Accounting discretion and purchase price allocation after acquisitions*

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Abstract

The recent movement in standards setting towards fair-value-based accounting beyond financial assets and liabilities calls for more empirical evidence on fair value measurement, especially that of intangible assets. This paper studies the initial valuation of goodwill and identifiable intangible assets after acquisitions. We find that the allocation of purchase price to goodwill and identifiable intangible assets is related to the economic determinants of the valuation. However, it is also significantly affected by managerial incentives arising from the differential treatments of goodwill and identifiable intangible assets under SFAS 142. The same managerial discretions are not exhibited in the purchase price allocation prior to SFAS 142, when goodwill and other intangibles are both amortized. These findings suggest that unverifiable fair value measures are associated with the underlying economics but also deviate from the true values in the presence of management reporting incentives. Further analysis suggests that external appraisers constrain managerial discretion in intangible asset valuation to an extent but do not completely eliminate it.

Keywords: Fair value accounting; Intangible assets; SFAS 142; Goodwill
JEL: M41, M48

1. Introduction

A key emphasis of the recent accounting rule-setting worldwide is to extend the scope of fair value accounting beyond trading securities and derivatives. SFAS 142, *Goodwill and intangible assets*, becomes the starting point of this movement in the U.S. The theoretical foundations of the optimality of granting managers discretion over financial reporting choices is provided in Demski et al. (1984). However, in practice managerial contracts may not be fully optimal and flexibility of valuation may erode the quality of information available to investors. It is therefore crucial to provide empirical evidence on the implementation of SFAS 142, especially when post-implementation review and possible revisions of SFAS 142 remain an active part of the FASB agenda (Financial Accounting Standards Board, 2015). Using a hand-collected data set, this study investigates the valuation of *recognized* intangible assets, including goodwill and a wide range of identifiable intangible assets, in the presence of managerial discretion, and the impact of external valuation experts on the reliability of such valuation.

We examine acquirers' initial measurement of fair values of goodwill and identifiable intangible assets through allocating the purchase price to these assets post acquisitions. While the fair value of acquired entity is verifiable at the initial valuation, the fair value of individual assets is not. In particular, the valuation of goodwill and identifiable intangible assets is likely less verifiable than that of tangible assets. Moreover, SFAS 142 grants differential treatments for goodwill and other identifiable intangibles: while SFAS 142 prescribes the fair-value-based impairment tests for goodwill without periodic amortization, identifiable intangibles with finite lives such as developed technologies and customer base are still subject to amortization.

We expect the delegation of differential treatments of goodwill and other intangibles to managers would result both in changes to compensation contracts and in changes to the purchase

price allocation. Compared to the tests of goodwill impairment, mandatory amortization of identifiable intangible assets imposes tighter constraints on managers' accounting discretion. Anecdotal evidence also suggests that managers are concerned with the amortization of acquired intangibles leading to lower reported earnings after acquisitions and depressing stock prices (Johnson, 1993). In addition, as executive compensation is usually tied to both short and long-term earnings, intangible amortization could potentially reduce CEO bonuses. These factors provide CEOs with incentives to allocate a larger (smaller) portion of the purchase price to goodwill (identifiable intangible assets) than is dictated by economic determinants of intangible valuation. On the other hand, it can be costly to overstate goodwill relative to other intangible assets. Overstating goodwill increases the likelihood of large goodwill impairment write-offs in the future, affecting long-term compensation. Pender (2001) argues that goodwill write-offs reflect past acquisition mistakes that can lead to management dismissal. Thus, managers are likely to trade off the benefits and costs of overstating goodwill for short-term reporting and overstating other intangible assets for long-term reporting.

We predict that managers would be more inclined to overstate goodwill when future impairment is less likely. In other words, when managers expect that they will be able to hide future goodwill impairment by exercising discretion in impairment tests, they are more likely to manage the initial valuation and overstate goodwill. We measure managers' ability to avoid future goodwill write-offs with the three acquirer characteristics identified by Ramanna (2008): a high market-to-book ratio, large amount of unverifiable assets, and multiple reporting units. Older CEOs, with a short horizon and diminishing career concerns, are likely to have compensation contracts that are of a shorter horizon and a greater weight on immediate performance. We therefore hypothesize that older CEOs have stronger incentive to avoid

amortization expenses through allocating more purchase price to goodwill relative to identifiable intangibles than determined by the underlying economics. Additionally, we expect that the recognized amount of goodwill and identifiable intangibles is associated with the underlying economics of these assets as captured by target characteristics and synergies from the acquisition.

Past studies (Dietrich et al., 2001; Muller and Riedl, 2002) argue that external appraisers may serve as monitors in fair value measurements and enhance the credibility of accounting information. Casual evidence suggests that auditors do not have a comparative advantage at valuation and external experts may be useful (Watts, 2003). However, counterarguments can be made that external appraisers may be captured by management, which decreases their monitoring effectiveness. Therefore, it is an empirical question whether managers' reporting discretion can be constrained by external monitoring.

We start by testing our predictions using a sample of post SFAS 142 acquisitions. After controlling for the economic determinants of the valuation, we find that acquirers who expect more discretion in future goodwill assessment, as captured by the measures of Ramanna (2008), record more goodwill. In addition, older CEOs allocate more purchase price to goodwill relative to other intangible assets. As expected, we find that economic determinants of the valuation, such as target book-to-market ratio and R&D expenditures, which proxy for the target's economic rents and unrecognized developed technologies, are significantly correlated with the recognized goodwill-intangible ratio. While economic determinants are important in explaining management purchase price allocation decisions, managerial opportunism also explains a significant portion of the variation in the goodwill-intangible allocation. The results suggest that

managers' accounting preferences have a substantial impact on reporting reliability when accounting measures are unverifiable.

Although we include economic determinants such as target characteristics and synergy measures, it is still possible for the incentive variables to reflect the effect of economic determinants not captured by those included in our analysis. To further mitigate this concern, we examine the initial fair value measurement of acquired assets *prior to* SFAS 142. Our predictions on the variables of interest are based on the new accounting methods prescribed by SFAS 142, especially the differential treatments of goodwill and identifiable intangible assets that are unique to the SFAS-142 regime. Thus, we do not expect them to explain the pre-SFAS 142 valuation. The results are consistent with our expectations. These findings suggest that our post SFAS 142 results are unlikely to be attributable to omitted correlated economic variables, but are associated with management incentives brought forth by the implementation of SFAS 142.

Lastly, we investigate whether the presence of external appraisers enhances the reliability of intangible assets valuation. Our findings suggest that external appraisers constrain managerial discretion in intangible asset valuation to a certain extent but do not completely eliminate it.

This paper contributes to the literature in several ways. First, it adds to the limited research on *recognized* intangible assets by investigating managers' initial valuation of goodwill and other intangible assets after acquisitions. Several studies examine the implications of fair value accounting using the SFAS 142 impairment tests (e.g., Beatty and Weber, 2006; Ramanna, 2008; Ramanna and Watts, 2012). While these studies focus on management's discretion in goodwill impairment tests, it has largely been overlooked that book goodwill is determined

endogenously before any impairment test and managers can alter the likelihood of impairment by over- or under-stating the initial recorded value of goodwill upon the completion of an acquisition. Using data manually collected from firms' financial reports, we find that the relative purchase price allocation to goodwill and identifiable intangibles is significantly related to both economic determinants of the valuation and managers' opportunistic reporting incentives.

In a related paper, Shalev et al. (2013) study how the structure and the performance measures used in CEO compensation packages affect firms' purchase price allocation decisions in the post-SFAS 142 regime. In comparison, this paper adopts a more general approach to evaluate the cost-benefit tradeoffs in firms' purchase price allocation decisions, especially those arising from the potential discretion in subsequent impairment tests (Ramanna, 2008; Ramanna and Watts, 2012). More importantly, we highlight that the association between purchase price allocation and managerial incentives observed under SFAS 142 is not observed under the pre-SFAS 142 regime. Shalev et al. (2013) acknowledge that they cannot completely rule out the endogeneity of CEO compensation structure as an alternative explanation. The pre-post contrast provided by this study helps strengthen the inference that the post-SFAS 142 changes are likely to be related to managerial discretion arising from the unique features of SFAS 142 rather than correlated underlying economics that are present both before and after SFAS 142.[1] Additionally, we focus on acquisitions of targets in a specific industry, business services. By using a more homogeneous sample we reduce the idiosyncrasies in the purchase price allocation decisions and

[1] While our design can rule out underlying economic factors, it cannot rule out the possibility that changes in reporting strategies post-SFAS 142 may be due to changes in the incentive contracts taking the effects of SFAS-142 into account.

further mitigate the possibility that our empirical findings are driven by omitted economic determinants.[2]

Second, we add to the literature on the role of external appraisers in the valuation of intangible assets. While external appraisers may help enhance the reliability of fair value accounting, our findings show that they constrain managerial discretion in intangible asset valuation to a limited extent. This evidence suggests that potential managerial distortions in fair-value accounting cannot be easily resolved by engaging third-party experts.

Third, our findings have implications for research on goodwill impairment. Goodwill impairment tests are, by construction, conditional on recognized goodwill. Our findings suggest that the amount of recognized goodwill is endogenously determined by various factors including expected discretion in subsequent impairment tests. In fact, managers may find it less costly to exercise discretion in the initial valuation than to manage the impairment valuation because of the litigation costs associated with untimely disclosure of losses. Focusing on the impairment assessment alone may underestimate the amount of discretion managers can exercise in the accounting for goodwill.

