DISCRETION IN ACCOUNTING FOR TAX RESERVES: EVIDENCE FROM MERGERS AND ACQUISITIONS

by

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A thesis submitted in partial fulfillment
of the requirements for the Doctor of Philosophy
degree in Business Administration in the
Graduate College of
The University of Iowa

August 2017

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PH.D. THESIS

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ACKNOWLEDGEMENTS

I am deeply indebted to the members of my dissertation committee—Paul Hribar, Dan Collins, Cristi Gleason, Erik Lie, and Ryan Wilson—for their helpful suggestions, guidance, and encouragement. I am especially grateful to my chair, Paul, for being a fount of wisdom, kindness, and patience: this was true throughout my time at the University of Iowa, but it was never truer than during the dissertation phase. This project has also benefited greatly from the comments of and my discussions with Ciao-wei Chen, Brad Hepfer, Olivia Huseman, Kevin Markle, Lillian Mills, Phil Quinn, Erin Towery, Jane Song, and Jaron Wilde. I am thankful to workshop participants at Temple University, University of Arizona, University of Connecticut, University of Georgia, University of Illinois-Chicago, and University of Iowa. I appreciate financial support from the AICPA Foundation Accounting Doctoral Scholars Program, the Deloitte Foundation, the Ballard and Seashore Dissertation Fellowship, and the University of Iowa.

I am grateful to my friends and colleagues for helping to renew my thirst for knowledge at points when it waned, especially my friendships with Ciao-wei Chen, Brad Hepfer, Olivia Huseman, and Phil Quinn. For their encouragement and unwavering support, which greatly heightened my resolve, I thank my family, especially my parents, Bonnie and John Savoy. The occasional distractions and time together provided much needed sustenance to forge forward. This work was inspired by my grandparents who are no longer with us—I continue to derive incredible motivation from them. Most importantly, I thank my girlfriend, Jackie, for being my greatest source of strength throughout the Ph.D. program. Only a person as incredible as you could manage to hold a grueling job, be my backstop, and still have energy remaining to be effervescent and engaging. Thank you for empowering me to complete each step of this journey.

ABSTRACT

I examine the extent to which acquirers exercise discretion in the application of FIN 48 when estimating target tax reserves. By examining the change in target tax reserves recorded through purchase accounting, I am able to hold constant the underlying tax positions, and any changes can be attributed to differences in how the managers of the target and acquirer apply the recognition and measurement principles of FIN 48. For a sample of large public-for-public M&A transactions in which the amount of target tax reserves is observable pre- and post-acquisition, approximately one third (half) of the acquirers adjust target tax reserves by more than half (a quarter) of the preexisting balance. Substantially more acquirers increase rather than decrease target tax reserves, and the average change in target tax reserves recorded through purchase accounting is $25 million. I also find evidence that the change in tax reserves recorded through purchase accounting is increasing in short-term financial reporting pressures and decreasing in the costs of overstating goodwill.

PUBLIC ABSTRACT

I examine the extent to which acquirers exercise discretion in the application of FIN 48 when estimating target tax reserves. By examining the change in target tax reserves recorded through purchase accounting, I am able to hold constant the underlying tax positions, and any changes can be attributed to differences in how the managers of the target and acquirer apply the recognition and measurement principles of FIN 48. For a sample of large public-for-public M&A transactions in which the amount of target tax reserves is observable pre- and post-acquisition, approximately one third (half) of the acquirers adjust target tax reserves by more than half (a quarter) of the preexisting balance. Substantially more acquirers increase rather than decrease target tax reserves, and the average change in target tax reserves recorded through purchase accounting is $25 million. I also find evidence that the change in tax reserves recorded through purchase accounting is increasing in short-term financial reporting pressures and decreasing in the costs of overstating goodwill.

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CHAPTER 1. INTRODUCTION

The largest recent change to accounting for income taxes in the U.S. occurred with the Financial Accounting Standards Board's adoption of Interpretation No. 48 (FIN 48, now mostly codified in ASC 740-10) for fiscal years beginning after December 15, 2006. One of FASB's stated goals was to increase comparability in the accounting for income tax uncertainties across firms. While the Financial Accounting Foundation's post-implementation review concluded the relevance of reported income tax uncertainties increased under FIN 48, the report acknowledged that "the extent of judgment involved can result in significantly different outcomes that negatively affect comparability across entities, reducing FIN 48's usefulness to investors" (FAF 2012, pg. 7). The objective of this study is to examine the amount of discretion managers exercise in the application of the recognition and measurement principles of FIN 48. To do so, I investigate the extent to which acquirers change target tax reserves through purchase accounting. I then examine cross-sectional determinants of the change in target tax reserves to better understand factors that influence managers' exercise of discretion in the estimation of tax reserves.

Mergers and acquisitions provide a powerful and unique setting to examine the discretion afforded to managers under FIN 48. The target's FIN 48 reserves relate to positions that have been taken on prior tax returns so the underlying positions and economic transactions are, for the most part, held constant.[1] Thus, any changes in target tax reserves recorded through purchase accounting can be attributed to differences in how the target and acquirer managers apply FIN 48. Another interesting aspect of the M&A

[1] While I cannot completely rule out the possibility that the acquisition itself results in some income tax uncertainty for which the acquirer records tax reserves, I rely on my cross-sectional tests to link the change in target tax reserves to financial reporting incentives.

setting is that changes in target tax reserves are recorded to goodwill through purchase accounting as opposed to income. Whereas managers are generally reluctant to record additional reserves because it decreases current income, acquiring managers may be more likely to exercise discretion because any changes in the estimation of target tax reserves will not affect current income.

Examining how acquirers record target tax reserves through purchase accounting is important for two reasons: (i) evaluating the usefulness of tax reserves estimated under FIN 48 and (ii) understanding purchase price allocation decisions. Regarding the former reason, prior research provides mixed evidence on the relevance and comparability of FIN 48 reserves. While Lisowsky, Robinson, and Schmidt (2013) find that tax reserves are useful for identifying tax shelter usage, De Simone, Robinson, and Stomberg (2014) find 14 paper companies exhibit substantial variation in how they record reserves for the *same* underlying tax position questioning whether reserve balances are comparable across firms. In more recent research, Robinson, Stomberg, and Towery (2016) find that only 47.5 cents of every dollar of reserves unwind via settlements over a five-year period suggesting that these balances lack relevance. On the other hand, Ciconte et al. (2016) find that FIN 48 reserves predict future cash outflows and this relation converges to almost one over a five-year horizon. This study informs the ongoing debate by documenting the level of discretion managers enjoy when applying FIN 48 which in turn provides evidence on the comparability of estimated tax reserves across firms.

Regarding purchase price allocation decisions, mergers and acquisitions are some of the largest corporate transactions, and the accurate reporting of such transactions has drawn increased attention from regulators. Former SEC Chairman Levitt highlighted

creative acquisition accounting as one of the more popular forms of earnings management (Levitt 1998), and the SEC has brought enforcement actions regarding purchase price allocations against several large corporations (e.g. Tyco, Waste Management, Xerox, and CVS). Given the concerns of regulators coupled with the anecdotal evidence, it is clear that at least some acquirers allocate purchase price in an opportunistic manner. What is less clear are the accounts that managers use to engage in this behavior as well as the frequency and magnitude of such opportunistic purchase price allocations.

Prior research finds managers allocate purchase price between goodwill and depreciable assets in a manner that increases future earnings (Shalev, Zhang and Zhang 2013; Lynch et al. 2016), but no study has directly examined purchase price allocations for a liability account. Boosting a liability through purchase accounting will typically improve future earnings as the initial increase is offset by an increase in book goodwill while subsequent reductions in reserves are generally recorded to the income statement.[2] Thus, increasing target tax reserves through purchase accounting will result in a future tax benefit (or less tax expense) when the underlying tax positions are resolved. The income statement impact from establishing additional tax reserves will likely be recognized years before any adverse earnings impact from overstating goodwill as managers have discretion over the timely recognition of goodwill impairment (Hayn and Hughes 2006; Ramanna and Watts 2012).[3] Goodwill impairments are also often separately stated as a non-recurring item

[2] SFAS 141(R) requires income statement recognition of any changes in target tax reserves made after the effective date of the acquisition. The exception would be if the change is recorded during the measurement period and results from new information about facts that existed at the time of the acquisition. Section 2 describes these issues in more detail.

[3] The tax benefit will be recognized either when the underlying tax position is settled with tax authorities or the statute of limitations expires for the tax year in which the uncertain tax position was taken. The average IRS audit cycle is 60 months for large-sized corporations (Cleaveland, Epps, and Bradley 2010), while the statute of limitations for a U.S. corporate tax return is three years from the due date of the return or the date

while the tax benefits from future reductions in target tax reserves are typically reported as part of recurring income.

Although incentives to increase liability balances through purchase accounting are not isolated to tax reserves, examining tax reserves as opposed to other liability balances offers several advantages. First, the discretion inherent in accounting for uncertain tax benefits provides a ripe setting for managers' reporting preferences to influence the purchase price allocation decision. The recognition and measurement principles of FIN 48 require managers to determine the probability of each potential outcome, and such an assessment involves substantial judgement on the part of management. Second, the disclosure requirements under FIN 48 make it more likely that I can observe both the target's preexisting tax reserves and the post-acquisition amount recorded through purchase accounting on the acquirer's books.[4] Finally, unlike other reserve accounts such as environmental reserves, tax reserves are not unique to particular industries as Graham, Raedy, and Shackleford (2012, p.414) note, "income taxes are the only expense that all for-profit firms face." This results in larger sample size and increased power to detect how managers' reporting preferences influence purchase price allocation decisions.

