

**One size does not fit all:  
The effect of guidance intended to improve comparability on relevance**

Leslie Robinson  
Dartmouth College

Bridget Stomberg  
University of Georgia

Erin Towery  
University of Georgia

March 2014

---

**ABSTRACT**

This study uses accounting for income tax uncertainty (FIN 48) to examine the tradeoff between comparability and relevance. The FASB intended FIN 48 to enhance both the comparability and relevance of income tax reporting, yet practitioners have expressed concerns that this guidance does not increase relevance because it produces liabilities that are not informative about future cash flows. Consistent with these concerns, we estimate that, on average, less than 24 cents of every dollar of reserves is paid in cash. We also document a decreased ability of tax expense to predict future cash taxes among firms for which the criteria imposed by FIN 48 are least realistic. Finally, we fail to find evidence that investors identify firms for which reserves are most likely to overstate future cash outflows. Our findings imply that guidance intended to enhance comparability sacrifices relevance, especially among firms for which the guidance is most restrictive.

Keywords: Comparability; Relevance; FIN 48; Income tax uncertainty  
JEL Codes: H25, M41, M48

We greatly appreciate feedback received from Danielle Higgins (discussant), Lillian Mills, Richard Sansing, Casey Schwab, participants at the Journal of American Taxation Association Conference, the University of Georgia Tax Readings Group, and workshop participants at the University of Oregon and Georgetown University. The Internal Revenue Service (IRS) provided confidential tax information to Towery pursuant to provisions of the Internal Revenue Code that allow disclosure of information to a contractor to the extent necessary to perform a research contract for the IRS. None of the confidential tax information received from the IRS will be disclosed in this treatise. Statistical aggregates will be used so that a specific taxpayer cannot be identified from information supplied by the IRS. All opinions are those of the authors and do not reflect the views of the IRS.

Contact author: Erin Towery, Physical address: Tull School of Accounting, University of Georgia, 232 Brooks Hall, 310 Herty Drive, Athens, GA, 30602, USA. Telephone number: 706-542-3620. Email address: [etowery@uga.edu](mailto:etowery@uga.edu).

## I. INTRODUCTION

Standard setters often make tradeoffs between the qualitative characteristics of accounting information outlined in the conceptual framework. Schipper (2003) calls attention to the tradeoff “between comparability, which facilitates inter-firm comparison, and [relevance], which facilitates calculations of intrinsic value” (Schipper 2003, 66), noting that guidance aimed at improving comparability by reducing discretion may not improve relevance if it standardizes the accounting for considerably dissimilar transactions (Schipper 2003). We examine this tradeoff in the context of ASC 740-10, *Accounting for Uncertainty in Income Taxes*, (hereinafter “FIN 48”). Not only does FIN 48 apply materially to a broad set of firms, but standard setters explicitly describe how the guidance aims to improve comparability by imposing common criteria. Further, the impact on relevance continues to be debated by standard setters and practitioners years after implementation (FAF 2012).

Though the Financial Accounting Standards Board (FASB) asserted that FIN 48 “increased relevance *and* comparability in the financial reporting of income taxes” (FASB 2006, 3, emphasis added), a post-implementation review of FIN 48 calls this assertion into question (FAF 2012; Blouin and Robinson 2014). Users and preparers voiced concerns that FIN 48 failed to increase the relevance of income tax accounting because its standardized criteria do “not reflect the knowledge, experience, and judgment of the company” (TEI 2011). As a result, FIN 48 might not improve relevance because it is not predictive or confirmatory of future cash flows of the firm (FASB 2010; FAF 2012; Blouin and Robinson 2014).<sup>1</sup> Our study responds to the call

---

<sup>1</sup> SFAC 8 characterizes relevance as a fundamental characteristic of useful information, and comparability as an enhancing characteristic that improves the usefulness of relevant information. Relevant information has predictive value, confirmatory value, or both. Predictive value implies that the information is useful in making predictions. Confirmatory value implies that the information provides feedback about previous predictions (change or confirms). Comparability implies that like things (i.e., the same economic transactions) must look alike and different things must look different.

in Blouin and Robinson (2014) for more research on the impact of FIN 48 *relative to prior guidance*.

FIN 48 guides firms' recognition of contingency reserves for uncertain tax benefits, which relate to tax benefits claimed in the current period that could be reversed in a future period if successfully challenged by a taxing authority. Such reserves are substantial for many firms and can materially impact income tax accounting (Dhaliwal, Gleason and Mills 2004; Towery 2013). Among the 400 largest firms in our sample, these reserves total almost \$150 billion in aggregate. Despite the materiality of tax contingency reserves, however, no *direct* guidance governing their accounting treatment existed prior to FIN 48.<sup>2</sup> As a result, divergent practices emerged across firms, and regulators voiced concerns that income tax accounting lacked comparability and provided opportunities for earnings management. The FASB addressed these concerns by enacting FIN 48, effective December 15, 2006.

The FASB intended FIN 48 to improve comparability by imposing a common set of recognition and measurement criteria on all firms and all tax positions (FASB 2006, 3). However, constituents believe that several of these criteria could create a "gap between the prescribed financial reporting and the underlying economics" (FASB 2005, 14). For instance, first, firms must use a "benefit recognition approach", whereby benefits from tax positions failing to meet a minimum threshold of certainty are fully reserved. Second, tax positions are evaluated discretely, notwithstanding the possibility of compromising with taxing authorities on one position to achieve a favorable outcome on another. Third, firms must assume a 100 percent audit probability for every tax position in every jurisdiction.

---

<sup>2</sup> Many firms applied the more general guidance in Statement of Financial Accounting Standards (SFAS) No. 5, *Accounting for Contingencies*, to income tax contingencies.

Imposing common criteria on all firms could affect relevance in two distinct ways. On the one hand, the criteria could increase relevance by constraining firms' discretion when recording tax reserves. If prior to FIN 48, firms used their discretion to manage earnings and not to convey their private knowledge and experience, then reserves recorded under the standardized guidance of FIN 48 could be more relevant. On the other hand, the criteria could decrease relevance by restricting managers' ability to convey their private information about expected future cash settlements. For example, practitioners claim that "the inability to take into account the dynamic process [of a tax audit] and reflect the firm's judgment about the overall outcome" produces excess liabilities that lack relevance because they will never be realized (TEI 2011).<sup>3</sup> Any excess reserves generated by these criteria may lack relevance to the extent they lack predictive or confirmatory value about future cash outflows (FASB 2010). Therefore, whether the standardization of accounting for tax uncertainty under FIN 48 increased the relevance of income tax accounting is an empirical question.

To help motivate our formal tests of how FIN 48 affects relevance, we first examine descriptive data on how FIN 48 reserves unwind when tax uncertainty is resolved. If FIN 48 systematically produces excess reserves by forcing a common set of restrictive assumptions on all firms, we expect a small proportion of tax reserves to unwind via cash settlements with taxing authorities. Consistent with expectations, we estimate that each dollar of tax reserves at the end of year  $t$  is associated with less than 24 cents of cash paid via settlements with taxing authorities through year  $t+3$ . In contrast, over 50 cents unwinds through lapses in statutes of limitations and

---

<sup>3</sup> Blouin and Robinson (2014) and FAF (2012) describe that FIN 48 was passed during a time when there was concern that firms were prematurely recognizing tax benefits (and earnings) from uncertain tax positions. Hence, we recognize that the FASB deliberately enacted "conservative" guidance (that could create excess reserves, and understate earnings). We echo the Tax Executives Institute (TEI) and use the term "excess" to imply that the reserve is higher than the amount of cash taxes the firm ultimately pays to resolve its uncertain tax positions. The purpose of this study is to evaluate whether the new guidance improved relevance.

other non-cash unwinds. Furthermore, the magnitude of lapses is significantly greater for firms not under continuous IRS audit, suggesting that firms likely adhere to these restrictive criteria and that the 100 percent audit probability assumption contributes to excess reserves.

We next examine how the unwinding of FIN 48 reserves for settled positions impacts firms' effective tax rates (ETRs). Though descriptive data suggest that only 24 cents of each dollar reserved unwinds via settlement, it does not convey how the 24-cent settlement relates to the reserve initially established for the position. Examining the impact of settlements on ETRs allows us to more carefully assess how a reserve initially recognized for an uncertain tax position relates to the actual outcome of the settlement. Releasing an excess tax reserve upon settlement decreases the ETR because the tax expense recorded upon establishing the initial reserve exceeds the benefit disallowed. The opposite is true for insufficient reserves. We estimate that post-FIN 48, firms' ETRs decrease by an average of 1.3 percentage points at settlement.<sup>4</sup> Again, these findings corroborate practitioner concerns that FIN 48 results in excess tax reserves.

Though our descriptive analyses suggest that FIN 48 reserves lack relevance, testing whether FIN 48 improved relevance requires us to compare the relevance of income tax accounting pre- and post- FIN 48. We do this in two ways. First, we extend our ETR regression analysis using confidential IRS data from 2002 through 2011 and find no difference in how IRS settlements affect ETRs across the two periods. We therefore fail to find evidence that FIN 48 changed the likelihood of firms having excess reserves for settled positions. Second, because the effect of statute lapses on ETRs post-FIN 48 is non-trivial, but we are unable to observe lapses pre-FIN 48, we assess the impact of FIN 48 on the relevance of tax reserves for unaudited positions using a different research design. Specifically, we compare the ability of tax expense to

---

<sup>4</sup> We also use the ETR regression framework to estimate that, on average, ETRs decrease by 1.7 percentage points in the period a statute lapses.

predict future cash taxes paid for firms that report a significant portion of their reserves unwind via lapses in statutes of limitations, relative to other firms, before and after FIN 48. We find that the ability of tax expense to predict future cash taxes paid declines post-FIN 48, but only for these high-lapse firms.

Our final set of tests examines the confirmatory value of FIN 48 reserves, which requires us to consider whether investors use FIN 48 information to confirm or evaluate prior predictions about cash flows. In other words, excess tax reserves do not necessarily decrease the relevance of income tax accounting if the required disclosures allow financial statement users to confirm or evaluate prior predictions and, going forward, adjust FIN 48 information for estimates of the differences between initial reserves and the portion of reserves that are not paid out via cash settlements (FAF 2012).<sup>5</sup> Thus, we examine investors' valuation of tax expense during the FIN 48 period, with a focus on the valuation of tax expense for high-lapse firms relative to other firms. If investors are able to adjust FIN 48 information for estimates of the differences between initial reserves and the portion of reserves that are not paid out via cash settlements, we expect a less negative coefficient on tax expense. We find no such evidence. Thus, investors do not appear to be able to distinguish firms for which tax reserve accruals will unwind with no cash consequences from other firms.

To our knowledge, ours is the first study to provide empirical evidence on whether FIN 48 affected the relevance of income tax accounting. In sum, we fail to find evidence supporting the FASB's assertion that FIN 48 improved relevance. In fact, our findings suggest that FIN 48 *decreased* the relevance of income tax accounting for firms most likely to experience statute lapses. Thus, the 100 percent audit probability assumption FIN 48 imposes comes at the cost of

---

<sup>5</sup> Some empirical studies question the completeness and quality of FIN 48 disclosures (e.g., Blouin, Gleason, Mills and Sikes 2007; Robinson and Schmidt 2013; Dunbar, Omer and Schulz 2010), suggesting it might be difficult to make such an adjustment to FIN 48 information.

decreasing the relevance of accounting information. Though the benefit recognition approach and the inability to offset positions likely also contribute to excess reserves on settled positions post-FIN 48, they do not appear to lead to excess reserves any more so after FIN 48 than before.

These findings have important implications for researchers, investors, and standard setters. First, despite the benefits of financial statement comparability (e.g., De Franco, Kothari and Verdi 2011), Schipper and Vincent (2003) suggest we know little about whether comparability is achieved at the expense of relevance. Our study implies that achieving comparability may come at a cost of reduced relevance when accounting guidance is overly restrictive for some firms. Our study therefore informs standard setters on the extent to which attempts to improve comparability can affect relevance when the guidance prevents firms' reporting choices from reflecting idiosyncrasies of the underlying economic phenomena being reported (Schipper 2003). Second, our finding that the reserve is a poor indication of future cash flows advances the academic literature on measuring tax avoidance by documenting that the reserve captures the *maximum*, not the actual, amount of tax aggressiveness a firm assumes in tax planning. This is important for: (i) researchers using FIN 48 reserves to identify firms with a high likelihood of future cash settlements (e.g., Hanlon, Maydew and Saavedra 2013), and (ii) investors who report that they use FIN 48 information to predict tax cash outflows (FAF 2012).

