangibles), ESUB (income(loss) reported under the equity method), MII (income(loss) attributable to minority interest), TXS (current state tax expense), ΔTLCF (change in net operating losses), and lagged <i>PermBTD</i> ; estimated by year and 2-digit SIC code on population of Compustat firms in 2007.

Figure 2 (Continued)

<i>TaxComplexity</i>	
<i>R&D</i>	Research and development expenditures (XRD) during 2007. (Source: Compustat)
<i>M&A</i>	Indicator variable equal to 1 if the firm engaged in a merger or acquisition during 2007; 0 otherwise. (Source: SDC Platinum)
<i>ForeignSales</i>	Foreign sales during 2007. (Source: Compustat Segment)
<i>IntDiff</i>	Interest deductions per tax (Source: IRS Form 1120, Page 1, Line 18) minus interest expense per books (Source: Compustat [XINT]) during 2007.
<i>MinorityInt</i>	Income(loss) attributable to minority interest during 2007. (Source: Compustat [MII])
<i>EquityEarn</i>	Income(loss) reported under the equity method during 2007. (Source: Compustat [ESUB])
<i>AcctQuality</i>	
<i>USDefTax</i>	U.S. deferred tax expense recognized during 2007. (Source: Compustat [TXDFED; if missing, TXDI])
<i>LogAssets</i>	Natural log of total beginning assets in 2007. (Source: Compustat [log(AT)])
<i>Newcap</i>	Indicator variable equal to 1 if firm issued new debt or equity in the subsequent year (2008), 0 otherwise. (Source: SDC Platinum)
<i>Litigious</i>	Indicator variable equal to 1 if firm operates in a high litigation industry, 0 otherwise. Consistent with Soffer, Thiagarajan, and Walther [2000] and others, we define high litigation industries to include SIC codes 2833-2836 (biotechnology), 3570-3577 (computers), 3600-3674 (electronics), 5200-5961 (retailing), 7370-7379 (programming), 8731-8734 (research and development). (Source: Compustat)
<i>DisclosQual</i>	Measure of annual report readability (FOG) from computational linguistics multiplied by -1 such that higher values imply greater readability. (Source: Li [2008])
<i>DiscAccrual</i>	Performance-matched discretionary accruals during 2007. (see Kothari, Leone, and Wasley [2005])
<i>Leverage</i>	Ratio of short-term and long-term debt to beginning total assets. (Source: Compustat [(DLC+DLTT)/beginning AT])
<i>MTB</i>	Market-to-book ratio, or common shares outstanding x stock price at end of fiscal year, divided by book value of common equity. (Source: Compustat [CSHO*PRCC_F/CEQ])
<i>ROA</i>	Return on assets, or pretax income divided by beginning total assets. (Source: Compustat [PI/beginning AT])

Note: All variables are measured as of or at 12/31/2007, unless otherwise noted. All dollar variables are in \$millions.

TABLE 1
Sample Statistics

Panel A: Sample Selection

S&P 1500 Index as of January 1, 2007	1,500
Less: Non calendar year-end firms	452
Less: REITs	42
Less: Merged/acquired during 2007, no filing	50
Less: Unable to match to tax return data	63
Less: Negative values for UTB Related to Current-Year Position	13
Less: Missing data to compute regression variables	32
Final Sample as of December 31, 2007	848

Panel B: Current Year Disclosed Tax Shelter Activity

Tax Shelter Counts (Source: IRS Form 8886)

Total reportable transactions	951			
Number of firms disclosing reportable transactions	101			
Mean number of reportable transactions where <i>Reportable = 1</i>	9			
Median number of reportable transactions where <i>Reportable = 1</i>	1			
		Number of Reportable Transactions		
		Total	Mean	Median
Number of firms with 1 Reportable Transaction	51	51	1	1
Number of firms with 2-10 Reportable Transactions	37	141	4	3
Number of firms with >10 Reportable Transactions	13	759	58	26

Type of Reportable Transaction Counts in 2007 (Source: IRS Form 8886)^a

Listed	28
Non-Listed:	
Confidential	5
Contractual Protection	15
Loss	58
Brief Asset Holding Period	7
Transaction of Interest	4

^aNote: Counts do not add up to 101 because 16 firms report both Listed and non-Listed transactions in the same year.

Tax Shelter Dollar Values (Source: IRS Form M-3)	n	Mean (\$M)	Median (\$M)	Aggregate (\$M)
Number of firms that completed IRS Schedule M-3, Part II Line 12	48			
Total book-tax income differences generated from tax shelter ^b	42	-92.60	-19.37	-3,889.26
Temporary book-tax income differences generated from tax shelter ^b	38	-66.07	-22.76	-2,510.81
Permanent book-tax income differences generated from tax shelter ^b	12	-114.87	-10.78	-1,378.45
Effect of tax shelter on pre-tax financial earnings ^c	33	-205.33	-8.84	-6,775.73
Effect of tax shelter on taxable income ^d	48	-222.19	-31.75	-10,664.99
		+/-	+/-	+/-
Pattern of income statement/tax return effect (for firms that report in <i>both</i> columns a and d of M-3 Part II Line 12) ^e	≤3	0	6	≥24

^bA negative value denotes a reduction in taxable income *relative* to financial income.

^cA negative value denotes a reduction in pre-tax financial earnings.

^dA negative value denotes a reduction in taxable income on the tax return.

