

**FINDING THE “GOOD” IN GOODWILL:
EVIDENCE FROM ACQUISITIONS USING INCOME TAX ACCOUNTING**

By

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ABSTRACT

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Goodwill is an asset that represents future economic benefits arising from other assets acquired in a business combination that are not individually identified and separately recognized. Prior research debates the concept of goodwill as an asset because some components of goodwill are associated with future economic benefits, but others are not. In this paper, I identify deferred tax liabilities (DTLs) generated by book-tax differences of acquired identifiable tangible and intangible assets as a component of goodwill that is less likely to be associated with future economic benefits. These acquisition-related DTLs inflate accounting goodwill and potentially obscure the relevance of goodwill. I predict and find that the presence of DTLs in the purchase price allocation reduces the predictive value and relevance of the goodwill asset.

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KEY TO ABBREVIATIONS

Abbreviation	Definition
ASC	Accounting Standards Codification
DTL	Deferred Tax Liability
FASB	Financial Accounting Standards Board
GAAP	Generally Accepted Accounting Principles
IASB	International Accounting Standards Board
R&D	Research and Development
SEC	Securities and Exchange Commission
SFAS	Statement of Financial Accounting Standards

CHAPTER 1: INTRODUCTION

This study uses disclosures of purchase price allocations from acquisitions to investigate whether acquisition-related deferred tax liabilities (DTLs) reduce the predictive value and relevance of accounting goodwill.¹ Financial Accounting Standards Board (FASB) Accounting Standards Codification (ASC) Topic Number 805-740 requires the recognition of DTLs based on book-tax differences of acquired tangible and intangible assets other than goodwill itself. Acquiring firms will not settle this tax liability unless they dispose of the acquired assets in the future or recover the basis through impairment or amortization across its entire useful life. Because these DTLs are treated as liabilities assumed in the acquisition, they reduce the net fair value of the identifiable acquired assets. This reduction leads to an increase in the allocation of acquisition price to goodwill. Thus, acquisition-related DTLs effectively inflate goodwill. I predict and find that these DTLs reduce the predictive value and relevance of accounting goodwill.

The FASB has long held a view that a “core goodwill” component conceptually meets the definition of an asset, while other goodwill components may not (Johnson and Petrone 1998). The FASB defines goodwill as “an asset representing the future economic benefits arising from other assets acquired in a business combination . . . that are not individually identified and separately recognized” (FASB, ASC 350-20-20).² If the component of goodwill created by

¹ The Financial Accounting Standards Board (FASB) defines predictive value as “the quality of information that helps users to increase the likelihood of correctly forecasting the outcome of past or present events” (FASB, 2008). Relevance is “the capacity of information to make a difference in a decision by helping users to form predictions about the outcomes of past, present, and future events or to confirm or correct prior expectations” (FASB, 2008).

² The FASB Conceptual Framework defines an asset as a “present economic resource” (FASB, 2010) and clarifies the phrase “economic resource” as “something that is . . . capable of producing cash inflows or reducing cash outflows.”

acquisition-related DTLs is not associated with future economic benefits and cash flows, then this component of goodwill does not meet the definition of an asset.

The debate around accounting for goodwill continues as the FASB currently has this topic on its agenda (FASB, 2015a). In September 2015, FASB Vice Chairman James Kroeker suggested that goodwill does not meet the conceptual definition of an asset (Burkholder, 2015). However, International Accounting Standards Board (IASB) Chairman Hans Hoogervorst presented a different view, stating, “I do think there is an asset. If you were buying Apple, you would have to pay tremendous goodwill, and I think it’s probably worth it. But I also think it’s a wasting asset” (Burkholder, 2015).

The economic magnitude of goodwill assets is significant. U.S. firms in the Compustat universe report an average of \$331 million of accounting goodwill on their balance sheets between 2003 and 2010 (8.5 percent of total assets). Acquirers in my sample allocate an average of \$1.21 billion to goodwill, representing 55 percent of the acquisition price. Further, the median percentage of goodwill that is created by DTLs in my sample is 20 percent. Given the economic magnitude of goodwill assets on firms’ balance sheets, understanding the predictive value of goodwill is important to standard setters, investors, and other financial statement users.

Under ASC 805, acquirers initially record the excess of the acquisition price over the net fair value of the assets acquired in a business combination as goodwill. The recorded amount of the goodwill asset, therefore, arises after allocating the acquisition price to the identifiable acquired assets and liabilities. Goodwill is a residual calculation that is not considered an identifiable intangible asset in a business combination because it has no separately calculated fair value. What this residual value captures remains unclear as prior literature debates the concept of goodwill as an asset (Johnson and Petrone 1998; Henning et al. 2000; Lys et al. 2012; Amel-

Zadeh et al. 2013; Li and Sloan 2015). My study adds to this debate by showing that by inflating accounting goodwill, acquisition-related DTLs reduce the predictive value of the goodwill asset.

Johnson and Petrone (1998) define four components of goodwill. The first two components comprise the core goodwill asset, as described conceptually by the FASB. The first component is the acquired entity's ability to earn a higher rate of return on an organized collection of net assets. This component is called "going concern" goodwill. If an acquirer has to overcome barriers to entry by making large capital or human investments, then the going concern value could be large. For example, an assembled workforce is a valuable part of many acquisitions and potentially represents a large part of the going concern value. The second core component of goodwill is the synergies resulting from the business combination. These synergies generally arise from potential cost savings through the elimination of redundant business operations.

A third component of goodwill could result from possible errors in the valuation of the purchase consideration as in the case of stock-based consideration with overvalued shares. Acquirers often use their overpriced shares as currency to purchase targets (Gu & Lev, 2011). The fourth component is over- / (under)-payment to acquire the target. This component represents any remaining excess (deficit) of the acquisition price and arises as a result of the bidding process.

In this paper, I introduce a fifth component that has not been examined previously. This component is essentially an artifact of U.S. GAAP accounting for income taxes. In a stock acquisition, acquirers record the fair value of the acquired tangible and intangible assets on their balance sheet. However, the *tax basis* of self-created intangible assets is typically zero and carries over from the target to the acquiring firm. ASC 805-740 requires the recognition of a

DTL based on the difference between the fair value reported on the acquiring firm's balance sheet and the tax basis of the acquired tangible and intangible assets. Because this DTL is treated as a liability assumed in the acquisition, it increases the residual amount allocated to goodwill. To the extent this DTL is related to intangibles, acquiring firms will not pay this tax liability unless they dispose of the acquired intangibles before recovering all of the basis through impairment or amortization. This artifact of accounting for income taxes arising in a business combination potentially obscures the relevance of goodwill due to the recognition of a liability that has no finite settlement date.³

Prior empirical literature provides mixed evidence about the economic value investors assign to DTLs (Givoly and Hayn 1992; Amir et al. 1997, 2001; Ayers 1998; Sansing 1998; Guenther and Sansing 2000, 2004; Laux 2013). Laux (2013) finds an asymmetrical relation between deferred tax liabilities and future tax payments. He finds that investors assign a value to DTLs associated with revenues or expenses included in GAAP income *prior to* taxable income. On the contrary, investors assign no value to DTL-created revenues or expenses included in GAAP income *after* taxable income. Examples of this latter category include acquisition-related DTLs (primarily from depreciation and intangible asset book-tax differences). The FASB's Conceptual Framework defines a liability as a "present economic obligation for which the entity is the obligor" (FASB, 2010). It further defines an "economic obligation" as an "unconditional promise or other requirement to forgo economic resources." Because there is no present income tax-related obligation, acquisition-related DTLs do not represent liabilities in a manner consistent with the conceptual framework. To the extent DTLs do not reverse but are included in purchase

³ On January 22, 2015, the FASB issued an Exposure Draft of two proposed accounting standards (FASB, 2015b). One of those proposals includes classifying all deferred tax assets and liabilities as noncurrent, in part because current U.S. GAAP requirements result "in little or no benefit to users of financial statements because the classification does not generally align with the time period in which the recognized deferred tax amounts are expected to be recovered or settled" (FASB, 2015b).

price allocations, I posit that they obscure the relevance of accounting goodwill by introducing an upward bias to the amount of acquired goodwill recognized in a business combination.

To test my research questions empirically, I manually collect purchase price allocations from Form 10-K disclosures of stock acquisitions by public acquirers of public targets completed between 2003 and 2010. I partition my sample based on how much of the recorded accounting goodwill in each deal meets the FASB's conceptual definition of an asset. Because that definition demands that goodwill represent an economic resource capable of producing cash inflows (FASB, 2010), this partition strengthens the ability of my research design to capture underlying factors that should produce cash inflows. I estimate the relative amounts of core and residual goodwill (Johnson & Petrone, 1998) by calculating the amounts of going concern and synergies (Henning et al., 2000). If a majority of the goodwill is core goodwill, then that goodwill is largely a cash-flow producing asset that should be associated with post-acquisition performance and equity market values.

Another element of my research design attempts to isolate the effect of material DTLs in the purchase price allocation. The acquirer's choice to disclose the DTLs in a separate line item is evidence that they represent a material element of the purchase price allocation (Shalev, 2009). Accordingly, I identify those deals (approximately 39% of the deals in my sample) where acquirers disclose DTLs separately in the purchase price allocation. I predict and find that the presence of acquisition-related DTLs in the purchase price allocation in deals with higher core goodwill reduces the predictive association between accounting goodwill and changes in post-acquisition performance. Additionally, I predict and find the presence of acquisition-related DTLs reduces the association between accounting goodwill and changes in equity market values.