Section II provides background and develops our hypothesis. Section III describes our sample derivation and presents descriptive statistics. Section IV outlines our formal empirical tests and discusses results. Section V concludes.

## II. BACKGROUND AND HYPOTHESIS DEVELOPMENT

### Background

FIN 48, issued by the FASB in June 2006, provides firms with guidance for recognizing, measuring, and disclosing information about income tax benefits in their financial statements. Firms must evaluate each material income tax position taken on the tax return using the criteria outlined in FIN 48. Only those tax benefits associated with positions that are more-likely-than-not to be upheld upon audit by a taxing authority are recognized. In contrast, tax benefits associated with positions not meeting the more-likely-than-not threshold are not recognized.<sup>6</sup>

When a firm establishes a FIN 48 reserve, it increases tax expense and records a liability for the amount of the claimed, but unrecognized, tax benefit. Firms disclose this liability in the financial statement footnotes as an “unrecognized tax benefit” (UTB).<sup>7</sup> Thus, FIN 48 is intended to provide investors with information about the maximum amount of tax benefits that may be disallowed if examined by a taxing authority. Once the outcome of the tax position is no longer uncertain, the firm releases the associated FIN 48 reserve. The effect on earnings from releasing a reserve depends on the difference between the initial liability recorded and the actual outcome. For example, a reserve that is released because a position goes unaudited through the statute of limitations would have a favorable impact on earnings equal to the amount of the initial reserve.

No direct guidance existed to govern accruals for tax contingencies prior to FIN 48. Although many firms applied SFAS 5, *Accounting for Contingencies*, to income tax contingencies, the lack of guidance resulted in wide diversity in practice, making it difficult to compare tax contingencies across firms (FAF 2012). For example, although some firms

---

<sup>6</sup> For simplicity, this paragraph describes the recognition step of FIN 48. The guidance also contains a measurement step often referred to as the “cumulative probability weighting approach” whereby tax positions that pass the more-likely-than-not threshold may require a partial reserve. See Mills, Robinson and Sansing (2010) for a discussion of how the measurement step of FIN 48 may also produce excess reserves.

<sup>7</sup> FIN 48 requires firms to reconcile beginning UTBs with ending UTBs in a tabular roll-forward schedule.



recognized a tax contingency reserve when it was probable that a liability has been incurred and the amount was reasonably estimable, others waited to establish reserves until audited by a taxing authority. The FASB enacted FIN 48 to reduce this diversity in practice, conform the accounting for tax contingencies, and enhance disclosure.

The FASB claims that FIN 48 increased both the comparability and relevance of financial reporting for income taxes because all tax positions accounted for in accordance with SFAS 109, *Accounting for Income Taxes*, are evaluated using consistent recognition and measurement criteria (FASB 2006, 2). Because standard setting is guided by the qualitative characteristics of accounting information outlined in the conceptual framework, the FASB describes how it considered the framework when drafting FIN 48.<sup>8</sup> In particular, the FASB notes that the “characteristics [outlined in the framework] emphasize that comparable information enables users to identify similarities in and differences between two sets of economic events” and that FIN 48 introduces consistent recognition criteria to facilitate comparability (FASB 2006, 2). However, the FASB does not explicitly mention or draw a link to relevance when describing how FIN 48 relates to the conceptual framework.

A growing literature documents benefits from comparability. These studies generally examine outcomes associated with firms adopting a common set of accounting standards. In particular, International Financial Reporting Standards (IFRS) adoption is associated with greater analyst following and forecast accuracy (De Franco et al. 2011; Tan, Wang and Welker 2011; Bradshaw, Miller and Serafeim 2009), increased cross-border investment (DeFond, Hu, Hung

---

<sup>8</sup> Seven “concept statements” form the basis of the FASB’s conceptual framework. However, the FASB and the International Accounting Standards Board (IASB) have undertaken a joint project to improve and merge their respective frameworks. FASB SFAC No. 8, *Conceptual Framework for Financial Reporting*, includes the first two chapters of the new framework. Chapter 3 of SFAC No. 8, *Qualitative Characteristics of Useful Financial Information* (issued September 2010) supersedes SFAC No. 2, *Qualitative Characteristics of Accounting Information* (issued May 1980). However, the definition of relevance did not change when SFAC 8 replaced SFAC 2. The FASB explicitly considered SFAC 2 during deliberations over FIN 48.

and Li 2011), more efficient compensation contracting (Ozkan, Singer and You 2012), and increased information content of earnings (Landsman, Maydew and Thornock 2011).

However, standards aimed at increasing comparability by reducing discretion can also decrease relevance by introducing restrictive assumptions that force dissimilar arrangements into the same accounting treatment (Schipper 2003). To the extent FIN 48 forces firms with dissimilar facts and circumstances to follow the same process for establishing tax contingency reserves, these reserves may lack relevance. For instance, practitioners have expressed concern that the uniform criteria FIN 48 imposes on all firms produce excess reserves that systematically overstate the cash outflows required to settle uncertain tax positions. Thus, practitioners fear that FIN 48 reserves are neither predictive nor confirmatory of future cash flows (FAF 2012).

These concerns that FIN 48 produces excess reserves primarily arise from three criteria in the Interpretation. First, firms must use a “benefit recognition approach” whereby only those tax benefits from positions that meet a minimum confidence threshold (i.e., more-likely-than-not) are eligible for recognition while none of the benefits from positions that do not meet the threshold can be recognized.<sup>9</sup> Second, firms must assume the taxing authority will audit all positions with full knowledge of the facts and circumstances underlying each position. Given the low likelihood of audit in any single jurisdiction and limited taxing authority resources that inhibit issue detection, this assumption is unreasonable for many firms. Third, firms must

---

<sup>9</sup> Before settling on the ‘benefit recognition approach’ the FASB considered an ‘impairment approach’ (FASB 2006). Under the impairment approach set forth in International Accounting Standards No. 12, *Income Taxes*, reserve amounts generally represent managers’ best estimates of what will be owed. We illustrate the difference between the impairment approach and the benefit recognition approach with an example. Pursuant to Kraft’s acquisition of Cadbury, Kraft presented pro forma financial statements converting Cadbury financial statements from IFRS (which uses the “impairment approach”) to U.S. GAAP (which uses the “benefit recognition approach”). With respect to tax contingencies, Kraft notes that “In order to recognize the tax benefit of a filing position, U.S. GAAP requires it be more-likely-than-not to be sustained upon an audit. As this interpretation does not exist under IFRS, additional liabilities of \$59 million related to uncertain tax positions were recorded.” This pro forma adjustment had a material effect on earnings, increasing Cadbury’s effective tax rate by 37 percent. Thus, relative to an accounting method that is intended to represent a best estimate of future cash settlements, the tax reserve required under FIN 48 is much higher, suggesting that FIN 48 overstates tax reserves, as practitioners claim.

evaluate each tax position on its merits without taking into account that it can negotiate with taxing authorities and compromise on one position to achieve a favorable outcome on another.

### **Hypothesis Development**

The criteria described above could increase the relevance of tax reserves if the standardization and mandatory disclosure curb opportunities for earnings manipulation. One motivation for enacting FIN 48 was SEC concern that managers were exploiting undisclosed reserve balances to manipulate earnings. For instance, in a pre-FIN 48 setting, Dhaliwal, Gleason and Mills (2004) provide evidence of managers manipulating tax accruals to meet earnings targets, while Gupta, Laux and Lynch (2012) find evidence of *reduced* reserve manipulation to meet earnings targets post-FIN 48, relative to the time before FIN 48. Yet, other studies suggest that managers still have significant discretion when recording tax reserves under FIN 48 (e.g., De Simone, Robinson and Stomberg 2013; Towery 2013), or find no change in the use of tax reserve accruals to manage earnings post-FIN 48 relative to pre-FIN 48 (Cazier, Rego, Tian and Wilson 2013).

Despite the potential benefits of reduced earnings management, imposing a common set of criteria on all firms could decrease the relevance of tax reserves if the standardization forces firms with dissimilar economic circumstances into similar accounting treatment. For instance, excess reserves may limit users' ability to accurately estimate future tax cash flows. Although some empirical work provides evidence consistent with excess FIN 48 reserves (e.g., Blouin, Gleason, Mills, and Sikes 2007; Frischmann, Shevlin and Wilson 2008; and Koester 2011), these cross-sectional studies of FIN 48 reserves do not evaluate the time-series process of tax reserve accruals *and releases*, and therefore cannot speak directly to any change in relevance.

Until now, insufficient time had passed to evaluate whether FIN 48 increased the relevance of income tax accounting, as the FASB asserts. The reason is that evaluating the qualitative characteristic of relevance, as defined in the conceptual framework, requires a comparison of initial predictions to actual outcomes. Contingent tax liabilities necessarily require the passage of time for uncertainty to be resolved either through settlement with a taxing authority, lapse in the statute of limitations or changes in facts and circumstances. We exploit a sufficient passage of time to address whether FIN 48 improved the relevance of accounting for income taxes.

In concurrent work, Ciconte, Donohoe, Lisowsky, and Mayberry (2013) document that FIN 48 tax reserves explain some variation in future cash tax payments as well as future IRS settlements. However, the study does not examine differences between firms' initial predictions and actual outcomes, and so does not speak to the extent to which FIN 48 produces excess reserves that lack relevance. Moreover, the study does not examine whether FIN 48 *improves* the relevance of income tax accounting, which is a question of inherent interest to standard setters and users of financial statements (FAF 2012; Blouin and Robinson 2014).<sup>10</sup> Determining whether FIN 48 improves relevance is important when weighing the increased costs of complying with the new guidance against the increased benefits financial statement users enjoy. If the information prepared under FIN 48 is not *more* relevant, the costs could exceed the benefits at least for some firms, which is an undesirable outcome of the standard setting process.

Because it is unclear whether FIN 48 increased the relevance of income tax accounting, we state our hypothesis below (in the null):

---

<sup>10</sup> While we recognize that there was little information disclosed about reserves prior to FIN 48 (see Gleason and Mills 2002), firms do report income tax expense and cash taxes paid both before and after FIN 48. Towery (2013) documents that tax reserve accruals represent a non-trivial proportion of tax expense. If investors only use information about tax expense and cash taxes paid to predict future cash flows, and do not incorporate FIN 48 footnote information, then it is possible that income tax reporting is less relevant, even with enhanced disclosure.

**The ability of tax expense to predict future economic tax outcomes does not change as a result of FIN 48.**

Though our study examines a specific piece of accounting guidance, our analysis sheds light on a broader question. Namely, can standard setters' focus on improving comparability restrict managers' ability to convey private information about expected outcomes, thereby failing to produce more relevant accounting information?

### **III. SAMPLE SELECTION AND DESCRIPTIVE DATA**

#### **Sample Selection**

We utilize multiple samples in our empirical analysis, and Panel A of Table 1 details the selection criteria for each. All samples include non-financial firms with valid FIN 48 tabular roll-forward data available in the IRS FIN 48 registry. We consider FIN 48 roll-forward data to be valid if the beginning balance plus all current year adjustments sums to the ending balance presented in the registry. We use the IRS registry data because they are more accurate than those reported in Compustat.<sup>11</sup> For time-series analyses, we begin our sample period in 2002 to provide five years of data before and five years of data after the effective date of FIN 48. Panel B provides descriptive statistics for our least restrictive sample.

[Insert Table 1 here.]