^eSigns indicate the following: +/+ = Increase in financial income and increase in taxable income; -/+ = Decrease in financial income and increase in taxable income; +/- = Increase in financial income and decrease in taxable income; -/- = Decrease in financial income and decrease in taxable income.

Panel C: Historical Disclosed Tax Shelter Activity of n=848 sample

Tax Shelter Counts (Source: IRS Form 8886)	2003	2004	2005	2006
Total number of reportable transactions	1,499	1,046	436	169
Number of firms disclosing reportable transactions	274	182	89	61
Mean number of reportable transactions where <i>Reportable</i> = 1	5.47	5.75	4.90	2.77
Median number of reportable transactions where <i>Reportable</i> = 1	3	2	2	1

Panel D: Total Number of Years that 2007 Tax Shelter Sample (n=101) Reported at Least One Tax Shelter in 2003 to 2007.

Tax Shelter Years (Source: IRS Form 8886)	1	2	3	4	5
Number of Firms	21	28	20	20	12

TABLE 2
Descriptive Statistics and Correlations

Panel A: Descriptive Statistics (all dollar values in \$ millions)

	n	P25	Median	Mean	P75	Std
<u>Dependent Variable</u>						
Δ ReserveCY	848	0.00	1.41	17.52	10.00	53.61
<u>Variables of Interest</u>						
<i>TaxShelterCY</i>						
<i>Reportable</i>	848	0.00	0.00	0.12	0.00	0.32
<i>Listed</i>	848	0.00	0.00	0.03	0.00	0.18
<i>Non-listed</i>	848	0.00	0.00	0.10	0.00	0.31
<i>\$M3TotalBTD</i>	848	0.00	0.00	2.02	0.00	12.67
<i>\$M3PermBTD</i>	848	0.00	0.00	0.07	0.00	0.62
<i>Firm Monitoring</i>						
<i>ClientImportance</i>	842	0.00	0.01	0.01	0.01	0.02
<i>AuditorTaxSvc</i>	848	0.00	0.04	0.08	0.12	0.09
<i>GoodGov</i>	753	0.00	1.00	0.55	1.00	0.50
<u>Control Variables</u>						
<i>Tax Avoidance</i>						
<i>ETR</i>	848	0.26	0.33	0.31	0.37	0.15
<i>CashETR</i>	839	0.11	0.25	0.26	0.37	0.15
<i>TotalBTD</i>	848	-5.49	26.25	102.66	161.54	748.17
<i>PermBTD</i>	848	0.11	19.53	119.40	92.61	575.05
<i>DTAX</i>	848	-42.52	-1.60	18.04	30.37	434.32
<i>TaxComplexity</i>						
<i>R&D</i>	848	0.00	0.00	148.90	43.70	594.64
<i>M&A</i>	848	0.00	1.00	0.51	1.00	0.50
<i>ForeignSales</i>	848	0.00	91.95	1668.31	994.65	4684.66
<i>IntDiff</i>	848	-1.12	0.52	213.06	40.96	888.44
<i>MinorityInt</i>	848	0.00	0.00	11.93	0.00	55.06
<i>EquityEarn</i>	848	0.00	0.00	17.48	0.00	93.15
<i>AcctQuality</i>						
<i>USDefTax</i>	848	-6.23	0.00	-5.29	12.00	172.05
<i>LogAssets</i>	848	6.93	8.08	8.21	9.30	1.71
<i>Newcap</i>	848	0.00	0.00	0.34	1.00	0.47
<i>Litigious</i>	848	0.00	0.00	0.21	0.00	0.40
<i>DisclosQual</i>	848	-20.51	-19.70	-19.81	-18.74	1.60
<i>DiscAccrual</i>	848	-0.05	0.00	-0.01	0.04	0.16
<i>Leverage</i>	848	0.07	0.19	0.21	0.32	0.16
<i>MTB</i>	848	1.44	2.16	3.24	3.38	4.15
<i>ROA</i>	848	0.03	0.08	0.09	0.14	0.11

Table 2 (continued)
Descriptive Statistics and Correlations

Panel B: Correlations

	$\Delta ReserveCY$	<i>Reportable</i>	<i>Listed</i>	<i>Non-listed</i>	$\$M3TotalIBTD$	$\$M3PermBTD$	<i>ETR</i>	<i>CashETR</i>	<i>TotalIBTD</i>	<i>PermBTD</i>	<i>DTAX</i>
$\Delta ReserveCY$		0.26 ***	0.15 ***	0.25 ***	0.19 ***	0.09 ***	-0.16 ***	0.02	0.25 ***	0.40 ***	0.02
<i>Reportable</i>	0.26 ***		0.51 ***	0.93 ***	0.29 ***	0.17 ***	-0.04	0.02	0.11 ***	0.15 ***	0.02
<i>Listed</i>	0.19 ***	0.50 ***		0.28 ***	0.20 ***	0.09 **	-0.06	0.02	0.07 **	0.13 ***	0.02
<i>Non-listed</i>	0.26 ***	0.93 ***	0.28 ***		0.28 ***	0.16 ***	-0.02	0.03	0.11 ***	0.12 ***	0.02
$\$M3TotalIBTD$	0.24 ***	0.25 ***	0.13 ***	0.23 ***		0.53 ***	-0.02	0.03	0.13 ***	0.10 ***	0.02
$\$M3PermBTD$	0.15 ***	0.15 ***	0.01	0.15 ***	0.54 ***		-0.01	0.01	0.02	0.06 *	0.05
<i>ETR</i>	-0.05	0.00	0.00	0.01	0.02	-0.02		0.36 ***	-0.17 ***	-0.35 ***	-0.19 ***
<i>CashETR</i>	0.02	0.03	0.01	0.04	0.00	-0.01	0.41 ***		-0.15 ***	0.01	-0.03
<i>TotalIBTD</i>	0.17 ***	-0.01	0.04	-0.02	-0.04	-0.06	-0.06 *	-0.04		0.54 ***	0.15 ***
<i>PermBTD</i>	0.46 ***	0.14 ***	0.13 ***	0.12 ***	-0.07 **	-0.05	-0.05	0.00	0.53 ***		0.31 ***
<i>DTAX</i>	0.14 ***	0.05	0.08 **	0.04	0.00	0.07 **	0.00	0.01	0.10 ***	0.36 ***	

