TAX INCENTIVES AND FAIR VALUE ACCOUNTING FOR INTANGIBLE ASSETS

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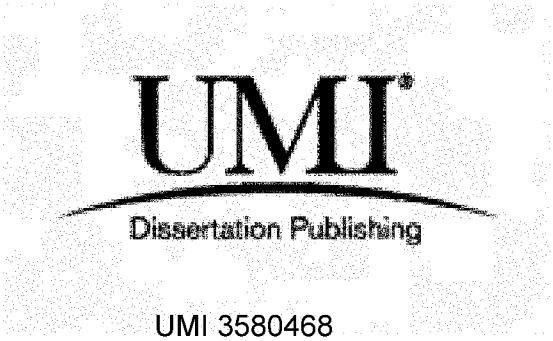

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ABSTRACT

Using hand-collected data from purchase price allocations, I examine whether tax incentives influence the publicly reported fair values of acquired intangible assets. Post-acquisition accounting requires that the purchase price be allocated among the net assets of the acquired business based on their fair values with any remainder reported as goodwill. The tax planning strategies of US multinationals often employ related-party intangibles transactions to direct related-party royalty payments from higher tax locations to a lower tax country. Such tax planning activities may affect the purchase price allocation to intangibles and goodwill for financial reporting purposes because contradictory valuations make it harder to defend a tax position. I find that firms with foreign operations or higher average foreign tax rates allocate less of the purchase price to goodwill, consistent with allocating more to intangible assets. This result suggests that tax incentives may mitigate the financial reporting incentives to overstate goodwill found in prior research. I also find evidence consistent with tax incentives resulting in understated values of technology intangibles relative to marketing intangibles.

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1. Introduction

This study examines the intersection of tax incentives and fair value accounting for intangible assets.[1] International Financial Reporting Standards (IFRS) apply fair value more widely to nonfinancial assets whereas fair values are largely limited to financial assets in the US due to reliability concerns. Fair value estimation of intangible assets relies primarily on managers' judgment since unique, firm-specific intangible assets rarely have quoted prices or comparables. The inability to objectively verify intangible values allows reported fair values to deviate from their "arms-length" values.[2] Shalev et al. (2013) finds that earnings-based compensation provides an incentive to overstate non-amortizable goodwill, implying that the fair values of the other assets acquired in a business combination are understated.[3] However, under some circumstances foreign tax planning incentives may have the opposite effect on goodwill.

Intangible assets facilitate cross-jurisdictional income shifting since 'true' transfer prices for firm-specific intangible assets are difficult for tax authorities to ascertain, thus reducing the cost of income shifting (Harris et al. 1993; Harris 1993; Grubert and Slemrod 1998; Grubert 2003). Tax-motivated income shifting within multinational corporations (MNCs) has recently gained attention as the primary mechanism through which highly profitable companies are able to report foreign effective tax rates as low as

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[1] Throughout the remainder of this paper, I use the term "intangibles" or "intangible assets" to refer to intangible assets other than goodwill or identifiable intangible assets.

[2] Even if an independent appraiser or valuation expert does the analysis, the manager can still influence the valuations, for example, by providing selective information.

[3] I do not find a statistically significant association between bonus compensation and goodwill in my study. However, this does not necessarily contradict their findings. The lack of significance may be attributable to my sample comprising a large concentration of high-tech companies that tend to rely more on non-financial measures, such as market price, for compensation purposes.

2.4% (Drucker 2010, 2010).[4] The issue has fueled US tax reform proposals and Congressional hearings examining the income shifting activities of Microsoft, Hewlett-Packard, and Apple. Tax base erosion from income shifting is not just a US tax problem. In 2013, urged by the G20, the OECD began developing an action plan to address the problem of base erosion and profit shifting (BEPS). Companies can shift income with minimal disruption to its business operations using intra-group transfers of intangible assets (i.e., strategic transfer pricing) or internal group leverage (i.e., interest stripping).[5] Intangible assets are particularly effective tools because of their geographic mobility and the difficulty in validating their values, i.e., the "correct" transfer price.

I use the business combinations (i.e., mergers and acquisitions) setting to address my research question because US GAAP allows financial statement recognition of intangible assets only if they are purchased, but not if they are internally developed. The accounting for business combinations calls for the acquirer to allocate the purchase price across the target firm's assets and liabilities based on their fair values with the excess amount reported as goodwill. I collect data on the fair values of intangible assets from purchase price allocations located in the business combination footnote in the acquiring firm's 10-K filing. I use two measures to proxy for foreign tax planning incentives: the existence of foreign operations and average foreign tax rates. Multinational corporations have more opportunities to engage in tax planning activities, such as income shifting, compared to domestic-only companies. Firms that have higher average foreign tax rates

[4] Note that the 2006 (unweighted) average corporate tax rate for OECD countries, excluding the US, was 25.6% and for the BRICs (Brazil, Russia, India, and the People's Republic of China), the average rate was about 28% (Kleinbard 2011)

[5] Although transfer prices can be strategically set to facilitate income shifting, transfer pricing itself is not synonymous with income shifting.

have greater incentive to adopt or modify their tax strategy to lower their effective tax rate.

Tax planning for intangibles generally involves placing the intangible in an affiliate located in a low-tax jurisdiction (i.e., a low-tax affiliate) and licensing it to affiliates around the world. Tax planning may influence the fair values of intangible assets that are disclosed in the financial statements because that information may be used by tax authorities. Whether the valuation is overstated or understated depends on the method that is used to transfer the intangible (i.e., make it available) to related parties, such as foreign affiliates. The two methods that are relevant for my study are licensing arrangements and cost-sharing arrangements. In a licensing arrangement, the rights to use the intangible are transferred in exchange for a royalty fee. Multinationals can shift more income into a country with a lower tax rate by overstating the royalties paid from higher tax rate locations.[6] Since royalty fees should be positively related to intangibles values, tax-motivated income shifting incentives may be associated with overstated intangible asset valuations.

On the other hand, cost-sharing arrangements provide incentive to understate the valuations for certain types of intangible assets. Cost-sharing arrangements begin with an intangible that needs further development, typically provided by the US parent. Thereafter, the US parent and its foreign affiliate share in the development costs and eventual ownership. This eliminates the need for royalty payments between the cost-sharing participants; however, a "buy-in" payment is required to compensate the US parent for providing the intangible (i.e., the "platform" contribution).

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[6] The royalty would serve as a deduction in the high-tax subsidiary and as income in the low-tax subsidiary.

Overall, my results are consistent with the idea that companies with tax incentives to overstate transfer prices for intangibles report correspondingly higher fair values for financial reporting purposes. First, I find that acquirers with foreign operations (i.e., MNCs) allocate less of the purchase price to goodwill compared to domestic-only companies. I also find a negative relation between acquirer "long-run" average foreign tax rates (averaged over the two years prior to the acquisition) and the amount allocated to goodwill. Prior research has studied goodwill to draw inferences about fair value accounting for other assets (Beatty and Weber 2006; Ramanna and Watts 2012; Shalev, Zhang, and Zhang 2013). Since goodwill is a residual in the purchase price allocation, an overvaluation of identifiable (i.e., non-goodwill) intangible assets implies less of the purchase price will remain to be allocated goodwill.[7] These results are consistent with foreign operations providing greater opportunity to engage in tax planning activities, such as income shifting by overstating related-party licensing fees. The results also suggest that firms with higher average foreign tax rates have greater incentive to adopt tax strategies to reduce effective tax rates. Altogether, the associations between the tax planning proxies and goodwill are consistent with overstating intangible asset valuations to shift income.

Second, I find a negative relation between acquirer long-run average foreign tax rates and the fair values of technology intangibles relative to other intellectual property. The tax avoidance strategies of recent high profile cases, such as Apple and Google, have included a cost-sharing arrangement. When the US parent contributes an intangible to a

[7] I assume that the tangible slice of the purchase price pie remains fixed. Tangible assets are less discretionary because its range of possible values is typically much smaller than it is for intangible assets.

cost-sharing arrangement, it must receive a buy-in payment as compensation from the other cost-sharing (foreign) participants. Therefore, cost-sharing arrangements provide an incentive to understate certain intangible valuations in order to support a lower buy-in payment. Certain types of intangibles are better suited for cost-sharing. The contributed intangible is more likely to be a technology intangible than a marketing intangibles. Consistent with these points, my results indicate that tax incentives put downward pressure on the valuations of technology intangibles relative to marketing intangibles.

My study makes several contributions. First, my study adds to our understanding of how economic incentives affect the implementation of fair value accounting for nonfinancial assets. My results suggest that tax incentives may counteract the financial reporting incentive to overstate the amount of goodwill reported in purchase price allocations. Allocating more of the purchase price to non-amortizable goodwill reduces the impact of amortization charges on future earnings. Shalev et al. (2013) find that earnings-based bonus compensation is associated with an over-allocation to goodwill. In contrast, I find that tax incentives have the opposite effect on goodwill, putting downward pressure on the amount of reported goodwill.

Existing research largely documents and estimates the existence and magnitude of tax-motivated income shifting, but few studies consider the potential non-tax implications of income shifting. Collins et al. (1998) find that inbound income shifting is reflected in domestic earnings multiples, and Chen et al. (2014) find that outbound income shifting reduces the comparability of foreign earnings. My study identifies intangible asset valuation consequences as another non-tax implication of income shifting by MNCs. Last, my study contributes to the literature on corporate taxation and financial

reporting. The income shifting literature implies that international tax planning incentives influence the amount of income that is reported as earned in the US versus abroad (Harris 1993; Klassen, Lang, and Wolfson 1993; Collins, Kemsley, and Lang 1998; Klassen and Laplante 2012). My results suggest that international tax planning incentives also influence the reported fair values of intangible assets.

These findings may have implications for current and potential shareholders of an acquisitive company. The evidence from purchase price allocations implies that reported fair values do not reflect management's expectations of the future cash flows to be generated from these assets. Using this information, financial statement users may arrive at incorrect conclusions when assessing the firm's investment decision, which in turn, may adversely affect their own investment decisions. On the other hand, tax incentives may counterbalance other financial reporting incentives, resulting in more reliable reported valuations. Identifying circumstances under which these incentives are at work is of interest to regulators as it is a step toward improving the reliability of financial reports. Moreover, investors may benefit from findings that help them assess the reliability of reported fair values of acquired assets and liabilities. In recent years, there has been an increase in the use of intangible assets as loan collateral (Foster, Fletcher, and Stout 2003; Loumioti 2012). This suggests that lenders may also be interested in assessing the reliability of intangible asset valuation analysis performed for financial reporting purposes.

2. Background and Literature Review

2.1. Accounting for Business Combinations

The most contentious issues in accounting for business combinations stem from the impact on future earnings. The net assets of the acquired target must be recorded on the balance sheet of the acquirer or combined firm. Current GAAP treats a business combination as an acquisition of a group of assets (and liabilities) that is recorded based on the values exchanged, i.e., at fair value[8]. Before SFAS 141 (effective mid-2001), firms could record acquisitions at book value and avoid the additional amortization from the "stepped-up" asset values.

2.1.1. Purchase vs. Pooling Methods

Between 1970 and 2001, APB 16 (1970) and APB 17 (1970) provided guidance on acquisition accounting. Business combinations could be recorded using one of two accounting methods: the purchase method or the pooling-of-interests (pooling) method. Also, the amortization period for intangible assets, including goodwill, was restricted to a maximum of 40 years. The purchase method treats the business combination as an acquisition of a group of assets, with the purchase price equal to the consideration given (e.g., cash, securities, or liabilities assumed). The purchase price must then be allocated among the target's assets and liabilities based on their fair values. Consequently, the purchase method results in a "step-up" in the values of the acquired assets. The pooling method, on the other hand, carries over the pre-existing values from the target's balance sheet and, as a result, previously unrecorded assets, (e.g., internally generated intangible assets) remain unrecorded.

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[8] However, unlike business acquisitions, asset acquisitions may not result in the recognition of goodwill.