#### **How Do Firms' FIN 48 Tax Reserves Unwind?**

The primary objective of our study is to test whether FIN 48 increased the relevance of income tax accounting. One concern raised by practitioners is that FIN 48 produces excess

---

<sup>11</sup> As highlighted by Lisowsky, Robinson and Schmidt (2013), Compustat reports a large number of missing values for ending FIN 48 reserve balances, all of which cannot be accurately treated as zero. Depending on the sample used, Lisowsky et al. (2013) calculate that as many as 75 percent of observations for which Compustat reports a missing value have a non-zero ending FIN 48 reserve balance. Additionally, Compustat occasionally reports incorrect dollar units for ending balances (i.e. reporting an amount as being in millions instead of billions).

reserves that lack predictive or confirmatory value about future cash flows because they do not represent management’s best estimate of cash required to settle potential obligations. We use FIN 48 roll-forwards, which show (imperfectly) how tax reserves unwind, to provide evidence on whether FIN 48 reserves exceed actual cash outflows to settle uncertain tax positions and if so, by how much.

The FIN 48 roll-forward presents the beginning balance (*UTB\_BEG*), reductions due to statute lapses (*LAPSE*), reductions due to settlements with taxing authorities (*SETTLE*), increases and decreases related to positions taken in periods (*PY\_ADD* and *PY\_RED*, respectively), changes due to tax positions taken in the current period (*CY\_CHG*), other changes (e.g., due to foreign currency fluctuation) (*OTHER*), and the ending balance (*UTB\_END*).<sup>12</sup> An existing reserve balance can reverse or “unwind” in two ways. First, uncertainty can be resolved either through settling audited positions or through a lapse in the statute of limitations for unaudited positions. Second, management’s prior judgments of tax positions still subject to taxing authority examination often evolve due to changing facts and circumstances or new tax laws. These changes in judgment can decrease the reserve balance causing a portion of the reserve to unwind. We argue that if only a trivial portion of reserves unwind in conjunction with cash settlements (*SETTLE*), then the reserves potentially lack predictive or confirmatory value.

We begin our analysis by providing an aggregate roll-forward of FIN 48 reserve balances for a constant sample of 1,887 firms from 2007 through 2011. As shown in Panel A, the aggregate balance has grown over time from approximately \$132 billion at the beginning of 2007 to \$140 billion at the end of 2011.<sup>13</sup> The aggregate amount of reserve releases (i.e., the sum of

---

<sup>12</sup> The roll-forward disclosures required under FIN 48 are similar to those required for warranty reserves (Cohen, Darrough, Huang and Zach 2011) and bad debt reserves (Cecchini, Jackson and Liu 2012).

<sup>13</sup> In most years, amounts reported as *PY\_ADD* and *PY\_RED* each represent significant components of the change in tax reserves, though their net effect is usually relatively small. We cannot disentangle which portion of these

*LAPSE*, *SETTLE* and *PY\_RED*) ranges from \$28 billion in 2007 to \$42 billion in 2010. In each year, *PY\_RED* represents the largest single component of reserve releases, from a low of 49 percent in 2009 to a high of 57 percent in 2010, whereas *SETTLE* represents roughly 33 to 41 percent of total reserve releases. These aggregate roll-forward data are consistent with FIN 48 reserves being overstated and not mapping well into future cash flows.

[Insert Table 2 here.]

Statistics in Panel A capture the percentage of total unwinding each year related to settlements, lapses and changes in judgment. To more accurately document how reserves unwind in future periods relative to initial reserves recorded, we estimate releases both with cash flow effects (*SETTLE*) and without cash flow effects (*LAPSE* and *PY\_RED*) relative to the tax reserve balance. Because the time period over which income tax positions remain open to scrutiny varies with many factors, we follow Lisowsky, Robinson, and Schmidt (2013) and assume a three-year period consistent with the federal statute of limitations for corporate taxpayers. Our approach is similar to that used by Cecchini, Jackson and Liu (2012) to examine the adequacy of firms' allowance for doubtful accounts for future write-offs of uncollectible accounts. They argue that the *ex post* disclosure of write-offs in year  $t+1$  as compared to amounts deemed uncollectible in year  $t$  provides a useful approximation of the adequacy of the allowance at the end of year  $t$ .

Accordingly, we compute ratios across rolling three-year periods that include year  $t+1$ ,  $t+2$ , and  $t+3$  to capture how reserves unwind. We measure the denominator at the end of the year  $t$  using either  $UTB\_END_t$  or  $UTB\_END_t + PY\_ADD_{t+1}$ . Because  $PY\_ADD_{t+1}$  reflects changes in

---

components arises from settlements versus changes in judgment because not all firms classify reserve changes in the roll-forward in a similar manner. However, we consider all unwinding through *PY\_RED* to represent non-cash decreases to the reserve. See Appendix A for a detailed illustration of how *SETTLE*, *PY\_ADD*, and *PY\_RED* are affected by settlements according to practitioner guidance.

judgment associated with positions taken in prior periods, we include it in the denominator to better capture total reserves related to positions taken prior to the end of year  $t$ .<sup>14</sup>

Panel B of Table 2 presents descriptive data on the proportion of reserves that unwind through statute lapse, cash settlement, or reductions related to prior year positions. After excluding observations lacking at least three years of non-missing FIN 48 data and observations with \$0  $UTB\_END_t$ , our sample includes 5,574 firm-year observations. On average (at the median), only 24 (7) percent of reserve balances unwind via cash settlements whereas 54 (21) percent unwind via statute lapses or other non-cash unwinds. When we include  $PY\_ADD_{t+1}$  in the denominator, a similar pattern emerges; a majority of reserves unwind with non-cash consequences. At most, we estimate that less than 24 cents of every dollar of reserves as of the end of year  $t$  is paid out in cash over the next three years. This evidence is largely consistent with excess FIN 48 reserves that lack relevance because they are not predictive of the cash flows ultimately required to settle uncertain tax positions.

We are particularly interested in observing how uniform measurement and recognition criteria introduced by standard setters to improve comparability affect relevance. Using confidential IRS data, we contrast how tax reserves unwind for firms under continuous IRS audit (CIC firms) versus those that are not (Non-CIC firms).<sup>15</sup> Consistent with the 100 percent audit presumption being more reasonable for CIC firms, Panel C of Table 2 shows that CIC firms have a significantly smaller portion of their reserves unwind via statute lapses. This pattern in the data implies two important things for our research setting. First, on average, firms appear to be adhering to the guidance despite the fact that the assumptions may be unreasonable. Second, it

---

<sup>14</sup> Moreover, practitioner guidance suggests firms should report increases in  $PY\_ADD$  and decreases in  $SETTLE$  if the firm is under-reserved for a position at settlement. Thus, excluding  $PY\_ADD$  from the denominator could overstate the amount of  $UTB\_BEG$  that unwinds through  $SETTLE$  (see Appendix A).

<sup>15</sup> The IRS provided one of the authors with a list of firms in the CIC program.



illustrates a clear link between restrictive criteria in accounting guidance (i.e., a 100 percent audit probability) and its effect on relevance (i.e., firms for which this assumption is least reasonable are more likely to release the reserve with no cash consequences).<sup>16</sup>

Overall, the descriptive data presented in Table 2 suggest that FIN 48 produces excess reserves that overestimate future cash payments required to settle uncertain tax positions. These findings provide initial support for concerns that the recognition and measurement criteria of FIN 48 are overly restrictive, on average, and generate excess reserve balances that lack predictive value. However, further analysis is required to draw conclusions as to whether FIN 48 *improved* the relevance of income tax accounting by imposing a standard set of criteria on all firms.

### **How Did FIN 48 Change the Magnitude of Tax Reserves?**

We begin our pre/post analysis by examining changes in firms' tax reserves in response to the adoption of FIN 48. Using FIN 48 adoption adjustments is a powerful way to evaluate how the standard itself changed accounting for income tax uncertainties because they isolate changes in tax reserves that are attributable to the new guidance. Finding that firms, on average, increased their reserve balances upon adoption of FIN 48 suggests that the standard introduced an upward bias in required tax reserves. Finding a differential effect between groups of firms for which the recognition and measurement criteria of FIN 48 are more or less prohibitive suggests that the FASB's desire to increase comparability may actually decrease relevance by imposing standardized accounting for considerably dissimilar transactions.

[Insert Figure 1 here.]

Figure 1 provides the distribution of adoption adjustments using 1,414 disclosures collected by Audit Analytics. Panel A shows that the number of tax reserve increases was more

---

<sup>16</sup> We also note that both CIC and non-CIC firms report lapses and settlements. Therefore, we do not conduct any further empirical analysis separately for CIC and non-CIC firms when we attempt to disentangle the effects of FIN 48 on the relevance of reserves for unaudited versus audited positions.

than double the number of tax reserve decreases among firms of all sizes. Thus, firms of all sizes were more likely to have to increase their reserve than to decrease their reserve in order to comply with FIN 48. Panel B shows the magnitude of the tax reserve increase relative to the initial FIN 48 reserve balance reported in 2007. The magnitude of tax reserve increases was greater than the magnitude of tax reserve decreases for all size quintiles. Additionally, the magnitude of tax reserve increases is particularly large for the smallest firms, representing over 50 percent of the initial tax reserve balance.<sup>17</sup> Overall, these data are consistent with firms having to recognize larger tax reserves under FIN 48 than they recognized prior to adopting the new guidance.

#### **IV. RESEARCH DESIGN AND RESULTS**

##### **Analysis of Changes in Firms' Effective Tax Rates when Tax Reserves Unwind**

Recall that relevance in our setting implies that reserves have predictive value for cash settlements with taxing authorities. One way to measure the relevance of FIN 48 reserves is to compare the liability initially recorded to the actual outcome. We make this comparison, which is not directly observable for any single tax position, by assessing how unwinding reserves impacts firms' effective tax rates (ETRs).

All else equal, the relation between firms' ETRs and the reversal of a tax reserve depends on the cash flow impact of the actual outcome.<sup>18</sup> The simplest example is a reserve that is

---

<sup>17</sup> To the extent that firm size is correlated with the likelihood of being selected for a tax audit, the larger increases for small firms could be consistent with the 100 percent audit probability presumption of FIN 48 producing excess reserves for relatively smaller firms.

<sup>18</sup> We acknowledge that not all settlements with taxing authorities result in immediate cash tax payments or affect the ETR. For example, firms with substantial net operating loss carryforwards will likely adjust the amount carried forward when a claimed benefit is disallowed instead of incurring additional cash payments. Additionally, adjustments related to temporary tax benefits influence only the timing of the benefit and not the amount. Our ETR regression analysis captures differences between settled amounts and reserves related to positions that would

released because the statute of limitations for examining a tax position lapses without the position being audited. Such a reversal decreases the ETR because a statute lapse results in \$0 of required cash tax outflow such that the entire liability initially recorded for that tax position is reversed with a corresponding *decrease* to tax expense.

The impact on the ETR from a settled position is similar to a statute lapse but is more nuanced because the actual outcome involves a disallowed benefit that could be greater than, equal to, or less than the liability initially recorded for the position. If the initial liability is greater than the disallowed benefit, then releasing the excess reserve decreases the ETR in the period of settlement. Ignoring instances where the taxing authority does not disallow any of the claimed benefit (a \$0 settlement has the equivalent effect of a statute lapse) and the uncertain tax benefit amount is the same, ETR reductions associated with statute lapses would exceed those associated with excess reserves for settled positions. Alternatively, if the initial reserve is smaller than the disallowed benefit, then adding to an insufficient reserve increases the ETR. Accurately estimated reserves would have no effect on the ETR in the period of settlement.

To assess the impact on firms' ETRs from unwinding tax reserves, we estimate OLS regressions of the following model from 2007 through 2011 for all firms with FIN 48 reserves (subscripts for firm  $i$  and year  $t$  are suppressed):

$$\begin{aligned}
 ChgETR = & \beta_0 + \beta_1 UNWIND + \beta_2 ChgR\&D + \beta_3 ChgAdv + \beta_4 ChgSGA \\
 & + \beta_5 ChgCapex + \beta_6 ChgLeverage + \beta_7 ChgForeignInd \\
 & + \beta_8 ChgNOLInd + \beta_9 ChgIntangibles + \beta_{10} ChgPP\&E + \varepsilon
 \end{aligned}
 \tag{1a}$$

---

ultimately affect the ETR and, therefore, potentially understates the extent to which reserves for settled positions are overstated.