Panel B shows Pearson (lower diagonal) and Spearman (upper diagonal) correlation coefficients for $\Delta ReserveCY$, *TaxShelterCY*, and *TaxAvoidance* measures. ***, **, * indicate p-values less than 0.01, 0.05, 0.10, respectively, two-tailed. Sample period is 2007 with n=848, except *CashETR* (n=839). All continuous variables are winsorized at the 1 and 99 percent levels. $\Delta ReserveCY$ is the change in the tax reserve during 2007 (disclosed pursuant to FIN 48) relating specifically to 2007 tax positions. Five *TaxShelterCY* measures are defined as follows: *Reportable* = 1 if the firm discloses a reportable transaction during 2007, 0 otherwise; *Listed* = 1 if the firm discloses a listed transaction during 2007, 0 otherwise; *Non-listed* = 1 if firm discloses a non-listed transaction during 2007, 0 otherwise; $\$M3TotalIBTD$ = absolute dollar value of total book-tax income difference generated from reportable transactions during 2007; $\$M3PermBTD$ = absolute dollar value of permanent book-tax income differences generated from reportable transactions during 2007. Five *TaxAvoidance* measures are defined as follows: *ETR* = total tax expense divided by pre-tax income; *CashETR* = cash taxes paid divided by pre-tax income before special items; *TotalIBTD* = total book-tax differences; *PermBTD* = permanent book-tax differences; *DTAX* = discretionary permanent book-tax differences. *ClientImportance* = ratio of total (audit and non-audit) fees paid by the client to its auditor's total (audit and non-audit) fees for its office region; *AuditorTaxSvc* = ratio of client's tax fees paid to auditor to total fees paid to auditor; *GoodGov* = 1 if firm's G-Index is at or below (i.e., at or stronger than) the sample median G-Index score of 9; *R&D* = research and development expense [XRD]; *M&A* = 1 if firm was engaged in a material corporate merger or acquisition, 0 otherwise; *ForeignSales* = total foreign sales [FSALE]; *IntDiff* = Interest Deduction (Form 1120 Line 18) minus Interest Expense [XINT]; *MinorityInt* = minority interest income (loss) [MII]; *EquityEarn* = equity earnings (loss) [ESUB]; *USDefTax* = U.S. deferred tax expense (benefit) [TXDFED; if missing, TXDI]; *LogAssets* = natural log of total beginning of year assets [AT]; *Newcap* = 1 if firm issued new debt or equity in 2008, 0 otherwise; *Litigious* = 1 if firm is in litigious industry (see Figure 2 for full listing); *DisclosQual* = measure of annual report readability (FOG) from computational linguistics, multiplied by -1 such that higher values imply greater readability (Li [2008]); *DiscAccrual* = performance-matched discretionary accruals (Kothari, Leone, and Wasley [2005]); *Leverage* = ratio of short- and long-term debt to total lagged assets [DLC+DLTT/lagged AT]; *MTB* = market-to-book ratio [(CSHO*PRCC_F)/CEQ]; *ROA* = pretax income divided by lagged total assets [PI/lagged AT].

TABLE 3
Association Between Tax Reserves and Tax Shelters for Our Sample of 848 Firms in 2007

Panel A: *PermBTD* as *TaxAvoidance* Control Variable

This table presents the results of estimating Equation (1) that models the change in the FIN 48 tax reserve related to current year tax positions as a function of current year tax shelter activity and determinants of changes in tax reserves unrelated to tax sheltering as follows:

$$\Delta Reserve_{CY} = \beta_0 + \beta_1 TaxShelter_{CY} + \beta_k TaxAvoidance + \sum \beta_j TaxComplexity + \sum \beta_m AcctQuality + \varepsilon \quad (1)$$