In summary, the recognition of acquisition-related DTLs in purchase price allocations adds an upward bias to accounting goodwill that reduces its predictive value and relevance.

This study makes contributions across two streams of literature. First, I contribute to the literature examining DTLs and the information (or lack thereof) they provide to financial statement users (Givoly and Hayn 1992; Amir et al. 1997, 2001; Ayers 1998; Sansing 1998; Guenther and Sansing 2000, 2004; Laux 2013). My results suggest that investors adjust downward their expectations for the value of goodwill inflated by the inclusion of acquisition-related DTLs that may never result in cash tax payments. Because these DTLs are not associated with future tax payments, they should not be reflected in a firm's market valuation. Second, I contribute to the literature supporting the definition of core goodwill as an asset that produces future cash flows. My study is the first to examine the DTL component of accounting goodwill, and I show evidence suggesting that this component of accounting goodwill is not a "present economic resource" and, therefore, does not meet the conceptual definition of an asset (Johnson and Petrone 1998; Henning et al. 2000; Lys et al. 2012; Amel-Zadeh et al. 2013; Li and Sloan 2015). My results suggest that a measure that subtracts acquisition-related DTLs from accounting goodwill would be a more relevant goodwill measure than currently exists. Anecdotal evidence suggests analysts and practitioners make such an adjustment and term this measurement "economic goodwill."

The rest of this dissertation proceeds as follows. Chapter 2 presents a review of related literature and develops my hypotheses. Chapter 3 describes the sample. Chapter 4 documents the research design and results of the hypothesis tests. Chapter 5 presents supplemental analyses, and Chapter 6 concludes the paper.

CHAPTER 2: RELATED LITERATURE AND HYPOTHESES

I begin this chapter by discussing the accounting literature investigating the components of accounting goodwill and how investors value those components. Then I identify the previously unexamined component of goodwill in my study. This component is generated by acquisition-related deferred tax liabilities. I then review the literature exploring how investors value deferred tax liabilities. Finally, I use an example of an acquisition in my sample that illustrates the DTLs generated because of accounting for income taxes. This example illustrates how acquisition-related DTLs inflate accounting goodwill.

2.1. Accounting Goodwill

Johnson and Petrone (1998) define four components of accounting goodwill. The first component, going concern goodwill, is a part of the core goodwill asset. Going concern goodwill can be pre-existing goodwill internally generated by the target or acquired through prior acquisition activities. Further, going concern goodwill represents the ability of an established business to earn a higher rate of return on an organized collection of net assets than if those assets and liabilities were acquired separately. If a target has already overcome barriers to entry through large capital or human investments, its going concern value could be relatively large. Another common example of going concern goodwill is an assembled workforce. This intangible asset can be a valuable part of many acquisitions. However, this “asset” is not recognized separately in a business combination (i.e., it is subsumed into goodwill), even though it is a separately recognized intangible asset for tax purposes (IRC section 197). A target firm’s market capitalization when it is not an acquisition target is a starting point to determine the price that an acquirer would pay above the net fair value of the assets (Johnson & Petrone, 1998).

The second component of core goodwill is synergy. Synergy does not exist before the acquisition but rather arises as a result of the business combination. If two similarly situated firms merge with each other and successfully consolidate their operations, then the gains from the business combination could be large. For example, the combined firm could close redundant operations or positions to operate more efficiently.

Going concern and synergy goodwill together comprise the core goodwill asset. Firms cannot exchange core goodwill for something else of value or use it to settle liabilities. Nevertheless, the FASB considers it an asset as it is capable in combination with other assets to contribute to generating future net cash inflows. Identifying the future benefits associated with core goodwill is difficult, but market price provides evidence of its value (Johnson & Petrone, 1998). If the target firm commands a higher market price as an entity than the sum of the value of each business component, then a firm has a core goodwill asset.

The third and fourth components of accounting goodwill—overvaluation and overpayment—comprise residual goodwill. Overvaluation is not an asset per se but rather the result of measurement error from valuing the acquirer's stock used as purchase consideration (e.g., stock consideration with overvalued shares (Gu & Lev, 2011)). The excess (deficit) of the acquisition price represents over- / (under)-payment that balances the transaction.

When public acquirers face both strong tax and financial reporting incentives, they allocate less acquisition price to depreciable assets and more to intangible assets (Lynch, Romney, Stomberg, & Wangerin, 2015). In so doing, these acquirers trade-off the cash benefits of accelerated tax depreciation deductions to report higher book income. In transactions where assets are recorded at fair value for book purposes only (stock acquisitions or tax-deferred asset acquisitions), financial reporting pressures may provide incentives for an acquirer to shift

amounts away from amortizable assets toward non-amortizable intangibles and, residually, goodwill to keep future book earnings higher. Incremental goodwill generated by shifting behavior likely increases the amount of residual goodwill. Unlike core goodwill, residual goodwill is not associated with future cash flows.

Henning et al. (2000) use stock price regressions to examine investors' valuations of these components of goodwill. They measure going concern goodwill as the difference between the target's pre-acquisition market value measured six days before the acquisition announcement and the target's fair market value of net assets. They calculate synergy as the combined cumulative abnormal returns to the target and the acquirer for the 11 days centered on the acquisition announcement date. They subtract going concern and synergy from the recorded accounting goodwill to calculate residual goodwill. Henning et al. (2000) find a positive association between acquirers' market values and going concern goodwill. They also find a positive association between acquirers' market values and synergy goodwill, suggesting that investors view the acquirer as receiving additional synergy gains. Henning et al. (2000) find a negative association between residual goodwill and share price, consistent with the market writing off overpayments as an expense in the year of acquisition. In this study, I use the methodology from Henning et al. (2000) to differentiate between core and residual goodwill.⁴

In other related literature, Wangerin (2015) finds that accounting goodwill is more value relevant in deals where acquirers perform relatively more due diligence. Thus, my study adds to

⁴ The measures of going concern and synergy goodwill from Henning et al. (2000) are subject to measurement error given their reliance on equity market values. Stock prices prior to acquisition announcements factor in the probability of future acquisitions, likely synergies, and possible overpayment (Eckbo 1983, 1985; Mitchell and Mulherin 1996; Song and Walkling 2000). As such, these measures using an 11-day window around the initial acquisition announcement likely contain considerable measurement error. I acknowledge this limitation by using the partitions for *Higher Core Goodwill* and *Higher Residual Goodwill* in my research design (see Chapter 4) to control for underlying factors that drive expected future cash flows.

the findings of Henning et al. (2000) and Wangerin (2015) by identifying an additional factor (acquisition-related DTLs) affecting the value relevance of accounting goodwill.

2.2. Acquisition-Related Deferred Tax Liabilities

I identify a fifth component of accounting goodwill that is an artifact of U.S. GAAP income tax accounting rules (ASC 805-740) related to the target's self-created intangible assets. In taxable stock acquisitions, acquirers record the fair value of the acquired intangible assets on their balance sheet. However, the tax basis of self-created intangible assets carries over from the target to the acquiring firm in the business combination and typically is zero. ASC 805-740 requires the acquirer to recognize a DTL based on the difference between the book basis reported on the acquiring firm's balance sheet and the tax basis of the acquired tangible and intangible assets. Recognizing a deferred tax liability on the acquisition date increases the amount of goodwill recognized. Acquiring firms will not settle this tax liability unless they dispose of the acquired intangible assets in the future or recover it through impairment or amortization. Thus, U.S. GAAP inflates accounting goodwill by the amount of these acquisition-related DTLs. This artifact of accounting for income taxes potentially reduces the relevance of goodwill due to the recognition of a liability on the acquirer's balance sheet that may never settle.

Figure 1 depicts the components of accounting goodwill for illustrative purposes. Core goodwill (going concern and synergy) and residual goodwill (overvaluation and overpayment) have been identified and examined in prior literature (Henning et al., 2000; Johnson & Petrone, 1998). It also shows a fifth but previously unexamined component of goodwill—acquisition-related DTLs.

2.3. Deferred Taxes

The findings of prior empirical and theoretical research examining whether and how investors value DTLs are mixed. Givoly and Hayn (1992) provide empirical evidence that investors discount DTLs depending on the timing and likelihood of their settlement. They estimate that one dollar of DTL is valued, on average, at about 56 cents. Furthermore, they estimate that some DTLs get discounted even more heavily. DTLs belonging to firms with the highest DTL balances, growth, and the probability of losses get valued at only 40 cents. Their study, however, looks at all types of DTLs in the aggregate. Thus, their estimates of the value of DTLs likely do not delineate the varying sources of DTLs. In contrast, my study focuses on DTLs that will never reverse unless the acquirer disposes of the acquired intangible assets or recovers their basis through impairment or amortization.

Amir et al. (1997) find that the valuation coefficient on DTLs from depreciation is close to zero, reflecting investors' expectations that firms will continue to invest in depreciable assets reducing the probability of future reversal. The authors adapt the Feltham and Ohlson (1995) model in which the market value of equity equals the recorded book value of shareholders' equity plus any unrecorded goodwill. Using the assumption of "clean surplus accounting" (i.e., the change in book value of shareholders' equity is equal to net income minus dividends), they show that unrecorded goodwill is equal to the present value of expected future abnormal earnings. Amir et al. (1997) further suggest that in the extreme case where DTLs never reverse, the amount of deferred taxes should be added back to shareholders' equity. This suggestion is consistent with the notion that DTLs recorded against accounting goodwill generate no incremental economic value to the acquirer. Prior to FASB Concepts Statement No. 6, Elements of Financial Statements, many firms reported DTLs in the mezzanine section of the balance sheet

(between liabilities and shareholders' equity), because they considered DTLs to be a hybrid item—neither liability nor equity.