Firms typically favored the pooling method over the purchase method since it resulted in smaller amortization charges and higher post-acquisition earnings. The pooling method viewed the transaction as a joining of two groups of shareholders. Given the potential for abuse, APB 16 attempted to restrict its application to transactions that met certain conditions consistent with a continuity of interest. These restrictions made it costly to apply the pooling method opportunistically. Ayers et al. (2002) argue that target firm's cooperation is necessary to satisfy the pooling criteria and find that acquirers pay a higher acquisition premium to use the pooling method. Lys and Vincent (1995) examine the case of AT&T's acquisition of NCR and conclude that AT&T paid an estimated $500 million to obtain pooling method accounting. In short, managers were willing to incur costs to use the pooling method.

Executive compensation, debt contracts, and equity market concerns have been shown to influence the pooling versus purchase accounting choice. Aboody et al. (2000) find that CEO's with earnings-based compensation are more likely to use the pooling method, particularly when the potential step-up is large (i.e., potential amortization charges are greater). Highly levered acquirers and acquisitions of highly levered targets are more likely to use the purchase method since it results in a stronger balance sheet (Aboody, Kasznik, and Williams 2000; Ayers, Lefanowicz, and Robinson 2002). In an experimental setting, Hopkins et al. (2000) compare three approaches to accounting for acquisitions: (1) purchase method with amortization of step-up, (2) purchase method with immediate expensing of step-up as in-process research and development (IPR&D), and (3) pooling method with no step-up. They find that buy-side analysts' valuations are lowest in the first case where the purchase method results in subsequent amortization

charges. These studies suggest that managers are concerned with the post-acquisition earnings impact of acquired assets.

2.1.2. Current GAAP: SFAS 141 and SFAS 142

In 2001, the FASB issued SFAS 141 and SFAS 142 to replace APB 16 and APB 17. The new standards were effective for acquisitions occurring on or after July, 1, 2001. SFAS 141 eliminated the pooling method and requires the purchase method for all business combinations. SFAS 142 removed the upper bound on the useful lives for intangible assets, allowing for indefinite-life intangible assets. Furthermore, goodwill is no longer amortized. Goodwill and indefinite-life intangible assets are instead tested for impairment at least annually.[9]

Although firms can no longer use the pooling method to completely avoid recording the step-up to fair value, they can still use their discretion over purchase price allocations to reduce future amortization. To record the transaction on the acquirer's balance sheet, the purchase price is allocated among the acquired asset classes according to their estimated fair values. Managers can use their discretion over estimating fair values or forecasts provided to appraisers to influence the purchase price allocation.

2.1.3. Purchase Price Allocations to Intangible Assets

One set of studies examine purchase price allocations from a disclosure perspective. Shalev (2009) develops estimates of the over-allocation to goodwill, or abnormal goodwill, and argues that positive abnormal goodwill may indicate "bad news," such as overpaying for the target or accounting manipulation in order to reduce future

[9] Impairment testing must also be performed if events and circumstances suggest that the fair value of the reporting unit has fallen below its carrying value.

amortization charges.[10] He finds that over-allocation to goodwill is associated with providing less detailed disclosures about the business combination, consistent with the bad news argument, but he is silent on whether it is overpayment or manipulation. Kimbrough (2007) finds that the market reacts positively to the first post-acquisition annual or quarterly report when it discloses a detailed purchase price allocation, but not when it does not contain a detailed purchase price allocation.[11] Furthermore, the market response to purchase price allocations is increasing in the percent of intangible assets recognized separately from goodwill. These studies suggest that overstated goodwill corresponds with intentional opacity.

Another line of research examines factors that influence purchase price allocations. Using a sample of 113 New Zealand firms from 1989 to 1993, Wong and Wong (2001) find that the relative amount of purchase price allocated to goodwill is negatively related to the acquirer's fixed assets and leverage and positively related to the acquirer's MTB ratio. They conclude that the negative relation between goodwill and leverage is due to their associations with investment opportunity sets, not opportunistic behavior. Shalev et al. (2013) use purchase price allocations from the post-SFAS 141 period and find evidence of opportunistic reporting. They predict that CEOs with more bonus pay in their total compensation package are more sensitive to the post-acquisition

[10] As part of my additional analysis, I also estimate abnormal goodwill but using a different approach. Shalev (2009) includes private targets in his sample, which limits his ability to incorporate target firm variables into the model. Specifically, he estimates abnormal goodwill as the residual from the regression of goodwill on the acquirer's 2-digit SIC code, the target's 2-digit SIC code, and the I/B/E/S analyst long-term growth forecast for the acquirer.

[11] APB 16 did not require disclosure of purchase price allocations. After SFAS 141, some firms may not disclose detailed information if they (and their auditors) consider the acquisition to be immaterial.

earnings impact of purchase price allocations. Consistent with this argument, they find that the amount allocated to goodwill is increasing in CEO bonus intensity.

Henning and Shaw (2000) compare purchase price allocations before and after the 1993 change in tax law allowing deductions for amortization of goodwill. Prior to 1993, goodwill amortization was not tax deductible. Using purchase price allocations for financial statement purposes to proxy for purchase price allocations for tax purposes, they predict and find greater allocations of purchase price to goodwill among acquirers electing a step-up in tax basis for acquired assets after 1993. This finding suggests that prior to the tax law change, goodwill recognized for financial reporting purposes was understated to be consistent with the amount reported for tax purposes.

2.2. Multinational Tax Planning

2.2.1. Cross-Jurisdictional Income Shifting

A company that operates in multiple tax jurisdictions can reduce its overall tax burden by taking advantage of differences across tax regimes. The most commonly cited strategy is to report more income in a low-tax rate jurisdiction and less income in a high-tax rate jurisdiction. Such income shifting can be accomplished through intercompany financing structures or transfer pricing.

Empirically, income shifting is typically inferred from a negative association between profits and tax rate differentials. Grubert and Mutti (1991) and Hines and Rice (1994) document this negative relation at the country-level using 1982 data. Harris (1993) and Klassen et al. (1993) examine income shifting behavior in response to changes in statutory tax rates. Harris (1993) finds that US MNCs with more "flexibility"

over income shifting reported higher US income and higher US taxes than purely domestic firms after the Tax Reform Act of 1986 reduced the maximum corporate income tax rate.[12] Klassen et al. (1993) use geographic segment disclosures of US MNCs to examine their income shifting in response to tax rate changes of the US and major European countries during the late 1980s. During a period when tax rates were constant in the US, falling in Europe, and rising in Canada, they predict and find evidence consistent with US MNCs shifting income from Canada to Europe. In addition, when US tax rates declined relative to other countries, they find evidence of income shifting into the US.

Other studies use the difference between the average foreign tax rate and the US statutory tax rate as a proxy for a firm's incentive to shift income. In Collins et al. (1998), firms appear to shift income into the US from high-tax countries but not out of the US into low-tax countries. Klassen and LaPlante (2012) extend Collins et al. (1998) using a multiperiod tax incentive proxy and find evidence of income shifting in both directions. This income shifting behavior is not limited to US MNCs. Using a sample of foreign-owned US corporations, Mills and Newberry (2004) show that foreign MNCs also shift income into and out of the US according to their average foreign tax rate relative to the US statutory tax rate.

2.2.2. Transfer Pricing of Intangible Assets

Strategic transfer pricing is one of the primary methods of shifting income across jurisdictions. Transfer pricing refers broadly to the pricing of intercompany transactions, such as transfers of goods, services or technology. Transfer prices allocate intercompany

[12] "High-flexibility" firms were those with high levels of "flexible" expenses (e.g., interest, research and development, rent, advertising).

profits among related entities within an organization. Transfer prices do not affect the overall income of the MNC, but they play an important role in determining how much taxable income is reported in different countries. Cross-border intercompany transactions provide the opportunity to use transfer prices to strategically allocate revenues and expenses across tax jurisdictions. Tax rate differences create incentives to shift revenues to low-tax locations and expenses to high-tax locations. Dischinger and Riedel (2011) study the location of intangible assets within European multinational companies and conclude that intangibles tend to be located in low-tax affiliates. They find a negative relationship between a subsidiary's corporate tax rate and intangible assets held by the subsidiary. They also find evidence of greater income shifting among companies that hold most of their intangibles in low-tax affiliates than among companies that hold most of their intangibles in high-tax affiliates. It is no surprise that transfer pricing is the most important international tax issue facing tax authorities.

Under the tax regulations (Reg. §1.482-1(b)), the "arm's length standard" must be used to determine the true income related to uncontrolled transactions. A transfer price that meets the arm's length standard will satisfy most taxing authorities. In theory, application of the arm's length standard to a controlled transaction should provide an outcome similar to that of an uncontrolled transaction under the same circumstances.[13] Arm's length prices are relatively straightforward when comparable transactions can be found. For example, if a US manufacturer sells widgets to a controlled distributor *and* uncontrolled distributors, the sales price to the uncontrolled distributor is a good

[13] Specifically, Reg. §1.482-1(b) states that "a controlled transaction meets the arm's length standard if the results of the transaction are consistent with the results that would have been realized if uncontrolled taxpayers had engaged in the same transaction under the same circumstances (arm's length result)."

candidate for an arm's length price. However, comparables rarely exist for unique and firm-specific intangible assets, making it particularly difficult to apply the arm's length standard to intercompany transfers of intangible property.

Intangible assets may be transferred to an affiliate through an outright sale, a licensing arrangement, or a cost sharing arrangement. A transfer of all rights is considered a sale, whereas a transfer of less than all substantial rights is regarded as a license (Lokken 1981). The most common method of transferring intangible rights between related parties is through a licensing arrangement (Wright 1994; PricewaterhouseCoopers 2012). Between 1986 and 1996, more than 75 percent of US royalty receipts came from related parties as opposed to unrelated parties (Mutti and Grubert 1998). A license grants the licensee the right to use the intangible in exchange for a royalty fee. The "commensurate with income" standard requires that the consideration in a related-party transfer of intangibles, sale or license, must be "commensurate with the income attributable to the intangible."[14] The "commensurate with income" standard applies to all transfers of intangibles between related parties, inbound and outbound, and is not limited to the facts existing at the time of the arrangement.

2.2.3. Cost-Sharing Arrangements

A cost sharing arrangement (CSA) is an agreement to share the costs of developing an intangible in proportion to each participant's share of the anticipated benefits arising from eventual exploitation of the developed intangible. The cost-sharing arrangement ultimately results in co-ownership of the developed intangible. In a typical cost sharing arrangement, a US company and its foreign affiliate(s), i.e., the CSA

[14] Reg. §1.482-4(f)(2)(i)

participants, provide funding and resources to jointly develop a new product, typically the next generation or updated version of an existing intangible. Only the costs are shared while most of the actual research and development (R&D) is conducted in the US.[15]

Since ownership of the new asset is split among the CSA participants, no royalties are paid between them when the product is sold to customers. Thus, cost sharing essentially replaces market values (royalties) with incurred costs. Instead of paying royalties to the US parent on a regular basis when the product is sold, the foreign affiliate only pays for part of the development costs. However, the US parent must receive arm's-length compensation ("buy-in payment") for the use of the preexisting intangible ("platform contribution"). It is the buy-in payment (i.e., the value of preexisting intangible asset) that is the source of controversy in many CSA cases and disputes. The buy-in price is determined in the same manner as transfers of intangible assets in other contexts and ensures that the CSA is priced at arm's length.

A challenge for empirical research on transfer pricing behavior is the lack of publicly available data on intercompany transactions. Although most income shifting studies assume that transfer pricing is the primary driver of the negative relation between taxes and profitability, there have been attempts to document transfer pricing behavior more directly. Jacob (1996) uses data on transfers between geographic areas from annual reports to proxy for income shifting opportunities.[16] He concludes that income shifting is primarily accomplished using transfer prices. Using tax return data, Grubert (2003) finds

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[15] e.g., see Offshore Profit Shifting and the U.S. Tax Code - Part 2 (Apple Inc.): Hearing Before the Permanent Subcomm. On Investigations of the S. Comm. on Homeland Sec. & Governmental Affairs, 113th Cong. (May 21, 2013)

[16] After SFAS 131, effective after 1997, firms were no longer required to disclose earnings by geographic segment.

that foreign subsidiaries with greater tax incentives to shift income engage in more intercompany transactions. Mutti and Grubert (2009) study the patterns of various payments made between US parent companies and their foreign affiliates. Their evidence suggests an increase in the use of cost-sharing arrangements from 1994 to 1999.