Variables of Interest	Prediction	<i>TaxShelterCY</i> defined as:										
		<i>Reportable</i> (1)	<i>Listed</i> (2)	<i>Non-listed</i> (3)	<i>\$M3Total/BTD</i> (4)	<i>\$M3PermBTD</i> (5)						
<i>TaxShelterCY</i>	?	10.50 (1.71)	* (0.56)	7.21 (0.56)	12.96 (1.95)	** (2.20)	0.51 (2.20)	** (1.52)	7.85 (1.52)			
Control Variables												
<i>TaxAvoidance = PermBTD</i>	+	0.02 (2.35)	** (2.35)	0.02 (2.35)	** (2.38)	0.02 (2.38)	** (2.75)	0.02 (2.75)	*** (2.54)	0.02 (2.54)	**	
<i>TaxComplexity</i>	<i>R&D</i>	+	0.03 (3.51)	*** (3.45)	0.03 (3.45)	*** (3.53)	0.03 (3.53)	*** (3.64)	0.03 (3.58)	*** (3.58)	***	
	<i>M&A</i>	+	-0.39 (0.19)	-0.41 (-0.20)	-0.26 (-0.13)	0.70 (0.38)	0.10 (0.05)					
	<i>ForeignSales</i>	+	0.00 (0.51)	0.00 (0.51)	0.00 (0.47)	0.00 (0.55)	0.00 (0.57)					
	<i>IntDiff</i>	+	0.01 (3.46)	*** (3.60)	0.01 (3.60)	*** (3.53)	0.01 (3.51)	*** (3.51)	0.01 (3.59)	*** (3.59)	0.01 (3.59)	***
	<i>MinorityInt</i>	+	0.10 (1.57)	0.11 (1.69)	* (1.55)	0.10 (1.55)	0.10 (1.45)	0.10 (1.45)	0.10 (1.47)	0.10 (1.47)	0.10 (1.47)	
	<i>EquityEarn</i>	+	0.12 (2.50)	** (2.47)	0.12 (2.47)	** (2.51)	0.12 (2.45)	** (2.45)	0.11 (2.53)	** (2.53)	0.12 (2.53)	**
	<i>AcctQuality</i>	<i>USDefTax</i>	-	0.00 (0.19)	0.00 (0.10)	0.00 (0.23)	0.00 (-0.10)	0.00 (-0.10)	0.00 (-0.10)	0.00 (-0.01)	0.00 (-0.01)	
<i>LogAssets</i>		+	3.34 (2.59)	*** (2.82)	3.78 (2.82)	*** (2.59)	3.30 (2.57)	*** (2.57)	3.23 (2.93)	*** (2.93)	3.68 (2.93)	***
<i>Newcap</i>		-	-2.75 (-1.01)	-2.76 (-1.02)	-2.76 (-1.02)	-2.82 (-1.05)	-3.74 (-1.39)	-3.74 (-1.39)	-3.42 (-1.27)	-3.42 (-1.27)	-3.42 (-1.27)	
<i>Litigious</i>		+	4.85 (1.69)	* (1.85)	5.22 (1.85)	* (1.65)	4.74 (1.81)	* (1.81)	5.06 (1.78)	* (1.78)	4.99 (1.78)	*
<i>DisclosQual</i>		+	0.81 (1.26)	0.78 (1.21)	0.82 (1.28)	0.82 (1.28)	0.80 (1.27)	0.80 (1.27)	0.74 (1.18)	0.74 (1.18)	0.74 (1.18)	
<i>DiscAccrual</i>		-	-5.47 (-0.99)	-6.03 (-1.07)	-6.07 (-1.10)	-6.07 (-1.10)	-6.65 (-1.18)	-6.65 (-1.18)	-7.05 (-1.22)	-7.05 (-1.22)	-7.05 (-1.22)	
<i>Leverage</i>		-	2.11 (0.29)	2.56 (0.34)	1.70 (0.23)	3.23 (0.45)	3.22 (0.45)	3.22 (0.45)	3.22 (0.45)	3.22 (0.45)	3.22 (0.45)	
<i>MTB</i>		+	0.14 (0.53)	0.11 (0.41)	0.14 (0.53)	0.13 (0.49)	0.13 (0.48)	0.13 (0.48)	0.13 (0.48)	0.13 (0.48)	0.13 (0.48)	
<i>ROA</i>		+	14.53 (1.21)	14.94 (1.25)	14.16 (1.19)	12.05 (1.09)	13.98 (1.20)	13.98 (1.20)	13.98 (1.20)	13.98 (1.20)	13.98 (1.20)	
<i>Intercept</i>			-11.15 (-0.73)	-14.63 (-0.96)	-10.67 (-0.71)	-10.62 (-0.73)	-14.98 (-1.04)	-14.98 (-1.04)	-14.98 (-1.04)	-14.98 (-1.04)	-14.98 (-1.04)	
Adjusted-R ²		62.22%	61.94%	62.36%	63.15%	62.65%	62.65%	62.65%	62.65%	62.65%		

***, **, * indicate p-values less than 0.01, 0.05, 0.10, respectively, two-tailed. T-stats are reported in parentheses using Huber-White robust standard errors. All continuous variables are winsorized at the 1 and 99 percent levels.

TABLE 3 (continued)
Association Between Tax Reserves and Tax Shelters for Our Sample of 848 Firms in 2007

Panel B: *DTAX* as *TaxAvoidance* Control Variable

This table presents the results of estimating Equation (1) that models the change in the FIN 48 tax reserve related to current year tax positions as a function of current year tax shelter activity and determinants of changes in tax reserves unrelated to tax sheltering as follows:

$$\Delta Reserve_{CY} = \beta_0 + \beta_1 TaxShelter_{CY} + \beta_k TaxAvoidance + \sum \beta_j TaxComplexity + \sum \beta_m AcctQuality + \varepsilon \quad (1)$$