Ayers (1998) finds empirical evidence consistent with ASC 740 (formerly Statement of Financial Accounting Standards [SFAS] 109) providing more value-relevant deferred tax amounts. ASC 740 disclosures provide more value-relevant information due to the separate recognition of deferred tax assets, the existence of valuation allowances, and adjustments for tax law changes, all of which are associated with firm value. More value-relevant DTLs could exist overall, but whether or not acquisition-related DTLs provide value-relevant information remains an open empirical question.

Theoretical research further adds to the debate over the value relevance of DTLs. Sansing (1998) presents an analytical model that suggests deferred taxes are a genuine economic burden. Even if a firm reinvests continually in new fixed assets such that the cumulative DTL never reverses, a DTL generated by the use of different depreciation methods for book and tax is value-relevant. To estimate that value, Sansing derives a discount factor equal to the tax depreciation rate (δ) divided by the sum of the tax depreciation rate and the cost of capital (ρ).

Guenther and Sansing (2000) extend Sansing (1998) to provide two new results with important implications for how deferred taxes and their reversals affect firm value. First, book and market values of deferred tax assets are equal as long as the book value of the related liability is equal to the present value of the future cash flows needed to pay that liability. Second, the timing of the expected reversal of deferred tax assets and liabilities should have no effect on firm value. Contrary to prior research (Amir et al., 1997; Givoly & Hayn, 1992), the Guenther and Sansing (2000) model shows that the timing of expected deferred tax reversals should not affect the value of the firm.

Amir et al. (2001) use an analytical model of firm valuation to examine the value relevance of depreciation-related DTLs. They interpret their findings as evidence that the DTL adds value by deferring tax payments. The authors interpret the Guenther and Sansing (2000) results to mean that “the reinvestment rate has no impact on the value of the deferred tax liability . . . The reversal rate, or rate at which the deferred tax liability on each asset reverses, plays a critical role in the value relevance of deferred taxes.”

Guenther and Sansing (2004) continue the debate on the assumption that the valuation of deferred taxes should depend on whether and when the deferral reverses. They suggest separating deferred taxes into two components based on when the revenues or expenses related to the deferred taxes are included in GAAP income relative to taxable income. For the first category (deferred taxes included in GAAP income prior to taxable income), Guenther and Sansing (2004) predict in their analytical model that the timing of their reversal does change the timing of future tax payments and, therefore, has value. The second category of deferred tax assets and liabilities are associated with revenues or expenses included in GAAP income after taxable income. For this group, Guenther and Sansing (2004) predict that the timing of the reversal does not affect the timing of future tax payments. They also provide evidence that supports Amir et al.'s (2001) finding that new originating temporary differences do not offset the tax effect of reversing prior temporary differences.

Finally, Laux (2013) empirically examines the deferred tax valuation debate, demonstrating that there is an asymmetrical association between deferred taxes and future tax payments. Deferred taxes associated with temporary differences that are included in GAAP income after taxable income are not associated with future tax payments. Laux (2013) also finds that deferred tax balances do not defer future tax payments. In his study, he shows that

depreciation of property, plant, and equipment and amortization of intangible assets are part of this type of temporary difference not associated with future tax payments.

DTLs generated from acquisitions create temporary book-tax differences that are included in GAAP income after taxable income. Thus, these DTLs are not associated with future tax payments (Laux, 2013). These acquisition-related DTLs represent a liability that will never settle, assuming the acquirer never disposes of the acquired intangible assets or recovers the basis through impairment or amortization. Because these liabilities have no association with future payments, I posit that they reduce the predictive value of accounting goodwill and its association with changes in equity market values.

2.4. Example of Accounting Goodwill with Acquisition-Related Deferred Tax Liabilities

The following example illustrates the inflating effect of DTLs recorded against accounting goodwill in The Walt Disney Company's 2009 acquisition of Marvel Entertainment (see Appendix B for the purchase price allocation footnote disclosure). Disney allocated \$2.870 billion to "Intangible assets" and \$2.269 billion to "Goodwill" out of the acquisition price of \$4.242 billion. The liabilities section of the purchase price allocation shows \$1.033 billion of "Deferred income taxes." The note below the allocation states that the \$2.87 billion of intangible assets "primarily consist of character-based intellectual property" and will be amortized over 40 years. Under ASC 805-740, Disney recorded a DTL against the temporary book-tax difference created by the deferred gain of \$2.87 billion (\$2.87 billion fair value less \$0 tax basis), assuming these self-created intangible assets have little or no tax basis.⁵ Using a statutory tax rate of 35%, the \$2.87 billion realized gain would generate a tax liability of approximately \$1.005 billion

⁵ While this example highlights only the *intangible* assets in the Disney acquisition of Marvel, the acquisition-related DTLs examined in my study may also arise due to book-tax differences in *tangible* assets.

(\$2.87 billion times 35%).⁶ If Disney never disposes of Marvel's character-based intellectual property or amortizes it fully, it will never realize this gain or incur income taxes on a gain on sale of intangible assets.

The net effect of recognizing the \$1.033 billion deferred tax liability on the deferred gain portion of the purchase price allocation would be an increase to goodwill in the same amount. Disney will then amortize the book basis of the intangible asset over the next 40 years. This adjustment reduces the book-tax difference by reducing the book value of the intangible asset. Note that goodwill is not adjusted during this amortization process. Thus, the DTL-induced goodwill remains on the balance sheet indefinitely or until the acquirer records a goodwill impairment.⁷

As described above, the accounting goodwill is not adjusted over the useful life of the acquired intangible assets. Thus, if Disney never disposes of the acquired intangible assets from Marvel, then the accounting goodwill associated with those DTLs will remain on the balance sheet perpetually. Only a subsequent goodwill impairment will remove the goodwill from Disney's balance sheet. Thus, U.S. GAAP requires that Disney record an asset that does not meet the conceptual definition of an asset.

On the other side of the transaction, accounting for income taxes requires that Disney record a liability that will likely never get paid results in an overstatement of liabilities. Thus, U.S. GAAP effectively forces Disney to have overstated deferred tax liabilities in addition to

⁶ Given that the DTL recorded in the purchase price allocation represents 36% of the fair value of the intangible assets (\$1.033 billion divided by \$2.87 billion), it appears that a large majority of the recorded DTLs is likely related to the acquired intangible assets. Additionally, the 36% rate is substantially similar to the estimated 35% statutory tax rate used to approximate the DTL.

⁷ These adjustments apply only if the acquisition is structured as a stock purchase with no §338(h)(10) election. An asset purchase or stock purchase with a §338(h)(10) election generates no DTLs. While my sample is limited to stock purchases, there is no definitive way to know that an acquirer made a §338(h)(10) election or not. However, Erickson & Wang (2007) find that C corporate target acquisitions (as in my sample) do not make §338(h)(10) elections. Thus, not being able to identify these election transactions does not affect my results as all target firms in my sample are C corporations that would not likely result in such an election.

inflated amounts of goodwill. Neither of these amounts meets the FASB's definitions of liabilities or assets, respectively.

2.5. Hypothesis Development

2.5.1. Post-Acquisition Performance

The definition of an asset states that it must represent an economic resource capable of producing cash inflows (FASB, 2010). Thus, goodwill must be able to generate future cash inflows to meet the FASB's definition of an asset. Prior research demonstrates that "core" goodwill represents a cash-flow producing asset (Henning et al., 2000). Thus, larger amounts of core goodwill should be positively associated with post-acquisition performance. The acquisition-related DTL component of goodwill is an artifact of accounting for income taxes that does not meet the definition of an asset. To the extent that DTLs inflate accounting goodwill, then acquisition-related DTLs should not be associated with post-acquisition operating performance. Thus, my first hypothesis (stated in the alternative) is as follows:

H1: Acquisition-related DTLs reduce the association between accounting goodwill and post-acquisition operating performance.

2.5.2. Value Relevance

U.S. GAAP (ASC 805-740) requires that the purchase price in an acquisition be allocated to each identifiable class of assets and liabilities using estimated fair values as of the acquisition date. These fair value estimates should reflect the expected future net benefits of the acquisition. Prior research demonstrates a significant positive association between core goodwill and share price, while there is a significant negative association between residual goodwill and share price

(Henning et al., 2000). These results are consistent with investors viewing acquired core goodwill as a cash-flow producing asset while discounting residual goodwill.

An accounting amount is value relevant only if it reflects information relevant to investors and creditors in valuing the firm (Barth, Beaver, & Landsman, 2001). Additionally, it must be measured reliably enough to be reflected in share prices. If investors are adjusting for the upward bias created by inflated accounting goodwill, then the presence of DTLs should reduce the value relevance of goodwill. Thus, my second hypothesis is as follows:

H2: Acquisition-related DTLs reduce the association between accounting goodwill and equity market values.

CHAPTER 3: SAMPLE AND DESCRIPTIVE STATISTICS

This chapter explains how I construct my sample of merger and acquisition transactions to test my hypotheses. I then present summaries of the characteristics and descriptive statistics of the deals in the sample. I conclude with more detailed descriptive statistics and univariate tests of the testable hypotheses.

3.1. Sample Selection

First, I download from the Thomson ONE database all transactions completed after December 31, 2002, and before January 1, 2011 involving a publicly-traded U.S. acquirer purchasing 100 percent of the outstanding stock of a publicly-traded U.S. target.^{8,9} I then merge that set with the Compustat database to ensure the presence of the Compustat ID (GVKEY) for both the acquirer and the target. This initial sample contains 518 acquisitions.