To begin my analysis, I hand-collect data from the uncertain tax benefit rollforward schedules ("UTB rollfowards") of both targets and acquirers from a sample of mergers and acquisitions between 2007 and 2015 obtained from the SDC Mergers and Acquisitions database. Out of an initial sample of public-for public 657 M&A transactions, the change

on which it was filed, whichever is later. On the other hand, goodwill impairments can lag behind the economic impairment of goodwill by up to ten years (Hayn and Hughes 2006).

[4] Disclosures of purchase price allocations are sometimes omitted due to immateriality and often lack the details necessary to obtain allocations for a specific liability balance (Shalev 2009; Shalev, Zhang, and Zhang 2013). The additional granularity required of tax reserve disclosures (ASC 740-10-50-15) provide an opportunity to determine how much purchase price was allocated to this specific liability account.

in tax reserves recorded through purchase accounting is observable for 181 transactions. The primary reason for eliminations is either the target did not have any preexisting tax reserves or the target's reserves are not separately stated in the acquirer's post-acquisition UTB rollforward due to immateriality.[5] In the sample of acquisitions for which I can quantify the change in target tax reserves, acquiring managers record large changes to target tax reserves through purchase accounting. Approximately a third (half) of the acquirers change target reserves by more than half (a quarter) of the preexisting balance.

Acquirers are much more likely to increase rather than decrease target tax reserves. I find that, on average, acquirers boost target tax reserves by $25.3 million. This amount is economically significant as it averages 1.1 percent of the transaction value. After scaling by acquirers' post-acquisition shares outstanding, the increase in target tax reserves averages 8 cents per share of additional tax reserves. Univariate tests confirm the step up in tax reserves is significantly positive at the 1% level. These findings confirm acquirers enjoy substantial discretion in estimating target tax reserves, and the average manager uses the discretion to increase target tax reserves through purchase accounting.

An increase in target tax reserves is not in and of itself evidence of opportunistic purchase accounting on the part of the acquirers. For example, targets could be aggressive in their reporting of tax contingencies such that they are on average under-reserved prior to the acquisition. It is also possible that some aspect of the merger transaction creates tax uncertainty for which the acquirer records reserves. In order to connect the change in target tax reserves to the acquirers' financial reporting incentives, I examine whether financial

[5] Other reasons for dropped observations include entities not subject to federal tax, missing pre- or post-acquisition financials, non-traditional M&A transactions such as partial purchases, and observations with multiple acquisitions in a year. Section 3 and Table 1 provide additional details on sample selection procedures.

reporting pressures explain cross-sectional variation in the change in target tax reserves recorded through purchase accounting. More specifically, I regress the change in target tax reserves on variables intended to capture financial reporting pressures and a set of control variables.

Given that increasing tax reserves through purchase accounting can improve future reported earnings, I expect the change in target tax reserves to be greater when acquirers face short-term financial reporting pressures. Consistent with this expectation, I find the change in tax reserves is greater for acquiring firms covered by more analysts and those with a recent history of meeting or beating earnings targets prior to the acquisition. I also find some evidence that the change in tax reserves is greater for acquirers that provide quarterly earnings guidance. The reporting pressure variables explain an additional 5.4% of the variation in the change in target tax reserves relative to a model that does not include the reporting pressure variables (41.4% r-squared versus 36.0%). Together, these results suggest short-term reporting pressures influence the extent to which acquirers exercise discretion in the estimation of target tax reserves.

While short-term financial reporting pressures provide an explanation for why acquirers step up target tax reserves, an aversion to recording additional goodwill represents a potential opposing force. If goodwill is overstated, there is a greater likelihood that the recorded goodwill will become impaired at some point in the future, requiring a charge to earnings. Goodwill impairments are generally accompanied by large negative market reactions and can also negatively affect executive compensation (Li, Shroff, Venkataraman, and Zhang 2011; Darrough, Guler, and Wang 2014). Given the negative consequences of goodwill impairments, I expect acquirers weigh the benefit of recording

additional tax reserves against the costs of recording additional goodwill, and acquirers with more preexisting goodwill are likely closer to the point at which the marginal cost of recording additional goodwill exceeds the marginal benefit of recording additional tax reserves. Thus, I predict and find that the change in target tax reserves recorded through purchase accounting is decreasing in the level of preexisting goodwill on the acquirer's balance sheet.

My study should be of interest to standard setters as it provides evidence on the level of discretion that FIN 48 affords managers through the recognition and measurement principles. Target and acquirer managers arrive at very different estimates of tax reserves despite holding the underlying tax positions constant. For a sample of M&A transactions in which the amount of target tax reserves is observable pre- and post-acquisition, approximately half of the acquirers adjust target tax reserves by more than a quarter of the preexisting balance. While academic researchers have used FIN 48 reserves to capture tax risk (e.g. Rego and Wilson 2012; Brown, Drake and Martin 2015; Hutchens and Rego 2015), my results suggest a substantial proportion of the variation in tax reserves is due to differences in managers' application of FIN 48 as opposed to differences in tax risk across firms.

This study also contributes to the literature on purchase accounting and purchase price allocations. Prior research has focused on purchase price allocation decisions that are subject to fair value accounting (Shalev, Zhang and Zhang 2013; Lynch et al. 2016). I am the first to examine the purchase price allocations for a liability account that is not subject to fair value accounting, and I find that managers use the discretion in FIN 48 to allocate purchase price in a manner which will increase future earnings when the underlying tax

positions are resolved. As noted in Healy and Wahlen (1999), regulators and standard setters are "likely interested in evidence on the frequency and magnitude of earnings management" in addition to the "specific accruals and accounting methods used to manage earnings" (p. 367). In my sample of large acquirers, substantially more acquirers increase rather than decrease target tax reserves and the average magnitude is $25 million. My study also highlights the incentives that give rise to this behavior, specifically short-term financial reporting pressures. Finally, my study identifies an accounting standard, SFAS141(R), that likely increased incentives to increase target tax reserves through purchase accounting.

CHAPTER 2. ACCOUNTING BACKGROUND AND HYPOTHESIS DEVELOPMENT

2.1. Accounting for Uncertainty in Income Taxes – FIN 48

FIN 48, now codified in ASC 740, requires a two-step approach for recognizing and measuring income tax uncertainties. First, a tax position must meet the more-likely-than-not threshold in order to be recognized. In other words, a benefit can only be recognized if there is a greater than fifty percent chance the tax authority will not fully disallow the position. In assessing this likelihood, it shall be presumed the tax position will be examined by the relevant tax authority that has full knowledge of all relevant information (ASC 740-10-25-7). Second, the benefit shall "be measured as the largest amount of tax benefit that is greater than 50 percent likely of being realized upon settlement" (ASC 740-10-30-7). This measurement principle is based on the concept of cumulative probability and often requires managers to develop a cumulative probability table.

Appendix A provides two example cumulative probability tables to illustrate how the recognition and measurement principle are applied under FIN 48. Both examples assume the entity took a position on a tax return that resulted in a $100 tax benefit. In Example 1, there is a *more* than a 50% chance the tax authority disallows the full tax benefit. As such, this position does not satisfy the more-likely-than-not recognition principle and none of the tax benefit should be recognized (i.e. $100 of reserves are recorded). In Example 2, there is *less* than a 50% chance the tax authority disallows the full tax benefit so the position satisfies the recognition threshold. As for measurement, the outcome that exceeds the cumulative probability threshold of 50% is the tax authority

allowing $30 of the tax benefit. Therefore, $30 of benefit should be recognized and $70 of reserves should be recorded.

Standard setters intended the uniform recognition and measurement principles of FIN 48 to curb diversity in accounting practices and improve the relevance and comparability of reported income tax assets and liabilities (FASB 2006). Yet, the recognition and measurement principles of FIN 48 require management to exercise judgement as there is no prescribed method for determining the individual probability of each possible outcome, and such probabilistic assessments inherently introduce discretion into the estimation of tax reserves. Thus, it is unclear if the recognition and measurement principles of FIN 48 actually curbed diversity in practice. The Financial Accounting Foundation's (FAF) post-implementation review of FIN 48 concluded the relevance of reported income tax uncertainties increased under FIN 48, but the report acknowledged that reported amounts may not be more comparable due to the discretion inherent in the recognition and measurement provisions of FIN 48. The report notes "the extent of judgment involved can result in significantly different outcomes that negatively affect comparability across entities, reducing FIN 48's usefulness to investors" (FAF 2012, pg. 7).

Academic research has provided mixed evidence on the relevance and comparability of tax reserves estimated under FIN 48. On one hand, Lisowsky, Robinson, and Schmidt (2013) find that FIN 48 reserves are associated with IRS identified tax shelters, and Ciconte et al. (2016) find that FIN 48 reserves predict future cash outflows and this relation converges to almost one over a five-year horizon. Both of these studies suggest FIN 48 reserves are useful and relevant to investors. On the other hand, Robinson,

Stomberg, and Towery (2016) question the relevance of FIN 48 reserves when they find that only 47.5 cents of every dollar of reserves unwind via settlements with tax authorities over a five-year period. They also find that FIN 48 does not improve the ability of tax expense to predict future tax cash flows and actually decreases the predictive ability of tax expense for some firms relative to tax expense computed under the old standard. Confirming the FAF's concerns over the comparability of income tax uncertainties estimated under FIN 48, De Simone et al. (2014) find wide variation in the application of FIN 48 in a small sample setting where 14 firms took the same underlying tax position and faced the same level of uncertainty.