Variables of Interest	Prediction	<i>TaxShelterCY</i> defined as:							
		<i>Reportable</i> (1)	<i>Listed</i> (2)	<i>Non-listed</i> (3)	<i>\$M3TotalIBTD</i> (4)	<i>\$M3PermBTD</i> (5)			
<i>TaxShelterCY</i>	?	10.56 (1.66)	* (0.57)	8.20 (0.57)	12.54 (1.85)	* (1.91)	0.39 (1.91)	* (1.38)	6.15 (1.38)
Control Variables									
<i>TaxAvoidance = DTAX</i>	+	0.02 (1.80)	* (1.80)	0.02 (1.80)	* (1.81)	0.02 (1.79)	* (1.79)	0.02 (1.69)	* (1.69)
<i>TaxComplexity</i>	<i>R&D</i>	+ 0.03 (3.83)	*** (3.76)	0.03 (3.76)	*** (3.85)	0.03 (3.93)	*** (3.93)	0.03 (3.86)	*** (3.86)
	<i>M&A</i>	+ (-0.04) (-0.02)		-0.07 (-0.04)		0.09 (0.05)		0.86 (0.49)	0.39 (0.22)
	<i>ForeignSales</i>	+ 0.00 (0.75)		0.00 (0.75)		0.00 (0.71)		0.00 (0.81)	0.00 (0.81)
	<i>IntDiff</i>	+ 0.01 (3.17)	*** (3.29)	0.01 (3.29)	*** (3.25)	0.01 (3.25)	*** (3.18)	0.01 (3.18)	*** (3.32)
	<i>MinorityInt</i>	+ 0.11 (1.47)		0.11 (1.59)		0.10 (1.45)		0.10 (1.38)	0.11 (1.41)
	<i>EquityEarn</i>	+ 0.11 (2.46)	** (2.44)	0.11 (2.44)	** (2.47)	0.11 (2.47)	** (2.40)	0.10 (2.40)	** (2.47)
<i>AcctQuality</i>	<i>USDefTax</i>	- 0.00 (-0.18)		0.00 (-0.27)		0.00 (-0.15)		-0.01 (-0.49)	-0.01 (-0.41)
	<i>LogAssets</i>	+ 4.58 (3.58)	*** (2.87)	5.00 (2.87)	*** (3.65)	4.58 (3.70)	*** (3.70)	4.73 (3.96)	*** (3.96)
	<i>Newcap</i>	- (-1.02) (-0.39)		-1.02 (-0.39)		-1.08 (-0.42)		-1.66 (-0.64)	-1.50 (-0.57)
	<i>Litigious</i>	+ 5.82 (1.89)	* (2.02)	6.18 (2.02)	** (1.87)	5.74 (1.87)	* (2.05)	6.15 (2.05)	** (2.01)
	<i>DisclosQual</i>	+ 0.66 (0.90)		0.63 (0.87)		0.67 (0.92)		0.62 (0.87)	0.59 (0.83)
	<i>DiscAccrual</i>	- 2.24 (0.34)		1.68 (0.25)		1.69 (0.26)		1.69 (0.25)	1.05 (0.16)
	<i>Leverage</i>	- (-0.06) (-0.01)		0.43 (0.05)		-0.47 (-0.06)		0.71 (0.09)	0.81 (0.10)
	<i>MTB</i>	+ 0.28 (1.06)		0.25 (0.94)		0.28 (1.07)		0.27 (1.03)	0.26 (1.00)
	<i>ROA</i>	+ 23.56 (2.20)	** (2.31)	24.02 (2.31)	** (2.17)	23.27 (2.17)	** (2.19)	22.72 (2.19)	** (2.25)
<i>Intercept</i>		-24.75 (-1.37)	-28.02 (-1.60)	-24.58 (-1.40)	-26.54 (-1.53)	-29.31 (-1.73)		*	
Adjusted-R ²		60.01%	59.74%	60.12%	60.43%	60.14%			

***, **, * indicate p-values less than 0.01, 0.05, 0.10, respectively, two-tailed. T-stats are reported in parentheses using Huber-White robust standard errors. All continuous variables are winsorized at the 1 and 99 percent levels.

TABLE 3 (continued)
Association Between Tax Reserves and Tax Shelters for 2007

Panel C: Summary Results using *ETR*, *CashETR*, and *TotalBTD* as *TaxAvoidance* Measures

This table presents the results of estimating Equation (1) that models the change in the FIN 48 tax reserve related to current year tax positions as a function of current year tax shelter activity and determinants of changes in tax reserves unrelated to tax sheltering as follows:

$$\Delta Reserve_{CY} = \beta_0 + \beta_1 TaxShelter_{CY} + \beta_k TaxAvoidance + \sum \beta_l TaxComplexity + \sum \beta_m AcctQuality + \varepsilon \quad (1)$$