2.3. Transfer Pricing and Purchase Price Allocations

There are several reasons for a relation between transfer pricing and purchase price allocations.[17] Tax planning may influence the fair values of intangible assets that are disclosed in the financial statements because that information may be used by tax authorities. Valuations that are prepared for financial reporting purposes can strengthen a transfer pricing analysis. On the other hand, contradictory valuations will make it harder to defend a particular tax position. In April 2014, the Permanent Subcommittee on Investigations revealed the details of Caterpillar Inc.'s tax strategy that increased the percent of its non-US profits sent to Switzerland from 15% to 85%, while reducing the percent sent to the US from 85% to 15%. Caterpillar defended sending more profits to Switzerland, claiming that its Swiss operations had valuable marketing intangibles that were previously unrecognized. However, those claims were inconsistent with the valuation analyses performed in connection with previous acquisitions and transfers of marketing intangibles. In the Subcommittee Report, an email written by a managing director of PriceWaterhouseCoopers, the accounting firm that developed the tax strategy, was quoted "Caveat is that in 2001, we said in another transaction that there is no significant marketing intangibles" (U.S. Senate 2014). Moreover, prior research finds that

[17] Prior research has shown that changes in book-tax conformity leads to changes in financial reporting behavior, e.g., Guenther et al. (1997), Keating and Zimmerman (1999), and even in the absence of an explicit conformity requirement, management is more likely to make accounting choices that conform to aggressive tax positions (Cloyd 1995; Cloyd, Pratt, and Toby 1996).

firms make accounting choices that conform to aggressive tax positions in case the positions are challenged by the IRS (Cloyd, Pratt, and Toby 1996).

Royalty rates and intangibles valuations are two sides of the same coin. Thus, purchase price allocations can be viewed as providing a royalty rate based on the fair value of acquired intangible assets. The definitions of intangible assets and valuation concepts for accounting purposes and transfer pricing purposes are generally consistent. First, SFAS 141 and Reg. §1.482-4(b) classify intangible assets similarly into five major categories, although the Reg. provides for a sixth catchall category. Second, fair value measurement for accounting and the arm's length standard in the regulations emphasize the market approach as the best case scenario. The FASB views quoted prices in active markets as providing the most reliable measure of fair value, which is analogous to the IRS' use of comparable transactions to determine arm's length pricing. Lastly, both accounting and tax valuations refer to the income method when the market approach is unavailable. In the absence of observable market values, accounting fair values may be determined using the income method. Although the "income method" has only recently been introduced formally in to the Treasury Regulations, the income approach is not new to transfer pricing and transfer pricing cases (Blough, Chandler, and Subramanian 2011). The "commensurate with income standard", which applies to royalty payments as well as lump sum payments, is consistent with the income method.

Another important reason for purchase price allocations to correspond to transfer pricing policy is their potential role in a transfer pricing tax audit.[18] Practitioners warn against having contradictory valuations for tax and accounting purposes and suggest that

[18] Mills (1998) finds that IRS proposed adjustments increase with book-tax differences.

companies should be prepared to reconcile any differences between the valuations (Andreoli and Dembitz 2003; Hicks, Benson, and O'Connor 2001; Bjørn, Lund, and Tseng 2007; Levin and Weise 2013). Some European tax authorities now request documentation for the fair values of intangible assets that appear on the balance sheets (Bjørn, Lund, and Tseng 2007). Furthermore, non-tax motivated documentation has been found to have higher probative value in tax-related court rulings (Andreoli and Dembitz 2003). "In the case of acquisitions, the acquisition price may provide a basis for assessing the reasonableness of the forecasts and for formulating defenses against commensurate-with-income challenges" (Chandler, Blough, and Williams 2010). A legal advisor for Alcon Laboratories was quoted saying that "soon every difference between financial statement and tax information will have to be explained" (Wright 2007). Discussions with an IRS field agent confirm that 10-K filings are used as a source of information for valuations when investigating public entities. Although the weight placed on this source of information will depend on the specific circumstances, the IRS can be expected to use it if it is in their favor to do so. Reg. §1.482-7 states that "allocations or other valuations done for accounting purposes may provide a useful starting point but will not be conclusive ... particularly where the accounting treatment of an asset is inconsistent with its economic value." In the Veritas case, an expert report submitted to the Tax Court referred to several acquisitions of software companies, arguing that the acquisitions were comparable to the cost sharing arrangement, to support its determination of the buy-in

payment.[19] A petition filed by Medtronic revealed that the company relied on its acquisitions of intangible property from unrelated parties in its transfer pricing analysis.[20]

Recently issued regulations and guidance formally recognize the potential use of business combination disclosures by taxing authorities.[21] In 2005, the Treasury issued the proposed cost sharing regulations introducing new methods for valuing contributions to a cost-sharing arrangement. One of the new methods is the acquisition price method, which evaluates whether the charge is arm's length by reference to the purchase price of an acquisition. The 2012 OECD discussion draft, "Revision of the Special Considerations for Intangibles in Chapter VI of the OECD Transfer Pricing Guidelines and Related Provisions," specifically states that the price paid for the acquired intangible represents a useful comparable for determining the arm's length price when the intercompany transfer takes place immediately following the acquisition (OECD 2012). Further, multinational companies should be able to explain any discrepancies in the valuation assumptions made for transfer pricing purposes and other purposes, such as discount rates to evaluate M&As or useful lives (OECD 2012). To summarize, the similarities between book and tax valuations, along with the threat of a transfer pricing audit, suggest that firms' transfer pricing policies influence the reported fair value of intangible assets acquired as part of a business combination.

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[19] Veritas Software Corp. & Subsidiaries, et al. v. Comm., 133 T.C. 297(2009).
[20] Medtronic Inc. Petition in US Tax Court, Docket No. 6944-11, filed 3/23/11.
[21] Although these rules took effect after my sample period, they most likely reflect views that existed in some form during my sample period.

3. Hypothesis Development

Firms have greater discretion over fair value estimates in the absence of active markets for similar assets, which is characteristic of most intangible assets. Intangible assets facilitate income shifting across countries due to their mobility and information asymmetry. Therefore, I focus on the strategic purchase price allocation among (i.e., valuations of) intangible assets and goodwill. My first hypotheses predict a general effect of foreign tax planning on overall non-goodwill intangibles, whereas my second hypothesis relates to specific types of intangibles.

3.1. Post-Acquisition Restructuring and Intellectual Property Location

A newly combined organization will naturally undergo some reorganization or restructuring, such as reorganization of the group's legal structure and movement of assets within the group. Maksimovic et al. (2011) provide evidence of significant post-acquisition restructuring activities and find that most of the restructuring occurs within three years of the acquisition. Tax planning for intellectual property (IP) generally involves placing the IP in a low tax country and licensing it to affiliates around the world.[22] This structure allows companies to shift income by directing intangible-related income (e.g., royalties) into the low tax country. Thus, a post-acquisition restructuring plan will likely involve relocating the acquired intangibles to a group member in a tax-favored location.[23] Referring to a recent acquisition, a Genzyme tax official was quoted as saying that "the game is not about tax attributes, it's about the IP and where are you going to put it" (Bell 2010).

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[22] Intellectual property generally refers to patents, proprietary technology, software, and trademarks (i.e., the types of intangibles that are typically used in licensing arrangements).

[23] For example, the German company SAP acquired the French software company Business Objects. Business Objects' Irish operations provided SAP with a low-tax home for its IP. SAP could then shift income into Ireland by charging other affiliates for the rights to use the software (Bergin 2013).

During my sample period (2001-2012), the US and Japan had the highest statutory corporate tax rates in the world, providing incentives to locate IP outside of the US.[24] Locating the IP abroad facilitates income shifting both between the US parent and its foreign subsidiary (parent-to-foreign) and among its foreign subsidiaries (foreign-to-foreign). Holding intangibles in a low-tax affiliate provides income shifting links between the low-tax affiliate and other group members. Tax planning with licensing arrangements implies that the intangible-developer licenses (transfers) the intangible to the low-tax affiliate, which then sublicenses the right to use the intangible to other group members. I assume that the present value of the tax savings from locating the intangible in a low-tax country outweighs the initial cost, if any, to transfer the intangible to the low-tax country. While tax rules are intended to make it costly to transfer IP out of the US (i.e., outbound), not surprisingly, companies have figured out ways around them. For example, IRS issued Notice 2012-39[25] to address transactions in which an outbound transfer of IP in an asset reorganization also results in improper repatriation or use of foreign cash.[26] On the other hand, the acquired IP may already be located outside of the US if the target is a multinational corporation. To summarize, post-acquisition restructuring often involves

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[24] For example, in 2010 the combined (federal and state) corporate tax rate in the US was 39.2 percent and Japan's rate was 39.2 percent, while the (unweighted) average tax rate among OECD countries was 25.6 percent.

[25] Notice 2012-39, 2012-31 I.R.B. 95

[26] In essence, these transactions resulted in the US transferee being paid twice but taxed only once. The US parent acquires the US target for $100. The US target's sole asset is a patent with a tax basis of $0, which is transferred to a foreign subsidiary in exchange for $100 cash. The US target then liquidates, distributing the $100 cash to the US parent in exchange for its stock in the US target. The US target does not recognize gain on the receipt of $100, and the US parent is not taxed on the receipt of $100 under the "boot-within-gain" rule. The US parent includes $100 of deemed royalties as taxable income in subsequent years and establishes a receivable from the foreign subsidiary in that amount. Further, the foreign subsidiary's cash payment of the receivable does not give rise to additional income. The net result is cash repatriation of $200 with only $100 of taxable (deemed royalty) income over the life of the IP.

movement of IP within the organization and outbound transfers of IP are not necessarily prohibitively costly.

3.2 Tax Incentives and Hypotheses

Whether the valuation is overstated or understated depends on the method that is used to transfer the intangible (i.e., make it available) to related parties, such as foreign affiliates. The two methods that are relevant for my study are licensing arrangements and cost-sharing arrangements. In a licensing arrangement, the rights to use the intangible are transferred in exchange for a royalty fee. The royalty is the transfer price for the intangible and affects the income reported in each country since the royalty serves as a deduction for the high-tax subsidiary and is considered income to the low-tax subsidiary. By charging a higher royalty, a company can shift more income into a country with a lower tax rate. In 2006, the IRS received a record tax settlement of $3.4 billion over its transfer pricing dispute with GlaxoSmithKline. The IRS claimed that the royalties paid by the company's US affiliate to its British parent were overstated because it had overvalued the research and development efforts in Britain while undervaluing the marketing efforts in the US (Rodgers 2004). In short, companies can shift income into the low-tax (intangible-holding) affiliate by overstating the royalties paid from its higher tax affiliates. Overstated transfer prices for intangible assets are likely to have correspondingly higher reported valuations for intangible assets.

One caveat is that transfer pricing is a transaction-specific exercise, the details of which are impossible to glean from publicly available data. The existence and direction of any strategic pricing will depend on the facts and circumstances. One possibility is that an intangible is simply not used, as in the case of a defensive asset. Nevertheless, I test

for an on average effect of tax planning incentives on overall intangible assets since licensing arrangements are the most common method of transfer for any type of intangible.

Multinational corporations have more tax planning opportunities compared to domestic-only corporations. Indeed, US MNCs tend to spend more on tax planning than US corporations without foreign operations (Mills, Erickson, and Maydew 1998). Rego (2003) finds evidence consistent with foreign operations providing tax planning opportunities beyond those available to domestic-only firms. She finds that MNCs have lower world-wide effective tax rates than domestic firms and that worldwide, US, and foreign effective tax rates decrease with the extent of foreign operations. Multinational tax planning activities (discussed in Section 2.2) include shifting income into low tax rate locations and shifting deductions into high tax rate locations. Transfer pricing is an effective means of shifting income across tax jurisdictions (Jacob 1996). Intercompany royalties (i.e., transfer prices) for the use of intangible assets are particularly susceptible to transfer pricing manipulation because intangible assets provide more opportunities for and lower the costs of income shifting due to their mobility and uncertain valuations (Harris et al. 1993; Grubert and Slemrod 1998; Grubert 2003). Royalty payments are generally tax deductible in the host country, so firms can shift income from high- to low-tax locations by increasing royalties from high-tax affiliates to low-tax affiliates. Royalties should reflect the value of the licensed intangible asset (see sections 2.2.2 and 2.3); therefore, strategic transfer pricing may affect the fair values of intangible assets disclosed in purchase price allocations. Since foreign operations provide more opportunity to engage in such tax planning activities, multinational firms are more likely

than domestic-only firms to overvalue intangibles and allocate more of the purchase price to identifiable (non-goodwill) intangible assets.