While questions exist as to whether FIN 48 improved the relevance and comparability of income tax uncertainties, FIN 48 did substantially improve the disclosure of income tax uncertainties. For example, the standard requires firms to disclose a tabular reconciliation of the beginning and ending amounts of unrecognized tax benefits each fiscal year end. It is this tabular reconciliation that allows me to observe the change in target tax reserves recorded through purchase accounting. Purchase price allocations for single business combinations are often not disclosed due to immateriality and sometimes are aggregated with multiple acquisitions in the same year (Shalev 2009). Furthermore, disclosures of purchase price allocations rarely contain the granularity necessary to observe changes in individual liability accounts.

2.2. Accounting for Business Combinations – SFAS 141 and SFAS 141(R)

Prior to effective date of SFAS 141 in 2001, business combinations could be accounted for using either the pooling-of-interests method or the purchase method. SFAS 141 eliminated the pooling-of-interests method and mandated use of the purchase method;

therefore, the purchase method is the only available method during my sample period. The purchase method requires acquirers to allocate the purchase price to the target's identifiable assets and liabilities at the date of acquisition. Any excess purchase price is then allocated to goodwill. Although purchase accounting requires most assets and liabilities to be measured at their fair values, an exception from fair value measurement is provided for tax contingencies. Instead, reserves for uncertain tax positions are to be measured under the provisions of FIN 48.[6] If the purchase price allocation is incomplete by the end of the first reporting period after the acquisition, the acquirer reports provisional amounts of any items for which the purchase price allocation is not yet complete. Acquirers can adjust provisional amounts during the measurement period which is not to exceed one year from the effective date of the acquisition. Figure 1 re-creates the timeline of a typical M&A transaction and purchase price allocation from Shalev, Zhang, and Zhang (2013) with a few additions specific to my setting.

Of particular importance to this study is the accounting treatment of changes in target tax reserves that are made subsequent to the effective date of the acquisition. Before SFAS 141(R), post-acquisition changes in target tax reserves were recorded as an adjustment to goodwill on the balance sheet and were not included in income. SFAS 141(R) revised this treatment such that changes in target tax reserves are generally recorded to the income statement. Post-acquisition changes in target tax reserves are only recorded to goodwill if the change takes place *during the measurement period* and resulted from new information about *facts and circumstances that existed at the acquisition date* (see Paragraphs 51-53). The switch to income statement recognition from a balance sheet

[6] My sample begins after the effective date of FIN 48. Prior to the effective date of FIN 48, tax reserves were required to be measured according to SFAS 5 "Accounting for Contingencies".

adjustment under the old standard likely increased acquirers' incentives to step up target tax reserves.

After the adoption of SFAS141(R), acquirers can recognize an income statement benefit from the release of target tax reserves in the same fiscal year as the acquisition by claiming the release is due to a change in facts or circumstances. Example B.1 in the Appendix shows an instance where the acquirer recognizes a tax benefit from the release of target tax reserves in the same fiscal year as the acquisition. Holly Corp acquired Frontier Oil Corp effective July 1, 2011, and recorded approximately $22.6 million of target tax reserves through purchase accounting. During the second half of 2011, Holly Corp recognized an income statement benefit of $12.1 million from the release of tax reserves. I can be sure that this tax benefit is almost completely due to the release of *target* tax reserves because the acquirer had less than $2 million of preexisting reserves.[7]

While the tax-specific provisions of SFAS 141(R) became effective for fiscal years beginning on or after December 15, 2008, firms likely anticipated the revised treatment of changes in target tax reserves much earlier.[8] The final version of SFAS 141(R) was released in December of 2007; thus, managers were likely aware that future changes in target tax reserves would hit the income statement well before the effective date of SFAS 141(R). Some companies highlighted this change in accounting standard by disclosing the

[7] As another example, The Stanley Works recognized large tax benefits from the release of target tax reserves soon after the 2010 acquisition of Black and Decker. Here is an excerpt from the tax footnote in the combined entity's 2011 10-K: "During 2011 and 2010, the Company recognized tax benefits of $73.4 million and $36.0 million attributable to favorable settlements of certain tax contingencies, *due to a change in the facts and circumstances that did not exist at the acquisition date* [emphasis added] related to the resolution of legacy Black & Decker income tax audits."

[8] Interestingly, the effective date of SFAS 141(R) differs for non-tax and tax accounts. For non-tax accounts, the revised statement is only effective for acquisitions that take place in a fiscal year beginning on or after December 15, 2008 (see Paragraphs 74-75). For tax accounts, the revised statement is effective prospectively for any fiscal year beginning on or after December 15, 2008 regardless of when the acquisition took place (see Paragraph 77).

amount of reserves which would impact the effective tax rate that previously would have been recorded to goodwill.[9]

Boosting target tax reserves through purchase accounting can result in more favorable post-acquisition earnings in the near term. Holding purchase price constant, increasing target tax reserves will result in an equivalent increase to goodwill. Whereas goodwill is an indefinite-lived asset, reserves for uncertain tax positions are usually resolved in a shorter amount of time either through lapses in statutes of limitations or settlements with tax authorities. In this regard, increasing target tax reserves through purchase accounting is similar to shifting the allocation of purchase price from definite-lived assets to goodwill. Both actions can increase post-acquisition earnings by reducing expenses in the near term while increasing goodwill.

Prior research has examined purchase price allocations among various asset classes in the context of incentives to reduce depreciation and amortization charges and report more favorable post-acquisition earnings. For example, Shalev, Zhang, and Zhang (2013) find that CEOs with stronger earnings-based compensation incentives allocate more purchase price to goodwill. More recently, Lynch et al. (2016) juxtapose the purchase price allocation decisions of public and private acquirers to examine the tradeoff between tax and financial reporting incentives. They find that public firms allocate more purchase price to intangibles rather than depreciable assets relative to private firms. This result is

[9] For example, see this excerpt from the tax footnote in Avery Dennison Corporation's 10-K for the year ending December 27, 2008: "This amount includes $48.2 million of unrecognized tax benefits which, if recognized, would have been recorded as an adjustment to goodwill under SFAS No. 141. However, under SFAS No. 141(R), which is effective the first annual reporting period beginning after December 15, 2008, this benefit, if recognized, would be an adjustment to the effective income tax rate."

consistent with public acquirers facing stronger financial reporting incentives than private firms which prefer the cash flow benefits from additional tax depreciation.

2.3. Hypothesis Development

The above discussion of the relevant accounting standards and prior literature outlines several compelling reasons to expect that acquirers will increase target tax reserves through purchase accounting. First, managers make acquisition accounting choices to increase future earnings, including decisions involving purchase price allocations (Ayers, Lefanowicz, and Robinson 2002; Shalev, Zhang, and Zhang 2013; Lynch et al. 2016). Second, a substantial stream of literature finds that tax accounts are used to manage earnings (e.g. Dhaliwal, Gleason, and Mills 2004; Comprix, Mills, and Schmidt 2012), and reserves for uncertain tax positions are one tax account that is used to manage earnings (Cazier et al. 2015; Gupta, Laux, and Lynch 2015). Finally, the SFAS141(R) revision requiring income statement recognition of post-acquisition changes in target tax reserves increased management's incentives to record additional tax reserves through purchase accounting. For these reasons, I state my first hypothesis in the alternative form.

H1: On average, acquirers increase target reserves for uncertain tax positions through purchase accounting.

Overstating target tax reserves through purchase accounting will increase future earnings when the excess reserves are released back through earnings. Capital market pressures, contracts based on accounting numbers, and government regulation can all provide incentives to manage earnings (Healy and Wahlen 1999). Numerous studies find earnings targets are a particularly strong capital market pressure that influences earnings management behavior through tax accounts. Graham, Raedy, and Shackleford (2012)

conclude that "a consistent pattern emerges from the extant research on earnings management: firms use the tax accounts to manage earnings to meet analysts' forecasts" (pg. 422). Mergers and acquisitions are also large investments that can strengthen capital market incentives to manage earnings. For example, Bens, Goodman, and Neamtiu (2012) find that acquirers are more likely to misstate financial statements if the acquisition was poorly received by the market. In summary, the balance of evidence in prior research suggests short-term financial reporting pressures will influence the amount of purchase price allocated to reserves for uncertain tax positions.

H2: The extent to which acquirers boost target reserves for uncertain tax positions through purchase accounting is increasing in short-term financial reporting pressures.

Increasing target tax reserves and in turn increasing goodwill is not costless, and certain forces likely constrain acquirers' ability to increase target tax reserves. One such cost is the increased risk of future impairments that results from overstating goodwill. The market reacts negatively to goodwill impairments (Li et al. 2012), and impairments are associated with reduced future compensation (Darrough, Guler, and Wang 2014). Given the negative consequences to goodwill impairments, I expect the costs of overstating goodwill will temper incentives to increase target tax reserves through purchase accounting.

H3: The extent to which acquirers boost target reserves for uncertain tax positions is decreasing in the costs of overstating goodwill.