With the assistance of my two research assistants, I manually collect the purchase price allocation and other information about each deal from the related Form 10-K filing for the year of the acquisition using the “Company Search” feature in SEC’s EDGAR database. However, acquirers fail to provide purchase price allocation disclosures with specific amounts allocated to identifiable intangible assets or goodwill for 104 deals.¹⁰ I exclude these deals from my sample as such deals do not have sufficient financial information for investors to interpret and analyze.

⁸ Constraining the sample period between 2003 and 2010 ensures all transactions are subject to similar financial reporting rules for accounting for goodwill (SFAS 141, SFAS 141(R) and SFAS 142).

⁹ I also confirm by examination of the acquirer’s description of each transaction that every deal in my sample is a stock purchase as opposed to an asset purchase. As only stock purchases would generate the acquisition-related DTLs I examine in the study, this step also ensures I am comparing transactions with similar financial reporting rules.

¹⁰ I find that acquirers’ failures to disclose the specific amounts of the purchase price allocation are not uncommon in practice. U.S. GAAP requires acquirers to disclose these details only to the extent that the amounts are material to the transaction. Shalev (2009) attributes this variation in purchase price allocation disclosures to the differing materiality thresholds that acquirers employ.

As such, these deals cannot provide adequate evidence to test my hypotheses about the predictive value and relevance of the recorded accounting goodwill.

I use Compustat and CRSP data to construct measures of acquiring and target firm characteristics. I eliminate deals lacking the necessary financial reporting or market pricing variables for my tests of hypotheses. This elimination results in a loss of 121 additional transactions.

To avoid duplicating the same acquirers' post-acquisition performance in my sample, I group target attributes into one aggregated firm-year observation when the acquiring firm makes multiple acquisitions in the same year. This grouping process entails adding the purchase price, accounting goodwill, and any other variables from the individual acquisitions completed during the year. Doing so consolidates fourteen acquisitions into the acquirer's acquisition activity for that given year.¹¹

Finally, to mitigate the influence of outliers and influential observations, I exclude observations with an absolute value of standardized residuals greater than 3 and leverage points greater than 0.2 (Chatterjee & Hadi, 1986; Rousseeuw & Leroy, 2005; Rousseeuw & Zomeren, 1990).¹² This adjustment removes an additional five observations from the post-acquisition performance subsample, resulting in a final sample of 274 transactions. A similar adjustment removes fourteen observations from the value relevance subsample, resulting in a final sample of 265 transactions. I summarize the sample construction process in Table 1.

¹¹ All results and inferences are substantially the same after excluding firms with multiple public-target acquisitions in one fiscal year.

¹² All results and inferences are substantially the same after running robust regressions instead of excluding outliers.

3.2. Deal Summary

Table 2 presents descriptive statistics for the sample. Panel A reports the Fama-French 12 industry classifications for the target and acquiring firms in the sample. The two industry groups appearing most often in the sample include computers, software, and electronics and financial, consistent with prior research (Denis & Macias, 2013). The distribution of targets and acquirers is relatively balanced across the twelve industry classifications.

Table 2, Panel B reports the number of completed acquisitions by calendar year. The number of transactions completed during the years 2003 through 2010 varies broadly with 2007 having the most (55) and 2003 having the least (6) acquisitions.

Table 2, Panel C reports descriptive statistics for the 274 transactions in the sample. Panel C summarizes the deal attributes, including mean (median) *Deal Size* of \$2.3 billion (\$574 million), as reported in the acquiring firms' 10-K disclosures. The mean (median) *Acct Goodwill* is \$1,256 (\$242) million.

I calculate *Relative Size* by dividing *Deal Size* by the lagged market value of equity ($PRCC_F * CSHO$). The mean (median) *Relative Size* is 39 (23) percent. More than three-fourths (83 percent) of the transactions involve targets and acquirers within the same Fama-French 12 industry classifications (*Same Ind*). I include these variables to demonstrate the economic magnitude of the deals in my sample and that acquirers tend to make acquisitions within their respective industries.

3.3. Descriptive Statistics

Table 3 reports descriptive statistics and pairwise Pearson correlations for my sample. Panel A presents the descriptive statistics (with tests of the differences of means and medians) of the dependent and independent variables used in the multivariate analysis, conditional on *Deal DTL*. *Deal DTL* is equal to one if DTLs appear in the purchase price allocation in the acquirer's Form 10-K.

I do not expect that the presence of DTLs should be able to predict changes in post-acquisition operating performance, but the univariate tests of means show one statistically significant difference. $\Delta OPINC_{1-year}$ (change in operating income before depreciation and amortization from $t-1$ to $t+1$) is lower for the deals with disclosed acquisition-related DTLs (*Deal DTL* = 1). Consistent with my expectation, there are no statistically significant differences between the two subsamples in the two- or three-year cumulative change measures.

Several variables have statistically significantly larger means and medians across the *Deal DTL* partition related to the value-relevance tests of H2 — $\Delta Market Value$, *Acct Goodwill*, and *Acquired Net Assets*. These larger amounts in the *Deal DTL* = 1 subsample are consistent with a larger average *Deal Size* (significant at p-value < 0.10). Conversely, $\Delta Assets$ is statistically smaller in the *Deal DTL* = 1 subsample.

Panel B presents the pairwise Pearson correlations of the variables used in the multivariate tests. Not surprisingly, $\Delta OPINC_{n-year}$ is highly correlated between the one-, two-, and three-year measures; however, no measure of $\Delta OPINC_{n-year}$ is correlated with *Acct Goodwill*. This latter result is consistent with prior research suggesting that some components of accounting goodwill do not represent an asset that predicts post-acquisition performance (Henning et al., 2000). *Acct Goodwill* and $\Delta Market Value$ are positively correlated, consistent with goodwill

representing a value-relevant asset. Finally, *Acct Goodwill* and *Deal DTL* are positively correlated, consistent with the acquisition-related DTLs inflating the amount of recorded accounting goodwill.

CHAPTER 4: RESEARCH DESIGN AND TESTS OF HYPOTHESES

Chapter 4 discusses the research design choices I make to test my hypotheses. I begin by describing the goodwill partition between core and residual goodwill that I use to identify deals where the recorded accounting goodwill should predict post-acquisition performance. I then introduce the estimation model that I use to test H1. This hypothesis predicts that the existence of material acquisition-related DTLs in a purchase price allocation reduces the association between accounting goodwill and post-acquisition performance. Finally, I discuss the value relevance model I use to test H2. This hypothesis predicts that acquisition-related DTLs reduce the association between accounting goodwill and changes in equity market values.

4.1. Goodwill Partition

Identifying accounting goodwill that meets the FASB's conceptual definition of an asset is critical to my study. Goodwill must represent an economic resource capable of producing cash inflows to meet that definition. If goodwill is a cash-flow producing asset, then it should be associated with post-acquisition performance and equity market values. Therefore, I partition the sample on the relative amounts of core and residual goodwill.

Using the methodology employed by Henning et al. (2000), I calculate the two components of the core goodwill asset (going concern and synergies). Going concern value is the difference between the target's pre-acquisition market value measured six days before the acquisition and the target's net fair market value of assets. I calculate synergies as the combined cumulative abnormal returns to the target and the acquirer for the 11 days centered on the acquisition announcement. After adding going concern and synergies together to estimate the

value of the core goodwill asset, I subtract core goodwill from the recorded accounting goodwill to estimate residual goodwill.¹³

After estimating the relative amounts of core and residual goodwill, I create the *Higher Core Goodwill* and *Higher Residual Goodwill* partitions. In the *Higher Core Goodwill* subsample, I restrict the sample to those deals where greater than fifty percent of the recorded accounting goodwill is core goodwill. In deals containing relatively larger amounts of a core goodwill asset, accounting goodwill should be more predictive of future cash flows. On the contrary, the *Higher Residual Goodwill* partition contains those deals where greater than fifty percent of the recorded accounting goodwill is residual goodwill. In these deals containing relatively larger amounts of residual goodwill, there should be less predictive association between accounting goodwill and future cash flows.

Sixty-one percent of the deals in my sample have core goodwill equal to greater than fifty percent of the recorded accounting goodwill. More specifically, there are 80 (29 percent of the sample) deals out of the 274 in the sample that have no residual goodwill, meaning the entire accounting goodwill amount consists of a core goodwill asset. At the other extreme, there are 59 (22 percent of the sample) deals with 100 percent residual goodwill, meaning the recorded accounting goodwill amount is entirely overpayment or overvaluation and does not meet the conceptual definition of an asset (Henning et al., 2000; Johnson & Petrone, 1998).

¹³ If the sum of the going concern and synergies is greater than the recorded accounting goodwill, then I limit the amount of core goodwill to equal the recorded accounting goodwill. Conversely, if the sum of the going concern and synergies is less than zero, then I limit the amount of residual goodwill to equal the recorded accounting goodwill.

4.2. Post-Acquisition Performance

The foundation for my basic research design involves regressing my dependent variable (changes in post-acquisition performance [$\Delta OPINC$]) on a single explanatory variable (accounting goodwill [$Acct\ Goodwill$]) to test the predictive association between the two constructs.