H1a: Multinational corporations allocate more of the purchase price to identifiable intangible assets than do domestic-only corporations.

Foreign-to-foreign shifting is an effective way to reduce overall foreign effective tax rates. Foreign-to-foreign income shifting is thought to be more common than US parent-to-foreign shifting (Dharmapala 2013). For example, the complex tax structure called the "Double Irish Dutch Sandwich" enabled Google to lower its foreign effective tax rate to 2.4% between 2007 and 2009 (Drucker 2010). According to the Citizens of Tax Justice, several companies reported single-digit foreign effective tax rates as low as 2.1% with US effective tax rates ranging from 23.9% to 57.9% (McIntyre, Gardner, and Phillips 2014). Mutti and Grubert (1998) find that affiliate royalties are positively related to effective tax rates, consistent with firms paying larger royalties from high-tax rate locations. Their simulation of alternative tax scenarios suggests that the benefit from treating royalties as foreign-source income is a function of the host-country tax rate that is avoided when the royalty is deductible. The value of the deductible royalty should increase with the host country tax rate. For companies with low average foreign tax rates, it is likely that the costs outweigh the benefit from additional income shifting. Firms facing higher average foreign tax rates have greater incentive to lower their effective tax rates, for example, by adopting a transfer pricing policy that overstates the transfer prices, and hence, the valuation of intangibles.[27]

[27] Firms with higher average foreign tax rates have greater incentive to engage in tax planning to reduce their foreign effective tax rates. However, the incentive to shift income is also determined

H1b: The portion of the purchase price allocated to identifiable intangible assets is positively related to average foreign tax rates.

In some cases, however, it may be preferable to transfer the intangible by contributing it to a cost-sharing arrangement in exchange for a "buy-in" payment. It is the value of the buy-in payment (i.e., the value of the contributed intangible) that is at the center of many controversies in cost-sharing cases (e.g., Veritas,[28] Amazon[29]). Two characteristics of cost-sharing arrangements allow me to develop more precise tests: it is never beneficial to overstate the value of the contributed intangible and its applicability to specific types of intellectual property. Participants in a cost sharing arrangement (e.g., US parent and one or more of its low tax affiliates) share the costs to further develop the contributed intangible (also referred to as the "platform" contribution), which is usually contributed by the US parent. The US parent contributes an intangible that needs further development, e.g. basis for a new generation of product or in-process research and development. The costs to further develop the intangible are shared among the cost-sharing participants.[30] Upon completion, the fully developed intangible is jointly owned by the cost sharing participants, thereby eliminating the need for future royalty payments between cost sharing participants. However, the US parent must receive a buy-in payment from the other participants as compensation for the platform contribution. The

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by the variation in foreign tax rates, e.g., there is little incentive to shift income between countries that have the same tax rate. A company operating only in high tax rate countries would have a high foreign tax rate but little incentive to shift income. These instances reduce the precision of my tax incentive measure and should bias against finding a result.

[28] *Veritas Software Corp. & Subsidiaries, et al. v. Comm.*, 133 T.C. 297(2009)

[29] Julie Martin, "Amazon Fighting IRS Over Cost-Sharing Buy-In Payment," *Tax Notes* , 138 (2013): 265.

[30] Note it is only the costs that are shared, not the actual development, which takes place primarily in the US.

buy-in payment can be viewed as a one-time charge to transfer IP abroad (although it may be spread over several periods). A smaller buy-in payment results in lower taxable income in the US. Therefore, it is always preferable to understate the value of the contributed intangible.

Some types of intangibles are better suited than others for use in cost-sharing arrangements. Technology/manufacturing and marketing intangibles (also referred to as intellectual property or IP) are the two major categories of transfer pricing intangibles. Manufacturing intangibles includes intangibles that are created from R&D or manufacturing activity, such as patents and unpatented technical know-how. Manufacturing intangibles are also commonly known as technology-based intangibles. Marketing intangibles are created by marketing, advertising, and sales efforts. Examples of marketing intangibles include trademarks, trade names, and distribution networks.

Technology-based (also known as manufacturing or product) intangibles are more commonly used in a cost-sharing arrangement than marketing intangibles. Although any intangible can, in theory, be developed in a cost-sharing arrangement, marketing intangibles are not as practicable in a cost-sharing arrangement. One reason is that R&D costs are easier to identify and attribute to a particular intangible. The exact same technology (e.g., a chemical compound) can be used to make products sold anywhere in the world. In contrast, a marketing intangible must often undergo some modification to adapt to the local culture (e.g., adapting to local language) which makes it difficult to control the proportion of shared costs and complicates the co-ownership aspect.[31]

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[31] My discussions with transfer pricing practitioners confirm that most cost-sharing arrangements involve technology intangibles.

Furthermore, technology intangibles are better candidates for cost-sharing arrangements since they tend to evolve in successive generations of products, e.g., versions of Microsoft Windows or Apple iPhone. The prevalence of research and development cost-sharing arrangements appearing in anecdotal evidence, IRS releases[32], and court cases[33] also suggests that technology intangibles are more commonly used in cost-sharing arrangements than marketing intangibles. Cost-sharing arrangements provide incentive to understate value in order to support a smaller buy-in payment from the foreign affiliate for the contributed intangible. In nearly every cost-sharing dispute, the IRS has attempted to increase the buy-in payment, e.g., Adaptec, Veritas,[34] and recently, Amazon.[35] According to the Joint Committee on Taxation, three of the six transfer pricing case studies in their report have a history of adding acquired intangibles to cost-sharing arrangements (JCT2010). These arguments suggest that technology intangibles are more likely to be undervalued compared to marketing intangibles since technology intangibles are more likely to be contributed to a cost-sharing arrangement.

H2: Multinational corporations facing higher average foreign tax rates allocate less of the purchase price to technology-based intangible assets than to marketing-based intangible assets.

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[32] e.g., F.S.A. 2000-07-018 (Oct. 6, 1999), F.S.A. 2000-23-014 (Feb. 29, 2000), F.S.A. 2002-25-009 (Jun. 21, 2002)

[33] e.g, *Seagate Technology, Inc. & Consolidated Subs.*, 102 TC 149 (1994), *Xilinx Inc. & Subsidiaries v. Commissioner*, 125 TC 37 (2005), *Veritas Software Corp. & Subsidiaries, et al. v. Comm.*, 133 T.C. 297 (2009).

[34] *Veritas Software Corp. & Subsidiaries, et al. v. Comm.*, 133 T.C. 297 (2009).

[35] Martin (2013).

4. Research Design

4.1. Data

Using the Securities Data Company (SDC) database, I identify acquisitions of target companies by publicly-traded US companies.[36] I obtain acquiring firms' 10-K filings using DirectEDGAR and collect purchase price allocation and supplemental tax data from the footnote disclosures. My sample period begins in mid-2001 when SFAS 141 became effective and ends in 2012. The quality of the business combination disclosure improved markedly after SFAS 141 became effective.[37] I keep observations with deal value greater than 5 percent of the acquiring firm's total assets since detailed purchase price allocation information is more likely for material transactions (Shalev 2009). I exclude acquisitions of less than 100% ownership to eliminate purchase price allocations that reflect a mixture of fair values from various acquisition dates. I exclude firms in financial and utilities industries since foreign pretax income is not available on Compustat for these firms. I exclude observations where the acquirer's 4-digit SIC is below 2000 (agriculture, mining, and construction divisions) since they generally do not have the types of intangibles that are used to shift income. I require CEO bonus and total compensation data from ExecuComp to control for the compensation incentive to overstate goodwill (Shalev, Zhang, and Zhang 2013). I also require non-missing target firm variables from Compustat. I exclude multinational acquirers with negative foreign pretax income to facilitate interpretation of the foreign tax rate variable. I follow the

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[36] Although I do not initially restrict my sample to US targets, requiring target data from Compustat effectively does the same thing.

[37] The improvement most relevant to my study is the increased disaggregation between goodwill and other intangibles in purchase price allocations. Prior to SFAS 141, firms often did not recognize identifiable intangible assets separately from goodwill (FASB, 2001paragraph B148).

treatment in Dyreng and Lindsey (2009) for missing tax variables in an effort to minimize attrition. From CRSP, I require abnormal returns during the three-day window surrounding the acquisition announcement for both acquirer and target firms to proxy for expected synergies from the merger. I am unable to use the transactions that have been aggregated with other transactions into a single purchase price allocation and I do not include observations that do not report any goodwill.[38]

Table 1 summarizes my sample selection criteria. The final sample used to test H1a includes 205 observations, including MNCs and domestic-only firms. H1b investigates variation among MNCs and therefore excludes domestic-only firms from the sample to arrive at 179 observations. H2 requires more granular information on specific types of intangibles, reducing the sample to 135 observations.

4.2. Models

I take an indirect approach and examine the amount allocated to goodwill. This is consistent with prior research on fair value accounting in the US and its application beyond financial assets (Beatty and Weber 2006; Ramanna and Watts 2012; Shalev, Zhang, and Zhang 2013). Furthermore, all of my observations report goodwill, which maximizes my sample size. Since goodwill is measured as a residual, any over- or under-allocation to other intangibles assets will have the opposite effect on the allocation to

[38] Under SFAS 141, the accounting for "negative goodwill" resulted in a pro rata reduction to the other assets. Negative goodwill occurred when the fair value of acquired net assets exceed the purchase price. SFAS 141(R), effective 2009, refers to the same concept as a "bargain purchase" and requires the amount to be recognized as a gain. The FASB notes that these are rare and anomalous cases.

goodwill. Selection and specification of control variables in the following models are based on Shalev et al. (2013).[39]

$$GW = \alpha_0 + \alpha_1 MNC + \alpha_2 BONUS + \alpha_3 SLACK + \alpha_4 T\_RD + \alpha_5 T\_ADV + \alpha_6 T\_BTM + \alpha_7 T\_GW + \alpha_8 T\_PPE + \alpha_9 A\_CAR + \alpha_{10} T\_CAR + \alpha_{11} PCTSTK + \alpha_{12} A\_BTM + \alpha_{13} A\_SIZE + \alpha_{14} A\_ROA \quad (1a)$$

$$GW = \alpha_0 + \alpha_1 FTR + \alpha_2 BONUS + \alpha_3 SLACK + \alpha_4 T\_RD + \alpha_5 T\_ADV + \alpha_6 T\_BTM + \alpha_7 T\_GW + \alpha_8 T\_PPE + \alpha_9 A\_CAR + \alpha_{10} T\_CAR + \alpha_{11} PCTSTK + \alpha_{12} A\_BTM + \alpha_{13} A\_SIZE + \alpha_{14} A\_ROA \quad (1b)$$

GW	Goodwill over deal value
MNC	Multinational acquiring firm, indicator variable equal to 1 if nonzero foreign current tax expense or nonzero foreign pretax income; zero otherwise
FTR	Acquirer pre-acquisition two-year "long-run" average foreign tax rate, calculated as the sum of total foreign tax expense from t-2 to t-1 over the sum of pretax foreign income from t-2 to t-1
BONUS	CEO bonus compensation over total compensation, averaged over the two years preceding the acquisition
SLACK	Indicator variable equal to one if the difference between acquirer's market value of equity and book value of equity exceeds the deal value, and zero otherwise
T_RD	Target R&D expense over deal value, averaged over the two years preceding the acquisition
T_ADV	Target advertising expense over deal value, averaged over the two years preceding the acquisition
T_BTM	Target book-to-market
T_GW	Target preexisting goodwill, from target's balance sheet prior to acquisition, over deal value
T_PPE	Target current assets over fixed assets
T_CAR	Target cumulative abnormal return during 3-day window around acquisition announcement
A_CAR	Acquirer cumulative abnormal return during 3-day window around acquisition announcement
PCTSTK	Percentage of consideration paid with stock
A_BTM	Acquirer book-to-market prior to acquisition
A_SIZE	Natural logarithm of acquirer market value of equity prior to acquisition
A_ROA	Acquirer return on assets prior to acquisition

[39] I include some variables that do not appear in Shalev et al. (2013) because my variables of interest are different. Some variables are excluded due to collinearity issues as indicated by the variance inflation factors (VIF). Results for H1a and H1b remain unchanged when including the excluded control variables.