Our findings are useful both for users of financial information and as inputs in evaluating fair-value-based accounting procedures. Such information is especially important given that the FASB, in addition to actively working on the existing projects related to intangible valuation, has recently added a separate project on the treatment of goodwill and identifiable intangible assets (Financial Accounting Standards Board, 2015). Nevertheless, our study does not explore the net benefits or costs of fair-value-based accounting relative to alternative accounting methods and therefore does not have direct implications for standard setting. In addition, we focus on

[2] In another related paper, Dunn et al. (2011) use a sample of FDIC-assisted bank acquisitions and find evidence consistent with firms exercising discretion in the fair value measurement of acquired net assets in order to recognize bargain purchase gains and avoid reporting earnings declines.

acquisitions in a single industry, business services, in order to avoid heterogeneity in the nature of intangible assets and hence challenges in modeling economic determinants of intangible valuation. This focus affects the generalizability of our results. Yet, in the post-SFAS 142 period, acquisitions with the target being a business service firm account for almost 30% of all acquisitions of public targets.[3]

The rest of the paper is organized as follows. Section 2 reviews related provisions in SFAS 142 and previous studies. Section 3 contains hypothesis development. Section 4 discusses sample selection procedures and empirical results. Section 5 concludes.

2. Background

2.1. Accounting for acquired goodwill and identifiable intangible assets

SFAS 142, effective from July 2001, replaces SFAS 121 (*Accounting for the Impairment of Long-lived Assets and for Long-lived Assets to Be Disposed of*) as the guidance for intangible asset valuation.

An important change under SFAS 142 is related to the allocation of acquisition price, or the initial valuation of acquired assets. Although both SFAS 121 and SFAS 142 require acquirers to allocate the purchase price to acquired tangible and identifiable intangible assets first and then record the remainder as goodwill, the further allocation of goodwill among different asset groups is different under these two accounting standards. SFAS 121 required firms to allocate goodwill to acquired tangible assets or asset groups ratably based on the relative fair values of these assets. In contrast, SFAS 142 requires acquirers to allocate goodwill to reporting units based on the expected benefits each reporting unit obtains from the acquisition. The

[3] Kimbrough (2007) examines the market's reaction to the disclosure of purchase price allocation. About 68% of his sample is from the business services industry, while the other industries in his sample each account for 4-10% of the sample, indicating that this industry is particularly active in M&A activities.

estimation of expected benefits, or synergies, involves assessing the fair values of reporting units before and after the acquisition.

More importantly, SFAS 142 replaces goodwill amortization with periodic impairment tests based on fair value estimates. In conducting the impairment tests, firms first compare the book value and estimated fair value of each reporting unit to identify potential impairment. If the book value of a reporting unit exceeds its fair value, firms should then estimate the fair value of identifiable assets and liabilities and compare it to the unit's fair value. The implied fair value of goodwill is thus the excess of the fair value of the reporting unit over the amounts assigned to its assets and liabilities. If the book value of goodwill exceeds its implied fair value, goodwill impairment should be recognized. In contrast to goodwill, acquired identifiable intangible assets, with the exception of very few considered to have infinite lives, are still amortized over their useful lives under SFAS 142.

2.2. Related research

Existing research on intangible assets focuses on the value relevance of *researcher-constructed* value of intangibles. For example, Lev and Sougiannis (1996) treat R&D expenses as if they were capitalized. Barth et al. (1998) examine brand name values estimated by the financial press. While these studies find a significant association between the constructed intangible value and firm stock prices, Holthausen and Watts (2001) argue that research based on outsiders' valuations cannot be generalized to predict the relevance of management's valuation. Kallapur and Kwan (2004) address this criticism by studying the association between recognized brand names and firms' market values for a sample of U.K. listed firms. They find that the association is lower when firms have stronger contracting incentives related to listing requirements and debt financing.

Several studies investigate the voluntary recognition of intangible assets in the U.K. or Australia in order to draw inferences on the relevance and reliability of the accounting for intangibles. Muller (1999) finds that contracting incentives have a significant impact on U.K. firms' decision to capitalize acquired brand names. However, Wyatt (2005) argues that the underlying economics are more important determinants of Australian firms' recognition of intangibles than contracting incentives. Overall, research on the valuation of various *recognized* intangible assets is still limited and produces mixed inferences.

The passage of the fair-value-based SFAS 142 extends the debate on the accounting for goodwill and other intangibles, further increasing the relevance of examining the valuation of recognized intangible assets. Moreover, SFAS 142 is widely considered an important step towards fair value accounting (Watts, 2003). A rising line of research examines the consequences of SFAS 142 to infer the implications of fair value accounting.

Watts (2003) argues that the implementation of SFAS 142 relies on unverifiable fair value estimates that are more prone to managerial discretion. He also contends that lobbying activities played a role in the formulation of SFAS 142. Ramanna (2008) finds that lobbying firms anticipating greater discretion in the goodwill impairment assessment were more likely to support the impairment test proposal. Examining the determinants of firms' initial impairment tests under SFAS 142, Beatty and Weber (2006) find that equity market concerns and contracting incentives affect firms' decision to accelerate or delay the impairment recognition. More recently, Ramanna and Watts (2012) find that the likelihood of goodwill impairment after the initial adoption year is decreasing in firm characteristics associated with greater accounting discretion in the impairment tests. Bens et al. (2011) report that the post-SFAS 142 association

between market reaction and goodwill impairment is lower for firms with lower analysts following.

These studies on goodwill impairment treat goodwill prior to impairment as given, overlooking the fact that managers may alter the likelihood of future impairment through over- or under-stating the initial recorded value of goodwill. An examination of the initial valuation not only furthers our understanding of how book goodwill is determined, but also has implications for studies on goodwill impairment by highlighting the endogeneity of recorded goodwill. In addition, we explore a phenomenon that arises recently in financial reporting: the use of appraisers for fair value measurements.

3. Hypotheses

As discussed in Section 2.1, SFAS 142 grants differential treatments for goodwill and identifiable intangible assets, potentially motivating managers to manage the allocation of purchase price between these two asset categories. Meanwhile, the initial valuation involves unverifiable estimation of fair values of parts of a firm, thereby providing opportunities for such managerial discretion. How the valuation is managed depends on the associated benefits and costs.

It has been widely noted in the financial press and among practitioners that managers are concerned that the amortization of intangibles increases reported expenses and depresses earnings (e.g., Johnson, 1993; Moehrle and Moehrle, 2001). This concern may result from managers' belief that investors fixate on reported earnings. It may also arise because managers' bonuses are tied to reported earnings (Healy, 1985). Prior to SFAS 142, acquirers could avoid amortization of acquired intangibles by using the pooling of interest method to account for

acquisitions. Lys and Vincent (1995) show that acquirers incur significant additional costs to obtain the more 'favorable' pooling of interest accounting treatment for acquisitions and minimize amortization expenses. They estimate that, by avoiding amortization, the EPS of AT&T was 23% higher and CEO's cash compensation was 3% higher annually after its acquisition of NCR.

If managers are concerned with intangible amortization depressing earnings and reducing their bonuses, they will overstate goodwill in order to avoid future amortization expenses. However, over-allocating to goodwill increases the likelihood of large goodwill impairment write-offs subsequent to an acquisition. Such write-offs are costly to managers and firms.[4] Li et al. (2011) find that investors and analysts revise their earnings forecasts downward upon the announcement of a goodwill impairment loss. Pender (2001) argues that goodwill write-offs reflect past acquisition mistakes that can lead to management dismissals. Consequently, we expect managers to have stronger incentives to overstate goodwill when the likelihood of future goodwill impairment is relatively low.[5]

The likelihood of writing off goodwill is determined by the likelihood of incurring economic losses and, if there is a loss, managers' ability to hide the losses through managing the impairment assessment of goodwill. Ramanna and Watts (2012) find that 69% of firms with market indications of impairment (firms with book goodwill and market-to-book ratio below one) do not report an impairment loss, suggesting that there is substantial flexibility in the impairment assessment. We thus focus on how managers' expected flexibility in future

[4] An example is AOL Time Warner. Shortly after AOL Time Warner announced a massive goodwill impairment write-off of $54 billion related to the merger with Time Warner in March 2002, its interim chief stepped down and the company as well as several top executives was sued for issuing misleading statements.

[5] Under certain circumstances, such as corporate restructuring, managers can include goodwill write-offs as a part of earnings baths. Hiding goodwill impairment in earnings baths may reduce the cost of goodwill write-offs to managers. However, anecdotal evidence (e.g., the AOL Time Warner goodwill write-off in 2002) suggests that managers are not always able to avoid losses in human capital by taking a 'bath.'

impairment tests affects the initial valuation of intangible assets. We predict that managers have stronger incentives to overstate goodwill and understate identifiable intangible assets when they expect greater flexibility in future goodwill impairment tests to avoid reporting impairment.

Ramanna (2008) identifies three firm characteristics associated with greater managerial discretion in the SFAS 142 goodwill impairment assessment. First, he argues that firms with higher reporting-unit market-to-book ratios obtain greater flexibility under SFAS 142. Firms with higher reporting-unit market-to-book ratios likely have more internally generated economic rents. In the impairment tests of acquired goodwill, the book value of acquired goodwill is compared to the fair value of goodwill at the reporting unit level, which includes the value of internally generated rents. Thus, when purchased goodwill is impaired, management is better able to cover up the losses using internally generated rents and delay reporting an impairment loss for reporting units with high market-to-book ratios. We expect firms with higher reporting-unit market-to-book ratios to record more goodwill relative to identifiable intangible assets.