		<i>TaxShelterCY</i> defined as:				
		<i>Reportable</i>	<i>Listed</i>	<i>Non-listed</i>	<i>\$M3TotalBTD</i>	<i>\$M3PermBTD</i>
		(1)	(2)	(3)	(4)	(5)
<u>Variables of Interest</u>	Prediction					
<i>TaxShelterCY</i>	?	10.85 *	9.86	12.62 *	0.40 *	6.72
		(1.68)	(0.67)	(1.83)	(1.91)	(1.53)
<u>Control Variables</u>						
<i>TaxAvoidance = ETR</i>	-	-0.14	-0.24	-0.56	-0.82	0.17
		(-0.02)	(-0.03)	(-0.07)	(-0.10)	(0.02)
<i>TaxComplexity?</i>		Y	Y	Y	Y	Y
<i>AcctQuality?</i>		Y	Y	Y	Y	Y
Adjusted-R ²		59.30%	59.04%	59.39%	59.72%	59.51%
		(6)	(7)	(8)	(9)	(10)
<u>Variables of Interest</u>	Prediction					
<i>TaxShelterCY</i>	?	10.61 *	10.30	12.29 *	0.40 **	6.71
		(1.65)	(0.70)	(1.80)	(1.92)	(1.53)
<u>Control Variables</u>						
<i>TaxAvoidance = CashETR</i>	-	-0.50	-0.47	-0.81	-0.15	-0.17
		(-0.11)	(-0.08)	(-0.17)	(-0.03)	(-0.04)
<i>TaxComplexity?</i>		Y	Y	Y	Y	Y
<i>AcctQuality?</i>		Y	Y	Y	Y	Y
Adjusted-R ²		58.99%	58.76%	59.08%	59.44%	59.22%
		(11)	(12)	(13)	(14)	(15)
<u>Variables of Interest</u>	Prediction					
<i>TaxShelterCY</i>	?	11.15 *	9.21	13.18 *	0.48 **	7.93
		(1.76)	(0.65)	(1.95)	(2.25)	(1.63)
<u>Control Variables</u>						
<i>TaxAvoidance = TotalBTD</i>	+	0.01	0.01	0.01	0.01	0.01
		(1.16)	(1.13)	(1.18)	(1.58)	(1.45)
<i>TaxComplexity?</i>		Y	Y	Y	Y	Y
<i>AcctQuality?</i>		Y	Y	Y	Y	Y
Adjusted-R ²		60.05%	59.75%	60.16%	60.77%	60.44%

***, **, * indicate p-values less than 0.01, 0.05, 0.10, respectively, two-tailed. T-stats are reported in parentheses using Huber-White robust standard errors. Sample period is 2007 with n=848, except *CashETR* tests (n=839). All continuous variables are winsorized at the 1 and 99 percent levels.

$\Delta Reserve_{CY}$ is the change in the tax reserve during 2007 (disclosed pursuant to FIN 48) relating specifically to 2007 tax positions. Five *TaxShelterCY* measures are defined as follows: *Reportable* = 1 if the firm discloses a reportable transaction during 2007, 0 otherwise; *Listed* = 1 if the firm discloses a listed transaction during 2007, 0 otherwise; *Non-listed* = 1 if firm discloses a non-listed transaction during 2007, 0 otherwise; *\$M3TotalBTD* = absolute dollar value of total book-tax income difference generated from reportable transactions during 2007; *\$M3PermBTD* = absolute dollar value of permanent book-tax income differences generated from reportable transactions during 2007. Five *TaxAvoidance* measures are defined as follows: *ETR* = total tax expense divided by pre-tax income; *CashETR* = cash taxes paid divided by pre-tax income before special items; *TotalBTD* = total book-tax differences; *PermBTD* = permanent book-tax differences; *DTAX* = discretionary permanent book-tax differences. *TaxComplexity* variables are *R&D* = research and development expense [XRD]; *M&A* = 1 if firm was engaged in a material corporate merger or acquisition, 0 otherwise; *ForeignSales* = total foreign sales [FSALE]; *IntDiff* = Interest Deduction (Form 1120 Line 18) minus Interest Expense [XINT]; *MinorityInt* = minority interest income (loss) [MII]; *EquityEarn* = equity earnings (loss) [ESUB]. *AcctQuality* variables are *USDdefTax* = U.S. deferred tax expense (benefit) [TXDFED; if missing, TXDI]; *LogAssets* = natural log of total beginning of year assets [AT]; *Newcap* = 1 if firm issued new debt or equity in 2008, 0 otherwise; *Litigious* = 1 if firm is in litigious industry (see Figure 2 for full listing); *DisclosQual* = measure of annual report readability (FOG) from computational linguistics, multiplied by -1 such that higher values imply greater readability (Li [2008]); *DiscAccrual* = performance-matched discretionary accruals (Kothari, Leone, and Wasley [2005]); *Leverage* = ratio of short- and long-term debt to total lagged assets [DLC+DLTT/lagged AT]; *MTB* = market-to-book ratio [(CSHO*PRCC_F)/CEQ]; *ROA* = pretax income divided by lagged total assets [PI/lagged AT].

TABLE 4

Examination of the Effect of Client Importance on the Association Between Tax Reserves and Tax Shelters for 2007

This table presents the results of estimating Equation (2a) that models the change in the FIN 48 tax reserve related to current year tax positions as a function of current year tax shelter activity, a measure of client importance (and an interaction term), a measure of auditor expertise and knowledge (and an interaction term), and determinants of changes in tax reserves unrelated to tax sheltering as follows:

$$\Delta ReserveCY = \beta_0 + \beta_1 TaxShelterCY + \beta_2 ClientImportance + \beta_3 ClientImportance \times TaxShelterCY + \beta_4 AuditorTaxSvc + \beta_5 AuditorTaxSvc \times TaxShelterCY + \beta_k TaxAvoidance_t + \sum \beta_l TaxComplexity + \sum \beta_m AcctQuality + \varepsilon \quad (2a)$$