The dependent variable (*ChgETR*) is the one-year change from  $t-1$  to  $t$  in GAAP ETR, defined as total tax expense (TXT) divided by pre-tax earnings (IB plus TXT).<sup>19</sup> We measure *UNWIND* in two ways: *LAPSEIND* and *SETTLEIND*. *LAPSEIND* is equal to one when a firm reports a non-zero *LAPSE* amount in the FIN 48 roll-forward, and zero otherwise. *SETTLEIND* is equal to one when a firm reports a non-zero *SETTLE* amount in the FIN 48 roll-forward, and zero otherwise. Our selected control variables are defined as one-year changes from  $t-1$  to  $t$  (see Dyreng, Hanlon and Maydew 2010; Gupta and Newberry 1997; Mills, Erickson and Maydew 1998; Rego 2003). We also include year and industry fixed effects, measured at the 2-digit SIC level, when estimating Equation (1a).

This is the first step in our multivariate analysis because it evaluates practitioner concerns that FIN 48 results in excess reserves that overstate future cash outflows.<sup>20</sup> Whereas the descriptive statistics in Table 2 compare settlements to aggregate reserve balances, this ETR regression framework also allows us to evaluate (at the least the direction of) differences between reserves initially recorded for positions and the actual outcome. In other words, although Panel B of Table 2 suggests that only 24 cents of firms' ending reserve balances in year  $t$  reverse through settlements in years  $t+1$ ,  $t+2$  and  $t+3$ , that analysis does not indicate how that 24 cents compares to the reserve initially established for the settled position. The sign of the coefficient on *UNWIND* reflects how tax reserves compare to actual outcomes. A negative coefficient implies that the predicted liability is greater than the cash outflow, a positive coefficient implies that the predicted liability is lower than the cash outflow, and an insignificant

---

<sup>19</sup> Throughout the paper, Compustat data mnemonics are provided in parentheses and variable names are italicized.

<sup>20</sup> Note that we are not able to evaluate this claim for settled positions by using FIN 48 disclosures because *PY\_RED* and *PY\_ADD* comingle changes in judgment with firms "adjusting" reserves at settlement (see Appendix A). Further, though Ciconte et al. (2013) determine that FIN 48 tax reserves map into future IRS settlements, their research design cannot tell us whether the reserve was *greater than or less than* the cash settlement.

coefficient implies that the predicted liability is not significantly different than the actual outcome, on average.

To evaluate our null hypothesis that FIN 48 did not *change* the ability of income tax accounting to inform users about actual outcomes, we use confidential IRS corporate tax return data to extend Equation (1a) to include settlements in years prior to the enactment of FIN 48. We set *SETTLEIND* equal to one if the firm settles a position with the IRS in year *t*, and zero otherwise. Our variable of interest is *SETTLEIND\*FIN48IND*, where *FIN48IND* is an indicator variable equal to one for the period 2007–2011 and zero otherwise. This variable captures the differential effect of IRS settlements on ETRs after FIN 48 relative to before FIN 48.<sup>21</sup>

$$\begin{aligned}
 ChgETR = & \beta_0 + \beta_1 SETTLEIND + \beta_2 FIN48IND + \beta_3 SETTLEIND*FIN48IND \\
 & + \beta_4 ChgR\&D + \beta_5 ChgAdv + \beta_6 ChgSGA \\
 & + \beta_7 ChgCapex + \beta_8 ChgLeverage + \beta_9 ChgForeignInd \\
 & + \beta_{10} ChgNOLInd + \beta_{11} ChgIntangibles + \beta_{12} ChgPP\&E + \varepsilon
 \end{aligned}
 \tag{1b}$$

We do not make a prediction on the main effect of *SETTLEIND* in Equation (1b). However, an insignificant coefficient or a negative coefficient would be consistent with empirical evidence prior to FIN 48 (Gleason and Mills 2002, 2011) that firms were generally “adequately” reserved at settlement, whereas a positive coefficient would imply that firms were generally under-reserved. The interaction term captures the shift in the mean prediction error (i.e., initial reserve less actual benefit disallowed) after FIN 48. If FIN 48 increased the relevance of FIN 48 reserves, we would expect the sign on the interaction to be opposite the sign on the main effect of *SETTLEIND*, suggesting a shift in the mean prediction error toward zero. A negative coefficient on the interaction term implies more excess reserves (or fewer deficient

---

<sup>21</sup> We can extend our analysis to the pre-FIN 48 period for settled positions but not for positions that are unaudited and unwind via a statute lapse. Therefore, our ETR regression analysis cannot examine the extent to which the 100 percent audit probability of FIN 48 produces excess tax reserves, relative to before FIN 48.

reserves) post-FIN 48, whereas a positive coefficient implies fewer excess reserves (or more deficient reserves) post-FIN 48.

### ***Results***

We report results from estimating Equations (1a) and (1b) in Table 3. In column [1], we find a negative coefficient on *LAPSEIND*, consistent with the predicted liability exceeding the amount of the tax benefit disallowed, which is \$0 in the case of a statute lapse. The coefficient estimate of -0.017 suggests that ETRs, on average, decrease by 1.7 percentage points in the year of a statute lapse. This finding also suggests that firms are complying with the 100 percent audit assumption imposed by FIN 48 and are recording reserves for positions that ultimately go unaudited.

[Insert Table 3 here.]

In Table 3 column [2], we also find a negative coefficient on *SETTLEIND*, which is consistent with predicted liabilities being greater than the cash settlement for audited positions. This result implies that firms are systematically *over-reserved for settled positions* post-FIN 48, consistent with practitioner claims that FIN 48 produces excess reserves that lack relevance. The coefficient estimate of -0.013 suggests that ETRs, on average, decrease by 1.3 percentage points in the year of a settlement.<sup>22</sup> Column [3] re-estimates Equation (1a) using confidential IRS data instead of the FIN 48 roll-forward data to identify settlements. Using this alternative measure, we

---

<sup>22</sup> Results are unchanged when we include an additional control in column [2] to capture additions to the reserve arising in the year of the settlement. Firms can revise their assessment of reserves on open positions either because of their own settlement experience or the settlement experience of another taxpayer. For example, in 2008, Wachovia increased their reserve by \$1.2B for positions taken in prior years. The increase resulted from a U.S. Court of Appeals ruling against BB&T disallowing income tax benefits associated with lease in-lease out transactions. Wachovia had claimed tax benefits from sale in-lease out transactions in the early 2000's and in applying FIN 48 concluded that the Court decision against BB&T for a similar issue constituted new facts and circumstances that required them to re-evaluate their reserves.

find that ETRs decrease by 1.1 percentage points in the year of an IRS settlement.<sup>23</sup> Finding a coefficient of lower magnitude with this alternative measure is not surprising given that a settlement amount in the FIN 48 roll-forward could represent a settlement with any taxing authority, not only with the IRS. These results collectively suggest that FIN 48 generates excess reserves, on average.

Finally, Table 3 column [4] presents the results of estimating Equation (1b), which extends our ETR analysis to the pre-FIN 48 period. The coefficient on *SETTLEIND\*FIN48IND* is not significantly different from zero, while the coefficient on *SETTLEIND* is significantly negative. These findings are consistent with the predicted liability being greater than the cash settlement both before and after FIN 48. Thus, we fail to find evidence that FIN 48 improved the relevance of income tax accounting, at least with respect to tax reserves on settled positions.

These results call into question regulators' concerns that firms used discretion prior to FIN 48 to *understate* reserves and recognize tax benefits prematurely, or the possibility that firms maintained excess "cookie jar" tax reserves to smooth earnings (Blouin and Robinson 2014). Our results support neither of these concerns, but rather suggest that firms estimated tax reserves conservatively prior to FIN 48, but not necessarily to smooth earnings.<sup>24</sup> Thus, the motivation for adding FIN 48 to the FASB's agenda in the first place was potentially unfounded. This is an important implication given the costs associated with implementing and complying with FIN 48.

### **Analysis of Changes in Predictive Value of Tax Expense for Cash Taxes Paid**

---

<sup>23</sup> We find a low correlation between the dollar amounts reported in the IRS settlement data and those reported in the FIN 48 roll-forward ( $\rho=0.12$ ). This is likely explained by the fact that the FIN 48 roll-forward includes settlements with state, local and foreign tax authorities in addition to settlements with the IRS.

<sup>24</sup> The objective of cookie jar accounting is to establish excess reserves in one period to be released opportunistically in a future period to meet earnings targets. Finding an average ETR effect at settlement is inconsistent with this objective because there is no reason to believe the need for an earnings boost coincides with IRS settlement periods, on average.

Although we estimate a non-trivial impact of the audit probability assumption on firms' ETRs in Table 3, we cannot observe lapses prior to FIN 48. We therefore develop an alternative methodology to examine whether FIN 48 appears to produce excess reserves for unaudited positions relative to pre-FIN 48. To detect a change in the relevance of income tax accounting post-FIN 48, we employ the methodology in Collins, Maydew and Weiss (1997) and Kim and Kross (2005) to examine time-series changes in the ability of tax expense to predict future cash tax outflows. To link those time-series changes specifically to excess reserves for unaudited tax positions, we analyze firms whose tax reserves unwind disproportionately more from statute lapses ("Lapse firms") separately from other firms ("Non-Lapse firms"). If the 100 percent audit assumption imposed on all firms by FIN 48 decreases the relevance of income tax accounting, we anticipate that Lapse firms will experience a decrease in the ability of tax expense to predict future tax cash flows after FIN 48.<sup>25</sup>

Lapse firms are those for which the sum of  $LAPSE_{t+1}$ ,  $LAPSE_{t+2}$ , and  $LAPSE_{t+3}$  is greater than or equal to 10 percent of  $UTB\_END_t$  in any year from 2007 through 2011. All other firms are Non-Lapse firms. We believe that identifying firms with excess reserves for unaudited positions from 2007 – 2011 provides a reasonably reliable way of identifying firms with unaudited positions over the entire sample period from 2002 – 2011. Following the methodology of Kim and Kross (2005), we estimate annual cross-sectional regressions from 2002 – 2011 for the following equations (we do so separately for Lapse and Non-Lapse firms):

$$TCsh_{i,t+1} = a_0 + a_1 TExp_{i,t} + a_2 TCsh_{i,t} + w_{i,t} \quad (2a)$$

$$TCsh_{i,t+1} = b_0 + b_1 TCsh_{i,t} + x_{i,t} \quad (2b)$$

$$TCsh_{i,t+1} = c_0 + c_1 TExp_{i,t} + y_{i,t} \quad (2c)$$

---

<sup>25</sup> Choudhary, Koester, and Shevlin (2013) conduct a similar exercise in that they develop a measure of tax accrual quality and show that this measure is decreasing in the amount of tax uncertainty. Our focus is not on firms' accrual quality from estimation errors per se, but rather the estimation error "forced" on firms by FIN 48 by imposing a consistent set of assumptions.



These equations examine the relation between current period cash taxes paid, current period tax expense, and future cash taxes paid.  $TCsh$  is cash taxes paid (TXPD) and  $TExp$  is tax expense (TXT). Consistent with Kim and Kross (2005), we scale all variables by total assets (AT).

Equation (2a) estimates one-year-ahead cash taxes paid as a function of both tax expense and cash taxes paid in the current year. Equations (2b) and (2c) separately estimate one-year-ahead cash taxes paid as a function of current period cash taxes paid and current period tax expense, respectively. We obtain an  $R^2$  for each equation for each year from 2002 – 2011. Because we are interested in the change in the incremental explanatory power of tax expense for future cash taxes paid (over and above the explanatory power of current period cash taxes paid for future cash taxes paid), our focus is on  $R^2_{\text{TEXP-INC}}$ , which we compute as  $R^2_{\text{Eq (2a)}} - R^2_{\text{Eq (2b)}}$ .

To determine whether FIN 48 impacts this explanatory power, we estimate  $R^2_{\text{TEXP-INC}}$  as a function of  $FIN48IND$  as follows:

$$R^2_{\text{TEXP-INC}} = d_0 + d_1 FIN48IND_t + z_t \quad (2d)$$

A negative coefficient on  $d_1$  is consistent with tax expense having a reduced ability to predict one-period-ahead cash tax payments after FIN 48.