CHAPTER 3. SAMPLE SELECTION AND RESEARCH DESIGN

3.1. Sample Selection

I obtain my initial sample from the SDC Mergers and Acquisitions database focusing on U.S. mergers and acquisitions with an effective date between March 31, 2007 and December 31, 2015.[10] The sample begins after the implementation of FIN 48, the accounting standard that first required companies to disclose a tabular reconciliation of beginning and ending amounts of unrecognized tax benefits. I further require that both the acquirer and target are public companies to ensure the UTB rollforward is observable before and after the acquisition. Finally, I require deal value to be at least $200 million to increase the likelihood that the target's preexisting reserves are material enough such that they are separately stated in the acquirer's post-acquisition UTB rollforward. This initial sample selection process results in 657 unique M&A transactions.

For this preliminary sample, I hand-collect data from the UTB rollforward in each target's pre-acquisition 10-K and each acquirer's post-acquisition 10-K. Appendix B provides examples of the UTB rollforwards from a few of the sample M&A transactions. For each transaction, the UTB rollforward of both the target and acquirer are presented. In Example B.2, the target, Wyeth, had $1.185 billion of tax reserves as of December 31, 2008. The acquirer, Pfizer, recorded $1.785 billion of target tax reserves through purchase accounting in 2009. In Example B.3, the target, BJ Services, had $50 million of tax reserves as of December 31, 2008. The acquirer, Baker Hughes, recorded $130 million of target tax reserves through purchase accounting in 2009. These two examples are instances where

[10] The sample is restricted to U.S. only firms to be sure that both the target and acquirer account for tax reserves using the same set of accounting standards. This restriction also ensures that my sample does not include any corporate inversions, tax-motivated transactions which can create tax uncertainty and generate tax reserves.

the acquirer increased target tax reserves through purchase accounting. Example B.1, on the other hand, is an instance where the acquirer made no change to target tax reserves through purchase accounting.

A number of observations are eliminated from the initial sample with the primary reasons being either the target did not have any preexisting tax reserves or the target's reserves are not separately stated in the acquirer's post-acquisition UTB rollforward.[11] Other reasons for eliminating observations from the sample include: (i) cases where the target is a flow-through not subject to entity-level income taxes, (ii) inability to disentangle a particular target's reserves because of multiple acquisitions in a firm-year, (iii) missing pre-acquisition or post-acquisition financials, and (iv) non-traditional M&A transactions such as partial purchases or reverse mergers. Table 1 Panel A summarizes this sample selection procedure that resulted in a final sample of 181 observations. Table 1 Panel B presents the distribution of observations across years which shows the sample is evenly distributed throughout the sample period.

3.2. Research Design for Cross-sectional Determinants Analysis

I employ the following regression model to examine the cross-sectional determinants of the change in target tax reserves recorded through purchase accounting:

$$\Delta UTB_t = \beta_1 Target\ UTBs_{t-1} + \beta_2 Acquirer\ UTBs_{t-1} + \beta_3 TargRG\_BSGDWL +$$

$$\beta_4 ACQ\_BSGDWL + \beta_5 LACKSLACK + \beta_6 TRG\_SIZE + \beta_7 ACQ\_SIZE + \beta_8 TRG\_BTM +$$

[11] Immateriality appears to be why target reserves are not separately stated in many acquirers' post-acquisition UTB rollforwards. For instances where the target had preexisting tax reserves but they are not separately stated in the acquirer's rollforward, the target's reserves are less than 1.7% of the acquirer's beginning tax reserves on average. This amount compares to 27.6% when the acquirer does separately state the target's reserves.

$$\beta_9 ACQ\_BTM + \beta_{10} ACQ\_LTD + \beta_{11} RELATIVE + \beta_{12} PCT\_STOCK +$$

$$\beta_{12} SHRD\_AUDIT + Year\ and\ Industry\ fixed\ effects\ + \varepsilon \quad (1)$$

The dependent variable, ΔUTB, is the change in target tax reserves recorded through purchase accounting scaled by deal value.[12] The model includes the following categories of determinants: the level of preexisting income tax uncertainties, proxies for the cost of overstating goodwill, other acquirer and target characteristics, and deal characteristics. All non-deal specific determinants are measured as of the last fiscal year end preceding the effective date of the acquisition. Later, I modify Equation (1) to include variables intended to capture short-term financial reporting pressures. I briefly describe each variable below (detailed variable definitions can be found in Appendix D).

The preexisting tax reserves of the target (*Target UTBs)* and the acquirer (*Acquirer UTBs*) are scaled by deal value and market value of equity respectively. Prior research shows FIN 48 reserves are correlated with more aggressive tax avoidance transactions (Lisowsky, Robinson, and Schmidt 2013). Larger preexisting target tax reserves could indicate a greater number of uncertain tax positions and more opportunities to increase the reserves through purchase accounting. On the other hand, larger preexisting target tax reserves could indicate the target conservatively reports its income tax uncertainties and, therefore, is potentially over-reserved. Because it is unclear which explanation is more descriptive, I do not make an ex-ante prediction regarding *Target UTBs*. To the extent that large preexisting reserves reflect accounting conservatism, acquirers with large reserves

[12] The amount by which target tax reserves can be increased through purchase accounting is typically bounded by the deal value. Goodwill must increase dollar for dollar with any increase in target tax reserves, and goodwill rarely if ever exceeds the purchase price. Thus, using deal value as the deflator is natural in this setting and mimics the research design in other studies of purchase price allocations (Shalev, Zhang, and Zhang 2013; Lynch et al. 2016).

would have a tendency to record additional reserves through purchase accounting. Large reserves balances might also require a greater step up in target reserves in order to make a material difference in the acquirer's financial statements. If either explanation is descriptive, I expect a positive coefficient on *Acquirer UTBs.*

The next set of determinants capture the costs associated with overstating goodwill. Goodwill impairments are viewed unfavorably by the market and have negative consequences on executive compensation (Li et al. 2011; Darrough, Guler, and Wang 2014). Given that impairments are costly, I expect managers will be less willing to record additional tax reserves and further increase goodwill if the risk of a future impairment is high. Assuming the risk of a future impairment is greater when an acquirer has a large amount of preexisting goodwill, I expect a negative association between the change in target tax reserves and the acquirer's pre-existing balance sheet goodwill (*ACQ_BSGDWL*). Goodwill impairment testing requires a comparison of the carrying value of a reporting unit with its estimated fair value, and preexisting goodwill on the target's balance sheet could increase the likelihood that the reporting unit's book value will exceed its fair value at some point in the future. Thus, I also expect a negative coefficient on *TRG_BSGDWL*.

Impairment testing allows for an acquirers unrecognized assets to be considered in the evaluation of whether a reporting unit's book value exceeds its fair value. Therefore, a future goodwill impairment should be less likely if an acquirer has more unrecognized assets that are reflected in market values. Because I do not have a measure of unrecognized assets at the reporting unit, I follow Shalev, Zhang, and Zhang (2013) and measure an acquirer's unrecognized assets as the difference between its market and book value.

LACKSLACK is then the difference between deal value and the acquirer's unrecognized assets. Positive (negative) values of *LACKSLACK* represent a higher (lower) risk of future impairment. I expect a negative coefficient on *LACKSLACK* as acquirers should be less willing to increase target tax reserves when there is a higher risk of future impairment.

Next, I include both target and acquirer size because prior research has shown economies of scale to tax avoidance (Mills, Erickson, and Maydew 1998; Rego 2003), and determinants of tax avoidance may also be related to amount of purchase price allocated to tax reserves. *TRG_SIZE* and *ACQ_SIZE* are the natural log of total assets of the target and acquirer respectively. I also include the book to market ratio of both the target and the acquirer (*TRG_BTM, ACQ_BTM*) because investments in tax planning are likely associated with growth. Book to market ratios could also capture accounting conservatism (i.e. the extent to which book values are understated relative to market values). The last acquirer characteristic included in the model is long-term debt scaled by market value of equity (*ACQ_LTD*). If long-term debt increases the demand for conservative reporting and the desire to increase tax reserves in part stems from conservatism, acquirers with more long-term debt should be more likely to increase target tax reserves.

The first deal specific characteristic in the model is a measure of the importance of the acquisition relative to the acquirer's overall market value. *RELATIVE* is the deal value divided by the market value of the acquirer; therefore, larger values of *RELATIVE* indicate relatively more important acquisitions. The second deal specific characteristic is the amount of stock consideration used by the acquirer in the transaction (*PCT STOCK*), which is intended to control for potential overvalued equity. Acquirers are more likely to finance an acquisition with stock when their equity is overvalued (Shleifer and Vishny 2003; Savor

and Lu 2009), and overvalued equity creates incentives to manage earnings upward (Badertscher 2011). Mergers and acquisitions, in and of themselves, can create financial reporting pressures that lead to misreporting (Bens, Goodman, and Neamtiu 2012). To the extent that stock consideration is correlated with overvalued equity and pressure to report favorable earnings, a positive coefficient is expected on *PCT_STOCK*.