GW is measured as goodwill over deal value. The models include additional variables to control for determinants of "normal" or "expected" goodwill in a purchase price allocation. The control variables are described in the following section. I classify firms as multinational, *MNC*, if they have nonzero values for foreign current tax expense or pretax foreign income (Dyreng and Lindsey 2009). Firms with multinational operations have more tax planning opportunities than firms that operate only in the US. H1a predicts that multinational firms are more likely than domestic-only firms to overvalue acquired intangibles, thereby allocating more of the purchase price to intangible assets and less to goodwill. Therefore, I expect a negative coefficient on *MNC* in model (1a).

H1b considers the variation in tax incentives among multinational companies. The variable of interest in model (1b) is the two-year average foreign tax rate of the acquirer (based on years t-2 and t-1), *FTR*. H1b predicts that the firms facing higher average foreign tax rates have greater incentive to overvalue intangibles, and therefore, I expect *FTR* to be negatively related to *GW*.

$$TECH/IP = \alpha_0 + \alpha_1 FTR + \alpha_2 BONUS + \alpha_3 SLACK + \alpha_4 T\_RD + \alpha_5 T\_ADV + \alpha_6 T\_BTM + \alpha_7 T\_GW + \alpha_8 T\_PPE + \alpha_9 A\_CAR + \alpha_{10} T\_CAR + \alpha_{11} PCTSTK + \alpha_{12} A\_BTM + \alpha_{13} A\_SIZE + \alpha_{14} A\_ROA \quad (2)$$

My second hypothesis considers the effect of tax incentives on the relative valuations of specific types of intellectual property (IP). *TECH/IP* is the ratio of technology-based intangibles to IP (i.e., the sum of technology and marketing intangibles). Intellectual property includes patents, proprietary technology, software, and trademarks (i.e., the types of intangibles that are typically used in licensing

arrangements).[40] Although licensing arrangements are the most common method of transferring IP, cost sharing arrangements may be the preferred method in some cases. In a cost sharing arrangement, the tax incentive is to understate the value of the contributed intangible, i.e., the intangible that is to be further developed in the cost sharing arrangement. My hypothesis development provides reasons to expect that technology intangibles are more likely to be used in a cost sharing arrangements than marketing intangibles. Based on these arguments, H2 predicts that the potential use of technology intangibles in cost-sharing arrangements puts downward pressure on their valuations compared to marketing intangibles. Therefore, I expect a negative coefficient on *FTR* in model (2).

4.3. Control Variables

Variable definitions are summarized in appendix A. All variables are winsorized at the top and bottom percentile. Shalev et al. (2013) finds that CEO bonus compensation is positively related to the amount of purchase price allocated to goodwill. Therefore, I include CEO bonus intensity, *BONUS*, along with a measure of flexibility over goodwill impairment testing, *SLACK*, to control for the effect of financial reporting incentives. Goodwill is considered to be impaired when the book value exceeds the fair value of the reporting unit. Thus, unrecognized assets may serve as a buffer, and firms with more unrecognized assets likely face a lower probability of impairment. Since reporting unit data is not available, firm-level data is used to compute *SLACK*, which equals one when

[40] Intangible assets can be categorized into four groups: intellectual property, rights (e.g., contracts), relationships (e.g., customer and distributor relationships), and undefined (e.g., goodwill and going concern value) (Bryer and Simensky 2002).

the difference between market value and book value of the acquirer exceed the deal value, and zero otherwise.

The second set of control variables comprises target firm characteristics. Target R&D expense (*T_RD*), is included to control for internally developed, unrecognized identifiable intangible assets and should be negatively related to *GW*. Similarly, target advertising expense (*T_ADV*) is included to control for previously unrecognized identifiable intangible assets and should be negatively related to *GW*. Target book-to-market ratio, *T_BTM*, captures other previously unrecognized intangible assets that not captured by the target's reported R&D and advertising activities. Since book-to-market is inversely related to growth opportunities, I expect *T_BTM* to be negatively related to *GW*. Target balance sheet goodwill, *T_GW*, is included in the model since preexisting goodwill is likely to remain goodwill and should be positively related to *GW*. Shalev et al. (2013) use the ratio of the target's current assets to fixed assets, *T_PPE*, to control for the potential step-up in value for fixed assets. They argue that long-lived assets are more likely to be stepped-up compared to current assets. If this argument holds, then *T_PPE* should be positively related to *GW*. However, their argument assumes that long-lived assets tend to appreciate over time, which is more so the exception rather than the rule. Therefore, I make no directional prediction with respect to *T_PPE*.

The third set of control variables relate to the components of goodwill, e.g., synergy and overpayment. To control for synergy, I include abnormal returns during the three-day window surrounding the acquisition announcement for both the acquirer and

target, *A_CAR* and *T_CAR*. I include the percent of stock consideration, *PCTSTK*, as a control for overpayment.[41]

Other control variables include acquirer book-to-market, *A_BTM*, as a general control for the acquirer's investment opportunities, which may be related to its acquisition decision and the purchase price allocation. I also include the natural log of the acquirer's market value, *A_SIZE*, to control for acquirer size and the acquirer's return on assets, *A_ROA*, to control for acquiring firm performance. More than half of my observations are concentrated in five industries. Therefore, I include indicator variables for each of the two-digit SIC codes that contain more than 10% of the total sample, *SIC28, SIC35, SIC36, SIC38,* and *SIC73*, representing chemicals, machinery and computer equipment, electronics, measurement instruments, and business services, respectively (see table 2, panel A).

[41] Target shareholders may suspect that acquirers are more likely to use stock consideration when their stock is overvalued and demand additional compensation (Myers and Majluf 1984).

5. Results

5.1. Descriptive Statistics

Table 2 provides information on the distribution of the goodwill sample by industry and year. Panel A shows that more than 60 percent of the sample is concentrated in five high-tech industries for which I include indicator variables as described in the previous section.[42] The highest concentration (24.88 percent) is in the major industry group called Business Services (2-digit SIC code 73). The majority of these observations are within the subgroup Computer Programming, Data Processing, And Other Computer Related Services (3-digit SIC code 737), which includes companies such as Microsoft. Panel B provides information on the distribution across years. The distribution appears to be representative of the overall economy. The number of acquisitions increases between the recession of the early 2000s and the recent recession following the financial crisis.

Table 3, panel A provides descriptive statistics for the sample used to test H1a and H1b (i.e., goodwill sample). The average percent of purchase price allocated to goodwill is 56.9 percent. The allocations to goodwill, technology intangibles, marketing intangibles, customer intangibles, and IPR&D are consistent with the allocations reported in the Shalev et al. (2013), which also uses hand-collected purchase price allocation data. However, the bonus intensity variable is smaller in magnitude compared to Shalev et al. (2013). This is consistent with greater use of stock-based compensation by high-tech companies, which may explain why I do not find a significant association between bonus intensity and goodwill in the following tests. The sample comprises 26 domestic-only

[42] Samples used to test H1b and H2 are similarly concentrated in the same five industries.

firms and 179 multinational firms.[43] Panel B provides descriptive statistics on the sample used to test H3 (i.e., technology sample), and panel C provides descriptive statistics on a subsample with available marketing intangible data. Compared to the goodwill sample (panel A), the technology sample (panel B) shows lower average foreign tax rates, which is consistent with high tech MNCs having greater ability to shift income into low-tax rate countries. The size of the target firm is similar between the goodwill and technology samples. Table 4 provides the correlations between the variables used in the regression models. The variables from model (1a) and (1b) are shown in panel A and the variables from model (2) are shown in panel B. Bolded coefficients indicate p-values less than 0.10.

5.2. Empirical Results

Table 5 reports the main regression results. All analyses use standard errors clustered by firm to correct for multiple acquisitions by the same firm. The first three columns include a linear time trend and the last three columns include year fixed effects. The time trend controls for increases or decreases over time. Using a time trend instead of year fixed effects leaves me with more degrees of freedom, which is major concern when working with small sample sizes. H1a predicts that multinational firms have greater incentive to overvalue intangible assets than domestic-only firms. Since overvaluation of intangibles reduces the amount of purchase price allocated to goodwill, H1a predicts that multinational firms will allocate less of the purchase price to goodwill than domestic-only firms. Test results are reported in panel A. Consistent with H1a, the coefficient on *MNC*

[43] In untabulated analysis, I match each domestic-only firm with two multinational firms using the propensity score method and find similar results for H1a. I include 2-digit SIC code, acquirer size, acquirer *BTM*, acquirer *ROA* in the propensity score model, and I use a caliper of 0.05.

is negative and significantly different from zero (p-value = 0.0822) when a time trend is included in the model (first three columns), but the coefficient estimate is somewhat less precise when year fixed effects are included (p-value = 0.1082). The negative coefficient on the time trend (p-value = 0.0114) indicates a general increase in goodwill over time, which provides some support for its use in the model. Multinational companies appear to allocate 12 percent less of the purchase price to goodwill compared to domestic-only firms. In contrast to Shalev et al. (2013), I do not find a positive association between *BONUS* and *GW*. Comparison of the descriptive statistics between studies suggests that the acquiring firms in my sample appear to rely less on bonus compensation. My sample is largely made up of high-tech companies that are more likely to use compensation based on non-financial measures, such as stock-based compensation (Ittner, Larcker, and Rajan 1997). The positive coefficient on *SLACK* suggests that firms with more flexibility over goodwill impairment testing allocate more of the purchase price to goodwill. For the control variables, the coefficients on *T_RD, T_BTM, T_GW,* and *PCTSTK* are as predicted.

Next, I test whether the allocation varies with foreign tax rates. H1b predicts that firms facing higher average foreign tax rates have greater incentive to overstate transfer prices for intangibles, and correspondingly, the valuation for intangibles. Table 5, panel B reports the results from estimating model (1b). As predicted, the coefficient on *FTR* is negative and significantly different from zero at the ten percent level (p-value = 0.0526). An inter-quartile increase in the pre-acquisition average foreign tax rate (18.8 percentage points) is associated with a 2.8% decrease in the amount of purchase price allocated to goodwill, or a 5.2% decrease relative to the average allocation to goodwill (54.6%). The

coefficients on the control variables are similar to the estimates from model (1a) reported in Panel A. Overall, these results are consistent with firms with tax incentives to overstate transfer prices for intangibles reporting correspondingly higher intangibles valuations for financial reporting purposes.

My second hypothesis considers an alternative tax strategy, the cost-sharing arrangement, which provides incentive to understate IP valuations. Technology intangibles are more commonly contributed to cost-sharing arrangements than other intellectual property (IP). Thus, H2 predicts that tax planning with cost-sharing arrangements puts more downward pressure on technology intangibles compared to other IP, i.e., marketing intangibles. Table 5, panel C presents the test of the relationship between *TECH/IP* and foreign tax rates, *FTR*. Consistent with H2, the coefficient on *FTR* is negative and statistically different from zero (p-value = 0.0664). The coefficients on *T_RD* and *T_ADV* are significant and in the predicted directions. These results suggest that firms with greater incentive to reduce foreign taxes tend to undervalue intangibles that are more likely to be contributed to a cost-sharing arrangement.