### **Results**

Panel A reports our results for Lapse firms, while Panel B reports our results for Non-Lapse firms. The final row and final column in both panels provides the  $t$ -statistic on  $d_1$  from Equation (2d). Consistent with *decreased* relevance in income tax reporting from the 100 percent audit presumption, the  $t$ -statistic of -2.10 in Panel A implies a significant decline in the incremental predictive ability of tax expense for cash taxes paid post-FIN 48 for Lapse firms. In contrast, the coefficient on  $d_1$  is not significantly different from zero for Non-Lapse firms in

Panel B. We present other columns for completeness and note that we observe no other significant changes in predictive ability post-FIN 48. This provides comfort that the decreased predictive ability of tax expense for future cash taxes paid among Lapse firms is attributable to FIN 48 and not to other confounding factors.

Overall, these results suggest the standardization that FIN 48 imposed on all firms, and in particular the 100 percent audit probability assumption, decreased the relevance of income tax reporting. This is inconsistent with the FASB's assertion that FIN 48 increased the relevance of income tax reporting. It is likely that at least some firms with significant statute lapses experience non-trivial costs to estimate and document tax reserves for positions that management knows have little probability of being audited. Thus, our findings of decreased relevance from unaudited positions here, combined with our findings of no change in relevance from audited positions in Table 3, call into question whether the costs of FIN 48 to preparers outweigh the benefits of FIN 48 to users.<sup>26</sup> Attempting to increase comparability by forcing firms with dissimilar audit probabilities to assume similar accounting treatments for uncertain tax positions evidently has the effect of decreasing relevance (Schipper 2003).

### **Analysis of the Valuation of Tax Expense when Reserves Unwind through Lapses**

Our results are consistent with FIN 48 decreasing the relevance of income tax reporting for Lapse firms. This suggests that the requirement to assume a 100 percent audit probability under FIN 48 poses new challenges for investors when predicting firms' future cash tax outflows. However, relevant information has either predictive value *or confirmatory value*. Information with confirmatory value allows investors to compare their predictions to actual

---

<sup>26</sup> Note that when we estimate the same system of equations for "Settlement firms" and "Non-settlement firms" the coefficient on  $d_t$  is insignificant in both groups of firms. This is consistent with the results that we report in Table 3 column 4, implying no change in relevance of income tax reporting related to settled positions. We define "Settlement firms" as those for which the sum of  $SETTLE_{t+1}$ ,  $SETTLE_{t+2}$ , and  $SETTLE_{t+3}$  is greater than or equal to 10 percent of  $UTB\_END_t$  in any year from 2007 through 2011. All other firms are "Non-settlement firms".

outcomes “to correct and improve the processes that were used to make those previous predictions” (FASB 2010). If FIN 48 information has confirmatory value, then FIN 48 reserves might not be less relevant to investors, even if the tax reserve *amount* itself has less predictive value. Said another way, reserves that are less predictive of future cash flows do not necessarily decrease the relevance of income tax reporting if the required disclosures allow financial statement users to undo the bias and “adjust FIN 48 information for estimates of the differences between (a) preparers’ assessments using the more-likely-than-not threshold and (b) the possible results of the settlement process” (FAF 2012).

Therefore, our final analysis examines whether investors can determine when excess reserves are most likely to exist and incorporate those assessments into their estimates of firm value. Our approach is to evaluate whether investors differentially value firms’ tax expense when the tax reserve accrual is more likely to unwind via statute lapses:

$$MVE = \beta_0 + \beta_1 BVE + \beta_2 PreTaxIncome + \beta_3 TaxExpense + \beta_4 LapseFirm + \beta_5 LapseFirm * BVE + \beta_6 LapseFirm * PreTaxIncome + \beta_7 LapseFirm * TaxExpense + \varepsilon_i \quad (3)$$

Equation (3) expands the model from Thomas and Zhang (2013) by interacting each valuation coefficient with *LapseFirm*, where we define Lapse firms as in Table 4. *MVE* equals the market value of equity three months after a firm’s fiscal year end. *BVE* equals the firm’s book value of equity (CEQ) at the end of the fiscal year. *PreTaxIncome* equals pre-tax income, calculated as earnings before extraordinary items (IB) plus total tax expense (TXT). *TaxExpense* equals total tax expense (TXT).

The coefficient of interest in Equation (3) is the interaction term *LapseFirm\*TaxExpense*. Thomas and Zhang (2013) estimate a negative coefficient on *TaxExpense* implying that the *level* of tax expense is negatively related to levels of expected future cash flows, as expected. If investors correctly determine when excess reserves for statute lapses are incorporated into firms’

tax expense accruals, then the level of tax expense should be less negatively related to levels of expected future cash outflows. Therefore, we would expect a positive coefficient on  $LapseFirm*TaxExpense$ . If, on the other hand, investors do not (or cannot) distinguish amongst these two types of firms, then the coefficient on  $LapseFirm*TaxExpense$  should be no different from zero.

### **Results**

We report our results from estimating Equation (3) in Table 5. In column (1), we replicate the results from Thomas and Zhang (2013). In column [2], we estimate a coefficient on  $LapseFirm*TaxExpense$  that is not significantly different from zero. This result implies that FIN 48 reserves lack both predictive *and confirmatory value* because investors do not appear to incorporate information contained in FIN 48 disclosures into their prediction process. That is, although FIN 48 disclosures provide some information about the extent to which firms' tax reserves unwind via lapses, thereby indicating excess reserves with no cash flow effect, these firms obtain the same valuation coefficient on  $TaxExpense$  as other firms.

In columns [3] and [4] of Table 5, we consider whether investors learn over time to identify those firms for which accrued tax expense likely contains excess reserves for liabilities that will lapse unaudited. To do so, we estimate Equation (3) separately from 2007-2009 and 2010-2011. If investors learn over time how to use information contained in FIN 48 disclosures, then we anticipate that the coefficient on  $LapseFirm*TaxExpense$  will be positive in the later period. However, we find no evidence of learning by investors.<sup>27</sup>

---

<sup>27</sup> We obtain the same result if we estimate 2007-2008 versus 2009-2011.

## V. CONCLUSIONS AND IMPLICATIONS

This study uses FIN 48 as a setting to examine the tradeoff between guidance intended to improve comparability and relevance. We specifically evaluate the FASB's assertion that FIN 48 enhanced the relevance of income tax accounting, or the ability of tax accounting information to predict future tax economic outcomes. Overall, we fail to find evidence to support this assertion.

Our descriptive data show that less than 24 cents of every dollar of FIN 48 reserves are ultimately paid out in cash to taxing authorities over the next three years. With respect to settled positions, we show that the initial liability recorded, on average, is not more likely to be higher than the actual cash settlement after FIN 48, relative to the period before. However, we find that relevance appears to have decreased for firms where the criteria imposed by FIN 48 are the least realistic. Specifically, the 100 percent audit assumption imposed on firms to improve comparability results in the initial accrual and subsequent reversal of significant reserves that unwind with no cash consequences. Thus, the decrease in relevance due the enactment of FIN 48 appears to predominantly impact firms with unaudited positions (that lapse). We further find that investors are unable to distinguish among reserves that will be paid in cash versus those that are not, implying that FIN 48 reserves also lack confirmatory value.

Collectively, our results suggest that, consistent with practitioner concerns, FIN 48 reserves lack both predictive and confirmatory value. Moreover, we document that income tax accounting is *not more relevant after FIN 48*, as the FASB asserts. The impact that FIN 48 had on the relevance of income tax accounting is an important issue for standard setters, users and preparers (FAF 2012; Blouin and Robinson 2014). Our results imply that achieving comparability may tradeoff relevance if it forces firms into uniform treatment that prohibits them from conveying private information about the underlying economic phenomena being reported.

**Appendix A**  
**Tabular roll-forward Example**

This Appendix explains how changes in the initial reserve related to settled positions should be classified in the tabular roll-forward disclosed pursuant to FIN and provides an example (note that FIN 48 termed the tax reserve the unrecognized tax benefit, or UTB):

The following is explained in the Dunbar and McEligot (2008, A-803):

“The settlement amount of a tax position will usually differ from the recorded amount of the UTB related to that position because judgment is involved in the two-step recognition and measurement process. In preparing the tabular reconciliation of the total amount of UTBs as of the beginning and end of the year, a company should disclose the difference between the UTB and the settlement in the reconciliation as a gross amount of increase or decrease in UTB related to tax positions taken in prior periods. The settlement amount should be disclosed in the reconciliation as the amount of decrease in unrecognized tax benefits related to settlements with taxing authorities.”

This same guidance is also provided by Deloitte (2008, 1):

“While the particular line items will depend on a company and its circumstances, the tabular reconciliation should include decreases in unrecognized tax benefits relating to settlements with taxing authorities. However, the difference between the FIN 48 liability and the cash settlement should be included in the gross amounts of increases and decreases in unrecognized tax benefits resulting from tax positions taken during the prior period.”

Example:

In Year 1, a firm settles position A for \$5 in cash, but the amount reserved was \$1. Further, suppose the same firm, in the same year, settles position B for \$20 in cash, but the amount reserved was \$30. According to practitioner guidance, the journal entries associated with these settlements should appear as follows (the tabular roll-forward classification is in parentheses):

**Position A**

Debit Tax Expense (Benefit)	\$4	
Credit UTB ( <i>PY_ADD</i> )		\$4
Debit UTB ( <i>SETTLE</i> )	\$5	
Credit Cash		\$5

**Position B**

Debit UTB ( <i>PY_RED</i> )	\$10	
Credit Tax Expense (Benefit)		\$10
Debit UTB ( <i>SETTLE</i> )	\$20	
Credit Cash		\$20

Net effect on tax provision: Tax benefit of \$6

Net effect on cash taxes paid: Taxes paid of \$25

    Net effect on reserve or UTB: minus \$31

Amount showing in *SETTLE* in Year 1: minus \$25

Amount showing in *PY\_ADD* in Year 1: plus \$4

Amount showing in *PY\_RED* in Year 1: minus \$10

    Net decrease of \$6 (*PY\_RED* + *PY\_ADD*) (implies UTB was overstated by \$6)

\*Note that any changes in judgment (associated with still open tax positions) in Year 1 would be comingled with the \$6 net decrease showing across *PY\_ADD* and *PY\_RED*.

The resolution of uncertainty from audited positions is reflected in the tabular roll-forward disclosure (see Table 1) as both a settlement and a change in estimate. Specifically, the cash payment is reflected as a settlement (*SETTLE*), and the difference between the cash payment and the existing reserve for the position is reflected as an increase or decrease to prior period positions (*PY\_ADD* or *PY\_RED*).

The overall effect on the reserve from the resolution of uncertainty from a settlement is a decrease. However, if the position was initially over-reserved, then the settlement should be reflected in the table as two separate decreases – a decrease showing in *PY\_RED* and a decrease showing in *SETTLE*. In contrast, if the position was initially under-reserved, then the settlement should be reflected in the table separately as an increase to *PY\_ADD* and as a decrease to *SETTLE*.

Changes in judgment should have an equal likelihood of showing up in *PY\_RED* versus *PY\_ADD*. Overstated reserves should show a decrease in *PY\_RED* at settlement. Understated reserves should show an increase in *PY\_ADD* at settlement. Setting aside changes in judgment, a reduction in the reserve for any reason other than an actual cash settlement suggests overstatement of the reserve.