The last deal specific characteristic included is an indicator variable equal to one when the target and acquirer share a common auditor *(SHRD_AUDIT*). Cai et al. (2016) and Dhaliwal et al. (2016) find that shared auditors are associated with higher quality merger and acquisitions. Shared auditors are associated with a higher likelihood of an initial bid, lower deal premiums, lower target event returns, higher acquirer event returns, and higher likelihood of deal completion. Collectively, these results suggest a common auditor facilitates information flow between acquirers and targets. In regards to allocating purchase price to income tax uncertainties, a shared auditor and the resulting additional information flow could limit an acquirer's ability to increase target tax reserves. An acquirer may have a harder time justifying that additional tax reserves should be recorded when its auditor previously audited the target's reserve for uncertain tax positions. To the extent that a shared auditor limits an acquirer's ability to increase target tax reserves, I expect a negative coefficient on *SHRD_AUDIT*.

3.3. Proxies for Short-term Financial Reporting Pressures

The amount by which an acquirer can boost target tax reserves is unlikely to be material in relation to an acquirer's overall market value.[13] Boosting target tax reserves can however create several cents per share of future tax benefits. In my sample, the average

[13] The average target has approximately $75 million of preexisting target tax reserves compared to the average acquirer market capitalization of $13.6 billion.

acquirer creates approximately 8 cents (median is ½ cent) per share of future tax benefits by increasing target tax reserves through purchase accounting. Given these magnitudes would be most useful in meeting or beating an earnings target, short-term financial reporting pressures are a salient incentive to allocate a higher value to reserves for uncertain tax positions.

The first proxy I use for short-term financial reporting pressures is an acquirer's recent track record of meeting or beating the consensus analyst forecast. Numerous studies have focused on meeting or beating earnings targets as a strong incentive to manage earnings, and a streak of consecutive earnings increases amplifies the incentives to manage earnings (Myers, Myers, and Skinner 2007). Therefore, I expect acquirer managers will have stronger incentives to increase target tax reserves if the acquirer has a recent history of meeting or beating the consensus analyst forecast (*MB_PERC)*. *MB_PERC* is calculated as the proportion of quarters over the last two years during which the acquirer met or beat the consensus analyst forecast.

The second proxy I use for short-term financial reporting pressures is the number of analysts following the acquirer in the year prior to the acquisition. Survey evidence in Graham, Harvey, and Rajgopal (2005) suggests that managers view analysts as one of the most important parties in influencing firm stock price and setting earnings expectations. Moreover, the survey evidence indicated "the importance of the analyst consensus benchmark increases with the number of analysts covering the firm" (p. 24). Based on the assumption that acquirers with greater analyst coverage face stronger reporting pressures, I expect the change in target tax reserves recorded through purchase accounting to be increasing in analyst following. Thus, a positive coefficient is predicted on *FOLLOWING*,

calculated as the natural log of analyst following to reduce skewness. Note that if analysts help monitor management's purchase price allocation decisions, it would work against finding the hypothesized relation.

The third proxy I use for short-term financial reporting pressures is whether the acquirer provides quarterly earnings guidance. As noted in Hirst, Koonce, and Venkataraman (2008), management earnings guidance is "one of the key voluntary disclosure mechanisms by which managers establish or alter market earnings expectations" (p. 315). Evidence suggests managers issue self-serving forecasts, and their willingness to do so is inversely related to the market's ability to detect any misrepresentation (Rogers and Stocken 2005). The likelihood of providing a forecast is also related to a manager's prior record of meeting beating the analyst consensus forecast (Houston, Lev, and Tucker 2010). While guidance may be both an antecedent and consequence of financial reporting pressures, I assume managers who issue quarterly earnings guidance face stronger reporting pressures. Based on this assumption, I expect a positive coefficient on *GUIDANCE*, an indicator variable equal to one if the acquirer provided quarterly earnings guidance in the fiscal year before the acquisition. If firms use guidance to lower analysts' earnings expectations, it would work against finding the hypothesized relation.

CHAPTER 4. RESULTS

4.1. Descriptive Statistics, Correlations, and Univariate Tests

The descriptive statistics presented in Table 2 provide initial evidence that acquirers increase target tax reserves through purchase accounting. The average acquirer increases target reserves for uncertain tax positions by approximately $25 million which amounts to 1.1% of the total deal value. Considering that the average target has just under $75 million of preexisting tax reserves, acquirers increase target tax reserves by over one-third of the preexisting balances. In terms of earnings per share, the average increase in target tax reserves is 8 cents per share.[14] Note the distribution of the step up in target tax reserves is right skewed as the median value is ½ cent per share. It is unlikely that most acquirers will step up the target tax reserves by a large enough amount to generate a cent of earnings per share. For example, 34 out of the 181 sample acquirers would have to more than double the target's preexisting tax reserves in order to generate a cent of earnings. Thus, the observed skewness is, in part, due to the fact that this not a feasible earnings management strategy for some of the sample acquirers. While the descriptive statistics lend credence to my first hypothesis, I also conduct univariate tests which I describe in more detail below.

The average deal size in my sample is quite large, over $4 billion, and equals approximately 60 percent of the acquirer's market capitalization. Most of the acquirers have preexisting balance sheet goodwill consistent with having acquired other companies in the past. The average acquirer's book to market ratio is greater than the average target's

[14] To obtain an earnings per share amount, I divide the step up in target tax reserves by the acquirer's shares outstanding as of the end of the fiscal year in which the acquisition became effective. I scale by shares outstanding after the date of the acquisition because acquirers often issue additional shares as consideration. Furthermore, the purchase price allocation decisions are made after the effective date of the acquisition when the managers know the new number of shares outstanding.

book to market ratio which is to be expected as firms often engage in M&A activity to fuel growth. Because my sample selection procedures bias towards large firms, almost all of the acquirers and targets are audited by big 4 firms (untabulated), and approximately 29% of the sample deals involve a target and acquirer that share a common auditor. Regarding short-term financial reporting pressures, sample acquirers meet or beat the consensus analyst forecast in over 70% of the eight quarters prior to the effective date of the acquisition. The typical acquirer is followed by 16 analysts (untabulated as *FOLLOWING* is the natural log of analyst following) and 35% of the sample acquirers provide quarterly earnings guidance in the fiscal year preceding the acquisition.

Table 3 presents correlations between the step up in target reserves and its determinants. *STEPUP_VALUE* is significantly correlated with several of the determinants in the expected direction. For example, the step up in target tax reserves is negatively correlated with the level of preexisting goodwill on the acquirer's balance sheet and the lack of slack variable (*ACQ_BSGDWL* and *LACKSLACK*). Regarding the proxies for financial reporting pressures, the step up is positively correlated with *MB_PERC* and to a lesser extent *GUIDANCE.* Many of the determinants are significantly correlated with each other highlighting the importance of a multivariate regression model. Also of note, there are significant correlations among *MB_PERC, FOLLOWING,* and *GUIDANCE* indicating the variables overlap in their ability to proxy for financial reporting pressures.

Table 4 presents evidence on the level of discretion acquiring managers have when estimating target tax reserves. Panel A shows the frequency distribution of acquirers that change target tax reserves by a certain percentage of the preexisting reserve balance. For example, 35% (15%) of the sample acquirers change target tax reserves by more than half

(a quarter) of the preexisting balance. Together, more than half of the acquirers estimate a tax reserve balance that is more than 25% different than the target's estimate. Not many accounting standards afford such discretion that two different sets of managers can estimate such widely different balances for the same underlying economic transactions. Also of note, the number of acquirers that increase reserves by more than 50% is much greater than the number of acquirers that decrease reserves by more than 50% (62 versus 2). I also perform this profile analysis for observations with greater than $5 million of preexisting reserves because some targets have very little preexisting reserves and thus small denominators could contribute to the observed patterns. Inferences remain unchanged; targets and acquirers exhibit substantial variation in their estimates of tax reserves, and acquirers are much more likely to substantially increase rather than decrease target tax reserves.

Panel B of Table 4 presents univariate tests of my first hypothesis that acquirers, on average, increase target reserves for uncertain tax positions through purchase accounting. A t-test of the sample mean *STEPUP_RAW* demonstrates the average mean step up in target tax reserves is significantly positive at the 1% level. A sign test also indicates the median step up in target tax reserves is significantly positive at the 1% level.[15] Note the significance levels of these tests are unchanged if a scaled variable is used instead (i.e. *STEPUP_VALUE*). Lastly, I conduct a binomial proportion test of whether the proportion of acquirers that increase target tax reserves is the same as the proportion of acquirers that do not. The proportion of acquirers that step up target tax reserves is 63.5%,

[15] I use a signed test as opposed to a signed rank test because the distribution of *STEPUP_RAW* does not appear to have a symmetric distribution which violates an underlying assumption of the signed rank test.

and this proportion is significantly greater than the 36.5% of acquirers that do not.[16] These univariate tests strongly support the hypothesis that acquirers, on average, increase target tax reserves through purchase accounting.

This analysis implicitly uses zero change in target tax reserves as a benchmark. It is possible that acquirers boost target tax reserves for reasons other than a desire to increase future earnings. For example, acquirers may increase target tax reserves because they have less information on the underlying tax positions than the target and thus face greater uncertainty. The next subsection is intended to provide evidence that the step up in target tax reserves is indeed related to earnings management incentives.