For a firm with a single reporting unit, the reporting unit's market-to-book ratio equals that of the firm. For firms with multiple reporting units, market-to-book ratios are not observable at the level of reporting units. Since a higher average reporting-unit market-to-book ratio leads to a higher firm-level market-to-book ratio, we use the firm-level market-to-book ratio as a proxy for reporting-unit internally generated rents. Therefore we have the first hypothesis as follows.

H1: *Ceteris Paribus,* post SFAS 142, an acquirer with a higher market-to-book ratio prior to the acquisition recognizes more goodwill relative to identifiable intangible assets than expected.

Second, since the fair value of goodwill in a reporting unit is estimated as the excess of the fair value of the reporting unit over the fair value of its identifiable net assets, Ramanna

(2008) argues that the less verifiable are the net assets, the greater discretion firms have in determining the existence and amount of impairment losses. Ramanna and Watts (2012) find support for this argument by documenting a negative association between the likelihood of impairment and the verifiability of assets. We thus expect firms with less verifiable assets to recognize more goodwill.

H2: *Ceteris Paribus,* post SFAS 142, an acquirer with less verifiable assets recognizes more goodwill relative to identifiable intangible assets than expected.

Third, synergies from an acquisition are joint benefits that cannot be allocated across reporting units meaningfully (Watts, 2003). Ramanna (2008) thus expects the existence of several large units allows managers to allocate goodwill across units strategically. However, it may not always be necessary to have multiple *large* units for managers to gain discretion in goodwill allocation. A multiple-unit firm has the option to allocate goodwill and evaluate goodwill impairment in the same way as a single-unit firm, but in addition, the multiple-unit firm also has the option to strategically allocate more goodwill to the more profitable reporting unit and manage the fair value estimates for that unit in subsequent tests. Since the fair value of each unit is unverifiable, managers of a multiple-unit firm have greater flexibility to manage unit-level fair value estimates than those of a single-unit firm in estimating the firm's fair value.[6] This leads to our third hypothesis.

H3: *Ceteris Paribus,* post SFAS 142, an acquirer with multiple reporting units recognizes more goodwill relative to identifiable intangible assets than expected.

We also expect the benefits of overstating goodwill and understating subsequent expenses to be greater for older CEOs. While CEO career concerns constrain managers'

[6] Beatty and Weber (2006) also expect firms with multiple segments to have greater discretion in assessing transitional goodwill impairment upon adopting SFAS 142.

opportunism, such concerns become less important as CEOs age. Older CEOs likely lose less if the overstatement of goodwill is discovered or the overstatement leads to goodwill impairment in the future. The limited horizon of older CEOs lessens their concerns over possible future goodwill impairment, providing stronger incentives to boost short-term earnings.[7] Thus, the benefits of overstating goodwill are greater for older CEOs and our fourth hypothesis follows.

H4: *Ceteris paribus*, post SFAS 142, older CEOs recognize more goodwill relative to identifiable intangible assets than expected.

Dietrich et al. (2001) and Muller and Riedl (2002) argue that external appraisers may serve as monitors in fair value measurements and enhance the credibility of accounting information. They find that valuation of investment properties conducted by external independent appraisers is more accurate and associated with less information asymmetry than internal valuation. On the other hand, external appraisers may be captured by management, which decreases their monitoring effectiveness. Therefore, it is an empirical question whether managers' reporting discretion can be constrained by external monitoring. To the extent that external appraisers constrain managerial discretion in the initial valuation of goodwill and other intangible assets, we expect the following.

H5: The association between variables capturing management opportunism and the goodwill-intangible valuation is not present when external appraisers are involved in the purchase price allocation.

In addition to external appraisers, managerial discretions are likely constrained by auditors and firms' litigation concerns. Prior research uses the size of an auditor to proxy for audit quality and industry classifications to proxy for litigation risks. Most of our sample firms

[7] Prior research (Dechow and Sloan, 1991) suggests that CEOs close to the end of their tenure focus more on short-term earnings rather than long-term performance to maximize their compensation.

are audited by the Big 4 auditors and operate in industries with high litigation risks. As a result, we do not focus on these constraints of managerial discretion in our main analysis but discuss their impact in Section 4.6.[8]

4. Sample Selection and Empirical Analysis

4.1. Purchase price allocation post SFAS 142

4.1.1. Data

SFAS 142, which becomes effective in July 2001, requires the disclosure of purchase price allocation following acquisitions. We begin our sample selection with all the acquisitions completed between July 2001 and April 2007 with a deal value above $10 million as reported by the SDC. We further require that both the acquirer and the target be publicly traded before the acquisition and that the target's primary SIC industry be business services (2-digit SIC code 73). We require targets to be public in order to obtain financial and stock price data for measuring economic determinants of purchase price allocation. The SDC reports 180 deals meeting these requirements.

We focus on the business services industry for several reasons. First, different industries have different industry-specific intangible assets, which is difficult to accurately model in a multiple-industry setting. For example, publication rights and licensing agreements are significant intangible assets unique to the publishing industry. Patents on drugs are significant intangibles and their valuation likely differs from that of patents in other industries. By focusing on a single industry, we mitigate the heterogeneity in intangible assets structure and are therefore better able to capture the economic determinants of the purchase price allocation decision. As

[8] Since long-lived tangible assets are depreciated similarly as identifiable intangible assets, managers may have incentives to manage the allocation between tangible and total intangible assets. We discuss this issue in Sections 4.2 and 4.5.

purchase price allocation is likely affected by the underlying economics of the target, having a relatively homogeneous sample reduces the possibility that our results are driven by alternative explanations such as different operating environments among different industries. Second, business service is a very active M&A sector, accounting for almost 30% of all acquisitions of public targets in the sample period. Third, companies in this industry have relatively large growth opportunities and significant amounts of intangible assets.

For each deal, we collect information on purchase price allocation and the usage of an external appraiser from the acquirer's 10-K filing to the SEC.[9] Information about purchase price allocation is available for 143 deals. Requiring the acquirers' and the target's financial information from COMPUSTAT reduces the sample size to 130 deals. We also obtain other acquisition deal characteristics from the SDC and segment level financial information from COMPUSTAT. CEO data come from Execucomp and are supplemented by information collected from firms' proxy statements and 10-K reports. In addition, we extract stock return information from CRSP and acquirer debt covenant data from Dealscan. Table 1 summarizes the sample filter information.

4.1.2. Variable Measurement and Research Design

We estimate the following equation to test the hypotheses:

$$GOODWILL_i = \alpha_0 + a_1 ACQ\_BTM_i + a_2 ACQ\_VERIF_i + \alpha_3 ACQ\_SEG_i + \alpha_4 ACQ\_CEOAGE_i + \alpha_5 ACQ\_CEOTENURE_i + a_6 ACQ\_SIZE_i + \alpha_7 TGT\_BTM_i + \alpha_8 TGT\_SALES_i + \alpha_9 TGT\_ADV_i + \alpha_{10} TGT\_RD_i + \alpha_{11} WT\_CAR_i + \alpha_{12} COMMON_i + \varepsilon_i \quad (1)$$

[9] For a small portion of our sample, where the information is not available from the 10-K filings, we also search through relevant 10-Q filings and annual or quarterly reports for the information.

Detailed variable definitions can be found in the Appendix. Financial information about the target and the acquirer is measured over the fiscal year prior to the year of acquisition.[10] The dependent variable, GOODWILL, is measured as purchase price allocated to goodwill and identifiable intangible assets with an indefinite life, scaled by purchase price allocated to all intangible assets. We include identifiable intangible assets with an indefinite life in the numerator of GOODWILL because these assets receive similar accounting treatments as goodwill in terms of amortization and future impairment.[11]

By using GOODWILL as the dependent variable, we focus on the purchase price allocation between goodwill and other intangibles. Firms may also have incentives to manage the allocation between tangible and total intangible assets, since long-lived tangible assets are depreciated in a similar fashion as identifiable intangible assets are amortized. However, tangible assets are subject to less managerial discretion than intangibles because there are often external markets for such assets. Managers, therefore, likely have more discretion in intangible valuation. Nevertheless, we examine the allocation to tangible versus intangible assets in Section 4.4.

The first group of explanatory variables, ACQ_BTM (acquirer book-to-market), ACQ_VERIF (acquirer asset verifiability), ACQ_SEG (acquirer's number of segments), and ACQ_SIZE (acquirer size), captures acquirer characteristics. Hypotheses 1-3 predict that ACQ_BTM, ACQ_VERIF, and ACQ_SEG shall affect the acquirers' valuation of goodwill

[10] In some cases, the financial data of the target is unavailable for the year prior to the acquisition year and we then use the financial information two years before the acquisition. This happens mostly when the acquisition occurs at the beginning of the year, before the annual report of the prior year is issued.

[11] In most cases, the identifiable intangible assets with an indefinite life are trademarks, though not all trademarks are considered to have an indefinite life. Only in two cases are other identifiable intangibles considered to have an indefinite life (developed technology in one case and in the other, agreement).

versus other intangible assets and thus $\alpha_1 < 0$, $\alpha_2 < 0$, and $a_3 > 0$.[12] The definition of ACQ_VERIF follows Ramanna (2008), who constructs the variable based on Richardson et al.'s (2005) ranking of reliability of accruals. ACQ_SEG is defined following Beatty and Weber (2006).[13] As ACQ_SEG can capture the size of the acquirer, we also include ACQ_SIZE in subsequent regressions to control for this effect.