## REFERENCES

- Blouin, Jennifer, Cristi Gleason, Lillian Mills, and Stephanie Sikes, 2007. What can we learn about uncertain tax benefits from FIN 48? *National Tax Journal* 60(3): 521-535.
- Blouin, Jennifer, and Leslie Robinson, 2014. Insights from the post-implementation review of FIN 48. Forthcoming at *Accounting Horizons*.
- Bradshaw, Mark, Greg Miller, and George Serafeim, 2011. Accounting method heterogeneity and analysts' forecasts. Boston College, Michigan, and Harvard working paper.
- Cazier, Richard A., Sonja O. Rego, Xiaoli (Shaolee) Tian, and Ryan J. Wilson, 2013. Did increased disclosure requirements and the standardization of accounting practices reduce earnings management through the reserve for income taxes? Working paper, Texas Christian University.
- Cecchini, Mark, Scott Jackson, and Xiaotao Liu, 2012. Do initial public offering firms manage accruals? Evidence from individual accounts. *Review of Accounting Studies* 17(1): 22-40.
- Choudhary, Preeti, Allison Koester, and Terry Shevlin, 2013. Assessing the quality of the income tax accrual. Georgetown University and UC Irvine working paper.
- Ciconte, Will, Michael Donohoe, Petro Lisowsky, and Michael Mayberry, 2013. Predictable uncertainty: The relation between unrecognized tax benefits and future income tax cash flows. University of Illinois and University of Florida working paper.
- Cohen, Dan, Masako Darrough, Rong Huang, and Tzachi Zach, 2011. Warranty reserve: Contingent liability, information signal, or earnings management tool? *The Accounting Review* 86(2): 569-604.
- Collins, Dan, Ed Maydew, and Ira Weiss, 1997. Changes in the value-relevance of earnings and book values over the past forty years. *Journal of Accounting and Economics* 24: 39-67.
- De Franco, Gus, S.P. Kothari, and Rodrigo Verdi, 2011. The benefits of financial statement comparability. *Journal of Accounting Research* 49(4): 895-931.
- De Simone, Lisa, John Robinson, and Bridget Stomberg, 2013. Distilling the reserve for uncertain tax positions: The revealing case of black liquor. Forthcoming at *Review of Accounting Studies*.
- DeFond, Mark, Xuesong Hu, Mingyi Hung, and Siqu Li, 2011. The impact of mandatory IFRS adoption on foreign mutual fund ownership: The role of comparability. *Journal of Accounting and Economics* 51: 240-258.
- Deloitte LLP, 2008. FIN 48 and FAS 109: Bringing disclosure and transparency into focus.



- Dhaliwal, Dan, Cristi Gleason, and Lillian Mills, 2004. Last-chance earnings management: Using the tax expense to meet analysts' forecasts. *Contemporary Accounting Research* 21(2), 431-459.
- Dunbar, Amy, and Kathleen McEligot, 2008. Account for income taxes: Uncertain tax positions (FIN 48). Bureau of National Affairs Tax and Accounting Portfolio 5002, Arlington, VA.
- Dunbar, Amy, Thomas Omer, and Thomas Schultz, 2010. The informativeness of FIN 48 'Look-Forward' Disclosures. University of Connecticut working paper.
- Dyreng, Scott, Michelle Hanlon, and Edward Maydew, 2010. The effects of executives on corporate tax avoidance. *The Accounting Review* 85, 1163-1189.
- Financial Accounting Foundation (FAF), *Post-Implementation Review Report on FASB Interpretation No. 48, Accounting for Uncertainty in Income Taxes (Codified in Accounting Standards Codification Topic 740, Income Taxes)* (January 2012).
- Financial Accounting Standards Board (FASB). Uncertain Tax Positions Summary of Comment Letter Analysis (September 2005).
- Financial Accounting Standards Board (FASB). Statement of Financial Accounting Concepts No. 2: Qualitative Characteristics of Accounting Information (March 1980).
- Financial Accounting Standards Board (FASB), Statement of Financial Accounting Standards (SFAS) No. 5, *Accounting for Contingencies*. Norwalk, CT (1975).
- Financial Accounting Standards Board (FASB), Statement of Financial Accounting Standards (SFAS) No. 109, *Accounting for Income Taxes*. Norwalk, CT (1992).
- Financial Accounting Standards Board (FASB) Interpretation No. 48 (FIN 48), *Accounting for Uncertainty in Income Taxes: an Interpretation of FASB Statement No. 109*. Norwalk, CT (June 2006).
- Financial Accounting Standards Board (FASB), Statement of Financial Accounting Concepts No. 8, *Conceptual Framework for Financial Reporting*, Chapter 3, Qualitative Characteristics of Useful Financial Information (September 2010).
- Frischmann, Peter, Terry Shevlin, and Ryan Wilson, 2008. Economic consequences of increasing the conformity in accounting for uncertain tax benefits. *Journal of Accounting and Economics* 46 (2/3), 261-278.
- Gleason, Cristi, and Lillian Mills, 2002. Materiality and contingent tax reporting. *The Accounting Review* 77, 317-342.
- Gleason, Cristi, and Lillian Mills, 2011. Do auditor-provided tax services improve the estimate of tax reserves? *Contemporary Accounting Research* 28, 1484-1509.

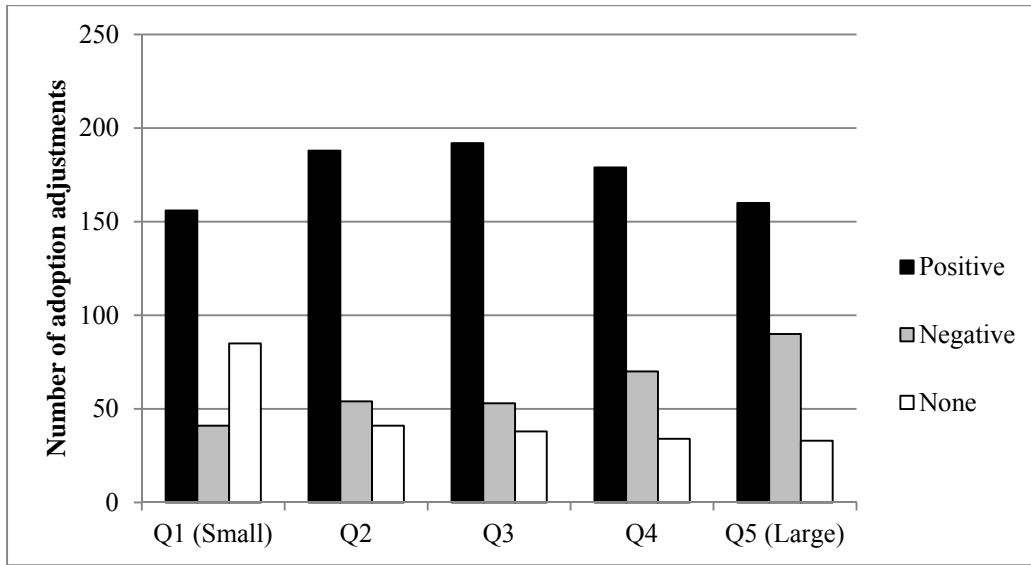
- Gupta, Sanjay, and Kaye Newberry, 1997. Determinants of the variability in corporate effective tax rates: Evidence from longitudinal study. *Journal of Accounting and Public Policy* 16, 1-34.
- Gupta, Sanjay, Rick Laux, and Dan Lynch, 2012. Do firms use tax reserves to meet earnings targets? Evidence from the pre- and post-FIN48 periods. Michigan State University and Pennsylvania State University working paper.
- Hanlon, Michelle, Edward Maydew, and Daniel Saveedra, 2013. The tax man cometh: Does tax uncertainty affect corporate cash holdings? MIT and UNC working paper.
- International Accounting Standards Board (IASB), International Accounting Standard No. 12, *Income Taxes*. London (1996).
- Kim, Myungsun, and William Kross, 2005. The ability of earnings to predict future operating cash flows has been increasing-not decreasing. *Journal of Accounting Research* 43: 751-780.
- Koester, Allison. 2011. Investor valuation of tax avoidance through uncertain tax positions. Georgetown University working paper.
- Landsman, Wayne, Edward Maydew, and Jake Thornock, 2012. The information content of annual earnings announcements and mandatory adoption of IFRS. *Journal of Accounting and Economics* 53: 34-54.
- Lisowsky, Petro, Leslie Robinson, and Andrew Schmidt. 2013. Do publicly disclosed tax reserves tell us about privately disclosed tax shelter activity? *Journal of Accounting Research* 51(3): 583-629.
- Mills, Lillian, Merle Erickson, and Edward Maydew, 1998. Investments in tax planning. *Journal of the American Taxation Association* 20, 1-20.
- Mills, Lillian, Leslie Robinson, and Richard Sansing, 2010. FIN 48 and tax compliance. *The Accounting Review* 85(5): 1721-1742.
- Ozkan, Neslihan, Zvi Singer, and Haifeng You, 2012. Mandatory IFRS adoption and the contract usefulness of accounting information in executive compensation. *Journal of Accounting Research* 50(4): 1077-1107.
- Rego, Sonja, 2003. Tax avoidance activities of U.S. multinational corporations. *Contemporary Accounting Research* 20, 805-833.
- Robinson, Leslie, and Andrew Schmidt. 2013. Firm and investor responses to uncertain tax benefit disclosure requirements. *Journal of the American Taxation Association* 35(2): 85-120.

- Schipper, Katherine, 2003. Principles-based accounting standards. *Accounting Horizons* 17 (1): 61-72.
- Schipper, Katherine, and Linda Vincent, 2003. Earnings quality. *Accounting Horizons* 17 (Supplement): 97-110.
- Tan, Hongping, Shiheng Wang, and Michael Welker, 2011. Analyst following and forecast accuracy after mandated IFRS adoptions. *Journal of Accounting Research* 49(5): 1307-1357.
- Thomas, Jake, and Frank Zhang, 2013. Valuation of tax expense. *Review of Accounting Studies* (forthcoming).
- Towery, Erin, 2013. Unintended consequences of linking tax return disclosures of tax uncertainty with financial reporting. University of Georgia working paper.
- Tax Executives Institute (TEI) Comments on FAF Post-Implementation Review of FIN 48 (September 30, 2011).

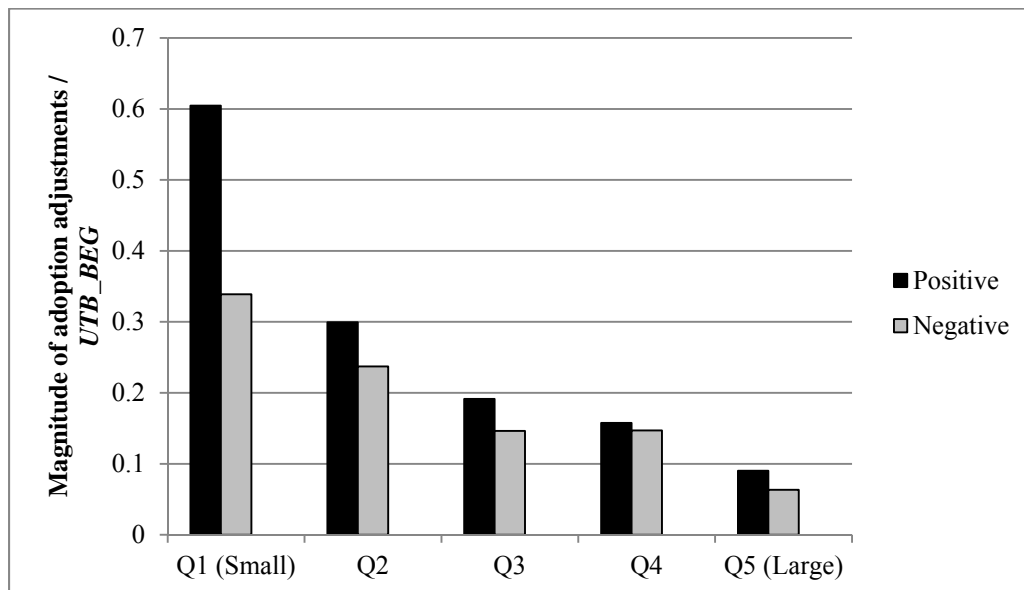
**Figure 1**  
**FIN 48 adoption adjustments**

This figure presents descriptive data on FIN 48 adoption adjustments for 1,414 firms included in the Audit Analytics Revisions database with non-missing data. A positive (negative) adjustment implies that a firm increased (decreased) its existing tax reserve. Panel A shows the distribution of firms in each quintile (based on total assets) that increased, decreased, or made no change to the tax reserve when adopting FIN 48. Panel B shows the median ratio of the amount of the adoption adjustment scaled by the amount of unrecognized tax benefits at the beginning of the year after the adoption adjustment.

**Panel A:** *Number of adoption adjustments (by sign)*



**Panel B:** *Magnitude of adoption adjustments scaled by UTB\_BEG in 2007 (by sign)*



**Table 1**  
**Sample selection and summary statistics**

This table presents our sample selection process and summary statistics. Panel A describes how we derive our samples, and Panel B provides summary statistics for our least restrictive sample.