4.2. Results of the Determinants Analysis

Table 5 presents estimation results for several alternative versions of the determinants model from Section 3.2. First, I estimate the base model without any of the reporting pressure variables (Column 1). Next, I add each reporting pressure variable individually (Columns 2-4) before including all reporting pressure variables in one model (Column 5). Note that all estimations include year and industry fixed effects, and standard errors are clustered by acquirer because several acquirers appear more than once in my sample.[17]

Several consistent patterns emerge across the specifications. First, the coefficient on *ACQ_UTB* is positive and significant across the five specifications indicating that acquirers with more preexisting reserves step up target tax reserves by a greater amount. Second, the costs of overstating goodwill negatively influence the amount of purchase price

[16] This test includes eight acquirers that recorded no change in target tax reserves through purchase accounting. The difference is even greater in the proportions of firms that increase versus decrease target tax reserves (63.5% versus 32.0%).

[17] Industry fixed effects are constructed based on the target's Fama French 30 industry classification.

allocated to target tax reserves. Acquirers with more preexisting goodwill increase target tax reserves by a smaller amount as evidenced by the negative and significant coefficient on *ACQ_BSGDWL* in all five specifications.

Third, the change in target tax reserves recorded through purchase accounting is increasing in financial reporting pressures. The coefficients on *MB_PERC*, *FOLLOWING*, and *GUIDANCE* are positive and significant at less than the 5% level in Columns 2-4. These results indicate that acquirers increase target tax reserves by a larger amount if they have a recent track record of meeting or beating the consensus analyst forecast, are followed by more analysts, and provide quarterly earnings guidance. When all three financial reporting pressure variables are included in Column 5, the coefficient on *GUIDANCE* is no longer significant suggesting that the three variables overlap in their ability to capture financial reporting pressure. Also of note, including the reporting pressure variables increases the explanatory power of the model from 36.0% in Column 1 to 41.4% in Column 5.

CHAPTER 5. CONCLUSION

The Financial Accounting Standards Board issued FIN 48 in an effort to reduce diversity in practice and improve the relevance of estimated tax reserve balances. The recognition and measurement principles of FIN 48 require managers to assess the probability of each potential outcomes, and this probabilistic assessment inherently requires substantial judgement on the part of managers. A post-implementation review of FIN 48 noted that "the extent of judgment involved can result in significantly different outcomes that negatively affect comparability across entities" (FAF 2012, pg. 7). This study exploits a unique setting to examine the extent of discretion that FIN 48 affords managers in the estimation of tax reserves. By examining the change in target tax reserves recorded through purchase accounting, I am able to hold constant the underlying economic transactions, and any changes can be attributed to differences in how the managers of the target and acquirer apply FIN 48.

In a sample of large public-for-public M&A deals, targets and acquirers estimate substantially different tax reserve balances despite holding the underlying tax positions constant. Approximately half of the acquirers adjust target tax reserves by more than a quarter of the preexisting balance. Acquirers are much more likely to increase rather than decrease target tax reserves. The sample acquirers, on average, increase target tax reserves by $25.2 million through purchase accounting. This amount is economically significant as it amounts to 1.1% of deal value and represents an increase greater than one third of the

target's preexisting tax reserve balance. In terms of a per share amount, the average boost in tax reserves is 8 cents.

I next examine factors that influence the amount by which acquirers change target tax reserves through purchase accounting. A determinants analysis indicates financial reporting pressures and an aversion to overstating goodwill have opposite effects on the amount of purchase price allocated to target tax reserves. A recent track record of meeting or beating the consensus analyst forecast and greater analyst coverage are associated with larger increases in target tax reserves. On the other hand, the acquirer's level of preexisting goodwill is negatively associated with the change in tax reserves recorded through purchase accounting. Acquirers with more preexisting goodwill appear to be reluctant to increase target tax reserves through purchase accounting because doing so would require recording additional goodwill.

The results of my study should be of interest to both regulators and standard setters. The substantial variation in how targets and acquirers estimate tax reserves suggests that FIN 48 reserve balances are not comparable across firms. Prior to the enactment of FIN 48, the Securities and Exchange Commission was concerned that discretion in the estimation of tax reserves could provide opportunities for companies to manage earnings. My findings suggest FIN 48 still affords substantial discretion to managers when estimating tax reserves, and acquiring managers use the discretion under FIN 48 to make purchase price allocation decisions that increase future earnings. Whereas prior research on purchase accounting has focused on the tradeoff between allocating purchase price to fixed assets versus goodwill (Shalev, Zhang and Zhang 2013; Lynch et al. 2016), my study is the first to examine the amount of purchase price allocated to a specific liability account and also

the first to focus on a purchase price allocation decision that is not subject to fair value measurement. My study also speaks to a specific accounting standard, SFAS141(R), that likely increased incentives to boost reserves for uncertain tax positions through purchase accounting.

As the case with most studies, this study does have its limitations. I focus on large mergers and acquisitions with deal values greater than $200 million. My results may not generalize to transactions involving smaller targets or smaller acquirers. Increasing target tax reserves through purchase accounting may not be a plausible earnings management strategy for some acquirers. For example, some acquirers are likely unable to justify increasing target tax reserves by an amount large enough to materially improve future earnings. Even within my sample of large public-for-public M&A deals, over a fifth of the acquirers would have to more than double the target's preexisting tax reserves to generate a cent of earnings per share. While my sample selection procedures may limit the generalizability of my results, large publicly traded companies are the companies most likely to be of interest to regulators and researchers.

APPENDIX A. TABLES

Table A1. Sample Selection

Panel A: Sample Selection Procedures		
Mergers and Acquisitions from SDC[1]		**675**
Less:	Observations where the target's reserves are not separately stated in the acquirors UTB rollforward	(146)
Less:	Observations where the target did not have pre-existing reserves and the acquiror did not appear to set up any post-acquisition	(130)
Less:	Observations where target or acquirer is a flowthrough not subject to entity-level federal income taxes	(54)
Less:	Observations without pre-acquisition or post-acquisition financials	(42)
Less:	Observations where FIN 48 is not yet effective for either the target or acquirer	(40)
Less:	Observations where acquiror made multiple acquisitions during the year and the reserves related to the target cannot be disentangled	(37)
Less:	Partial purchase or other non-traditional M&A transactions	(37)
Less:	Observations with interim changes in the target's tax reserves between the 10-K date and the effective date of the acquisition that could not be quantified	(4)
Less:	Multiple acquisitions in a given year collapsed into one observation	(4)
Total		**181**

Panel B: Sample Distribution over Time

Year	Number of Observations	Percentage of Sample
2007	28	15.5
2008	23	12.7
2009	8	4.4
2010	22	12.2
2011	21	11.6
2012	18	9.9
2013	20	11.0
2014	16	8.8
2015	25	13.8
Total	**181**	**100.0**

[1] Acquisitions with an effective date after March 31, 2007 and a deal size greater than $200 million where both the target and acquiror are public.

Table A2. Descriptive Statistics

	N	Mean	Std Dev	25%	Median	75%
Tax Reserve Variables						
STEPUP_RAW	181	25.3	91.7	-0.3	0.7	10.8
STEPUP_VALUE	181	0.011	0.058	0.000	0.000	0.005
STEPUP_EPS	181	0.082	0.307	-0.002	0.005	0.050
TRG_PREUTB_RAW	181	74.7	333.9	1.9	7.7	22.6
ACQ_PREUTB_RAW	181	270.2	981.9	4.5	16.7	68.0
Cross-sectional Determinants						
TRG_UTB	181	0.010	0.013	0.002	0.005	0.011
ACQ_UTB	181	0.011	0.013	0.002	0.005	0.014
TRG_BSGDWL	181	0.115	0.136	0.008	0.063	0.177
ACQ_BSGDWL	181	0.199	0.189	0.037	0.140	0.310
LACKSLACK	181	0.114	0.624	-0.371	-0.086	0.502
TRG_SIZE	181	7.293	1.509	6.065	7.213	8.436
ACQ_SIZE	181	8.405	1.395	7.400	8.307	9.254
TRG_BTM	181	0.390	0.284	0.180	0.343	0.518
ACQ_BTM	181	0.486	0.282	0.277	0.449	0.668
ACQ_LTD	181	0.245	0.187	0.101	0.216	0.339
DEALVALUE	181	4,049	7,972	673	1,422	3,811
RELATIVE	181	0.612	0.488	0.201	0.525	0.837
PCT_STOCK	181	0.404	0.392	0.000	0.372	0.788
SHRD_AUDIT	181	0.293	0.456	0.000	0.000	1.000
MB_PERC	181	0.710	0.246	0.625	0.750	0.875
FOLLOWING	181	2.644	0.539	2.303	2.708	3.091
GUIDANCE	181	0.354	0.479	0.000	0.000	1.000

*Please see Appendix A for full variable definitions.