The second group of explanatory variables captures characteristics of the CEO of the acquirer. ACQ_CEOAGE equals the age of the CEO as of the acquisition year. H4 predicts $\alpha_4 > 0$. ACQ_CEOAGE is likely positively correlated with the tenure of the CEO. A CEO with a long tenure is more likely entrenched than a CEO who has just taken office (Berger et al., 1997). An entrenched CEO can increase his/her compensation directly by influencing the compensation contract and therefore the benefits of avoiding amortization expenses can be minimal. On the other hand, it is unclear whether an entrenched CEO faces higher or lower costs for discretionary allocation choices. The likelihood of an involuntary turnover may be lower for entrenched CEOs after goodwill impairment, but once the impairment attracts attention and leads to management turnover, entrenched CEOs have more to lose because they have more firm-specific human capital. It is thus an empirical question how CEO tenure is related to the allocation. We therefore include ACQ_CEOTENURE in our analysis as a control variable.

We predict that acquirer characteristics are correlated with GOODWILL because of managerial consideration of the cost-benefit tradeoff in applying discretion in the fair value measurement process. The association between these characteristics and GOODWILL may also arise because acquirer characteristics may be correlated with their preferences for certain types

[12] We use the number of operating segments to proxy the number of reporting units because firms do not always disclose information on reporting units. However, reporting units can be one level below reporting segments. Noise in this proxy may reduce the power of our tests.

[13] All inferences in subsequent regression tests are not sensitive to replacing ACQ_SEG with ACQ_SEG*Size, which was used by Ramanna (2008) to capture the discretion in goodwill impairment tests.

of targets. For example, acquirers with more growth options (low ACQ_BTM) may find a target with greater growth potentials to be a good match and record more goodwill to reflect the unrecognized growth options of the target. As a result, we control for target characteristics and synergies generated from the combination using the following two groups of variables.

The third group of variables includes TGT_SALE (target sales scaled by assets), TGT_ADV (target advertising expense scaled by sales), TGT_RD (target R&D expense scaled by sales), and TGT_BTM (target book-to-market). We use these target characteristics to control for the operating environment and investment opportunity sets that are related to the underlying economics of purchase price allocation. As discussed later in the paper, trademarks, developed technology, and customer relationships are the most important identifiable intangible assets recorded. We thus need to control for target characteristics that are associated with a higher likelihood of recording these assets. First, targets with more sales revenue likely have a larger customer base and more purchase price should be allocated to the acquired customer base. Second, more advertising expenditures are likely associated with greater brand name recognition and correspondingly more allocation to trademarks. Third, targets with more R&D expenditures are more likely to have developed useful technologies, resulting in more allocation to developed technology. Since more allocation to identifiable intangible assets leads to less goodwill, we predict that $a_8<0$, $a_9<0$, and $a_{10}<0$.

In addition, internally generated rents, or internally generated goodwill, are reflected in the market value of a firm but not in the book value. If a target has a large amount of internally generated goodwill and thus a high market-to-book ratio, the acquirer is likely to recognize more goodwill since both the target's internal goodwill and the synergy created by the combination are recorded. However, a target with a high market-to-book ratio can also have more unrecognized

intangibles that can be recognized in purchase price allocation. Therefore, we do not have an unambiguous prediction for the relation between GOODWILL and TGT_BTM.

The last group of variables, WT_CAR and COMMON, proxies for the amount of synergy potentially arising from the acquisitions and therefore affecting the purchase price allocation. WT_CAR, measured as the weighted average of the acquirer's and the target's abnormal stock return at the announcement of the acquisition, captures the market's estimate of the synergy arising from the acquisition. COMMON, which measures the extent of overlapping in the target's and the acquirer's operations, is a dummy variable that equals one if N_COMMON/N_ACQ is larger than 0.5, or zero otherwise, where N_COMMON is the number of common 4-digit SIC industries between the target and the acquirer and N_ACQ is the number of 4-digit SIC industries in which the acquirer operates.

While goodwill recorded after an acquisition includes at least part of the synergies generated by the acquisition, it is unclear how the goodwill-intangible ratio would vary with synergies. For example, acquisitions with the acquirer and the target in the same industry may generate greater synergies, but part of the synergies can be recorded as identifiable intangible assets, such as customer base. Therefore, we have no directional prediction for the relation between WT_CAR or COMMON and GOODWILL.

4.1.3. Descriptive Statistics

Table 2 reports the distribution of our sample across industries and over time. By construction, all target firms' primary industries are the Business Services industry (2-digit SIC code 73). The acquirers are also clustered in this industry: of the 137 deals, 102 have acquiring firms with 73 as the 2-digit primary industry SIC code. Our sample period (July 2001 to April 2007) spans six different calendar years; the sample shows no obvious clustering in time.

Panel A of Table 3 reports the descriptive statistics. The median purchase price is about $175 million, while the median of acquirer total assets is $906.3 million, suggesting that the acquisitions would increase the asset base of the acquirers by almost 20% at the median. As a result, accounting choice for these acquisitions could have significant impact on the acquirers' future reported financial performance. Consistent with the existing literature (e.g. Andrade et al., 2001), the target companies exhibit a significant 23.6% stock return at the initial announcement of the acquisition. In contrast, the acquiring companies in our sample suffer a significantly negative 1.5% stock return. The change in the combined value of both the acquirer and the target at the announcement of the acquisition is a negligible 0.3% and is not significantly different from zero.

For the acquirers, the average market value is about $14,557 million and the median is about $1,268 million. The average acquirer book-to-market ratio is about 0.43. An average acquirer's verifiable asset constitutes 42% of its total net assets. The average number of operating segments for the acquirers is 2.74, but the median is one, indicating that more than half of the acquirers have only one operating segment. For the target companies, the average book-to-market ratio is 0.50 and the average sales revenue is $163 million. In the year prior to the acquisition, an average target company spends 1% of its sales revenue on advertising but spends 23% of its sales revenue on R&D activities.

In our sample of acquisitions, goodwill on average accounts for 70.6% of all intangible assets. There is also a fair amount of variation in the portion of intangibles classified as goodwill, with the 25th percentile and the 75th percentile at 62.2% and 84.5%, respectively.

Panel B reports statistics on categories of identifiable intangible assets reported by acquirers in our sample. There are six main categories of identifiable intangible assets in our

sample: trademark, developed technology, customer base and customer loyalty, patents, non-competing agreements and contracts, and other agreements and contracts. Among them, developed technology and customer base and customer loyalty are reported most often and account for most of the dollar value. The life of intangible assets varies greatly across different intangible categories and also has a wide range in each individual category. This is consistent with the arguments about the inherent difficulty in valuing intangible assets.

4.1.4. Correlations

Table 4 reports the pair-wise correlations among different variables in our sample. GOODWILL is significantly correlated with acquirer characteristics ACQ_BTM, ACQ_AVERIF, and ACQ_CEOAGE in the directions predicted by hypotheses 1, 2, and 4. ACQ_SEG is positively correlated with GOODWILL as predicted, but the correlation coefficient is insignificant.

As for target characteristics, TGT_BTM is negatively correlated with GOODWILL. Smith and Watts (1992) suggest that a company's book-to-market ratio is inversely related to its investment opportunity set. The negative correlation between TGT_BTM and GOODWILL is consistent with the value of targets' investment opportunities being captured by goodwill. TGT_RD is negatively correlated with GOODWILL, suggesting that companies with more R&D spending are more likely to have developed mature technologies and therefore recognize more identifiable intangible assets.

Of the proxies for acquisition synergy, COMMON is negatively correlated with GOODWILL. When the target operates in similar industries as the acquirer, the acquisition can create relatively more synergy through the sharing of resources such as research facilities, personnel and sales networks, or even better utilization of existing technology, patents and

customer base, which enables the acquirers to assign more value to identifiable intangible assets (such as technology or customer base) relative to unidentifiable intangible assets (i.e. goodwill).

4.1.5. Regression Analysis

Table 5 reports the OLS estimation of equation (1). In the regression where only the acquirer characteristics are included as the independent variables, the three acquirer/CEO characteristics ACQ_BTM, ACQ_VERIF, and ACQ_CEOAGE are all significant at the 1% level with predicted signs, consistent with acquirers strategically allocating purchase price in response to incentives. The adjusted R-square is 13%.[14,15] The coefficient on ACQ_SEG is of the predicted sign but statistically insignificant. ACQ_CEOTENURE is negatively associated with GOODWILL, suggesting that CEOs with a longer tenure tend to understate goodwill relative to other intangible assets.

When only the target characteristics are included as independent variables, the adjusted R-square is 5%. TGT_BTM and TGT_RD significantly explain the variation in GOODWILL. The negative coefficient on TGT_BTM suggests that the value of investment opportunities is more likely to be associated with unidentifiable intangible assets (goodwill) than with identifiable intangible assets. The negative coefficient on TGT_RD is consistent with our expectation that more investment in R&D allows recognition of more developed technology, which reduces the amount of purchase price allocated to goodwill. These results suggest that the valuation of goodwill and other intangibles is partly determined by the underlying economics.

[14] Note that ACQ_SIZE is not significant here and therefore is unlikely to contribute significantly to the explanatory power of the model. In untabulated analysis, we remove ACQ_SIZE from the regression, and the adjusted R-square drops slightly to 12%.

[15] We also estimate this regression for the sample with data available for constructing the target characteristic variables. The coefficient estimates and R^2 are very similar to those reported in Table 5.

The results remain similar when both acquirer and target characteristics are included in the regressions (column 3). The acquirer and target variables combine to explain 19% of the variation in GOODWILL.

Lastly, we add the synergy measures COMMON and WT_CAR into the regressions. The sample size is reduced to 114 because of data restrictions. Industry commonality between target and acquirer is significantly associated with GOODWILL. Most results remain stable except that the coefficient on ACQ_CEOTENURE ceases to be significant.