6. Additional Tests

6.1. Abnormal Goodwill Measure

My main analysis of H1a and H1b essentially amounts to a test between tax incentives and abnormal goodwill by controlling for expected goodwill based on characteristics of the target, acquirer, and deal structure. As an alternative approach, I develop an estimate of abnormal goodwill based on the idea that 'true' goodwill should only include the target's going concern and expected synergies (Financial Accounting Standards Board 2001). The going concern component of goodwill, GC, is measured as the difference between the target's pre-acquisition market value and the target's net assets (Henning, Shaw, and Stock 2000). I use the target's equity value 20 trading days prior to acquisition as its pre- acquisition market value (Kaplan and Weisbach 1992). *SYNERGY* is based on the approach in Bradley et al. (1988), which uses the combined cumulative abnormal returns of the target and acquirer during the 11-day window surrounding the acquisition announcement and market value of the target and acquirer. This measure captures the changes in the wealth of the stockholders of the acquiring and target (Bradley, Desai, and Kim 1988). *GC* and *SYNERGY* are both scaled by deal value and winsorized at the top and bottom 2 percent to deal with extreme values. Abnormal goodwill, *ABGW*, is measured as the residual from the regression of *GW* on *GC* and *SYNERGY*. Regression results are shown in Table 6.

Table 7 presents the results from tests of H1a and H1b using *ABGW* as the dependent variable. I omit the control variables, *T_CAR* and *A_CAR*, that are included in models (1) and (2) to control for synergy because synergy is already accounted for in the estimation of *ABGW*. Panel A shows the results for H1a, which predicts that

multinationals will allocate more of the purchase price to goodwill compared to domestic-only firms. Panel B shows the results for H1b using the abnormal goodwill measure. The relatively small adjusted R-squared is consistent with much of the "normal" portion of goodwill being removed in the first stage (Table 6). Overall inferences remain unchanged using the alternate abnormal goodwill measure.

Table 8 presents regression results for the basic goodwill model used in the main analysis, e.g., model (1) without the variable of interest, *MNC*. The residuals from this regression, *ABGWRES*, can also be viewed as a measure of abnormal goodwill and are used in the following sections.

6.2. Change in Future Foreign Tax Rates

The underlying premise of H1b is that tax planning to reduce foreign tax liability may manifest in purchase price allocations, namely putting downward pressure on the amount allocated to goodwill. If these strategies are successful in reducing foreign taxes, then it may be that allocating less to goodwill is associated with a lower foreign tax rates in the future. Table 9 presents the correlations between three goodwill variables and the change in foreign tax rates up to three years following the acquisition. *ABGWRES* is positively and significantly correlated with an increase in foreign tax rates up to three years after the acquisition, and *ABGW* is positively and significantly correlated with an increase in foreign tax rates by the third year out. These results suggest that under-allocation to goodwill is associated with lower future average foreign tax rates, which is consistent with the underlying premise of H1b.

6.3. Tax Haven Presence

For my additional test of H2, I use tax haven presence as an alternative tax incentive measure.[44] That is, I examine whether tax haven presence is associated with the valuation of technology intangibles relative to other intellectual property. Cost-sharing arrangements facilitate intangibles transfers to low tax rate countries. In my main analysis of H2, I find evidence consistent with cost-sharing arrangements providing an incentive to understate the value of technology intangibles relative to other intellectual property. Recent case studies and news reports of tax avoidance strategies suggest that cost-sharing arrangements often include a tax haven affiliate participant. For example, Google used a cost sharing arrangement for the initial outbound transfer of IP from the US to an Irish affiliate, IP that was eventually used in the infamous "Double Irish Dutch Sandwich" (Kleinbard 2011). The Double Irish Dutch Sandwich has surfaced as the quintessential tax planning structure used by MNCs, such as Google and Microsoft, to attain extraordinarily low effective tax rates. The basic setup involves two Irish affiliates and one Dutch affiliate. Irish affiliate B receives royalties from affiliates around the world. B minimizes its Irish tax liability by paying out most of those royalties to the Dutch affiliate. Then, the Dutch affiliate sends those royalties to Irish affiliate A, which is considered a Bermuda tax resident under Irish tax rules. The Dutch affiliate is inserted between A and B in order to avoid Irish withholding tax on royalty payments.

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[44] I am grateful to Scott Dyreng for providing the Exhibit 21 dataset, which includes an indicator for tax haven countries. This data was first used and described in Dyreng and Lindsey (2009). A country is considered a tax haven if it is identified as a tax haven by two of the four following organizations: OECD, US Stop Tax Havens Abuse Act, IMF, Tax Research Org. The lists can be found in a 2008 article titled "FACTBOX – Tax havens of the world" at http://www.reuters.com/article/2008/03/04/taxhavens-idUSL0423271120080304.

Table 10 presents the results from the test of an association between acquirer tax haven presence and the ratio of technology to other intellectual property. The reduction in sample size is partly due to the exhibit 21 dataset coverage ending in 2009. The model shown in the first three columns include a time trend and in the last three columns include year fixed effects. *A_HAVEN* equals one of the acquirer has a subsidiary in a tax haven country in the year prior to the acquisition. As predicted, the coefficient on *A_HAVEN* is negative and significant (p-value = 0.0158). This result provides additional evidence consistent with the H2.

7. Conclusion

Business combinations represent important managerial decisions that can have a significant impact on future operations. Thus, it is important for investors to have access to reliable information in order to evaluate these transactions. Purchase price allocations provide information about the assets and liabilities acquired as a result of the business combination. Respondents to the SFAS 141 exposure draft confirm that purchase price allocations and information about acquired intangible assets are useful for assessing post-acquisition earnings and cash flows (FASB, 2001paragraphs B198, B208).

This study provides evidence that foreign tax planning incentives influence fair value accounting for intangible assets. Fair value accounting in the US is mostly limited to financial assets, which are more likely to have quoted prices and comparable transactions than nonfinancial assets. Nevertheless, the accounting for business combinations and the accounting for goodwill, e.g., goodwill impairment testing, represents a broader application of fair value accounting in the US. US GAAP limits the financial statement recognition of intangible assets to those that are purchased, while internally developed intangibles are generally expensed. Earnings-based compensation provides incentive to overstate goodwill by understating the fair values of the other assets acquired in a business combination (Shalev, Zhang, and Zhang 2013). However, studies using non-US data suggest that manager reported intangibles are relevant and reliable (e.g., Wyatt 2005). My results suggest that tax incentives may mitigate the distortion of fair values resulting from financial reporting incentives.

I find evidence consistent with foreign tax planning providing incentive to assigning higher values to intangibles, which in turn, reduces the allocation to goodwill.

Second, I find evidence consistent with cost-sharing arrangements providing incentive to understate the reported values of technology intangibles relative to marketing intangibles. Overall, my results suggest that tax planning objectives for intangible assets influence how they are reported in the financial statements. Users of financial statements should be aware of the potential sources of distortion in fair value estimates before relying on them to make investment decisions.

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Appendix A. Variable Definitions

Variable	Definition
GW	Goodwill over deal value
ABGWRES	Residual from the regression of *GW* on control variables (described in section 4.3)
ABGW	Alternative measure of abnormal goodwill, residual from the regression of GW on synergy and going concern value
TECH	Technology intangibles (patents, know-how, developed technology, IPRD) scaled by deal value
TM	Marketing intangibles (trademarks and tradenames) scaled by deal value
IP	The sum of technology and marketing intangibles
TECH/IP	Technology intangibles over *IP*
MNC	Multinational acquiring firm, indicator variable equal to 1 if nonzero foreign current tax expense or nonzero foreign pretax income; zero otherwise
FTR	Acquirer pre-acquisition two-year "long-run" average foreign tax rate, calculated as the sum of total foreign tax expense from t-2 to t-1 over the sum of pretax foreign income from t-2 to t-1
A_HAVEN	Tax haven presence indicator that equals one if the acquirer reports a tax haven subsidiary (using the dataset first used in Dyreng and Lindsey (2009))
BONUS	CEO bonus compensation over total compensation, averaged over the two years preceding the acquisition
SLACK	Indicator variable equal to one if the difference between acquirer's market value of equity and book value of equity exceeds the deal value, and zero otherwise
T_RD	Target R&D expense over deal value, averaged over the two years preceding the acquisition
T_ADV	Target advertising expense over deal value, averaged over the two years preceding the acquisition
T_BTM	Target book-to-market
T_GW	Target preexisting goodwill, from target's balance sheet prior to acquisition, over deal value
T_PPE	Target current assets over fixed assets

T_CAR	Target cumulative abnormal return during 3-day window around acquisition announcement
A_CAR	Acquirer cumulative abnormal return during 3-day window around acquisition announcement
PCTSTK	Percentage of consideration paid with stock
A_BTM	Acquirer book-to-market prior to acquisition
A_SIZE	Natural logarithm of acquirer market value of equity prior to acquisition
A_ROA	Acquirer return on assets prior to acquisition

Table 1. Sample Selection

Sample Selection Procedures	Eliminations	Acquisitions Remaining
Acquisitions from the Securities Data Company (SDC) database completed between 2001 and 2012, US-based publicly traded acquiring firms, non-missing deal value and Central Index Key number (CIK), acquisition of 100% ownership		27,979
Less: acquiring firm not covered by Compustat	(15,450)	12,472
Less: deal value less than 5% of acquirer total assets at t-1	(6,211)	6,318
Less: financial and utilities industries	(964)	5,354
Less: missing bonus data from ExecuComp	(3,305)	2,052
Less: target data not available from Compustat	(1,769)	414
Less: Multinational acquirers with negative foreign pre-tax income or insufficient data to compute average foreign tax rate, *FTR*	(138)	282
Less: agriculture, mining, and construction industries (2-digit SIC below 2000)	(25)	260
Less: missing purchase price allocation data (primarily due to aggregation of multiple transactions into a single purchase price allocation)	(72)	220
Less: missing abnormal returns for both acquirer and target firms	(26)	205
Final sample for H1a		205
Less: missing long-run average foreign tax rate, *FTR* (H1b)		179
Less: missing TECH/IP (H2)		135

Table 2. Sample Distributions

Panel A. Distribution Across Industries

2-Digit SIC	Industry Description	No. of Obs.	% of Sample
20	Food And Kindred Products	2	0.98
22	Textile Mill Products	1	0.49
23	Apparel And Other Finished Products Made From Fabrics And Similar Materials	1	0.49
25	Furniture And Fixtures	1	0.49
26	Paper And Allied Products	3	1.46
27	Printing, Publishing, And Allied Industries	2	0.98
28	Chemicals And Allied Products	24	11.71
29	Petroleum Refining And Related Industries	3	1.46
31	Leather And Leather Products	1	0.49
33	Primary Metal Industries	5	2.44
35	Machinery And Computer Equipment	24	11.71
36	Electronic And Other Electrical Equipment And Components, Except Computer Equipment	28	13.66
37	Transportation Equipment	2	0.98
38	Measuring, Analyzing, And Controlling Instruments; Photographic, Medical And Optical Goods; Watches And Clocks	22	10.73
39	Miscellaneous Manufacturing Industries	2	0.98
40	Railroad Transportation	1	0.49
44	Water Transportation	1	0.49
45	Transportation By Air	2	0.98
48	Communications	6	2.93
50	Wholesale Trade-durable Goods	4	1.95
51	Wholesale Trade-non-durable Goods	4	1.95
54	Food Stores	1	0.49
58	Eating And Drinking Places	1	0.49
59	Miscellaneous Retail	5	2.44
72	Personal Services	1	0.49
73	Business Services (primarily Computer Programming, Data Processing, and Other Computer Related Services)	51	24.88
80	Health Services	5	2.44
87	Engineering, Accounting, Research, Management, And Related Services	1	0.49
99	Nonclassifiable Establishments	1	0.49
	Total	205	100

Table 2 (continued)

Panel B. Distribution Across Years

Year	Transactions	Acquirers
2001	10	10
2002	12	11
2003	13	12
2004	10	10
2005	30	30
2006	20	20
2007	35	35
2008	17	17
2009	13	13
2010	20	19
2011	10	10
2012	15	15
	205	202

This table presents sample distributions for test of H1. Panel A presents the distribution by industry. Panel B present the distribution by year. See table 1 for sample selection criteria.