---

*Panel A, Derivation of samples*

**Tax Reserve Sample**

Initial sample of non-financial firm-years between 2007 and 2011	45,639
Less: observations missing FIN 48 roll-forward data	(27,040)
Less: observations will invalid FIN 48 roll-forward	(76)
	18,523

**Effect of Settlements and Lapses on Effective Tax Rates**

Tax reserve sample	18,523
Add: firm-years between 2002 and 2006 for tax reserve sample firms	10,640
Less: observations with missing AT or AT less than or equal to zero	(1,057)
Less: observations with missing PI or PI less than or equal to zero	(8,589)
Less: observations with missing or negative TXT	(1,353)
Less: observations with missing or negative TXPD	(1,439)
Less: observations with ETR <0 or ETR >1	(297)
Less: observations missing one or more control variables	(870)
Less: observations missing EIN	(878)
Less: observations missing tax return data	(2,437)
	12,243

**Predictive Ability of Tax Expense and Market Valuation**

Tax reserve sample	18,523
Add: firm-years between 2002 and 2006 for tax reserve sample firms	10,640
Less: observations with missing AT or AT less than or equal to zero	(1,057)
Less: observations with missing PI, TXT, TXPD, lagged PI, lagged TXT or lagged TXPD	(3,363)
Less: observations with PI less than or equal to zero	(6,451)
Less: observations with TXT less than or equal to zero	(1,193)
Less: observations with TXPD less than or equal to zero	(889)
Less: observations with CEQ or IB less than zero	(750)
Less: observations with missing CRSP price	(1,220)
	14,240

**Table 1 (cont.)**  
**Sample selection and summary statistics**

*Panel B, Summary statistics for tax reserve sample*

	N	Mean	SD	P25	Median	P75
<i>TotalAssets (\$M)</i>	18,523	3,056.2	8,311.5	66.6	352.2	1,767.2
<i>Sales (\$M)</i>	18,492	2,539.9	7,256.4	45.3	299.3	1,515.8
<i>PreTaxIncome (\$M)</i>	18,492	262.4	2,039.1	-8.9	5.4	88.3
<i>TaxExpense (\$M)</i>	18,492	86.1	673.5	0.0	1.7	26.7
<i>TaxesPaid (\$M)</i>	16,275	88.2	643.7	0.1	2.9	26.0
<i>R&amp;D</i>	17,755	0.423	2.194	0.000	0.002	0.087
<i>Adv</i>	17,755	0.012	0.030	0.000	0.000	0.008
<i>SGA</i>	17,755	0.538	1.537	0.100	0.233	0.429
<i>Capex</i>	18,006	0.122	0.123	0.047	0.085	0.152
<i>Leverage</i>	18,523	0.276	0.447	0.006	0.169	0.360
<i>ForeignInd</i>	18,523	0.432	0.495	0.000	0.000	1.000
<i>NOLInd</i>	18,523	0.517	0.500	0.000	1.000	1.000
<i>Intangibles</i>	18,213	0.170	0.204	0.003	0.082	0.281
<i>PP&amp;E</i>	18,282	0.502	0.429	0.168	0.372	0.751

**Variable definitions:**

Annual COMPUSTAT data items are provided in parentheses.

<i>TotalAssets</i>	= Total assets (AT).
<i>Sales</i>	= Total sales (SALE).
<i>PreTaxIncome</i>	= Earnings before extraordinary items (IB) plus total tax expense (TXT).
<i>TaxExpense</i>	= Total tax expense (TXT).
<i>TaxesPaid</i>	= Cash taxes paid (TXPD).
<i>R&amp;D</i>	= Research and development (R&D) expenditures, scaled by total sales (XRD/SALE). If XRD is missing, we set XRD to zero.
<i>Adv</i>	= Advertising expenses, scaled by total sales (XAD/SALE). If XAD is missing, we set XAD to zero.
<i>SGA</i>	= Selling, general and administrative expenses, scaled by total sales (XSGA/SALE). If XSGA is missing, we set XSGA to zero.
<i>Capex</i>	= Capital expenditures, scaled by gross property, plant and equipment (CAPX/PPEGT). If CAPX is missing, we set CAPX to zero.
<i>Leverage</i>	= Ratio of total debt to total assets ( $[(DLC+DLTT)/AT]$ )
<i>ForeignInd</i>	= Indicator variable set equal to one if the absolute value of pre-tax foreign income (PIFO) is non-zero, and zero otherwise.
<i>NOLInd</i>	= Indicator variable set equal to one if the firm reports positive tax net operating loss carry forwards (TLCF) and zero otherwise.
<i>Intangibles</i>	= Intangible assets, scaled by total assets (INTAN/AT).
<i>PP&amp;E</i>	= Gross property, plant and equipment, scaled by total assets (PPEGT/AT).

**Table 2**  
**Descriptive data on how firms' tax reserves unwind**

This table describes the annual changes in unrecognized tax benefits and provides descriptive statistics on how reserves for unrecognized tax benefits unwind. Panel A presents the aggregate FIN 48 roll-forward for a constant sample of 1,887 firms from 2007 to 2011. Panel B presents descriptive statistics on how firms' unrecognized tax benefits unwind. Panel C presents univariate comparisons of how reserves unwind across CIC and Non-CIC firms.

*Panel A: Aggregate changes in reserves for unrecognized tax benefits (in \$M)*

YEAR	2007	2008	2009	2010	2011
N = 1,887					
<i>UTB_BEG</i>	\$132,170	\$138,149	\$139,058	\$149,376	\$141,247
<i>LAPSE</i>	(2,250)	(3,560)	(3,346)	(4,232)	(3,676)
<i>SETTLE</i>	(11,622)	(10,366)	(12,831)	(13,581)	(10,572)
<i>PY_ADD</i>	15,157	16,066	15,979	16,837	15,286
<i>PY_RED</i>	(14,363)	(17,694)	(15,464)	(23,739)	(17,383)
<i>CY_CHG</i>	16,814	17,870	20,761	16,337	15,201
<i>OTHER</i>	2,279	(667)	4,697	304	351
<i>UTB_END</i>	\$138,186	\$139,797	\$148,854	\$141,303	\$140,453

*Panel B: Descriptive statistics on how firms' unrecognized tax benefits unwind*

	N	Mean	SD	P25	Median	P75
<i>UTB_END<sub>t</sub></i> (\$M)	8,104	47.20	165.53	0.00	1.79	16.00
<i>UTB_BEG<sub>t</sub>+PY_ADD<sub>t+1</sub></i> (\$M)	8,104	53.26	186.64	0.00	2.05	17.72
<i>LAPSE<sub>t+1, t+2, t+3</sub></i> (\$M)	8,104	11.94	48.20	0.00	0.00	1.90
<i>SETTLE<sub>t+1, t+2, t+3</sub></i> (\$M)	8,104	3.83	11.34	0.00	0.00	1.70
<i>PY_RED<sub>t+1, t+2, t+3</sub></i> (\$M)	8,104	16.57	61.48	0.00	0.03	2.87
<i>LAPSE<sub>t+1, t+2, t+3</sub> / UTB_END<sub>t</sub></i>	5,574	0.205	0.295	0.000	0.069	0.301
<i>SETTLE<sub>t+1, t+2, t+3</sub> / UTB_END<sub>t</sub></i>	5,574	0.236	0.375	0.000	0.066	0.332
<i>PY_RED<sub>t+1, t+2, t+3</sub> / UTB_END<sub>t</sub></i>	5,574	0.334	0.506	0.000	0.145	0.469
<i>LAPSE<sub>t+1, t+2, t+3</sub> / UTB_END<sub>t</sub>+PY_ADD<sub>t+1</sub></i>	5,647	0.179	0.256	0.000	0.058	0.264
<i>SETTLE<sub>t+1, t+2, t+3</sub> / UTB_END<sub>t</sub>+PY_ADD<sub>t+1</sub></i>	5,647	0.199	0.301	0.000	0.057	0.289
<i>PY_RED<sub>t+1, t+2, t+3</sub> / UTB_END<sub>t</sub>+PY_ADD<sub>t+1</sub></i>	5,647	0.279	0.391	0.000	0.128	0.408

**Table 2 (cont.)**  
**Descriptive data on how firms' tax reserves unwind**

Panel C: *Univariate comparisons across CIC and non-CIC firms*

	CIC firms ( <i>CIC</i> = 1)		Non-CIC firms ( <i>CIC</i> = 0)	
	n=1,521		n=3,027	
	Mean	Median	Mean	Median
$LAPSE_{t+1, t+2, t+3} / UTB\_END_t$	0.167	0.078	0.259 ***	0.104 **
$LAPSE_{t+1, t+2, t+3} / UTB\_END_t + PY\_ADD_{t+1}$	0.145	0.070	0.225 ***	0.089 **
$SETTLE_{t+1, t+2, t+3} / UTB\_END_t$	0.360	0.212	0.280 **	0.034 ***
$SETTLE_{t+1, t+2, t+3} / UTB\_END_t + PY\_ADD_{t+1}$	0.301	0.188	0.227 ***	0.031 ***
$PY\_RED_{t+1, t+2, t+3} / UTB\_END_t$	0.465	0.318	0.359 ***	0.091 ***
$PY\_RED_{t+1, t+2, t+3} / UTB\_END_t + PY\_ADD_{t+1}$	0.386	0.279	0.285 ***	0.084 ***

**Variable definitions:**

We use FIN 48 information collected by the IRS from firms' FIN 48 tabular roll-forwards in the tax footnotes of their 10-K filings. Dollar amounts are in millions.

- UTB\_BEG* = Beginning balance in the tax reserve (UTB).
- LAPSE* = Reductions in the UTB associated with positions for which the statute of limitations lapsed during the year.
- SETTLE* = Reductions in the UTB associated with positions that were settled with the taxing authority during the year. For some companies, this amount represents actual cash amounts paid to settle the position. For other companies, this amount represents the entire reserve related to the settled position.
- PY\_ADD* = Additions to the UTB related to positions taken in prior years.
- PY\_RED* = Reductions to the UTB related to positions taken in prior years.
- CY\_CHG* = Change in the UTB (additions and reductions) related to positions taken in the current year.
- OTHER* = Other changes to the UTB. Amounts reported here often represent currency fluctuations attributable to positions taken in foreign jurisdictions.
- UTB\_END* = Ending balance in the UTB.
- CIC* = Indicator variable set equal to one if the firm is under continual audit by the IRS (i.e., part of the IRS' Coordinated Industry Case program) and zero otherwise.



**Table 3**  
**Analysis of changes in firms' effective tax rates when tax reserves unwind**

This table presents the results for OLS regressions of changes in effective tax rates when tax reserves unwind. Coefficients of interest are in bold and *t*-statistics appear in parentheses below the coefficients. Asterisks \*\*\*, \*\*, \* denote significance at the 1%, 5% and 10% levels, respectively.