In summary, the regression results support H1, H2, and H4, suggesting that acquirers allocating more of purchase price to goodwill as opposed to other intangible assets when they expect more flexibility in future goodwill impairment decisions or when they have shorter horizons. With regard to the economic significance, the acquirer characteristics explain more of the variation in GOODWILL than the target company characteristics.

4.2. Purchase price allocation prior to SFAS 142

In the preceding tests of hypotheses 1-4, we control for the economic determinants of the valuation of goodwill and identifiable intangible assets. However, due to potential measurement errors with the economic variables or potential omitted correlated variables, we cannot completely rule out an alternative interpretation: our variables of interest affect GOODWILL because they are related to some economic determinants of the purchase price allocation that are not captured by our control variables. To mitigate this concern, we examine the purchase price allocation prior to SFAS 142. Since our hypotheses are based on incentives generated by the new accounting procedures mandated by SFAS 142, we do not expect our variables of interest (ACQ_BTM, ACQ_VERIF, and ACQ_CEOAGE) to be associated with goodwill allocation

prior to SFAS 142. Alternatively, if these variables capture the economics underlying the purchase price allocation, they would affect GOODWILL both pre- and post- SFAS 142.

We select a sample of acquisitions completed between 1996 and 2000 following the procedures described in Section 4.1.1. In addition to requiring the target to be public and operating in the business service industry, we exclude all pooling of interests deals. There are 131 deals satisfying these requirements and data requirements on acquirer characteristics reduce the sample to 71 observations. Requiring target characteristics reduces the sample to 69 observations and requiring the synergy measures reduces the sample to 59 observations. The descriptive statistics of the sample are presented in Table 6 Panel A. On average, goodwill accounts for 80.79% of total intangible assets recorded, higher than the weight of goodwill (70.6%) post SFAS 142.[16] Target book-to-market ratio, which is expected to be negatively correlated with the weight of goodwill, is also lower in the pre-SFAS 142 (0.26) than in the post-SFAS 142 (0.50).

The results for the pre-SFAS 142 sample are reported in the first two columns of Table 6 Panel B. The regression in column (1) only includes variables capturing acquirer characteristics. The coefficients on ACQ_BTM, ACQ_VERIF, and ACQ_CEOAGE are all insignificant. We then add target characteristics and COMMON in the regression in column (2). The coefficients on ACQ_BTM, ACQ_VERIF, and ACQ_SEG remain insignificant. The lack of explanatory power by ACQ_BTM, ACQ_VERIF, and ACQ_CEOAGE in the pre SFAS 142 regression suggests their significant effect in post-SFAS 142 analysis reflects incentives in purchase price allocation created by SFAS 142. Similar to the post-SFAS 142 analysis, target advertising and

[16] We do not have a prediction as to whether the percentage of goodwill in total intangible assets will increase or decrease post SFAS 142. First, the allocation between goodwill and other intangible assets is affected by economic determinants such as the target's investment opportunity set. Second, not all firms would consider it preferable to overstate goodwill. Our prediction is that, in the post-SFAS 142 regime, only those firms expecting more discretion in goodwill assessment and those focusing on short-term performance are likely to record more goodwill.

R&D intensity are significantly associated with the goodwill allocation in the pre-SFAS 142 sample.

We also use the pooled pre- and post- SFAS 142 sample to estimate the following equation, which allows the coefficients of all the variables to vary under the two regimes.

$$GOODWILL_i = \alpha_0 + a_1\ PRE142*ACQ\_BTM_i + a_2\ PRE142*ACQ\_VERIF_i + \alpha_3\ PRE142*ACQ\_SEG_i + \alpha_4\ PRE142*ACQ\_CEOAGE_i + \alpha_5\ PRE142*ACQ\_CEOTENURE_i + a_6\ PRE142*ACQ\_SIZE_i + \alpha_7\ PRE142*TGT\_BTM_i + \alpha_8\ PRE142*TGT\_SALES_i + \alpha_9\ PRE142*TGT\_ADV_i + \alpha_{10}\ PRE142*TGT\_RD_i + \alpha_{11}\ PRE142*COMMON_i + \alpha_{12}\ PRE142*WT\_CAR_i + \alpha_{13}\ POST142 + a_{14}\ POST142*ACQ\_BTM_i + a_{15}\ POST142*ACQ\_VERIF_i + a_{16}\ POST142*ACQ\_SEG_i + a_{17}\ POST142*ACQ\_CEOAGE_i + a_{18}\ POST142*ACQ\_CEOTENURE_i + a_{19}\ POST142*ACQ\_SIZE_i + a_{20}\ POST142*TGT\_BTM_i + a_{21}\ POST142*TGT\_SALES_i + a_{22}\ POST142*TGT\_ADV_i + \alpha_{23}\ POST142*TGT\_RD_i + \alpha_{24}\ POST142*COMMON_i + \alpha_{25}\ POST142*WT\_CAR_i + \varepsilon_i \quad (2)$$

where POST142 (PRE142) is an indicator variable that equals one for acquisitions under the post- (pre-) SFAS 142 regime, and zero otherwise. By using the interactive terms between the independent variables, we allow the coefficients on the independent variables to be different between the pre- and post-SFAS 142 periods.

The results are reported in columns (3) and (4) in Table 6 Panel B. Consistent with columns 1 and 2, the coefficients on PRE142*ACQ_BTM, PRE142*ACQ_VERIF, and PRE142*ACQ_CEOAGE continue to be insignificant. In contrast, the coefficients on POST142*ACQ_BTM, POST142*ACQ_VERIF, and POST142*ACQ_CEOAGE are statistically significant. Overall, the results suggest that the impact of ACQ_BTM, ACQ_VERIF, and ACQ_CEOAGE on goodwill allocation is unique to the post-SFAS 142 regime and that these effects likely reflect the impact of discretion in future goodwill tests rather than economic fundamentals.

Note that the pre-SFAS 142 observations self-select themselves into the sample by choosing the purchase method and disclosing the purchase price allocation. The intangible valuation of the pre-SFAS 142 sample can differ from that of the post-SFAS 142 sample because

of the self-selection. However, if our variables of interest capture the economics of the valuation, we expect them to explain the valuation of disclosing firms, which are potentially 'better' firms than non-disclosing firms. If our variables capture opportunistic reporting incentives existing prior to SFAS 142 and firms with more opportunistic reporting behavior chose not to disclose, we expect the non-disclosing firms to have stronger incentives for discretionary reporting and thus expect their ACQ_BTM, ACQ_VERIF, and ACQ_CEOAGE to be systematically different from those of disclosing firms. Unreported results show that ACQ_CEOAGE and ACQ_BTM do not differ significantly between the two groups, inconsistent with the self-selection explanation.

4.3. Purchase price allocation post SFAS 142 and external appraisers

Independent appraisers are involved in the valuation and allocation process in 59 out of the 137 acquisitions in our sample. If independent appraisers play a monitoring role in the fair value measurement, as Dietrich et al. (2001) suggest, we expect the impact of ACQ_BTM, ACQ_VERIF, and ACQ_CEOAGE on GOODWILL to be less pronounced when an external appraiser is engaged for the valuation of intangible assets in the purchase price allocation process. We estimate the following equation to test this prediction,

$$GOODWILL_i = \alpha_0 + \alpha_1 IV_i + a_2 NON\_IV\_ACQ\_BTM_i + a_3 NON\_IV*ACQ\_VERIF_i + \alpha_4 NON\_IV*ACQ\_SEG_i + \alpha_5 NON\_IV_i*ACQ\_CEOAGE_i + a_6 NON\_IV_i*ACQ\_CEOTENURE_i + \alpha_7 IV_i*ACQ\_CEOAGE_i + a_8 IV_i*ACQ\_BTM_i + a_9 IV_i*ACQ\_VERIF_i + \alpha_{10} IV_i*ACQ\_SEG_i + \alpha_{11} IV_i*ACQ\_CEOTENURE_i + \alpha_{12} ACQ\_SIZE_i + \alpha_{13} TGT\_BTM_i + \alpha_{14} TGT\_SALES_i + a_{15} TGT\_ADV_i + a_{16} TGT\_RD_i + a_{17} COMMON_i + a_{17} WT\_CAR_i + \varepsilon_i \quad (3)$$

where IV (NON_IV) is an indicator variable that equals one (zero) if an acquirer engaged an external appraiser in the purchase allocation, and zero (one) otherwise. The results are presented in Table 7.

The first two columns of Table 7 report the OLS estimation results of equation (3). The regression in column (1) only includes acquirer characteristics variables and column (2) includes

all variables. The results are consistent under both specifications. The coefficients on NON_IV*ACQ_BTM, NON_IV*ACQ_VERIF, and NON_IV* ACQ_CEOAGE, are significant as predicted by H1, H2, and H4. On the other hand, with the exception of ACQ_CEOAGE, the incentive variables are not significantly associated with the goodwill allocation decisions in the presence of external appraisers.

Since the decision to engage an external appraiser is endogenous, we also use the Heckman two-stage procedure to correct for self-selection. We model the decision to engage an external appraiser as a function of the size of the acquirer, the size of the target, ACQ_BTM, ACQ_VERIF, ACQ_SEG, ACQ_CEOTENURE, and ACQ_CEOAGE. The results after controlling for self-selection are reported in columns (3) and (4) of Table 7. The inverse mills ratios do not load significantly in the regression, suggesting that self-selection is not a serious issue in this setting. The results with and without controlling for self-selection are very similar. In general, the results suggest that appraisers can reduce management reporting opportunism to a certain extent but do not completely eliminate it.