Thus, foundation for my basic estimation equation follows:

$$\Delta OPINC_{n-year} = \beta_0 + \beta_1 Acct\ Goodwill + \varepsilon \quad (1)$$

$\Delta OPINC_{n-year}$ is the cumulative change from year $t-1$ to year $t+n$ in Operating Income Before Depreciation (OIBDP), deflated by lagged Total Revenue (REVT).¹⁴ To calculate the change, I combine the target's and acquirer's operating incomes (OIBDP) from year $t-1$ weighted using each firm's lagged market value of equity ($PRCC_F * CSHO$). Additionally, $\Delta OPINC_{n-year}$ is deflated by the acquirer's lagged sales revenue (REVT), because lagged sales are less sensitive to measurement bias caused by accounting and valuation effects of the M&A transaction itself than other deflators, such as total assets or market values (Powell & Stark, 2005). $Acct\ Goodwill$ is the amount of accounting goodwill from the purchase price allocation disclosed in the acquirer's Form 10-K, scaled by the acquirer's lagged Total Revenue (REVT). Consistent with prior research, $Acct\ Goodwill$ and $\Delta OPINC$ should be positively associated because a cash-flow-producing goodwill asset should lead to improved post-acquisition performance.

To test empirically the effect of the presence of DTLs in an acquiring firm's purchase price allocation disclosure, I introduce the *Deal DTL* indicator. The *Deal DTL* indicator is equal

¹⁴ I use the change in operating income before depreciation and amortization instead of net income to avoid the confounding effects of depreciation and amortization that typically increase mechanically in an acquisition.

to one if DTLs appear in the purchase price allocation in the acquirer's Form 10-K, and zero otherwise. The acquiring firm's choice to disclose the DTLs reflects both the materiality of the amount of the DTLs and management's choice to disclose the DTLs specifically. The SEC and SFAS 141 require disclosure of material transactions but leave the magnitude of disclosure to managerial discretion (Rodrigues & Stegemoller, 2007; Shalev, 2009). Prior theoretical research concludes that full voluntary disclosure is optimal when credible announcements of information are feasible (Grossman and Hart 1980; Grossman 1981; Milgrom 1981; Verrecchia 1983; Dye 1985, 1986). Thus, the disclosure of DTLs in the purchase price allocation should represent a signal that the amount is material and that management desires to provide more complete disclosure.¹⁵ The presence of material DTLs inflates goodwill by the same material amount. Additionally, these acquisition-related DTLs are often related to revenues and expenses included in GAAP income *after* taxable income that will never be associated with future tax payments (Laux, 2013). Thus, the *Deal DTL* indicator should identify deals with less value-relevant goodwill.¹⁶

I add *Deal DTL* and its interaction with *Acct Goodwill* to equation (1) to isolate the association of DTL-induced goodwill on post-acquisition performance. Additionally, I add year- and industry-fixed effects to the model to control for industry trends (Ghosh, 2001; Powell & Stark, 2005). I estimate robust standard errors to control for heteroscedasticity in all

¹⁵ On average, acquiring firms with *Deal DTL* equal to 1 in my sample disclose 1.6 more of the SEC-required items (excluding the item related to the disclosure of deferred taxes) for disclosure of business combinations (Shalev, 2009). This difference is significant at p-value < 0.01.

¹⁶ I acknowledge that the *Deal DTL* indicator introduces some measurement error in that a deal coded as 0 may actually have a relatively *significant* amount of acquisition-related DTLs. However, I rely on the acquiring firm's discretion to identify the DTLs specifically in the purchase price allocation to indicate that the amount is relatively *material*.

specifications (Petersen, 2009).¹⁷ Thus, I test H1 estimating the OLS regression shown below as equation (2):

$$\begin{aligned}\Delta OPINC = & \beta_0 + \beta_1 Acct\ Goodwill + \beta_2 Deal\ DTL \\ & + \beta_3 Acct\ Goodwill * Deal\ DTL \\ & + Year\ fixed\ effects + Industry\ fixed\ effects + \varepsilon\end{aligned}\quad (2)$$

A first-difference specification attempts to control for potential correlated omitted variables. Thus, using a change model (between the year before to the year(s) after the acquisition) differences away the effects of time-invariant characteristics of the acquiring firm. A second control is the inclusion of year- and industry-fixed effects. Doing so controls for any time-invariant characteristics of the industries in my sample. Finally, partitioning the sample on the relative amounts of core and residual goodwill controls for any characteristics of the transaction, target firm, or acquiring firm that would contribute to higher core or residual goodwill. Additionally, these controls reduce the potentially confounding effects of relatively larger amounts of residual goodwill.

I predict positive associations between *Acct Goodwill* and $\Delta OPINC$ when accounting goodwill represents a cash-flow producing asset. The inclusion of the *Deal DTL* indicator in the equation means that the coefficient on *Acct Goodwill* (β_1) captures the association between accounting goodwill and post-acquisition performance when no material acquisition-related DTLs are in the purchase price allocation. I find no prior research to motivate a prediction on β_2 , the main-effect coefficient on *Deal DTL*. I predict negative associations between the interaction

¹⁷ My results are robust to a specification clustering the standard errors by acquiring firms.

term, *Acct Goodwill * Deal DTL* (β_3), and $\Delta OPINC$. This result is consistent with H1 as the presence of acquisition-related DTLs reduces the association of accounting goodwill with post-acquisition performance.

I report results of estimating equation (2) in Table 4, Panel A. Columns (1) through (3) estimate equation (2) in the *Higher Core Goodwill* subsample, while columns (4) through (6) estimate the same equation in the *Higher Residual Goodwill* subsample. I test the association of *Acct Goodwill* with cumulative changes in *OPINC* across one-, two-, and three-year windows past the year (t) of the acquisition. Although estimating the equation across a three-year post-acquisition window does introduce noise and other potentially confounding events, it allows time to show that the acquisition-related DTLs tend not to reverse. In the *Higher Core Goodwill* subsample, the β_1 coefficients on *Acct Goodwill* are all significantly positive (1-year = 0.046, p-value = 0.017; 2-year = 0.109, p-value = 0.003; 3-year = 0.118, p-value = 0.018), consistent with core goodwill being a cash-flow-producing asset associated with post-acquisition performance. The β_3 coefficients on *Acct Goodwill * Deal DTL* are significantly negative (1-year = -0.092, p-value = 0.015; 2-year = -0.092, p-value = 0.068) for the first two years after the acquisition. The β_1 and β_3 coefficients on *Acct Goodwill* and *Acct Goodwill * Deal DTL*, respectively, in the *Higher Residual Goodwill* subsample are all statistically indistinguishable from zero across all three time windows. These results are consistent with residual goodwill (overvaluation or overpayment) not representing a cash-flow-producing asset associated with post-acquisition performance. These results provide additional evidence consistent with the presence of acquisition-related DTLs reducing the association of accounting goodwill with post-acquisition performance.

To provide additional evidence testing H1, I show a sum of coefficients test in Table 4, Panel B. I estimate the sum of the β_1 and β_3 coefficients on *Acct Goodwill* and *Acct Goodwill * Deal DTL*. This result illustrates the association between *Acct Goodwill* and $\Delta OPINC$ in the presence of material acquisition-related DTLs. The combined coefficients are indistinguishable from zero (p-values ranging from 0.180 to 0.870 across the six columns). These results suggest that accounting goodwill is not associated with future cash flows in deals containing a material amount of acquisition-related DTLs. In this instance, the results suggest that residual accounting goodwill does not meet the FASB's conceptual definition of an asset.

4.3. Value Relevance

I next examine whether acquisition-related DTLs reduce the association between accounting goodwill and changes in equity market values. This test shows whether investors value goodwill in the presence of acquisition-related DTLs. Acquirers' fair value estimates of the assets acquired and liabilities assumed in an M&A transaction should reflect their expectations of the future net benefits and obligations of the acquisition. If acquirers' equity market values impound investors' consensus beliefs about these future benefits and obligations, then the fair value estimates of the assets and liabilities acquired should be correlated with post-acquisition stock prices (Wangerin, 2015). However, the inclusion of material acquisition-related DTLs in the purchase price allocation may obfuscate the value relevance of accounting goodwill or inflate accounting goodwill with amounts investors do not perceive as value relevant. H2 predicts that acquisition-related DTLs reduce the association between accounting goodwill and changes in equity market values.

To test H2, I use the following equation (adding year- and industry-fixed effects to control for industry trends and estimating robust standard errors):

$$\begin{aligned}\Delta Market Value = & \beta_0 + \beta_1 \Delta Assets + \beta_2 \Delta Liabilities + \beta_3 Acquired Net Assets \\ & + \beta_4 Acct Goodwill + \beta_5 Deal DTL \\ & + \beta_6 Acct Goodwill * Deal DTL \\ & + Annual fixed effects + Industry fixed effects + \varepsilon\end{aligned}\quad (3)$$

My model derives from valuation models where a firm's change in market value is a function of its changes in assets minus changes in liabilities (Landsman, 1986; Barth, 1991,

1994; Jennings et al., 1996; Henning et al., 2000; Wangerin, 2015). Although most of the value relevance literature uses levels specifications, I choose to focus on changes to use the acquiring firm as its own control. $\Delta Market Value$ is the change in acquiring firm's market value of equity ($PRCC_F * CSHO$) from the year before the acquisition ($t-1$) to three months after the fiscal year-end ($q+1$) date following completion of the acquisition. I use the change through $q+1$ to ensure that all year t accounting variables (such as earnings, book values, and purchase price allocations) are available to investors (Henning et al., 2000). $\Delta Assets$ includes the change in book value of the combined entity's assets (AT) at the end of year t less *Acquired Net Assets* and *Acct Goodwill*. $\Delta Liabilities$ includes the change in book value of the combined entity's liabilities (LT) at the end of year t . *Acquired Net Assets* includes the fair value of net assets acquired during year t (*Deal Size* less *Acct Goodwill*). All of these variables are scaled by the number of shares outstanding at the end of year t . Similar to equation (2), I use *Deal DTL* and its interaction with *Acct Goodwill* to isolate the association of DTL-induced goodwill on changes in equity market values. Finally, I add year- and industry-fixed effects to the model to control for industry trends as in equation (2).