Table 3. Descriptive Statistics

Panel A. Goodwill Sample

Variable	N	Mean	S. D.	Q1	Median	Q3
Deal Value ($ Mil)	205	2983.8	7322.9	279.2	897.6	2578.7
Target Size	205	6.375	1.586	5.236	6.469	7.450
Target Fixed Assets	205	0.037	0.081	0.001	0.006	0.039
Target SG&A	205	0.370	0.380	0.137	0.247	0.468
Intangible Assets						
GW	205	0.569	0.236	0.426	0.578	0.736
ABGWRES	205	-0.005	0.169	-0.119	-0.007	0.097
ABGW	195	-0.004	0.153	-0.082	-0.013	0.075
TECH	143	0.183	0.194	0.065	0.123	0.219
TMTOT	126	0.077	0.120	0.011	0.029	0.094
CUST	130	0.133	0.111	0.051	0.108	0.185
IPRD	205	0.035	0.096	0.000	0.000	0.027
Total Intangibles (other than goodwill or IPRD)	200	0.283	0.173	0.161	0.242	0.384
TECH/IP	143	0.814	0.271	0.737	0.950	1.000
Control Variables						
T_RD	205	0.074	0.105	0.000	0.038	0.091
T_ADV	205	0.008	0.020	0.000	0.000	0.005
T_BTM	205	0.480	0.340	0.254	0.390	0.638
T_GW	205	0.113	0.184	0.001	0.043	0.151
T_PPE	205	12.229	20.047	2.036	4.810	11.631
A_BTM	205	0.424	0.278	0.231	0.373	0.538
A_SIZE	205	8.570	1.589	7.459	8.365	9.626
A_ROA	205	0.118	0.111	0.053	0.100	0.177
BONUS	205	0.120	0.132	0.000	0.088	0.176
SLACK	205	0.756	0.430	1.000	1.000	1.000
PCTSTK	205	0.300	0.387	0.000	0.026	0.572
T_CAR	205	0.254	0.189	0.121	0.216	0.373
A_CAR	205	-0.016	0.067	-0.048	-0.006	0.021
Tax Variables						
MNC	205	0.873	0.334	1.000	1.000	1.000
FTR_{t-1}	178	0.228	0.208	0.090	0.187	0.303
FTR	179	0.232	0.179	0.107	0.206	0.318
A_HAVEN	121	0.884	0.321	1.000	1.000	1.000
T_FTR	91	0.278	0.282	0.151	0.269	0.395

Panel B. Technology Intangibles Sample

Variable	N	Mean	S.D.	Q1	Median	Q3
Deal Value ($ Mil)	135	3288.5	8341.7	325.4	919.6	2788.2
Target Size	135	6.450	1.553	5.326	6.537	7.504
Intangible Assets						
TECH/IP	135	0.825	0.255	0.752	0.951	1.000
TECH	135	0.182	0.192	0.067	0.123	0.219
IP	135	0.216	0.191	0.096	0.161	0.243
Control Variables						
BONUS	135	0.105	0.124	0.000	0.072	0.143
SLACK	135	0.793	0.407	1.000	1.000	1.000
T_RD	135	0.101	0.121	0.027	0.061	0.119
T_ADV	135	0.005	0.014	0.000	0.000	0.004
T_BTM	135	0.447	0.312	0.218	0.381	0.572
T_GW	135	0.091	0.129	0.000	0.033	0.135
T_PPE	135	15.052	21.781	3.140	5.591	16.732
A_BTM	135	0.386	0.253	0.213	0.316	0.512
A_SIZE	135	8.773	1.619	7.541	8.607	9.908
A_ROA	135	0.125	0.124	0.044	0.101	0.209
PCTSTK	135	0.309	0.403	0.000	0.033	0.705
T_CAR	135	0.260	0.195	0.113	0.215	0.386
A_CAR	135	-0.022	0.066	-0.061	-0.009	0.019
Tax Variables						
FTR	135	0.219	0.186	0.097	0.183	0.285
FTR_{t-1}	135	0.212	0.204	0.081	0.167	0.286
A_HAVEN	86	0.930	0.256	1.000	1.000	1.000
T_FTR	69	0.278	0.288	0.149	0.259	0.366

This table presents the mean, median, standard deviation, and lower and upper quartiles of the variables used in the models (1a), (1b), and (2). Panel A includes statistics on additional variables, such as types of intangibles, deal value, and target characteristics. Target size is the natural log of the target firm's market value of equity prior to acquisition. Target Fixed Assets is the amount of purchase price allocated to long-lived assets scaled by deal value. Target SG&A is the target's pre-acquisition SG&A expense scaled by deal value. CUST is total customer intangibles scaled by deal value. IPRD is in-process research and development scaled by deal value. Total intangibles is also scaled by deal value. FTR_{t-1} is the acquirer average foreign tax rate prior to acquisition. FTR is the acquirer 2-year "long-run" average foreign tax rate prior to acquisition. T_FTR is the target average foreign tax rate prior to acquisition. All other variables are defined in appendix A. Sample selection criteria are reported in table 1.

Table 4. Pearson Correlation Matrices

Panel A. Variables Used in the Models (1a) and (1b)

N=205	GW	MNC	FTR	BONUS	SLACK	T_RD	T_ADV	T_BTM	T_GW	T_PPE	T_CAR	A_CAR	PCTSTK	A_BTM	A_SIZE	A_ROA
GW	1.000	**-0.238**	-0.040	**0.136**	-0.017	**-0.231**	0.008	-0.114	**0.277**	**-0.162**	-0.019	-0.109	**0.266**	0.083	0.036	0.022
		0.0006	*0.5930*	*0.0518*	*0.8124*	*0.0008*	*0.9051*	*0.1025*	*<.0001*	*0.0201*	*0.7901*	*0.1188*	*0.0001*	*0.2380*	*0.6125*	*0.7498*
MNC	**-0.238**	**1.000**		-0.041	0.057	**0.157**	**-0.158**	-0.032	**-0.206**	0.017	-0.007	-0.006	-0.087	**-0.151**	**0.178**	0.051
	0.0006			*0.5572*	*0.4201*	*0.0244*	*0.0237*	*0.6513*	*0.0031*	*0.8110*	*0.9253*	*0.9288*	*0.2122*	*0.0302*	*0.0105*	*0.4636*
FTR	-0.040		1.000	-0.056	**-0.140**	0.116	-0.054	0.078	0.017	-0.036	-0.049	**-0.133**	**0.187**	**0.190**	**-0.262**	**-0.387**
(N=179)	*0.5930*			*0.4548*	*0.0613*	*0.1227*	*0.4691*	*0.3024*	*0.8190*	*0.6344*	*0.5120*	*0.0751*	*0.0120*	*0.0108*	*0.0004*	*<.0001*
BONUS	**0.136**	-0.041	-0.056	1.000	0.002	**-0.124**	0.084	0.041	-0.061	-0.087	-0.063	0.090	0.075	-0.112	0.028	**0.207**
	0.0518	*0.5572*	*0.4548*		*0.9803*	*0.0771*	*0.2336*	*0.5575*	*0.3823*	*0.2146*	*0.3723*	*0.1993*	*0.2876*	*0.1097*	*0.6870*	*0.0029*
SLACK	-0.017	0.057	**-0.140**	0.002	1.000	0.074	0.022	**-0.163**	**-0.198**	0.074	**0.151**	**0.182**	**-0.263**	**-0.581**	**0.335**	**0.261**
	0.8124	*0.4201*	*0.0613*	*0.9803*		*0.2926*	*0.7500*	*0.0195*	*0.0044*	*0.2910*	*0.0303*	*0.0091*	*0.0001*	*<.0001*	*<.0001*	*0.0002*
T_RD	**-0.231**	**0.157**	0.116	**-0.124**	0.074	1.000	-0.089	0.088	-0.009	0.066	**0.205**	-0.111	-0.032	0.008	**-0.193**	**-0.200**
	0.0008	*0.0244*	*0.1227*	*0.0771*	*0.2926*		*0.2024*	*0.2092*	*0.9018*	*0.3496*	*0.0031*	*0.1134*	*0.6536*	*0.9078*	*0.0057*	*0.0041*
T_ADV	0.008	**-0.158**	-0.054	0.084	0.022	-0.089	1.000	0.018	-0.046	-0.087	-0.075	**0.120**	-0.041	-0.030	-0.004	0.010
	0.9051	*0.0237*	*0.4691*	*0.2336*	*0.7500*	*0.2024*		*0.7976*	*0.5154*	*0.2125*	*0.2832*	*0.0869*	*0.5593*	*0.6687*	*0.9591*	*0.8873*
T_BTM	-0.114	-0.032	0.078	0.041	**-0.163**	0.088	0.018	1.000	**0.311**	**-0.189**	**0.116**	**0.119**	-0.005	**0.302**	**-0.340**	**-0.147**
	0.1025	*0.6513*	*0.3024*	*0.5575*	*0.0195*	*0.2092*	*0.7976*		*<.0001*	*0.0066*	*0.0966*	*0.0896*	*0.9398*	*<.0001*	*<.0001*	*0.0359*
T_GW	**0.277**	**-0.206**	0.017	-0.061	**-0.198**	-0.009	-0.046	**0.311**	1.000	**-0.217**	**-0.142**	-0.033	**0.158**	**0.162**	-0.013	-0.038
	<.0001	*0.0031*	*0.8190*	*0.3823*	*0.0044*	*0.9018*	*0.5154*	*<.0001*		*0.0018*	*0.0430*	*0.6345*	*0.0234*	*0.0207*	*0.8561*	*0.5846*
T_PPE	**-0.162**	0.017	-0.036	-0.087	0.074	0.066	-0.087	**-0.189**	**-0.217**	1.000	**0.135**	**-0.139**	-0.004	-0.060	-0.016	-0.102
	0.0201	*0.8110*	*0.6344*	*0.2146*	*0.2910*	*0.3496*	*0.2125*	*0.0066*	*0.0018*		*0.0536*	*0.0474*	*0.9529*	*0.3953*	*0.8199*	*0.1455*
T_CAR	-0.019	-0.007	-0.049	-0.063	**0.151**	**0.205**	-0.075	**0.116**	**-0.142**	**0.135**	1.000	**0.148**	**-0.229**	0.037	-0.099	-0.081
	0.7901	*0.9253*	*0.5120*	*0.3723*	*0.0303*	*0.0031*	*0.2832*	*0.0966*	*0.0430*	*0.0536*		*0.0347*	*0.0010*	*0.5958*	*0.1587*	*0.2492*
A_CAR	-0.109	-0.006	**-0.133**	0.090	**0.182**	-0.111	**0.120**	**0.119**	-0.033	**-0.139**	**0.148**	1.000	**-0.416**	**-0.148**	-0.053	0.098
	0.1188	*0.9288*	*0.0751*	*0.1993*	*0.0091*	*0.1134*	*0.0869*	*0.0896*	*0.6345*	*0.0474*	*0.0347*		*<.0001*	*0.0336*	*0.4531*	*0.1625*
PCTSTK	**0.266**	-0.087	**0.187**	0.075	**-0.263**	-0.032	-0.041	-0.005	**0.158**	-0.004	**-0.229**	**-0.416**	1.000	0.114	-0.063	-0.107
	0.0001	*0.2122*	*0.0120*	*0.2876*	*0.0001*	*0.6536*	*0.5593*	*0.9398*	*0.0234*	*0.9529*	*0.0010*	*<.0001*		*0.1042*	*0.3690*	*0.1268*
A_BTM	0.083	**-0.151**	**0.190**	-0.112	**-0.581**	0.008	-0.030	**0.302**	**0.162**	-0.060	0.037	**-0.148**	0.114	**1.000**	**-0.426**	**-0.455**
	0.2380	*0.0302*	*0.0108*	*0.1097*	*<.0001*	*0.9078*	*0.6687*	*<.0001*	*0.0207*	*0.3953*	*0.5958*	*0.0336*	*0.1042*		*<.0001*	*<.0001*
A_SIZE	0.036	**0.178**	**-0.262**	0.028	**0.335**	**-0.193**	-0.004	**-0.340**	-0.013	-0.016	-0.099	-0.053	-0.063	**-0.426**	1.000	**0.394**
	0.6125	*0.0105*	*0.0004*	*0.6870*	*<.0001*	*0.0057*	*0.9591*	*<.0001*	*0.8561*	*0.8199*	*0.1587*	*0.4531*	*0.3690*	*<.0001*		*<.0001*
A_ROA	0.022	0.051	**-0.387**	**0.207**	**0.261**	**-0.200**	0.010	**-0.147**	-0.038	-0.102	-0.081	0.098	-0.107	**-0.455**	**0.394**	1.000
	0.7498	*0.4636*	*<.0001*	*0.0029*	*0.0002*	*0.0041*	*0.8873*	*0.0359*	*0.5846*	*0.1455*	*0.2492*	*0.1625*	*0.1268*	*<.0001*	*<.0001*	