4.4. Allocation between tangible and intangible assets

Our hypotheses about the initial valuation of goodwill and identifiable intangible assets are based on the differential treatments of these assets under SFAS 142. One may argue that managers expecting greater flexibility in future goodwill impairment tests have similar incentives to lower the valuation of tangible assets in order to increase the amount of purchase price assigned to goodwill. However, managerial discretion in tangible assets valuation is likely limited in our setting. First, the valuation of some tangible assets, such as cash and marketable securities, involves less uncertainty and therefore misreporting can be corrected by monitoring parties such as auditors and boards of directors. The valuation of long-term tangible assets may

involve more discretion. Nonetheless, for our sample, few business service firms have substantial long-term tangible assets. Second, tangible assets overall constitute a small part of total assets (on average 8% of acquisition cost) for our sample firms, which implies limited economic consequences from any discretion exercised in tangible asset valuation.

To examine the allocation between tangible and intangible assets, we estimate an equation with the same independent variables as in equation (1) but with the allocation of purchase price between tangible and intangible assets as the dependent variable (net tangible assets over total purchase price).

Untabulated results indicate that the coefficient on TGT_BTM is positive and those on TGT_SALES and TGT_RD are negative, all significantly different from zero, suggesting that growth options and production and selling efficiency are more likely associated with intangible assets than with tangible assets. In contrast, the coefficients on acquirer characteristics are all insignificant. These results suggest that managers in our sample have limited discretion in tangible asset valuation. The finding is also possibly related to the small magnitude of tangible assets and the lack of long-term tangible assets in our sample, which affects the generalizability of the results.

4.5. Alternative explanations and robustness checks

An alternative explanation for the negative correlation between ACQ_BTM and GOODWILL is that firms with a lower book-to-market ratio can identify better acquisition targets that generate greater synergies. This explanation suggests that ACQ_BTM is correlated with GOODWILL for economic reasons. If so, we expect ACQ_BTM to explain GOODWILL both before and after SFAS 142. However, we find that ACQ_BTM explains GOODWILL only under the post-SFAS 142 regime, inconsistent with the alternative explanation. The inclusion of

the proxies for merger synergy (WT_CAR, abnormal stock return at acquisition announcement, and COMMON, the industry commonality between the target and the acquirer) also helps to mitigate the concern. In untabulated robustness analysis, we include in our regressions two additional measures of acquisition synergy. First, we include the growth rate of sales for the combined entity from pre- to post-acquisitions as an additional measure of the synergy arising from the acquisitions. Second, we include the acquirer's industry adjusted ROA (as in Rajgopal et al. 2006) prior to the acquisition as a measure of the acquirer's prior operating performance or managers' ability. If ACQ_BTM is associated with GOODWILL because an acquirer with a low ACQ_BTM is better at managing the firm and therefore also more likely to carry out mergers with more synergy, we expect the coefficient on the acquirer's industry adjusted ROA to be positive and significant. The coefficients on both variables are insignificant and their inclusion does not affect the inferences regarding our variables of interest.

In our primary analysis, we implicitly assume that the likelihood of incurring economic losses in goodwill is the same across acquirers and focus on how expected managerial discretion in the impairment assessment affects the allocation decision. While we do not have a good ex ante prediction model for the likelihood of economic losses, we relax the above assumption in a robustness analysis by including two variables capturing the variation in the likelihood: stock return volatility and abnormal returns of the acquirer at the time of announcing the acquisition. Firms with high stock price volatility are more likely to experience price declines. If goodwill impairment is assessed based on firms' market values, these firms are more likely to have impairment. This predicts a negative correlation between GOODWILL and acquirers' stock return volatility. However, SFAS 142 allows valuation methods other than the market -based method and firms can take the price volatility into account in their valuation, thereby mitigating

the predicted negative correlation. Acquirers' overpayment is also likely to be positively related to the likelihood of future goodwill impairment. Our inferences are not affected by the inclusion of these two variables. The coefficient on acquirer stock volatility is negative but insignificant. The coefficient on acquirer abnormal returns is positive but also insignificant. The insignificant results can be driven by our tests lacking power. It is also possible that managers have different expectations about the prospect of the acquisition than the market and therefore the abnormal returns cannot capture managers' expectation of the likelihood of goodwill impairment.

As discussed in Section 2, the benefits of earnings management may also correlate with other firm characteristics. Specifically, firms may manage earnings to exceed zero earnings targets (Burgstahler and Dichev, 1997) or to avoid covenant violations (Sweeney, 1994). Also, earnings management can be constrained by litigation concerns and auditors. We find that only four observations in our sample have net worth covenant or small positive earnings (i.e., earnings over assets between zero and 1%).[17] We examine the industries of the acquirer-target combination and find that 90% of the combination operates at least in one of the high litigation risk industries. The vast majority of acquirers (93%) are audited by big auditors. Controlling for debt covenant, small positive earnings, litigation, and auditors does not affect inferences on other variables. These variables are not statistically significant in explaining the variation in GOODWILL.

We recognize that governance mechanisms potentially constrain management accounting choices. Specifically in our setting, they could affect an acquirer's allocation of the purchase price. Existing research suggests that institutional investors are more actively involved in

[17] We also examine whether there are other debt covenants affecting GOODWILL. There are 32 firms with covenants or performance pricing schemes based on earnings, but all of them define earnings as EBITDA. The differential treatments of goodwill and other intangibles do not make a difference for EBITDA-based debt contracts.

monitoring (Ashbaugh et al., 2003). We obtained institutional holdings data from Spectrum. The percentage of institutional holdings also does not significantly affect GOODWILL.

Last, we conduct the following tests to check the robustness of our results. First, since GOODWILL is a fractional variable, the OLS regressions used in the main analysis might be mis-specified. We use two alternative methods of estimation. (1) We normalize GOODWILL by subtracting the mean of GOODWILL from each value and then deflating it by the standard deviation of GOODWILL. All the inferences remain intact when we use the normalized GOODWILL as the dependent variable. (2) We apply a logistic transformation of GOODWILL using the following formula: NEW_GOODWILL = log (GOODWILL/(1 – GOODWILL)). In applying this formula, when GOODWILL equals one, we replace it with 0.9999. When GOODWILL equals zero, we replace it with 0.0001. The inferences are not affected by these alternative specifications.

Second, to ensure that our results are not driven by outliers, we winsorize the variables at the top and bottom 2.5% and re-run the regressions as a robustness analysis. We obtain qualitatively similar results.

Third, we examine the sensitivity of our results to alternative definitions of variables. We measure the book-to-market ratios alternatively by the book value of equity plus total liabilities over the market value of equity plus the book value of liabilities. We also define the verifiability of acquirer assets as the sum of cash and investments divided by total assets. We replace ACQ_SEG with the logarithm of the number of segments. Finally, we set COMMON equal to one if the value is above the sample median and zero otherwise. Our main results are robust to these alternative variable definitions.

Fourth, we include additional controls for target characteristics, such as target size and performance measured by ROA. These variables do not load significantly in the regressions and their inclusion does not affect our other inferences.

5. Conclusion

This paper studies the initial valuation of acquired intangible assets to shed light on the reliability of fair value measurement when the valuation is potentially unverifiable.

SFAS 142 grants differential accounting treatments to goodwill and other intangible assets, providing a channel for management to communicate private information. However, this channel will be properly utilized only if managerial incentives are adjusted to take this managerial flexibility into account. To the extent that the incentive contracts focus on short-term outcomes, we expect that managers are more likely to overstate goodwill relative to other intangible assets in order to reduce amortization expenses if they have more flexibility to avoid future goodwill write-offs. We also expect that they will tend to overstate goodwill relative to amortizable intangibles.

Our findings using the post-SFAS 142 sample are largely consistent with the predictions. We find that acquirers with the characteristics identified by Ramanna (2008) as indicators of greater discretion in the goodwill impairment assessment allocate more purchase price to goodwill relative to amortizable intangible assets. We also find that older CEOs, who are more likely to have short term contracts, allocate more purchase price to goodwill relative to other intangibles.

Since our predictions arise from the differential treatments of goodwill versus identifiable intangible assets that are unique to the SFAS 142 regime, we do not have the same predictions

pre-SFAS 142. Consistent with our expectation, we do not find the same association between purchase price allocation and management incentives using a sample of pre-SFAS 142 acquisitions. These findings mitigate the concern that our post-SFAS 142 evidence is driven by correlated economic determinants of purchase price allocation that our control variables fail to capture.

This study makes several contributions to the literature. First, it adds to the limited research on *recognized* intangible assets by investigating managers' initial valuation of goodwill and other intangible assets after acquisitions. We show that the relative purchase price allocation to goodwill and identifiable intangibles is significantly related to both the economic determinants of the valuation and to the expected duration of managers' contracts.

Second, we add to research on the role of external appraisers in fair value measurement. Our findings that external appraisers constrain management's discretion in intangible asset valuation to a limited extent suggest that potential managerial distortions in fair-value accounting cannot be easily resolved by engaging third-party experts.

Third, our findings have implications for research on goodwill impairment. Studies of goodwill impairment take the amount of recognized goodwill as given, which, as we show, is endogenously determined by various factors including expected discretion in subsequent impairment tests. Our results suggest that focusing on impairment assessment alone may underestimate the amount of discretion managers can exercise in the accounting for goodwill.