Consistent with prior research, I predict positive coefficients for asset variables— $\Delta Assets$, *Acquired Net Assets*, and *Acct Goodwill*—and a negative coefficient for $\Delta Liabilities$ (Barth, 1991, 1994; Henning et al., 2000; Jennings et al., 1996; Landsman, 1986). Again, I provide no prediction on the main-effect coefficient on *Deal DTL* (β_5). I predict negative associations between the interaction term, *Acct Goodwill* * *Deal DTL* (β_6), and $\Delta Market Value$. This prediction is consistent with H2 as the presence of acquisition-related DTLs reduces the association of accounting goodwill with changes in equity market values.

I report results of estimating equation (3) in Table 5, Panel A. Similar to my tests of H1, I partition the sample between *Higher Core Goodwill* and *Higher Residual Goodwill* subsamples. Column (1) includes those deals with core goodwill representing greater than 50% of the recorded accounting goodwill, while column (2) includes the deals with residual goodwill representing the majority of the goodwill asset. This partition seeks to control for characteristics of the transaction, target firm, or acquiring firm that would contribute to higher core or residual goodwill.

The coefficients for the first four explanatory variables all follow the previously stated directional predictions (p-values < 0.01). In the *Higher Core Goodwill* subsample, the coefficient on *Deal DTL* is indistinguishable from zero. This result is consistent with the presence of acquisition-related DTLs not being associated with changes in equity market values. Finally, the β_6 coefficients on *Acct Goodwill * Deal DTL* are both negatively associated with changes in equity market values (*Higher Core Goodwill* = -0.534, p-value = 0.010; *Higher Residual Goodwill* = -1.376, p-value = 0.038), consistent with H2. These significantly negative coefficients are consistent with the presence of acquisition-related DTLs reducing the association of accounting goodwill with changes in equity market values, consistent with H2.

To provide additional evidence validating the partition between *Higher Core Goodwill* and *Higher Residual Goodwill*, I show a sum of coefficients test in Table 5, Panel B. I estimate the sum of the β_4 and β_6 coefficients on *Acct Goodwill* and *Acct Goodwill * Deal DTL* to show the combined coefficients are still positive, consistent with accounting goodwill representing an asset positively associated with changes in equity market values. The sum of coefficients is significantly positive (β_4 and β_6 = 0.672; p-value = 0.003) in the *Higher Core Goodwill* subsample. This result suggests that core goodwill is positively associated with changes in

equity market values when acquisition-related DTLs are present in the transaction. On the contrary, the sum of coefficients is indistinguishable from zero (β_4 and $\beta_6 = 0.298$; p-value = 0.318) in the *Higher Residual Goodwill* subsample. This result suggests that residual goodwill is not associated with changes in equity market values when goodwill is comprised largely of residual goodwill and *Deal DTL* is equal to one.

CHAPTER 5: CONCLUSIONS, IMPLICATIONS & FUTURE WORK

Chapter 5 concludes my study. I present concluding thoughts as well as implications for my results. Then I describe four steps of future work to enrich my analysis.

5.1. Conclusions and Implications

I examine whether acquisition-related DTLs reduce the predictive value and relevance of accounting goodwill. My findings suggest that these DTLs do reduce the predictive value and relevance of accounting goodwill. The goodwill generated as a result of this artifact of accounting for income taxes does not meet the FASB's conceptual definition of an asset. As such, excluding them from goodwill helps financial statement users—such as acquirers, regulators, investors, and analysts—to evaluate goodwill better.

Anecdotal evidence suggests analysts understand the distinction between book goodwill, which includes the DTL component, and the goodwill that arises from the excess of the purchase price over the fair value of the net assets acquired. They call this adjusted measure “economic goodwill.” To the extent that acquisition-related DTLs reduce the predictive value and relevance of accounting goodwill, economic goodwill represents a more relevant asset measurement.

I acknowledge that my results cannot demonstrate a causal inference between acquisition-related DTLs and post-acquisition performance. Without an exogenous shock to show causality, I am limited to showing that the presence of acquisition-related DTLs in purchase price allocations reduces the predictive value and relevance of goodwill. This limitation is not different from other value relevance studies that show predictive associations.

These results have implications for standard setters who continue to debate what portions of accounting goodwill represent an asset that should remain on the acquirer's balance sheet. As

the FASB considers proposals for a revised definition or measurement of accounting goodwill, amortization of goodwill (Burkholder, 2015), immediate expensing of residual goodwill (overvaluation and overpayment), and the application of ASC 805-740 (requiring the recognition of DTLs for the deferred tax consequences of differences between the tax bases and the recognized fair values of assets acquired in a business combination) could be a relevant item for the agenda.

Different accounting alternatives have been considered to adjust for accounting-related DTLs. International standard setters have suggested discounting DTLs to reflect the time value of money (EFRAG, 2011). PricewaterhouseCoopers proposes that deferred taxes be presented entirely as long-term liabilities accompanied by disclosure of the expected timing of the reversals (PwC, 2014).¹⁸ The results of my study suggest that a goodwill measure that subtracts acquisition-related DTLs from accounting goodwill is a more relevant measure that is consistent with the FASB's Conceptual Framework (FASB, 2010).

5.2. Future Work

I have identified four elements of future work to enrich my analysis.

First, I will increase my sample size by extending my sample period beyond 2010 by at least two years. Adding more transactions to my sample should improve the statistical power of my analyses, especially as I try to perform more cross-sectional analyses.

Second, I will estimate the amount of acquisition-related DTLs by multiplying the amount of intangible assets in the purchase price allocation times the statutory tax rate. I will then subtract that amount from the amount of recorded accounting goodwill before estimating my model. I plan to use continuous amounts of the goodwill components (core, residual, and

¹⁸ The FASB adopted this suggestion in November 2015 in its Accounting Standards Update #2015-17.

DTL) rather than the *Deal DTL* indicator.

Third, I will look at subsequent goodwill impairments as an alternative dependent variable to test whether larger amounts of acquisition-related DTLs are associated with future goodwill impairments.

Fourth, I will explore whether correlated omitted variables bias is driving my results. While the first-difference specification allows me to use the acquirer as its own control, I can still control for additional target characteristics. I will include the following three characteristics of the target as additional controls—pre-existing DTLs, size, and research and development (R&D) expenditures. If any of these variables and their interactions with *Deal DTL* do not have associations with $\Delta OPINC$ or $\Delta Market Value$ that provide viable alternative explanations for my main results in Tables 4 and 5, then I do not expect correlated omitted variable bias taints my results.

These four steps will help me strengthen my hypothesis tests and allow me to answer my research question better.

APPENDICES

APPENDIX A

Variable Definitions

Variable	Definition
Dependent Variables:	
<i>ΔOPINC</i>	Cumulative change in Operating Income Before Depreciation (OIBDP), deflated by lagged Total Revenue (REVT), less the combined target and acquirer operating income, weighted using each firm's lagged market value of equity (PRCC_F * CSHO) from year $t-1$ to year $t+n$;
<i>ΔMarket Value</i>	Change in acquiring firm's market value of equity (PRCC_F * CSHO) from the year prior to the acquisition to three months after the fiscal year-end date following completion of the acquisition, scaled by acquirer's lagged number of shares outstanding (CSHO);
Test Variables:	
<i>Deal DTL</i>	1 if deferred tax liabilities (DTLs) are disclosed in the purchase price allocation in the acquirer's Form 10-K, 0 otherwise;
<i>Acct Goodwill</i>	Accounting goodwill from the purchase price allocation in the acquirer's Form 10-K, scaled by acquirer's lagged Total Revenue (REVT);
Value Relevance Control Variables:	
<i>ΔAssets</i>	Change in book value of combined entity's assets (AT) from year $t-1$ to year t less <i>Acquired Net Assets</i> and <i>Acct Goodwill</i> , scaled by acquirer's lagged number of shares outstanding (CSHO);
<i>ΔLiabilities</i>	Change in book value of combined entity's liabilities (LT) from year $t-1$ to year t , scaled by acquirer's lagged number of shares outstanding (CSHO);
<i>Acquired Net Assets</i>	Fair value of net assets acquired during year t (<i>Deal Size</i> less <i>Acct Goodwill</i>), scaled by acquirer's lagged number of shares outstanding (CSHO);

Deal Variables:

<i>Deal Size</i>	Acquisition price (in millions) from the purchase price allocation in the acquirer's Form 10-K;
<i>Relative Size</i>	<i>Deal Size</i> scaled by acquirer's market value of equity ($PRCC_F * CSHO$) from year $t-1$;
<i>Same Ind</i>	1 if target and acquirer share same Fama-French 12 industry classification; 0 otherwise;

APPENDIX B

Example of Accounting Goodwill with Acquisition-Related Deferred Tax Liabilities Disney's 2009 Acquisition of Marvel Entertainment

Marvel

On December 31, 2009, the Company completed a cash and stock acquisition for the outstanding capital stock of Marvel Entertainment, Inc. (Marvel), a character-based entertainment company. This acquisition is consistent with the Company's strategic value creation through utilization of intellectual properties across Disney's multiple platforms and territories.

The acquisition purchase price totaled \$4.2 billion. In accordance with the terms of the acquisition, Marvel shareholders received \$30 per share in cash and 0.7452 Disney shares for each Marvel share they owned. In total, the Company paid \$2.4 billion in cash and distributed shares valued at \$1.9 billion (approximately 59 million shares of Disney common stock at a price of \$32.25).