Table A3. Correlation Matrix

		STEPUP_VALUE	TRG_UTB	ACQ_UTB	TRG_BSGDWL	ACQ_BSGDWL	SLACK	TRG_SIZE	ACQ_SIZE	TRG_BTM	ACQ_BTM	ACQ_LTD	RELATIVE	PCT_STOCK	SHRD_AUDIT	MB_PERC	GUIDANCE
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
STEPUP_VALUE	(1)		***0.26***	***0.24***	-0.08	***-0.22***	**0.18**	-0.02	-0.01	0.12	-0.06	-0.08	*0.13*	-0.09	0.07	***0.23***	*0.13*
TRG_UTB	(2)	0.08		***0.34***	0.05	-0.05	-0.01	***0.20***	0.10	***0.24***	0.08	0.01	0.08	0.12	0.02	0.05	0.04
ACQ_UTB	(3)	***0.22***	***0.38***		-0.05	0.11	-0.09	0.11	**0.19**	0.04	**0.16**	0.01	0.06	-0.03	0.12	0.11	*0.12*
TRG_BSGDWL	(4)	-0.02	0.06	0.05		***0.34***	-0.10	**0.19**	0.09	**0.16**	0.12	**0.18**	-0.02	0.04	-0.02	-0.04	-0.05
ACQ_BSGDWL	(5)	**-0.15**	-0.02	*0.13*	***0.26***		***-0.27***	0.09	***0.20***	0.03	***0.29***	***0.31***	-0.01	0.03	-0.01	-0.12	-0.04
SLACK	(6)	**0.15**	-0.01	-0.05	-0.05	***-0.19***		***-0.32***	0.11	-0.08	***-0.59***	-0.12	***0.55***	***-0.26***	-0.10	***0.32***	0.03
TRG_SIZE	(7)	0.03	*0.14*	0.09	**0.15**	0.09	***-0.35***		***0.73***	***0.35***	***0.26***	*0.14*	*-0.14*	***0.43***	0.09	***-0.19***	***-0.21***
ACQ_SIZE	(8)	0.01	0.08	0.12	0.02	***0.22***	0.11	***0.70***		***0.25***	***0.23***	0.08	***0.39***	*0.15*	0.03	-0.02	**-0.18**
TRG_BTM	(9)	**0.15**	0.12	0.04	0.10	-0.02	-0.11	***0.25***	0.11		***0.38***	**-0.15**	***0.23***	***0.31***	-0.04	-0.10	**-0.18**
ACQ_BTM	(10)	-0.06	0.04	**0.16**	-0.01	***0.25***	***-0.61***	***0.23***	***0.20***	***0.37***		**-0.16**	-0.08	**0.18**	0.00	***-0.22***	-0.05
ACQ_LTD	(11)	-0.09	0.06	0.09	*0.15*	***0.27***	-0.11	***0.21***	**0.16**	*-0.13*	-0.11		**-0.17**	0.05	**0.15**	**-0.16**	-0.06
RELATIVE	(12)	**0.15**	0.03	0.01	-0.02	-0.03	***0.82***	***-0.27***	***0.29***	**0.17**	*-0.13*	***-0.20***		***-0.21***	**-0.16**	**0.18**	-0.02
PCT_STOCK	(13)	-0.05	0.04	-0.07	0.00	-0.01	***-0.30***	***0.44***	*0.13*	***0.20***	**0.16**	0.10	***-0.27***		*0.13*	**-0.17**	-0.09
SHRD_AUDIT	(14)	0.10	-0.03	0.10	-0.05	-0.03	-0.09	0.09	0.06	-0.04	0.00	**0.17**	*-0.13*	*0.13*		0.09	0.03
MB_PERC	(16)	**0.17**	*0.13*	**0.17**	0.05	-0.06	***0.32***	***-0.22***	-0.07	-0.04	***-0.19***	-0.11	***0.21***	***-0.21***	0.11		***0.29***
GUIDANCE	(17)	0.03	0.09	**0.16**	0.00	-0.06	0.05	***-0.21***	*-0.15*	**-0.17**	-0.07	-0.03	-0.01	-0.09	0.03	***0.29***	

This table reports Pearson (Spearman) Correlations in the Upper (Lower) Triangle for the selected variables for all firm-year observations. Please see Appendix A for definitions of all variables. Values set in bold face italics indicate significance at the 1% level. Values set in bold face indicate significance at the 5% level. Lastly, values set in italices indicate significance at the 10% level.

Table A4. Discretion in Estimation of Target Tax Reserves

Panel A: Change in Target Tax Reserves as a Percentage of Preexisting Reserves

Full Sample

	Unsigned			*Decreases*		*Increases*	
Percentage Change in Prexisting Target Tax Reserves	N	Frequency	Cumulative Frequency	N	Percentage	N	Percentage
>50%[1]	64	35%	35%	2	1%	62	34%
(25%,50%]	26	14%	50%	16	9%	10	6%
(10%,25%]	38	21%	71%	20	11%	18	10%
(0,10%]	45	25%	96%	20	11%	25	14%
No change	8	4%	100%				
Total	181	100%		58	32%	115	64%

Subsample with Preexisting Target Tax Reserves>=$5M

	Unsigned			*Decreases*		*Increases*	
Percentage Change in Prexisting Target Tax Reserves	N	Frequency	Cumulative Frequency	N	Percentage	N	Percentage
>50%	29	28%	28%	1	1%	28	27%
(25%,50%]	13	13%	40%	9	9%	4	4%
(10%,25%]	28	27%	67%	12	12%	16	15%
(0,10%]	32	31%	98%	16	15%	16	15%
No change	2	2%	100%				
Total	104	100%		38	37%	64	62%

Panel B: Univariate Tests

	Mean	**T-stat**	**P-value**
Student's t-test	25.3	3.71	<0.001
	Median	**M-stat**	**P-value**
Sign test	0.7	28.50	<0.001
	N <= 0	**N > 0**	**P-value**
Binomial proportion test	66	115	<0.001
	36.5%	63.5%	

The null hypothesis for the mean and median test are that the change in target tax reserves is zero. The null hypothesis for the binomial proportion test is the proportion of acquirers that increase target reserves is equal to the proportion of acquirers that do not.

[1]Seven acquirers recorded tax reserves for targets that had no preexisting target tax reserves. These seven observations are included in the >50% bucket.

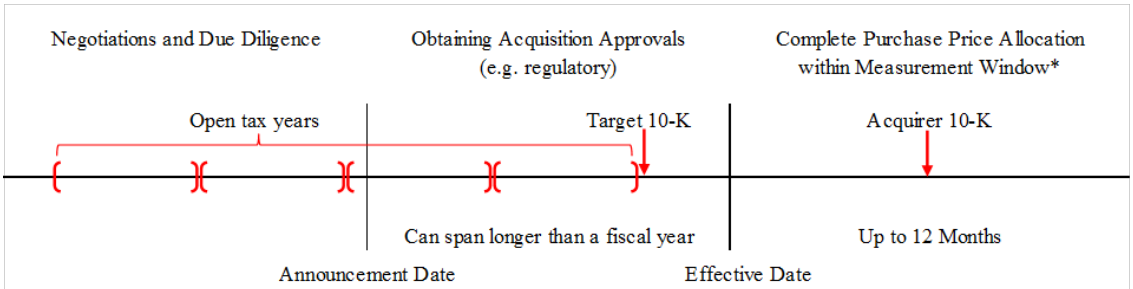
Table A5. Cross-sectional Determinants of the Change in Target Tax Reserves

	Depdendent Variable: *STEPUP_VALUE*				
	Full Sample				
	(1)	(2)	(3)	(4)	(5)
Variable	**Coefficient** *(Std Error)*	**Coefficient** *(Std Error)*		**Coefficient** *(Std Error)*	**Coefficient** *(Std Error)*
MB_PERC		0.008**			0.006*
		(0.003)			(0.003)
FOLLOWING			0.005***		0.004*
			(0.002)		(0.002)
GUIDANCE				0.003**	0.002
				(0.002)	(0.002)
TRG_UTB	0.084	0.089	0.093	0.081	0.093
	(0.084)	(0.080)	(0.081)	(0.087)	(0.082)
ACQ_UTB	0.175**	0.167**	0.223***	0.169**	0.200***
	(0.071)	(0.067)	(0.067)	(0.067)	(0.065)
TRG_BSGDWL	-0.004	-0.004	-0.002	-0.004	-0.002
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
ACQ_BSGDWL	-0.012**	-0.011**	-0.009**	-0.012**	-0.009**
	(0.005)	(0.005)	(0.004)	(0.005)	(0.005)
LACKSLACK	-0.005	-0.003	-0.006	-0.005	-0.005
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
TRG_SIZE	0.002*	0.002**	0.002**	0.002*	0.002**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
ACQ_SIZE	-0.002*	-0.002*	-0.004***	-0.002*	-0.003***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
TRG_BTM	0.002	0.002	0.002	0.003	0.002
	(0.004)	(0.004)	(0.003)	(0.004)	(0.003)
ACQ_BTM	0.006	0.005	0.009	0.005	0.007
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
ACQ_LTD	-0.002	0.000	-0.000	-0.001	0.001
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
RELATIVE	0.000	-0.001	0.002	0.000	0.001
	(0.003)	(0.003)	(0.004)	(0.003)	(0.004)
PCT_STOCK	-0.004	-0.004*	-0.005**	-0.004*	-0.005**
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
SHRD_AUDIT	0.003*	0.002	0.002	0.003	0.002
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Number of Observations	181	181	181	181	181
R^2	36.0%	38.7%	39.3%	37.9%	41.4%
Incremental R^2 of reporting pressure variables	N/A	2.7%	3.3%	1.9%	5.4%
Industry and Year Fixed Effects	Y	Y	Y	Y	Y
SEs Clustered by Acquirer	Y	Y	Y	Y	Y

*, **, and *** denote significance at the p < 0.10, 0.05, and 0.01 levels, respectively. For this analysis, *STEPUP_VALUE* is winsorized at the 5th and 95th percentile. Please see Appendix A for full variable definitions.