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Appendix – Variable definitions

GOODWILL	=	the amount allocated to goodwill or identifiable intangible assets with an indefinite life as a percentage of the combined amount allocated to all intangible assets, including both goodwill and other intangible assets (also known as identifiable intangible assets),
ACQ_CEOAGE	=	age of the CEO of the acquirer at the time of the acquisition,
ACQ_CEOTENURE	=	the number of years the CEO of the acquirer has been in office,
ACQ_BTM	=	the acquirer's book value of common equity divided by its market value of common equity,
ACQ_VERIF	=	the acquirer's verifiable net assets (Cash + Investment – Debt – Preferred Equity) divided by its total net assets (Assets – Liabilities),
ACQ_SEG	=	a dummy variable equaling one if the acquirer has more than one reporting segment, and zero otherwise
ACQ_SIZE	=	Ln(market value of equity of the acquirer),
TGT_BTM	=	the target's book value of common equity divided by its market value of common equity,
TGT_SALES	=	the target's Ln(Sales) divided by its Ln(Assets),
TGT_ADV	=	the target's advertising expense divided by its sales,
TGT_RD	=	the target's R&D expense divided by its sales,
WT_CAR	=	the weighted-average of the acquirer's and the target's abnormal stock return, computed as residuals from a market model, over a 3-day window around the acquisition deal announcement day (abnormal returns are computed as market-model residuals),
COMMON	=	A dummy variable used to measure the level of commonality between the 4-digit SIC industries in which the target and the acquirer operate; COMMON is assigned a value of one if N_COMMON/N_ACQ is larger than 0.5, or zero otherwise, where N_COMMON is the number of common industries between the target and the acquirer and N_ACQ is the number of industries in which the acquirer operates.
POST142	=	A dummy variable that equals one for acquisitions during the post-SFAS

		142 regime, and zero otherwise.
PRE142		A dummy variable that equals one for acquisitions during the pre-SFAS 142 regime, and zero otherwise.
IV	=	A dummy variable that equals one for acquisitions where external appraisers are involved, and zero otherwise.
NON_IV	=	A dummy variable that equals zero for acquisitions where external appraisers are involved, and one otherwise.

Table 1 – Post SFAS 142 Sample Selection

			Number of Acquisitions
Acquisitions on SDC between July 2001 and April 2007, where the acquired companies have primary SIC code of 73 (Business Service industry) and are publicly traded before being acquired			180
Less	Missing purchase price allocation information	37	
Acquisitions remaining			143
Less	Missing acquiring companies' financial information from Compustat	6	
Acquisitions remaining			137
Less	Missing target companies' financial information from Compustat	7	
Acquisitions remaining			130
Less	Missing target companies' stock return information from CRSP	16	
Acquisitions remaining			114

Table 2 - Sample Distribution
The sample includes acquisitions completed between July 2001 and April 2007, where both acquiring companies and acquired companies are publicly traded and acquired companies' primary industry is Business Service (SIC code 73).

Panel A – Sample distribution by industry membership of the acquiring companies

2-digit SIC code	Number of obs	Percent
26	1	1%
27	2	1%
28	1	1%
35	9	7%
36	5	4%
38	3	2%
48	2	1%
50	1	1%
59	1	1%
73	102	74%
78	1	1%
82	1	1%
87	8	6%
	137	100%

Panel B – Sample distribution by completion time of the acquisitions

Time period	Number of obs	Percent
July ~ December 2001	10	7%
2002	24	18%
2003	30	22%
2004	26	19%
2005	20	15%
2006	19	14%
January ~ April 2007	8	6%
All	137	100%

Table 3 - Descriptive Statistics

The sample includes acquisitions completed between July 2001 and April 2007, where both acquiring companies and acquired companies are publicly traded and acquired companies' primary industry is Business Service (SIC code 73). Variables definitions are in the Appendix.

Panel A – Descriptive Statistics of Main Variables

	Mean	Standard Deviation	Lower Quartile	Median	Higher Quartile	Number of Observations
Deal Characteristics						
Total Purchase Price ($ million)	664.2	1654.4	57.7	175.0	493.7	137
Acquirer Announcement Return (%)	-1.5	6.6	-5.2	0.0	0.6	114
Target Announcement Return (%)	23.6	39.1	0.2	12.3	37.8	114
WT_CAR	0.3	5.8	-2.7	0.0	2.6	114
COMMON	0.28	0.45	0.00	0.00	1.00	137
Acquirer Characteristics						
Total Assets ($ million)	9,594.6	23,853.7	311.0	906.3	2,848.6	137
Market Value ($ million)	14,557.8	32,751.8	441.7	1,268.4	9,726.0	137
ACQ_BTM	0.43	0.34	0.21	0.32	0.57	137
ACQ_VERIF	0.42	2.09	0.10	0.38	0.71	137
Number of Business Segments	2.74	2.16	1.00	1.00	4.00	137
ACQ_SEG	0.50	0.50	0.00	0.00	1.00	137
ACQ_CEOAGE	53.1	7.2	48.0	53.0	57.0	137
ACQ_CEOTENURE	7.0	6.9	2.0	5.0	9.0	137
Target Characteristics						
TGT_BTM	0.50	0.71	0.27	0.40	0.70	130
Sales ($ million)	208.3	380.1	39.7	78.7	199.0	130
TGT_SALES	0.94	0.16	0.86	0.94	1.05	130
TGT_ADV	0.01	0.05	0.00	0.00	0.00	130
TGT_RD	0.23	1.82	0.00	0.00	0.00	130
Purchase Price Allocation Information						
GOODWILL	70.6	20.7	62.2	75.5	84.5	137

Table 3 Cont'd
Descriptive Statistics

Panel B – Descriptive Information on Identifiable Intangible Assets Recognized in Purchase Price Allocation

Name of Intangible Assets	Number of Acquisitions	Percentage of Acquisitions	Mean Percentage of Total Purchase Price	Mean Percentage of Total Amount of Intangible Assets Recognized	Mean Percentage of the Amount of Purchase Price Assigned to Intangible Assets Other than Goodwill and IPRD	Range of Life	Number of Acquisitions with Indefinite Life Assigned
Trademark	59	43%	3%	3%	13%	0.5-indefinite	16
Developed Technology	93	68%	12%	14%	49%	1.5-10, one case indefinite	1
Customer Base & Customer Royalty	88	64%	11%	12%	48%	1.5-22	
Patent	11	8%	3%	3%	12%	3-10	
Non-competing Agreements & contracts	22	16%	1%	1%	3%	1-15	
Other Agreements & Contracts	26	19%	8%	9%	42%	1-11, one case indefinite	1

Table 4 – Correlations

The sample includes acquisitions completed between July 2001 and April 2007, where both acquiring companies and acquired companies are publicly traded and acquired companies' primary industry is Business Service (SIC code 73). This table reports pair-wise Pearson correlations between the main variables. Correlation coefficients in **bold** are significant at 10% level, two sided. Variables definitions are in the Appendix.

		2	3	4	5	6	7	8	9	10	11	12	13
1	GOODWILL												
2	ACQ_BTM	**-0.16**											
3	ACQ_VERIF	**-0.27**	-0.08										
4	ACQ_SEG	0.03	-0.10	-0.04									
5	ACQ_CEOAGE	**0.17**	**-0.16**	-0.10	0.38								
6	ACQ_CEOTENURE	-0.11	-0.09	-0.05	0.29	**0.38**							
7	ACQ_SIZE	0.02	**-0.37**	-0.04	**0.37**	**0.36**	**0.17**						
8	TGT_BTM	-0.13	**0.20**	-0.07	**-0.19**	**-0.12**	-0.08	**-0.16**					
9	TGT_SALES	0.13	0.08	-0.09	0.07	0.04	0.12	**-0.18**	**-0.38**				
10	TGT_ADV	0.01	-0.09	0.11	-0.07	**0.14**	-0.08	0.07	-0.04	-0.06			
11	TGT_RD	**-0.26**	-0.09	0.03	-0.10	-0.07	-0.04	0.07	**0.15**	**-0.43**	-0.01		
12	COMMON	**-0.17**	0.08	0.01	**-0.22**	**-0.22**	-0.04	-0.11	-0.03	-0.07	-0.08	0.10	
13	WT_CAR	-0.13	0.06	**0.20**	-0.12	0.06	-0.03	-0.05	**0.23**	-0.11	0.10	0.07	0.10

Table 5 – Purchase price allocation post SFAS 142
This table reports estimations of equation (1). Variables definitions are in the Appendix. OLS standard errors are reported in parentheses below the coefficient estimates. ***, **, and * indicate coefficient significance at the 1%, 5%, and 10* level, respectively. † indicates F-test significance at the 5% level.