The Company is required to allocate the purchase price to tangible and identifiable intangible assets acquired and liabilities assumed based on their fair values. The excess of the purchase price over those fair values is recorded as goodwill.

The following table summarizes our allocation of the purchase price:

	<u>Estimated Fair Value</u>
Cash and cash equivalents	\$ 105
Accounts receivable and other assets	137
Film costs	304
Intangible assets	2,870
Goodwill	<u>2,269</u>
Total assets acquired	5,685
Accounts payable and other liabilities	(320)
Deferred income taxes	(1,033)
Noncontrolling interests	<u>(90)</u>
	<u>\$ 4,242</u>

Intangible assets primarily consist of character-based intellectual property with an estimated useful life of approximately 40 years.

Source: The Walt Disney Company's Form 10-K for the fiscal year ended Oct 2, 2010, filed Nov 24, 2010

Net Effect of Inclusion of DTLs

DR	Accounting Goodwill	\$1.033 B
	CR Deferred Tax Liabilities	\$1.033 B

APPENDIX C

Tables

TABLE 1
Sample Construction

Number of completed 100% stock purchases between 2003 and 2010 with public acquirer and public target (Source: Thomson ONE)	518
Less: No/insufficient purchase price allocation disclosure	(104)
Missing acquirer or target Compustat or CRSP data	(121)
Acquisitions grouped into one firm-year observation in firm-years where acquirer makes more than one acquisition	(14)
Subtotal	279
Number of observations after elimination of outliers and influential observations with standardized residuals > 3 and leverage > 0.2	
Cumulative Post-Acquisition Performance Changes Analysis	274
Value Relevance Regression Analysis	265

TABLE 2
Deal Summary Statistics

Panel A: Industry Composition of Target and Acquiring Firms		
Fama-French 12 Industry Classification	Targets	Acquirers
Consumer Non-Durables	9	10
Consumer Durables	2	6
Manufacturing	21	15
Energy	15	15
Chemicals	4	4
Computers, Software, and Electronics	82	87
Telecommunications	5	9
Utilities	2	3
Wholesale, Retail, and Services	11	13
Healthcare, Medical Equipment, and Drugs	36	27
Financial	72	72
Other	15	13
Total	274	274

Panel B: Deals by Year of Completion		
	Year	Number
	2003	6
	2004	44
	2005	51
	2006	30
	2007	55
	2008	33
	2009	26
	2010	29
	Total	274

Panel C: Deal Characteristics					
Variables	Mean	Median	Standard Deviation	Percentiles	
				25 th	75 th
<i>Deal Size</i>	2,333	574	5,318	153	1,895
<i>Acct Goodwill</i>	1,256	242	2,850	60	1,239
<i>Relative Size</i>	0.39	0.22	0.48	0.07	0.55
<i>Same Ind</i>	0.83	1.00	0.38	1.00	1.00

Notes: N = 274. *Deal Size* and *Acct Goodwill* are in millions of dollars. Continuous variables are winsorized at 1%/99%. All variables are defined in Appendix A.

TABLE 3
Descriptive Statistics and Correlations

Panel A: Sample Descriptive Statistics (by *Deal DTL*)

Variable	<i>Deal DTL = 1</i>						<i>Deal DTL = 0</i>					
	N	Mean	Median	SD	25%	75%	N	Mean	Median	SD	25%	75%
Dependent Variables:												
$\Delta OPINC_{t-1 \text{ to } t+1}$	108	-0.03	0.01	0.27	-0.03	0.06	166	0.01	0.01	0.20	-0.05	0.09
$\Delta OPINC_{t-1 \text{ to } t+2}$	98	0.20	0.21	0.38	0.12	0.30	152	0.23	0.22	0.33	0.09	0.37
$\Delta OPINC_{t-1 \text{ to } t+3}$	88	0.44	0.39	0.44	0.26	0.58	138	0.43	0.38	0.42	0.21	0.65
$\Delta Market \text{ Value}$	104	9.06	4.43	20.73	-1.31	16.58	161	3.86	1.54	15.39	-2.72	8.04
Post-Acquisition Performance Test Variables:												
<i>Acct Goodwill</i>	108	0.43	0.18	0.59	0.09	0.56	166	0.46	0.18	0.78	0.06	0.48
Value Relevance Test Variables:												
<i>Acct Goodwill</i>	104	8.08	3.03	12.98	1.20	9.93	161	4.55	1.49	6.91	0.53	5.65
Value Relevance Control Variables:												
$\Delta Assets$	104	11.36	3.19	28.62	0.16	13.38	161	18.69	2.69	41.72	-0.02	16.82
$\Delta Liabilities$	104	18.90	7.08	32.79	1.42	21.46	161	20.93	5.10	39.55	0.61	23.23
<i>Acquired Net Assets</i>	104	7.15	3.49	10.26	0.97	7.33	161	2.98	1.18	5.21	0.44	3.46

TABLE 3 (cont'd)

Panel B: Sample Descriptive Statistics (by *Higher Core (Residual) Goodwill*)

Variable	<i>Higher Core Goodwill</i>						<i>Higher Residual Goodwill</i>					
	N	Mean	Median	SD	25%	75%	N	Mean	Median	SD	25%	75%
Dependent Variables:												
$\Delta OPINC_{t-1 \text{ to } t+1}$	168	-0.01	0.01	0.17	-0.06	0.07	106	-0.00	0.01	0.30	-0.03	0.08
$\Delta OPINC_{t-1 \text{ to } t+2}$	150	0.23	0.22	0.25	0.11	0.33	100	0.20	0.21	0.46	0.09	0.37
$\Delta OPINC_{t-1 \text{ to } t+3}$	132	0.45	0.38	0.34	0.24	0.63	94	0.40	0.39	0.53	0.19	0.64
$\Delta Market \text{ Value}$	160	7.52	2.46	19.01	-2.39	14.16	105	3.43	2.45	15.61	-3.12	9.58
Post-Acquisition Performance Test Variables:												
<i>Acct Goodwill</i>	168	0.50	0.24	0.69	0.08	0.61	106	0.37	0.13	0.74	0.05	0.38
<i>Deal DTL</i>	168	0.41	0.00	0.49	0.00	1.00	106	0.37	0.00	0.48	0.00	1.00
Value Relevance Test Variables:												
<i>Acct Goodwill</i>	160	7.57	3.17	11.73	0.89	9.33	105	3.43	1.52	5.20	0.55	3.97
Value Relevance Control Variables:												
$\Delta Assets$	160	19.22	4.37	41.08	0.12	19.75	105	10.63	1.79	29.94	-0.19	9.76
$\Delta Liabilities$	160	23.92	9.23	39.57	1.27	29.96	105	14.36	3.16	31.99	0.55	12.04
<i>Acquired Net Assets</i>	160	4.73	2.27	7.73	0.50	5.15	105	4.44	1.19	8.08	0.61	5.29

TABLE 3 (cont'd)

Panel C: Pearson Correlations

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) $\Delta OPINC_{t-1 \text{ to } t+1}$									
(2) $\Delta OPINC_{t-1 \text{ to } t+2}$	0.850								
(3) $\Delta OPINC_{t-1 \text{ to } t+3}$	0.588	0.889							
(4) $\Delta Market Value$	0.057	0.058	0.062						
(5) $Acct Goodwill$	-0.006	0.031	0.036	0.180					
(6) $\Delta Assets$	-0.149	-0.081	-0.032	0.138	0.091				
(7) $\Delta Liabilities$	-0.213	-0.138	-0.071	0.142	0.126	0.955			
(8) $Acquired Net Assets$	-0.363	-0.230	-0.071	0.244	0.167	0.259	0.441		
(9) $Deal DTL$	-0.091	-0.052	0.011	0.116	0.221	-0.061	0.002	0.287	

This table presents the results of univariate tests of the dependent and independent variables used in the multivariate tests of hypotheses. Panels A and B show the results of T-test of means or non-parametric equality of medians (**bold** if difference is p-value < 0.10 (2-tailed)). Panel C shows the results of Pearson correlations between the same sets of variables (**bold** if p-value < 0.05 (2-tailed)). $\Delta OPINC_{n-year}$ is scaled by the acquirer's lagged sales revenue (REVT). $\Delta Market Value$, $\Delta Assets$, $\Delta Liabilities$, and $Acquired Net Assets$ are scaled by the acquirer's common shares outstanding (CSHO) at year $t-1$. $Acct Goodwill$ is scaled by the acquirer's lagged sales revenue (REVT) in the post-acquisition performance subsample and by the acquirer's common shares outstanding (CSHO) at year $t-1$ in the value relevance subsample. Panel A partitions the sample by $Deal DTL$. $Deal DTL$ is equal to one if deferred tax liabilities (DTLs) appear in the purchase price allocation in acquirer's Form 10-K, 0 otherwise. Panel B partitions the sample by the relative amounts of core and residual goodwill. *Higher Core Goodwill* deals are those with greater than fifty percent of the recorded accounting goodwill is core goodwill, using the Henning et al. (2000) methodology. *Higher Residual Goodwill* have less than fifty percent core goodwill. All continuous variables are winsorized at 1%/99%. All variables are defined in Appendix A.