APPENDIX B. ILLUSTRATION OF M&A AND PURCHASE PRICE ALLOCATION PROCESS

Figure B1. Timeline of M&A and Purchase Price Allocations



*Prior to the effective date of SFAS 141(R), changes in target tax reserves are recorded to goodwill regardless of when the uncertain tax position is resolved. After the effective date of SFAS 141(R), changes in target tax reserves are generally recorded to earnings unless the change takes place during the measurement window and is due to facts and circumstances that existed at the acquisition date.

APPENDIX C. FIN 48 AND UTB ROLLFORWARD EXAMPLES

Example C1. Application of the Cumulative Probability Threshold under FIN 48's Recognition and Measurement Principles

In both examples, the entity took a position on a previously filed tax return that resulted in a $100 tax benefit.

Example 1

Amount of tax benefit sustained	Individual probability of a particular outcome	Cumulative probability that the position will be sustained	
$100	20%	20%	
$60	15%	35%	
$30	10%	45%	
$0	55%	***100%***	Cumulative threshold met
	100%		
		$0	**Benefit recorded**
		$100	**Reserves recorded**

Example 2

Amount of tax benefit sustained	Individual probability of a particular outcome	Cumulative probability that the position will be	
$100	20%	20%	
$60	20%	40%	
$30	20%	***60%***	Cumulative threshold met
$0	40%	100%	
	100%		
		$30	**Benefit recorded**
		$70	**Reserves recorded**

Example C.2 – Holly Corp's Acquisition of Frontier Oil Corp

UTB rollforward from Frontier Oil Corp's 10-K for the year ending December 31, 2010

	2010
Balance beginning of year	$ 23,854
Additions based on tax positions related to the current year	-
Additions for tax positions of prior years	81
Reductions for tax positions of prior years	(630)
Settlements	-
Reductions due to lapse of applicable statutes of limitations	(728)
Balance end of year	$ 22,577

Effective date: July 1, 2011

UTB rollforward from Holly Corp's 10-K for the year ending December 31, 2011

Liability for Unrecognized Tax Benefits	(In thousands)
Balance at January 1, 2011	$ 1,864
Additions due to merger with Frontier	22,577
Additions based on tax positions related to the current year	—
Additions for tax positions of prior years	73
Reductions for tax positions of prior years	(204)
Settlements	(21,679)
Reductions for statute limitations	(206)
Balance at December 31, 2011	$ 2,425

ETR Reconciliation from Holly Corp's 10-K for the year ending December 31, 2011

	Years Ended December 31,		
	2011	2010	2009
		(In thousands)	
Tax computed at statutory rate	$574,682	$ 67,327	$ 15,331
State income taxes, net of federal tax benefit	64,284	4,372	1,708
Domestic production activities deduction	(32,194)	(940)	—
Tax exempt interest	—	—	(168)
Discontinued operations (including noncontrolling interest)	—	—	7,720
Noncontrolling interest in continuing operations	(14,221)	(11,315)	(13,123)
Tax settlement	(12,125)	—	—
Other	1,565	(132)	(1,088)
	$581,991	$ 59,312	$ 10,380

Example C.3 – Pfizer's Acquisition of Wyeth

UTB rollforward from Wyeth's 10-K for the year ending December 31, 2008

(In thousands) Gross Unrecognized Tax Benefits	2008	2007
Balance at January 1	$ **956,642**	$ 1,174,410
Additions relating to the current year	**191,829**	148,214
Additions relating to prior years	**152,369**	91,782
Reductions relating to prior years	**(30,035)**	(40,035)
Settlements during the year	**(85,266)**	(266,603)
Reductions due to lapse of statute of limitations	—	(151,126)
Balance at December 31	$ **1,185,539**	$ 956,642

Effective date: October 15, 2009

UTB rollforward from Pfizer's 10-K for the year ending December 31, 2009

(MILLIONS OF DOLLARS)	2009	2008
Balance, January 1	$(5,372)	$(5,466)
Acquisition of Wyeth	(1,785)	—
Decreases based on tax positions taken during a prior period[a]	38	880
Increases based on tax positions taken during the current period[b]	(941)	(990)
Decreases based on tax positions taken during the current period[c]	712	—
Impact of foreign exchange	(284)	211
Other, net[d]	(25)	(7)
Balance, December 31[e]	$(7,657)	$(5,372)

Example C.4 – Baker Hughes Inc's Acquisition of BJ Services

UTB rollforward from BJ Services Co's 10-K for the year ending September 30, 2009

	Gross Unrecognized Tax Benefits, Excluding Interest and Penalties	Interest and Penalties	Total Gross Unrecognized Tax Benefits
Balance at October 1, 2008	$ 50,383	$ 8,866	$ 59,249
Increases during fiscal 2009	5,593	3,165	8,758
Decreases due to resolution of uncertain tax positions	(16,044)	(1,532)	(17,576)
Balance at September 30, 2009	$ 39,932	$ 10,499	$ 50,431

Effective date: April 28, 2010

UTB rollforward from Baker Hughes Inc's 10-K for the year ending December 31, 2010

	Gross Unrecognized Tax Benefits, Excluding Interest and Penalties	Interest and Penalties	Total Gross Unrecognized Tax Benefits
Balance at January 1, 2008	$ 363	$ 94	$ 457
Increase (decrease) in prior year tax positions	(7)	10	3
Increase in current year tax positions	17	5	22
Decrease related to settlements with taxing authorities	(24)	(10)	(34)
Decrease related to lapse of statute of limitations	(20)	(17)	(37)
Decrease due to effects of foreign currency translation	(6)	(4)	(10)
Balance at January 1, 2009	323	78	401
Increase (decrease) in prior year tax positions	(75)	10	(65)
Increase in current year tax positions	16	6	22
Decrease related to settlements with taxing authorities	(6)	(2)	(8)
Decrease related to lapse of statute of limitations	(9)	(4)	(13)
Increase due to effects of foreign currency translation	1	1	2
Balance at January 1, 2010	250	89	339
Acquisition of BJ Services	102	28	130
Increase (decrease) in prior year tax positions	(16)	4	(12)
Increase in current year tax positions	4	3	7
Decrease related to settlements with taxing authorities	(7)	(5)	(12)
Decrease related to lapse of statute of limitations	(6)	(1)	(7)
Increase due to effects of foreign currency translation	(3)	(4)	(7)
Balance at December 31, 2010	$ 324	$ 114	$ 438

APPENDIX D. VARIABLE DEFINITIONS

This appendix details how I measure each variable in my empirical analyses.

Variable	Definition
Tax Reserve Variables	
STEPUP_RAW	Change in the target's reserves for uncertain tax positions recorded through purchase accounting (in millions). The target's initial tax reserves are obtained from the target's last 10-K before the acquisition. The amount of target tax reserves recorded by the acquirer are obtained from the acquirer's first 10-K after the acquisition.
STEPUP_VALUE	Change in the target's reserves for uncertain tax positions scaled by deal value
STEPUP_EPS	Change in the target's reserves for uncertain tax positions divided by the number of shares outstanding for the acquiror at fiscal year end immediately following the acquisition
TRG_PREUTB_RAW	Target's preexisiting reserves for uncertain tax positions (in millions)
ACQ_PREUTB_RAW	Acquirer's preexisiting reserves for uncertain tax positions (in millions)
Cross-sectional Determinants	
TRG_UTB	Target's preexisiting reserves uncertain tax positions scaled by deal value
ACQ_UTB	Acquirer's preexisiting reserves uncertain tax positions scaled by market value of equity
TRG_BSGDWL	Target's balance sheet goodwill scaled by deal value
ACQ_BSGDWL	Acquirer's balance sheet goodwill scaled by market value of equity
ACQ_LTD	Acquirer's long term debt scaled by market value of equity
TRG_SIZE	Natural logarithm of target's total assets
ACQ_SIZE	Natural logarithm of acquirer's total assets
TRG_BTM	Target's book value of equity dividend by deal value
ACQ_BTM	Acquirer's book value of equity dividend by its market value of equity
RELATIVE	Deal value scaled by acquirer's market value of equity
PCT_STOCK	Percentage of stock used in the deal
SHRD_AUDIT	Indicator variable equal to one if the target and acquiror share the same auditor
LACKSLACK	The amount by which the deal value exceeds the acquirer's net unrecognized assets (market value of equity less book value of equity) scaled by market value of equity
MB_PERC	Proportion of quarters over the prior two years for which the acquirer met or beat the consensus analyst forecast
FOLLOWING	Natural logarithm of the number of analysts following the acquirer in the fiscal year prior to the effective date of the acquisition
GUIDANCE	Indicator variable equal to one if the acquirer provided quarterly earnings guidance in the fiscal year prior to the effective date of the acquisition

Financial statement data are collected from Compustat Fundamentals Annual database. Financial charateristics of the target and acquirer are collected from the fiscal year end prior to the effective date of the acquisition. Deal specific variables are collected from the SDC Merger and Acquisition database. The cross-sectional variables used in regression analyses are winsorized to mitigate the influence of outliers. Specifically, continous variables bounded on the left at zero are winsorized at the 95th percentile (e.g. *TRG_UTB, ACQ_UTB, TRG_BSGDWL, ACQ_BSGDWL, ACQ_LTD*). Other continous variables are winsorized at the 5th and 95th percentile (e.g. *TRG_SIZE, ACQ_SIZE, TRG_BTM, ACQ_BTM, RELATIVE, LACKSLACK, FOLLOWING*).

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