Dependent Variable	Predicted	GOODWILL	GOODWILL	GOODWILL	GOODWILL
INTERCEPT		55.90 ***	73.35 ***	61.12 ***	70.82 ***
		(14.44)	(9.77)	(20.47)	(21.64)
ACQ_BTM	**- (H1)**	**-13.29 *** **		**-12.91 ** **	**-12.15 ** **
		(5.33)		**(5.55)**	**(5.89)**
ACQ_VERIF	**- (H2)**	**-2.66 *** **		**-2.68 *** **	**-2.60 *** **
		(0.80)		**(0.80)**	**(0.81)**
ACQ_SEG	**+ (H3)**	**1.04**		**-0.11**	**-3.39**
		(3.76)		**(3.94)**	**(4.17)**
ACQ_CEOAGE	**+ (H4)**	**0.67 *** **		**0.68 *** **	**0.50 ** **
		(0.27)		**(0.28)**	**(0.29)**
ACQ_CEOTENURE		-0.66 **		-0.72 ***	-0.36
		(0.26)		(0.27)	(0.29)
ACQ_SIZE		-1.32		-1.26	-0.43
		(0.96)		(1.03)	(1.08)
TGT_BTM			-0.51 *	-2.84	-2.02
			(0.33)	(2.72)	(3.25)
TGT_SALES			-2.67	-3.53	-9.18
			(10.13)	(12.82)	(13.50)
TGT_ADV			5.31	-11.17	-13.85
			(36.56)	(34.44)	(33.89)
TGT_RD			-2.94 ***	-2.85 ***	-2.94 ***
			(1.06)	(1.00)	(1.01)
COMMON					-8.73 **
					(4.35)
WT_CAR					-0.13
					(0.32)
F-test		4.49 †	2.73 †	3.94 †	3.38 †
Adj-R^2		0.13	0.05	0.19	0.20
Number of Obs		137	130	130	114

Table 6 – Purchase price allocation prior to SFAS 142
This table reports the analyses of acquisitions prior to SFAS 142. The pre-SFAS 142 sample includes acquisitions completed between January 1996 and December 2000, where both acquiring companies and acquired companies are publicly traded and acquired companies' primary industry is Business Service (SIC code 73). All pooling of interests deals are excluded. Variables definitions are in the Appendix.

Panel A – Descriptive statistics of pre-SFAS 142 acquisitions

	Mean	Std. Dev.	Lower Quartile	Median	Higher Quartile	Number of Observations
GOODWILL	80.79	29.83	74.58	96.36	100.00	71
ACQ_BTM	0.21	0.17	0.11	0.16	0.32	71
ACQ_VERIF	0.19	0.69	-0.19	0.21	0.65	71
ACQ_SEG	0.37	0.49	0.00	0.00	1.00	71
ACQ_CEOAGE	50.25	7.90	45.00	49.00	57.00	71
ACQ_CEOTENURE	6.07	5.44	2.00	5.00	10.00	71
ACQ_SIZE	7.76	1.97	6.59	8.11	9.18	71
TGT_BTM	0.26	0.28	0.06	0.20	0.41	69
TGT_SALES	0.92	0.27	0.80	0.94	1.09	69
TGT_ADV	0.002	0.009	0.000	0.000	0.000	69
TGT_RD	0.015	0.048	0.000	0.000	0.000	69
COMMON	0.169	0.377	0.000	0.000	0.000	71
WT_CAR	-1.28	10.89	-6.92	-0.94	4.72	59

Panel B – Purchase price allocation pre and post SFAS 142

This panel reports estimations of equations (1) and (2). Variables definitions are in the Appendix. OLS standard errors are reported in parentheses below the coefficient estimates. OLS standard errors are reported in parentheses below the coefficient estimates. ***, **, and * indicate coefficient significance at the 1%, 5%, and 10* level, respectively. † indicates F-test significance at the 5% level.

	Predicted	Pre-SFAS 142		Pre-SFAS 142		Pre vs. Post 142		Pre vs. Post 142	
INTERCEPT		80.75	***	97.65	***	80.75	***	97.65	***
		-25.84		-24.89		-20.09		-24.10	
PRE142*ACQ_BTM		**8.57**		**-12.70**		**8.57**		**-12.70**	
		(24.97)		**(19.11)**		**(19.41)**		**(18.50)**	
PRE142*ACQ_VERIF		**-0.41**		**-0.08**		**-0.41**		**-0.08**	
		(5.65)		**(4.78)**		**(4.39)**		**(4.63)**	
PRE142*ACQ_SEG		**10.13**		**3.27**		**10.13**	*	**3.27**	
		(7.76)		**(5.78)**		**(6.03)**		**(5.59)**	
PRE142*ACQ_CEOAGE		**-0.45**		**-0.12**		**-0.45**		**-0.12**	
		(0.50)		**(0.44)**		**(0.39)**		**(0.42)**	
PRE142*ACQ_CEOTENURE		0.43		0.29		0.43		0.29	
		(0.72)		(0.58)		(0.56)		(0.56)	
PRE142*ACQ_SIZE		1.91		0.62		1.91		0.62	
		(2.17)		(2.22)		(1.69)		(2.15)	
PRE142*TGT_BTM				-15.17				-15.17	
				(12.45)				(12.06)	
PRE142*TGT_SALES				-4.53				-4.53	
				(12.70)				(12.29)	
PRE142*TGT_ADV				921.81	**			921.81	**
				(441.17)				(427.21)	
PRE142*TGT_RD				-219.63	***			-219.63	***
				(79.67)				(77.15)	
PRE142*COMMON				-0.40				-0.40	
				(9.05)				(8.77)	
PRE142*WT_CAR				0.01				0.01	
				(0.28)				(0.27)	
POST142						-24.85		-26.83	
						(26.66)		(32.61)	
POST142*ACQ_BTM	**- (H1)**					**-13.29**	**	**-12.15**	**
						(6.47)		**(5.98)**	
POST142*ACQ_VERIF	**- (H2)**					**-2.66**	***	**-2.60**	***
						(0.97)		**(0.82)**	
POST142*ACQ_SEG	**+ (H3)**					**1.04**		**-3.39**	
						(4.57)		**(4.24)**	
POST142*ACQ_CEOAGE	**+ (H4)**					**0.67**	**	**0.50**	*
						(0.33)		**(0.30)**	
POST142*ACQ_CEOTENURE						-0.66	**	-0.36	
						(0.32)		(0.30)	
POST142*ACQ_SIZE						-1.32		-0.43	
						(1.16)		(1.10)	
POST142*TGT_BTM								-2.02	
								(3.30)	

POST142*TGT_SALES				-9.18	
				(13.71)	
POST142*TGT_ADV				-13.85	
				(34.41)	
POST142*TGT_RD				-2.94	***
				(1.03)	
POST142*COMMON				-8.73	*
				(4.42)	
POST142*WT_CAR				-0.13	
				(0.33)	
F-test	0.75	1.22	2.66 †	3.38	†
Adj-R^2	-0.02	0.04	0.09	0.26	
Number of Obs	71	59	208	173	

Table 7 – Purchase price allocation post SFAS 142 and external appraisers
This table reports the estimation of equation (3). Variables definitions are in the Appendix. OLS standard errors are reported in parentheses below the coefficient estimates. OLS standard errors are reported in parentheses below the coefficient estimates. ***, **, and * indicate coefficient significance at the 1%, 5%, and 10* level, respectively.

	Predicted	OLS	OLS	Heckman	Heckman
INTERCEPT		45.37 **	67.14 ***	75.20 **	109.84 ***
		-17.80	-24.48	-34.53	-39.15
IV		-10.69	-23.12	-42.22	-69.11
		(27.92)	(29.53)	(41.81)	(42.42)
NON_IV*ACQ_BTM	**- (H1)**	**-17.50 *** **	**-19.54 *** **	**-26.87 ** **	**-30.98 *** **
		(6.14)	**(6.98)**	**(10.52)**	**(10.55)**
NON_IV*ACQ_VERIF	**- (H2)**	**-4.25 *** **	**-4.18 *** **	**-5.25 *** **	**-5.48 *** **
		(0.89)	**(0.91)**	**(1.27)**	**(1.30)**
NON_IV*ACQ_SEG	**+ (H3)**	**5.31**	**2.02**	**9.12 * **	**4.97**
		(4.55)	**(5.15)**	**(5.10)**	**(5.50)**
NON_IV*ACQ_CEOAGE	**+ (H4)**	**0.87 ** **	**0.65 * **	**0.99 *** **	**0.71 * **
		(0.34)	**(0.37)**	**(0.35)**	**(0.38)**
NON_IV*ACQ_CEOTENURE		-0.24	-0.29	0.01	0.31
		(0.36)	(0.39)	(0.56)	(0.61)
IV*ACQ_BTM	**? (H5)**	**-12.48**	**-8.96**	**-21.53**	**-23.17 * **
		(8.66)	**(9.20)**	**(13.30)**	**(13.40)**
IV*ACQ_VERIF	**? (H5)**	**2.44**	**2.11**	**1.56**	**0.85**
		(1.76)	**(1.76)**	**(2.08)**	**(2.08)**
IV*ACQ_SEG	**? (H5)**	**-4.37**	**-7.27**	**-0.33**	**-2.99**
		(5.54)	**(6.03)**	**(6.53)**	**(6.65)**
IV*ACQ_CEOAGE	**? (H5)**	**1.16 *** **	**1.06 ** **	**1.19 *** **	**1.07 ** **
		(0.43)	**(0.45)**	**(0.45)**	**(0.46)**
IV*ACQ_CEOTENURE		-1.20 ***	-0.71	-0.75	-0.07
		(0.40)	(0.47)	(0.57)	(0.64)
ACQ_SIZE		-1.41	-1.07	-3.91 *	-3.96 *
		(0.98)	(1.16)	(2.24)	(2.26)
TGT_BTM			-1.31		-1.16
			(3.16)		(3.17)
TGT_SALES			-6.60		-8.06
			(12.97)		(12.99)
TGT_ADV			-9.83		-5.19
			(33.13)		(33.23)
TGT_RD			-2.89 ***		-2.86 ***
			(0.97)		(0.97)
COMMON			-8.02 *		-8.20 *
			(4.23)		(4.23)
WT_CAR			-0.04		-0.05
			(0.31)		(0.31)
IV_Lam				19.29	27.52
				(20.50)	(20.90)
NON_IV_Lam				24.29	34.58
				24.39	25.74
Adj-R^2		0.22	0.27	0.23	0.27
Number of Obs		137	114	137	114