Variables of Interest	Prediction	TaxShelterCY defined as:						
		Reportable	Listed	Nonlisted	\$M3TotalBTD	\$M3PermBTD		
		(1)	(2)	(3)	(4)	(5)		
<i>TaxShelterCY</i>	?	-1.23 (-0.17)	-26.78 (-2.77)	*** (-0.19)	-1.38 (1.05)	0.31 (-3.65)	-6.24 (2.40)	***
<i>ClientImportance</i>	?	132.74 (1.37)	156.41 (1.62)		143.16 (1.56)	197.49 (1.93)	* (2.40)	**
<i>ClientImportance</i> × <i>TaxShelterCY</i>	?	829.46 (2.49)	** (2.22)	** (2.72)	965.90 (2.72)	*** (3.27)	20.68 (2.89)	***
Control Variables								
<i>AuditorTaxSvc</i>	?	15.80 (1.77)	* (0.93)		9.37 (1.76)	15.39 (1.11)	* (1.44)	15.85 (1.44)
<i>AuditorTaxSvc</i> × <i>TaxShelterCY</i>	?	-61.70 (-0.80)			43.37 (0.29)	-67.32 (-0.83)	-3.33 (-1.47)	-23.98 (-1.46)
<i>TaxAvoidance?</i> ^a		Y	Y	Y	Y	Y	Y	Y
<i>TaxComplexity?</i>		Y	Y	Y	Y	Y	Y	Y
<i>AcctQuality?</i>		Y	Y	Y	Y	Y	Y	Y
Adjusted-R ²		65.46%	64.87%	65.78%	66.67%	66.81%		
Variables of Interest	Prediction	(6)	(7)	(8)	(9)	(10)		
<i>TaxShelterCY</i>	?	-0.40 (-0.06)	-21.95 (-2.87)	*** (-0.06)	-0.46 (1.19)	0.29 (-3.90)	-6.62 (3.06)	***
<i>ClientImportance</i>	?	168.56 (1.41)	200.21 (1.70)	* (1.60)	183.08 (2.05)	271.52 (2.38)	** (3.05)	**
<i>ClientImportance</i> × <i>TaxShelterCY</i>	?	873.24 (2.35)	** (1.94)	* (2.40)	992.29 (2.40)	** (2.36)	13.06 (3.05)	**
Adjusted-R ²		63.70%	62.86%	63.91%	63.14%	63.77%		

^a *TaxAvoidance* measure is *PermBTD*. ^b *TaxAvoidance* measure is *DTAX*. Main results using *TaxAvoidance* measures of *ETR*, *CashETR*, and *TotalBTD* are qualitatively identical as above, except that each of the three *TaxAvoidance* variables is insignificant.

***, **, * indicate p-values less than 0.01, 0.05, 0.10, respectively, two-tailed. T-stats are reported in parentheses using Huber-White robust standard errors. 842 firms have required data in Audit Analytics to compute *ClientImportance* and *AuditorTaxSvc*. All continuous variables are winsorized at the 1 and 99 percent levels. $\Delta ReserveCY$ is the change in the tax reserve during 2007 (disclosed pursuant to FIN 48) relating specifically to 2007 tax positions. Five *TaxShelterCY* measures are defined as follows: *Reportable* = 1 if the firm discloses a reportable transaction during 2007, 0 otherwise; *Listed* = 1 if the firm discloses a listed transaction during 2007, 0 otherwise; *Non-listed* = 1 if firm discloses a non-listed transaction during 2007, 0 otherwise; *\$M3TotalBTD* = absolute dollar value of total book-tax income difference generated from reportable transactions during 2007; *\$M3PermBTD* = absolute dollar value of permanent book-tax income differences generated from reportable transactions during 2007. Five *TaxAvoidance* measures are defined as follows: *ETR* = total tax expense divided by pre-tax income; *CashETR* = cash taxes paid divided by pre-tax income before special items; *TotalBTD* = total book-tax differences; *PermBTD* = permanent book-tax differences; *DTAX* = discretionary permanent book-tax differences. *ClientImportance* = ratio of total (audit and non-audit) fees paid by the client to its auditor's total (audit and non-audit) fees for its office region; *AuditorTaxSvc* = ratio of client's tax fees paid to auditor to total fees paid to auditor; *TaxComplexity* variables are *R&D* = research and development expense [XRD]; *M&A* = 1 if firm was engaged in a material corporate merger or acquisition, 0 otherwise; *ForeignSales* = total foreign sales [FSALE]; *IntDiff* = Interest Deduction (Form 1120 Line 18) minus Interest Expense [XINT]; *MinorityInt* = minority interest income (loss) [MII]; *EquityEarn* = equity earnings (loss) [ESUB]. *AcctQuality* variables are *USDDefTax* = U.S. deferred tax expense (benefit) [TXDFED; if missing, TXDI]; *LogAssets* = natural log of total beginning of year assets [AT]; *Newcap* = 1 if firm issued new debt or equity in 2008, 0 otherwise; *Litigious* = 1 if firm is in litigious industry (see Figure 2 for full listing); *DisclosQual* = measure of annual report readability (FOG) from computational linguistics, multiplied by -1 such that higher values imply greater readability (Li [2008]); *DiscAccrual* = performance-matched discretionary accruals (Kothari, Leone, and Wasley [2005]); *Leverage* = ratio of short- and long-term debt to total lagged assets [DLC+DLTT/lagged AT]; *MTB* = market-to-book ratio [(CSHO*PRCC_F)/CEQ]; *ROA* = pretax income divided by lagged total assets [PI/lagged AT].