	<b>Dependent Variable = <math>ChgETR_{i,t}</math></b>			
	2007-2011	2007-2011	2007-2011	2002-2011
	FIN 48	FIN 48	IRS	IRS
	<i>LAPSEIND</i>	<i>SETTLEIND</i>	<i>SETTLEIND</i>	<i>SETTLEIND</i>
	[1]	[2]	[3]	[4]
Intercept <sub><i>i,t</i></sub>	0.039 *** (14.53)	0.036 *** (14.29)	0.033 *** (15.12)	0.027 *** (12.26)
<i>LAPSEIND</i> <sub><i>i,t</i></sub>	<b>-0.017 ***</b> <b>(-4.69)</b>			
<i>SETTLEIND</i> <sub><i>i,t</i></sub>		<b>-0.013 ***</b> <b>(-3.52)</b>	<b>-0.011 **</b> <b>(-2.38)</b>	<b>-0.019 ***</b> <b>(-4.07)</b>
<i>FIN48IND</i> <sub><i>i,t</i></sub>				0.005 * (1.76)
<i>SETTLEIND * FIN48IND</i> <sub><i>i,t</i></sub>				<b>0.0080</b> <b>(1.22)</b>
<i>ChgR&amp;D</i> <sub><i>i,t</i></sub>	0.267 (1.59)	0.25 (1.48)	0.255 (1.52)	-0.277 * (-1.81)
<i>ChgAdv</i> <sub><i>i,t</i></sub>	-0.173 (-0.36)	-0.207 (-0.43)	-0.22 (-0.46)	-0.18 (-0.43)
<i>ChgSGA</i> <sub><i>i,t</i></sub>	-0.354 *** (-4.71)	-0.348 *** (-4.63)	-0.359 *** (-4.78)	-0.318 *** (-4.41)
<i>ChgCapex</i> <sub><i>i,t</i></sub>	-0.059 * (-1.95)	-0.061 ** (-2.03)	-0.062 ** (-2.05)	0.022 (0.69)
<i>ChgLeverage</i> <sub><i>i,t</i></sub>	-0.082 *** (-3.18)	-0.08 *** (-3.12)	-0.079 *** (-3.09)	-0.042 * (-1.72)
<i>ChgForeignInd</i> <sub><i>i,t</i></sub>	0.013 (1.2)	0.013 (1.23)	0.014 (1.28)	0.002 (0.2)
<i>ChgNOLInd</i> <sub><i>i,t</i></sub>	-0.008 (-1.13)	-0.008 (-1.16)	-0.008 (-1.15)	0.002 (0.39)
<i>ChgIntangibles</i> <sub><i>i,t</i></sub>	0.059 (1.61)	0.057 (1.56)	0.059 (1.6)	0.076 ** (2.19)
<i>ChgPP&amp;E</i> <sub><i>i,t</i></sub>	-0.012 (-0.39)	-0.01 (-0.32)	-0.01 (-0.33)	-0.079 *** (-2.59)
No. Obs.	6,357	6,357	6,357	12,243
Adj. R2	0.90%	0.75%	0.64%	0.98%

**Table 3 (cont.)**  
**Analysis of changes in firms' effective tax rates when tax reserves unwind**

**Variable Definitions:**

We define all variables, with the exception of *LAPSEIND*, *SETTLEIND*, and *FIN48IND*, as one-year changes from t-1 to t. Annual COMPUSTAT data items are provided in parentheses.

<i>ETR</i>	= Total tax expense (TXT), scaled by pre-tax earnings (IB plus TXT).
<i>LAPSEIND</i>	= An indicator variable equal to one when a statute lapse amount is disclosed in the FIN 48 tabular roll-forward (from IRS FIN 48 Registry) and zero otherwise.
<i>SETTLEIND</i>	= Column [2] defines <i>SETTLEIND</i> as an indicator variable equal to one when a settlement amount is disclosed in the FIN 48 tabular roll-forward (from IRS FIN 48 Registry) and zero otherwise. Columns [3] and [4] define <i>SETTLEIND</i> as an indicator variable set equal to one when a settlement amount is disclosed in IRS data on federal settlements, and zero otherwise.
<i>FIN48IND</i>	= Indicator variable set equal to one if year greater than or equal to 2007 and zero otherwise.
<i>R&amp;D</i>	= Research and development (R&D) expenditures, scaled by total sales (XRD/SALE). If XRD is missing, we set XRD to zero.
<i>Adv</i>	= Advertising expenses, scaled by total sales (XAD/SALE). If XAD is missing, we set XAD to zero.
<i>SGA</i>	= Selling, general and administrative expenses, scaled by total sales (XSGA/SALE). If XSGA is missing, we set XSGA to zero.
<i>Capex</i>	= Capital expenditures, scaled by gross property, plant and equipment (CAPX/PPEGT). If CAPX is missing, we set CAPX to zero.
<i>Leverage</i>	= Ratio of total debt to total assets ( $(DLC+DLTT)/AT$ )
<i>ForeignInd</i>	= Indicator variable set equal to one if the absolute value of pre-tax foreign income (PIFO) is non-zero, and zero otherwise.
<i>NOLInd</i>	= Indicator variable set equal to one if the firm reports positive tax net operating loss carry forwards (TLCF) and zero otherwise.
<i>Intangibles</i>	= Intangible assets, scaled by total assets (INTAN/AT).
<i>PP&amp;E</i>	= Gross property, plant and equipment, scaled by total assets (PPEGT/AT).

**Table 4**  
**Analysis of changes in predictive value of tax expense for cash taxes paid**

This table presents the  $R^2$ , coefficients, and  $t$ -statistics from estimating the following OLS regressions by year. The total sample consists of 14,240 observations from 2002 through 2011. We define a “Lapse Firm” as one where the sum of  $LAPSE_{t+1}$ ,  $LAPSE_{t+2}$ , and  $LAPSE_{t+3}$  is greater than or equal to 10 percent of  $UTB\_END_t$  in any year from 2007 through 2011. We classify all other firms as “Non-Lapse” firm. We use the lapse and the beginning reserve balance amounts collected by the IRS from firms’ FIN 48 tabular roll-forwards in the tax footnotes of their 10-K filings. Panel A presents the results for Lapse firms and Panel B presents the results for Non-Lapse firms.  $t$ -statistics appear in parentheses below the coefficients.

$$TCsh_{i,t+1} = a_0 + a_1 TExp_{i,t} + a_2 TCsh_{i,t} + w_{i,t} \quad (2a)$$

$$TCsh_{i,t+1} = b_0 + b_1 TExp_{i,t} + x_{i,t} \quad (2b)$$

$$TCsh_{i,t+1} = c_0 + c_1 TExp_{i,t} + y_{i,t} \quad (2c)$$

$$R^2_{v,t} = d_0 + d_1 POST-FIN\ 48_t + z_t \quad (2d)$$

**Panel A: Lapse Firms**

Year	N	[1]		[2]	[3]	[1]-[3]	[1]-[2]	
		$a_1$	$a_2$	$R^2_{Eq(2a)}$	$R^2_{Eq(2b)}$	$R^2_{Eq(2c)}$	$R^2_{TCsh-Inc}$	$R^2_{TExp-Inc}$
2002	587	0.3096 (8.52)	0.3812 (9.20)	54.72	49.09	48.16	6.56	5.63
2003	639	0.2875 (10.39)	0.4398 (13.91)	67.09	61.50	57.08	10.01	5.59
2004	703	0.2492 (7.19)	0.4487 (10.71)	50.68	47.04	42.60	8.08	3.64
2005	752	0.2959 (9.83)	0.5149 (14.32)	61.43	56.45	50.87	10.56	4.98
2006	791	0.3510 (11.46)	0.4434 (12.80)	63.38	57.27	55.76	7.62	6.11
2007	760	0.2705 (8.53)	0.4852 (13.82)	60.44	56.64	50.47	9.97	3.80
2008	640	0.4678 (11.52)	0.2852 (6.68)	56.21	53.15	47.09	9.12	3.06
2009	613	0.2658 (8.56)	0.3737 (10.56)	51.95	46.18	43.17	8.78	5.77
2010	673	0.2679 (7.24)	0.5066 (11.66)	56.25	52.83	47.37	8.88	3.42
2011	666	0.2330 (6.64)	0.4851 (12.34)	61.25	58.67	52.35	8.90	2.58
t-statistic on dl trend coefficient ( <i>FIN48IND</i> )						-0.91	0.73	<b>-2.10</b>

**Table 4 (cont.)**  
**Analysis of changes in predictive value of tax expense for cash taxes paid**

**Panel B: Non-Lapse Firms**

Year	N	[1]		[2]	[3]	[1]-[3]	[1]-[2]	
		$a_1$	$a_2$	$R^2_{Eq(2a)}$	$R^2_{Eq(2b)}$	$R^2_{Eq(2c)}$	$R^2_{TCsh-Inc}$	$R^2_{TExp\_Inc}$
2002	581	0.2991 (7.73)	0.3326 (7.76)	37.29	30.80	30.76	6.53	6.49
2003	620	0.2529 (8.24)	0.4361 (11.99)	56.79	52.03	46.72	10.07	4.76
2004	753	0.1866 (6.37)	0.5008 (13.93)	56.47	54.12	45.20	11.27	2.35
2005	810	0.3920 (13.79)	0.3342 (9.22)	54.33	49.52	43.57	10.76	4.81
2006	865	0.3075 (11.22)	0.4736 (14.17)	58.01	51.88	48.22	9.79	6.13
2007	889	0.2475 (9.27)	0.4806 (15.07)	58.37	54.33	47.70	10.67	4.04
2008	734	0.2495 (7.37)	0.4366 (11.42)	51.29	47.67	42.59	8.70	3.62
2009	674	0.1843 (5.86)	0.4110 (11.41)	46.27	43.53	35.84	10.43	2.75
2010	762	0.3207 (10.36)	0.4536 (12.18)	56.83	50.72	48.38	8.45	6.11
2011	728	0.2967 (9.67)	0.3825 (11.08)	58.28	52.90	51.21	7.06	5.38
t-statistic on dl trend coefficient ( <i>FIN48IND</i> )					0.54	-0.58	<b>-0.56</b>	

**Variable Definitions:** Annual COMPUSTAT data items are provided in parentheses.

*TExp* = Total tax expense (TXT) scaled by total assets (AT).

*TCsh* = Total cash taxes paid (TXPD) scaled by total assets (AT).

*FIN48IND* = Indicator variable set equal to one if year greater than or equal to 2007 and zero otherwise.

**Table 5**  
**Analysis of the valuation of tax expense when reserves unwind through lapses**

This table presents the results of tests examining the market valuation of tax expense. The coefficient of interest is in bold and *t*-statistics appear in parentheses below the coefficients. Asterisks \*\*\*, \*\*, \* denote statistical significance at the 1%, 5% and 10% levels, respectively.

	<b>Dependent Variable = <math>MVE_{i,t}</math></b>							
	2007-2011				2007-2009		2010-2011	
	[1]		[2]		[3]		[4]	
Intercept <sub><i>i,t</i></sub>	578.3 (6.64)	***	724.6 (6.09)	***	711.6 (4.72)	***	780.4 (4.04)	***
<i>BVE<sub>i,t</sub></i>	0.342 (11.16)	***	0.313 (9.11)	***	0.196 (4.25)	***	0.433 (8.35)	***
<i>PreTaxIncome<sub>i,t</sub></i>	11.101 (47.51)	***	10.839 (42.44)	***	11.248 (32.94)	***	10.472 (27.18)	***
<i>TaxExpense<sub>i,t</sub></i>	-11.028 (-16.04)	***	-11.018 (-14.67)	***	-11.647 (-11.77)	***	-10.356 (-8.97)	***
<i>LapseFirm</i>			-584.5 (-3.36)	***	-727.6 (-3.3)	***	-395.7 (-1.41)	
<i>BVE<sub>i,t</sub> * LapseFirm</i>			0.258 (3.5)	***	0.381 (3.8)	***	0.157 (1.41)	
<i>PreTaxIncome<sub>i,t</sub> * LapseFirm</i>			0.969 (1.62)		1.32 (1.63)		0.508 (0.56)	
<b><i>TaxExpense<sub>i,t</sub> * LapseFirm</i></b>			<b>-0.849</b> <b>(-0.48)</b>		<b>-2.728</b> <b>(-1.09)</b>		<b>0.916</b> <b>(0.36)</b>	
No. Obs.	7,139		7,139		4,310		2,829	
Adj. R2	0.8028		0.8075		0.7971		0.822	

**Variable Definitions:** Annual COMPUSTAT data items are provided in parentheses.

*MVE* = Market value of equity three months after a firm's fiscal year end.

*BVE* = Book value of equity (CEQ) for firm *i* at the end of fiscal year *t*.

*PreTaxIncome* = Pre-tax income, calculated as earnings before extraordinary items (IB) plus total tax expense (TXT) for firm *i* at the end of fiscal year *t*.

*TaxExpense* = Total tax expense for firm *i* at the end of fiscal year *t*.

*LapseFirm* = An indicator variable equal to one if the sum of *LAPSE<sub>t+1</sub>*, *LAPSE<sub>t+2</sub>*, and *LAPSE<sub>t+3</sub>* is greater than or equal to 10 percent of *UTB\_END<sub>t</sub>*, in any year from 2007 through 2011. We use the lapse and the beginning reserve balance amounts collected by the IRS from firms' FIN 48 tabular roll-forwards in the tax footnotes of their 10-K filings.