TABLE 4

Associations between Accounting Goodwill and Cumulative Post-Acquisition Performance Changes

Panel A: Regression Analysis of Cumulative Post-Acquisition Performance Changes

Dependent Variable:	Predicted	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta OPINC$	Sign	<i>Higher Core Goodwill</i>	<i>Higher Core Goodwill</i>	<i>Higher Core Goodwill</i>	<i>Higher Residual Goodwill</i>	<i>Higher Residual Goodwill</i>	<i>Higher Residual Goodwill</i>
		<i>t-1 to t+1</i>	<i>t-1 to t+2</i>	<i>t-1 to t+3</i>	<i>t-1 to t+1</i>	<i>t-1 to t+2</i>	<i>t-1 to t+3</i>
<i>Acct Goodwill</i>	+	0.046** (2.15)	0.109*** (2.78)	0.118** (2.14)	-0.070 (-0.90)	-0.177 (-0.91)	-0.178 (-0.92)
<i>Deal DTL</i>	?	0.022 (0.74)	0.062 (1.26)	0.121 (1.56)	-0.052 (-0.94)	-0.103 (-1.01)	-0.105 (-0.81)
<i>Acct Goodwill * Deal DTL</i>	–	-0.092** (-2.19)	-0.092* (-1.50)	-0.041 (-0.38)	0.086 (0.71)	0.279 (1.17)	0.420 (1.64)
<i>Constant</i>	?	0.048 (0.98)	0.213*** (3.18)	0.245*** (3.79)	-0.002 (-0.01)	0.024 (0.22)	-0.075 (-0.61)
Year fixed effects		Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects		Yes	Yes	Yes	Yes	Yes	Yes
Observations		168	150	132	106	100	94
Adjusted R ²		0.199	0.239	0.248	0.183	0.118	0.033

Panel B: Sum of Coefficients Tests

Coefficient Test	Predicted	<i>Higher Core Goodwill</i>	<i>Higher Core Goodwill</i>	<i>Higher Core Goodwill</i>	<i>Higher Residual Goodwill</i>	<i>Higher Residual Goodwill</i>	<i>Higher Residual Goodwill</i>
	Sign	<i>t-1 to t+1</i>	<i>t-1 to t+2</i>	<i>t-1 to t+3</i>	<i>t-1 to t+1</i>	<i>t-1 to t+2</i>	<i>t-1 to t+3</i>
<i>Acct Goodwill +</i>	?	-0.046	0.017	0.077	0.016	0.102	0.242
<i>Acct Goodwill * Deal DTL</i>		(-1.25)	(0.33)	(0.78)	(0.16)	(0.68)	(1.36)

This table presents associations of accounting goodwill with changes in post-acquisition performance. Panel A shows the results of an OLS regression of cumulative changes in operating income ($\Delta OPINC$) from *t-1* to *t+n* on *Acct Goodwill*. Panel B shows the results of tests of the sum of the coefficients. $\Delta OPINC_{n-year}$ and *Acct Goodwill* are scaled by the acquirer's lagged sales revenue. *Deal DTL* is 1 if deferred tax liabilities appear in the purchase price allocation. Columns (1) through (3) estimate the equation where a majority of the recorded accounting goodwill is core goodwill (*Higher Core Goodwill*), using the Henning et al. (2000) methodology. Columns (4) through (6) estimate the same equation where a majority of accounting goodwill is residual goodwill (*Higher Residual Goodwill*). All continuous variables are winsorized at 1%/99%. All variables are defined in Appendix A. Robust t-statistics are in parentheses. *** p<0.01, ** p<0.05, * p<0.10 (1-tailed where I predict directions; 2-tailed, otherwise).

TABLE 5			
Value Relevance Regression Analysis			
Panel A: Value Relevance Regression			
Dependent Variable: <i>ΔMarket Value</i>	Predicted Sign	(1) <i>Higher Core Goodwill</i>	(2) <i>Higher Residual Goodwill</i>
<i>ΔAssets</i>	+	0.978*** (4.23)	1.357*** (5.20)
<i>ΔLiabilities</i>	–	-0.999*** (-3.76)	-1.395*** (-5.08)
<i>Acquired Net Assets</i>	+	0.998*** (3.16)	1.409*** (4.82)
<i>Acct Goodwill</i>	+	1.207*** (7.35)	1.674*** (3.52)
<i>Deal DTL</i>	?	3.093 (1.37)	6.855* (1.89)
<i>Acct Goodwill * Deal DTL</i>	–	-0.534*** (-2.39)	-1.376*** (-1.80)
<i>Constant</i>	?	5.380 (0.83)	-6.197 (-1.26)
Year fixed effects		Yes	Yes
Industry fixed effects		Yes	Yes
Observations		160	105
Adjusted R ²		0.562	0.416

Panel B: Sum of Coefficients Tests

Coefficient Test	Predicted Sign	<i>Higher Core Goodwill</i>	<i>Higher Residual Goodwill</i>
<i>Acct Goodwill +</i>	?	0.672***	0.298
<i>Acct Goodwill * Deal DTL</i>		(2.82)	(0.47)

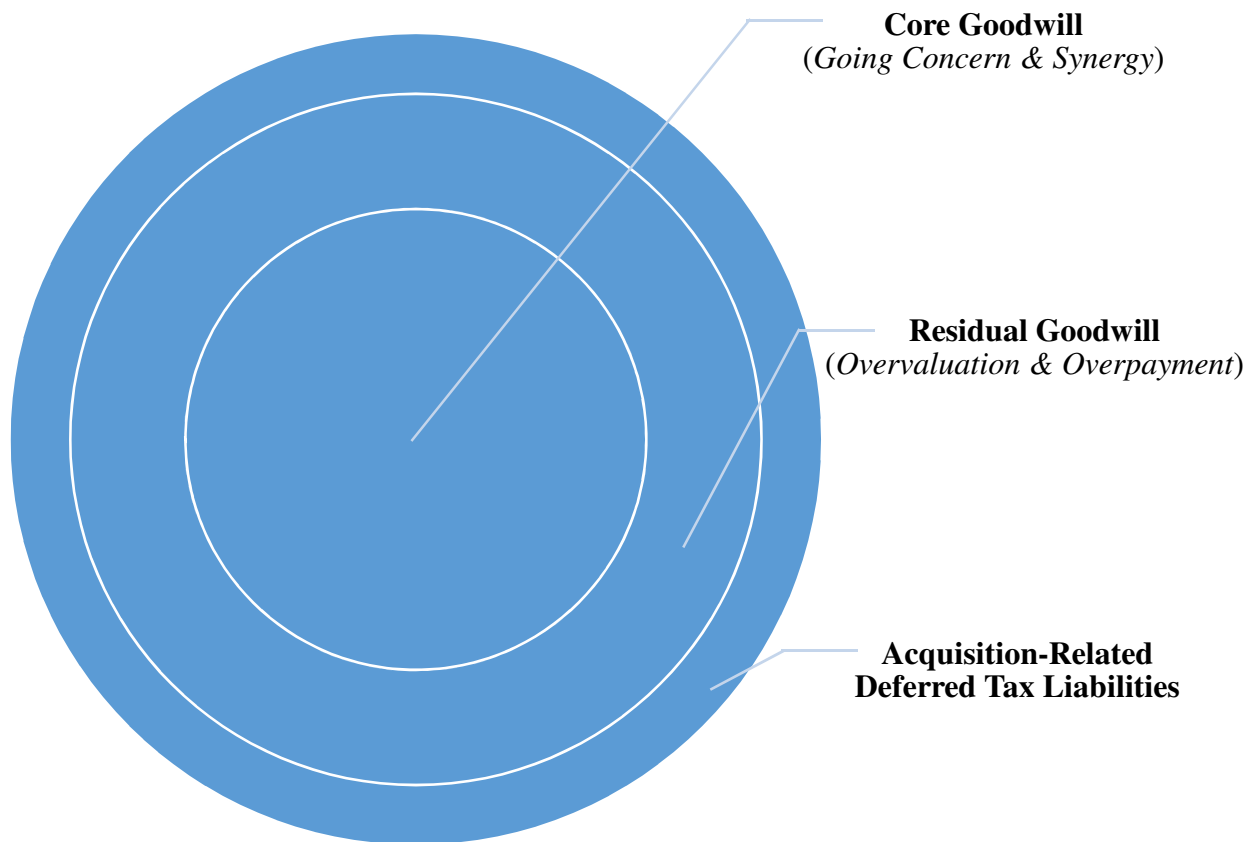
This table presents associations of changes in balance sheet components with changes in equity market values. Panel A shows the results of an OLS regression of changes in the acquirer's market value (*ΔMarket Value*) on the changes in the acquirer's book values from year *t-1* to year *t*. Panel B shows the results of tests of the sum of the coefficients. *ΔMarket Value* is the change in the acquiring firm's market value of equity (PRCC_F * CSHO) from year *t-1* to three months after year *t* concludes. *Deal DTL* is equal to one if DTLs appear in the purchase price allocation in acquirer's Form 10-K. Column (1) estimates the equation where a majority of the recorded accounting goodwill is core goodwill (*Higher Core Goodwill*), using the Henning et al. (2000) methodology. Column (2) estimates the same equation where a majority of accounting goodwill is residual goodwill (*Higher Residual Goodwill*). All variables (except for *Deal DTL*) are scaled by the number of shares outstanding (CSHO) at the end of year *t-1*. All continuous variables are winsorized at 1%/99%. All variables are defined in Appendix A. Robust t-statistics are in parentheses. *** p<0.01, ** p<0.05, * p<0.1 (1-tailed where I predict directions; 2-tailed, otherwise).

APPENDIX D

Figures

FIGURE 1
Components of Accounting Goodwill

This figure depicts the components of accounting goodwill. Going concern and synergy represent the core goodwill asset, while overvaluation and overpayment represent residual goodwill (Johnson and Petrone 1998). The acquisition-related DTLs are a fifth but previously unexamined component of accounting goodwill. *For illustrative purposes only.*



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