TABLE 5

Examination of the Effect of Corporate Governance on the Association Between Tax Reserves and Tax Shelters for 2007

This table presents the results of estimating Equation (2b) that models the change in the FIN 48 tax reserve related to current year tax positions as a function of current year tax shelter activity, a measure of corporate governance (and an interaction term), and determinants of changes in tax reserves unrelated to tax sheltering as follows:

$$\Delta Reserve_{CY} = \beta_0 + \beta_1 TaxShelter_{CY} + \beta_2 GoodGov + \beta_3 GoodGov \times TaxShelter_{CY} + \beta_k TaxAvoidance + \sum \beta_l TaxComplexity + \sum \beta_m AcctQuality + \varepsilon \quad (2b)$$

Variables of Interest	Prediction	TaxShelterCY defined as:				
		Reportable (1)	Listed (2)	Nonlisted (3)	\$M3TotalBTD (4)	\$M3PermBTD (5)
<i>TaxShelterCY</i>	?	16.48 ** (1.96)	17.70 (0.97)	17.71 * (1.94)	0.10 (0.59)	0.58 (0.50)
<i>GoodGov</i>	?	3.86 * (1.73)	2.64 (1.06)	3.68 (1.63)	0.15 (0.06)	0.90 (0.37)
<i>GoodGov</i> × <i>TaxShelterCY</i>	?	-10.75 (-0.82)	-12.63 (-0.46)	-10.79 (-0.75)	0.78 (1.77)	12.09 (1.57)
Control Variables						
<i>TaxAvoidance?</i> ^a		Y	Y	Y	Y	Y
<i>TaxComplexity?</i>		Y	Y	Y	Y	Y
<i>AcctQuality?</i>		Y	Y	Y	Y	Y
Adjusted-R ²		62.56%	62.24%	62.60%	64.22%	63.40%
Variables of Interest	Prediction	(6)	(7)	(8)	(9)	(10)
<i>TaxShelterCY</i>	?	16.91 * (1.87)	19.77 (0.97)	18.01 * (1.84)	0.04 (0.22)	0.06 (0.03)
<i>GoodGov</i>	?	4.47 ** (2.00)	3.33 (1.33)	4.34 * (1.91)	1.21 (0.47)	1.71 (0.65)
<i>GoodGov</i> × <i>TaxShelterCY</i>	?	-11.34 (-0.81)	-17.29 (-0.55)	-11.93 (-0.78)	0.61 (1.70)	9.78 (1.53)
Control Variables						
<i>TaxAvoidance?</i> ^b		Y	Y	Y	Y	Y
<i>TaxComplexity?</i>		Y	Y	Y	Y	Y
<i>AcctQuality?</i>		Y	Y	Y	Y	Y
Adjusted-R ²		60.24%	59.93%	60.26%	60.93%	60.53%

^a *TaxAvoidance* measure is *PermBTD*. ^b *TaxAvoidance* measure is *DTAX*. Main results using *TaxAvoidance* measures of *ETR*, *CashETR*, and *TotalBTD* are qualitatively identical as above, except that each of the three *TaxAvoidance* variables is insignificant.

***, **, * indicate p-values less than 0.01, 0.05, 0.10, respectively, two-tailed. T-stats are reported in parentheses using Huber-White robust standard errors. 753 firms have required data in RiskMetrics to compute *GoodGov*. All continuous variables are winsorized at the 1 and 99 percent levels.

$\Delta Reserve_{CY}$ is the change in the tax reserve during 2007 (disclosed pursuant to FIN 48) relating specifically to 2007 tax positions. Five *TaxShelterCY* measures are defined as follows: *Reportable* = 1 if the firm discloses a reportable transaction during 2007, 0 otherwise; *Listed* = 1 if the firm discloses a listed transaction during 2007, 0 otherwise; *Non-listed* = 1 if firm discloses a non-listed transaction during 2007, 0 otherwise; *\$M3TotalBTD* = absolute dollar value of total book-tax income difference generated from reportable transactions during 2007; *\$M3PermBTD* = absolute dollar value of permanent book-tax income differences generated from reportable transactions during 2007. Five *TaxAvoidance* measures are defined as follows: *ETR* = total tax expense divided by pre-tax income; *CashETR* = cash taxes paid divided by pre-tax income before special items; *TotalBTD* = total book-tax differences; *PermBTD* = permanent book-tax differences; *DTAX* = discretionary permanent book-tax differences. *GoodGov* = 1 if firm's G-Index is at or below (i.e., at or stronger than) the sample median G-Index score of 9; *TaxComplexity* variables are *R&D* = research and development expense [XRD]; *M&A* = 1 if firm was engaged in a material corporate merger or acquisition, 0 otherwise; *ForeignSales* = total foreign sales [FSALE]; *IntDiff* = Interest Deduction (Form 1120 Line 18) minus Interest Expense [XINT]; *MinorityInt* = minority interest income (loss) [MII]; *EquityEarn* = equity earnings (loss) [ESUB]. *AcctQuality* variables are *USDefTax* = U.S. deferred tax expense (benefit) [TXDFED]; if missing, TXDI]; *LogAssets* = natural log of total beginning of year assets [AT]; *Newcap* = 1 if firm issued new debt or equity in 2008, 0 otherwise; *Litigious* = 1 if firm is in litigious industry (see Figure 2 for full listing); *DisclosQual* = measure of annual report readability (FOG) from computational linguistics, multiplied by -1 such that higher values imply greater readability (Li [2008]); *DiscAccrual* = performance-matched discretionary accruals (Kothari, Leone, and Wasley [2005]); *Leverage* = ratio of short- and long-term debt to total lagged assets [DLC+DLTT/lagged AT]; *MTB* = market-to-book ratio [(CSHO*PRCC_F)/CEQ]; *ROA* = pretax income divided by lagged total assets [PI/lagged AT].