Panel B. Variables Used in Model (2)

N=135	TECH/IP	FTR	BONUS	SLACK	T_RD	T_ADV	T_BTM	T_GW	T_PPE	T_CAR	A_CAR	PCTSTK	A_BTM	A_SIZE	A_ROA
TECH/IP	1.000	-0.033	0.005	**0.193**	**0.312**	**-0.268**	-0.063	**-0.262**	**0.261**	0.085	-0.018	**-0.145**	-0.049	0.073	-0.027
		0.7005	*0.9532*	*0.0251*	*0.0002*	*0.0017*	*0.4688*	*0.0021*	*0.0022*	*0.3269*	*0.8319*	*0.0931*	*0.5744*	*0.3978*	*0.7520*
FTR	-0.033	1.000	-0.134	**-0.175**	**0.203**	-0.025	0.089	0.035	-0.011	-0.037	**-0.186**	**0.248**	**0.223**	**-0.311**	**-0.408**
	0.7005		*0.1218*	*0.0423*	*0.0179*	*0.7716*	*0.3025*	*0.6833*	*0.8987*	*0.6686*	*0.0307*	*0.0037*	*0.0093*	*0.0002*	*<.0001*
BONUS	0.005	-0.134	1.000	-0.029	-0.053	-0.030	-0.029	0.026	-0.016	0.023	0.064	**0.191**	**-0.196**	**0.148**	**0.203**
	0.9532	*0.1218*		*0.7424*	*0.5398*	*0.7282*	*0.7416*	*0.7675*	*0.8583*	*0.7889*	*0.4632*	*0.0261*	*0.0231*	*0.0861*	*0.0179*
SLACK	**0.193**	**-0.175**	-0.029	1.000	0.007	0.026	**-0.178**	**-0.243**	0.037	**0.207**	**0.272**	**-0.362**	**-0.602**	**0.330**	**0.302**
	0.0251	*0.0423*	*0.7424*		*0.9329*	*0.7631*	*0.0394*	*0.0044*	*0.6718*	*0.0158*	*0.0014*	*<.0001*	*<.0001*	*<.0001*	*0.0004*
T_RD	**0.312**	**0.203**	-0.053	0.007	1.000	0.045	**0.246**	0.128	-0.080	**0.198**	-0.043	-0.019	0.124	**-0.297**	**-0.225**
	0.0002	*0.0179*	*0.5398*	*0.9329*		*0.6025*	*0.0041*	*0.1394*	*0.3538*	*0.0213*	*0.6182*	*0.8256*	*0.1518*	*0.0005*	*0.0088*
T_ADV	**-0.268**	-0.025	-0.030	0.026	0.045	1.000	-0.066	0.029	-0.037	-0.068	-0.004	-0.035	-0.053	0.087	-0.027
	0.0017	*0.7716*	*0.7282*	*0.7631*	*0.6025*		*0.4494*	*0.7391*	*0.6721*	*0.4363*	*0.9670*	*0.6894*	*0.5404*	*0.3180*	*0.7545*
T_BTM	-0.063	0.089	-0.029	**-0.178**	**0.246**	-0.066	1.000	**0.391**	**-0.191**	**0.169**	0.084	0.016	**0.283**	**-0.428**	**-0.262**
	0.4688	*0.3025*	*0.7416*	*0.0394*	*0.0041*	*0.4494*		*<.0001*	*0.0262*	*0.0504*	*0.3319*	*0.8537*	*0.0009*	*<.0001*	*0.0022*
T_GW	**-0.262**	0.035	0.026	**-0.243**	0.128	0.029	**0.391**	1.000	**-0.260**	**-0.153**	**-0.149**	**0.159**	**0.192**	-0.129	-0.083
	0.0021	*0.6833*	*0.7675*	*0.0044*	*0.1394*	*0.7391*	*<.0001*		*0.0023*	*0.0767*	*0.0847*	*0.0651*	*0.0256*	*0.1349*	*0.3415*
T_PPE	**0.261**	-0.011	-0.016	0.037	-0.080	-0.037	**-0.191**	**-0.260**	1.000	0.100	-0.058	-0.061	0.014	-0.038	-0.022
	0.0022	*0.8987*	*0.8583*	*0.6718*	*0.3538*	*0.6721*	*0.0262*	*0.0023*		*0.2472*	*0.5073*	*0.4793*	*0.8694*	*0.6644*	*0.8018*
T_CAR	0.085	-0.037	0.023	**0.207**	**0.198**	-0.068	**0.169**	**-0.153**	0.100	1.000	**0.193**	**-0.212**	0.035	-0.060	-0.091
	0.3269	*0.6686*	*0.7889*	*0.0158*	*0.0213*	*0.4363*	*0.0504*	*0.0767*	*0.2472*		*0.0252*	*0.0138*	*0.6847*	*0.4864*	*0.2934*
A_CAR	-0.018	**-0.186**	0.064	**0.272**	-0.043	-0.004	0.084	**-0.149**	-0.058	**0.193**	**1.000**	**-0.386**	**-0.195**	0.005	0.102
	0.8319	*0.0307*	*0.4632*	*0.0014*	*0.6182*	*0.9670*	*0.3319*	*0.0847*	*0.5073*	*0.0252*		*<.0001*	*0.0232*	*0.9575*	*0.2373*
PCTSTK	**-0.145**	**0.248**	**0.191**	**-0.362**	-0.019	-0.035	0.016	**0.159**	-0.061	**-0.212**	**-0.386**	1.000	0.117	**-0.166**	-0.058
	0.0931	*0.0037*	*0.0261*	*<.0001*	*0.8256*	*0.6894*	*0.8537*	*0.0651*	*0.4793*	*0.0138*	*<.0001*		*0.1758*	*0.0544*	*0.5052*
A_BTM	-0.049	**0.223**	**-0.196**	**-0.602**	0.124	-0.053	**0.283**	**0.192**	0.014	0.035	**-0.195**	0.117	**1.000**	**-0.492**	**-0.573**
	0.5744	*0.0093*	*0.0231*	*<.0001*	*0.1518*	*0.5404*	*0.0009*	*0.0256*	*0.8694*	*0.6847*	*0.0232*	*0.1758*		*<.0001*	*<.0001*
A_SIZE	0.073	**-0.311**	**0.148**	**0.330**	**-0.297**	0.087	**-0.428**	-0.129	-0.038	-0.060	0.005	**-0.166**	**-0.492**	1.000	**0.473**
	0.3978	*0.0002*	*0.0861*	*<.0001*	*0.0005*	*0.3180*	*<.0001*	*0.1349*	*0.6644*	*0.4864*	*0.9575*	*0.0544*	*<.0001*		*<.0001*
A_ROA	-0.027	**-0.408**	**0.203**	**0.302**	**-0.225**	-0.027	**-0.262**	-0.083	-0.022	-0.091	0.102	-0.058	**-0.573**	**0.473**	1.000
	0.7520	*<.0001*	*0.0179*	*0.0004*	*0.0088*	*0.7545*	*0.0022*	*0.3415*	*0.8018*	*0.2934*	*0.2373*	*0.5052*	*<.0001*	*<.0001*	

This table presents the Pearson correlation coefficients and p-values (italicized) for the variables used in models (1a), (1b), and (2). Bolded coefficients indicate p-values less than 0.10. Variables are defined in appendix A. Sample selection criteria are reported in table 1.

Table 5. Main Regression Results

Panel A. Test of H1a: Goodwill and Multinational Indicator, *MNC*

$$GW = \alpha_0 + \alpha_1 MNC + \alpha_2 BONUS + \alpha_3 SLACK + \alpha_4 T\_RD + \alpha_5 T\_ADV + \alpha_6 T\_BTM + \alpha_7 T\_GW + \alpha_8 T\_PPE + \alpha_9 A\_CAR + \alpha_{10} T\_CAR + \alpha_{11} PCTSTK + \alpha_{12} A\_BTM + \alpha_{13} A\_SIZE + \alpha_{14} A\_ROA$$

		Coefficient	t-statistic	p-value	Coefficient	t-statistic	p-value
MNC	-	-0.120	-1.75	0.0822	-0.107	-1.62	0.1082
Financial reporting variables							
BONUS	+	0.100	0.60	0.5492	0.128	0.86	0.3911
SLACK	+	0.099	2.12	0.0354	0.091	1.97	0.0509
Target characteristics							
T_RD	-	-0.583	-3.60	0.0004	-0.589	-3.44	0.0007
T_ADV	-	-0.565	-0.76	0.4461	-0.360	-0.46	0.6459
T_BTM	-	-0.211	-2.88	0.0045	-0.228	-3.52	0.0006
T_GW	+	0.404	2.26	0.0254	0.380	2.06	0.0410
T_PPE	?	-0.002	-3.12	0.0021	-0.002	-3.45	0.0007
Goodwill components							
T_CAR	?	0.223	2.74	0.0068	0.200	2.63	0.0094
A_CAR	?	-0.075	-0.34	0.7361	-0.207	-0.82	0.4143
PCTSTK	+	0.117	2.80	0.0058	0.101	2.22	0.0275
Acquirer characteristics							
A_BTM	?	0.179	2.18	0.0304	0.160	1.90	0.0594
A_SIZE	?	0.002	0.13	0.8971	-0.001	-0.11	0.9140
A_ROA	?	0.059	0.37	0.7114	-0.037	-0.24	0.8078
Indicator variables							
SIC28		-0.181	-3.46	0.0007	-0.177	-3.19	0.0017
SIC35		0.076	1.19	0.2368	0.058	0.88	0.3800
SIC36		0.029	0.51	0.6126	0.012	0.21	0.8309
SIC38		0.041	0.83	0.4071	0.015	0.28	0.7831
SIC73		0.069	1.55	0.1221	0.056	1.29	0.1974
Intercept		0.617	4.08	<.0001	0.878	3.85	0.0002
Time Trend		-0.015	-2.56	0.0114			
Year fixed effects		No			Yes		
Adj. R2		34.97%			38.54%		
N		205			205		

This panel presents results from the regression of *GW* on *MNC* and control variables. A time trend is included in the first three columns and year fixed effects are included in the last three columns. *SIC28, SIC35, SIC36, SIC38,* and *SIC73* are included to control for the predominant industries in the sample. These two-digit SIC codes represent the following industries: chemicals, machinery and computer equipment, electronics, measurement instruments, and business services. Standard errors are clustered by firm (acquirer). Variables are defined in appendix A. Sample selection criteria are reported in table 1.

Table 5. Main Regression Results (continued)

Panel B. Test of H1b: Goodwill and Average Foreign Tax Rate, *FTR*

$$GW = \alpha_0 + \alpha_1 FTR + \alpha_2 BONUS + \alpha_3 SLACK + \alpha_4 T\_RD + \alpha_5 T\_ADV + \alpha_6 T\_BTM + \alpha_7 T\_GW + \alpha_8 T\_PPE + \alpha_9 A\_CAR + \alpha_{10} T\_CAR + \alpha_{11} PCTSTK + \alpha_{12} A\_BTM + \alpha_{13} A\_SIZE + \alpha_{14} A\_ROA$$

		Coefficient	t-statistic	p-value	Coefficient	t-statistic	p-value
FTR	-	-0.153	-2.04	0.0429	-0.151	-1.96	0.0526
Financial reporting variables							
BONUS	+	0.052	0.46	0.6468	0.077	0.71	0.4784
SLACK	+	0.105	2.45	0.0155	0.109	2.48	0.0144
Target characteristics							
T_RD	-	-0.512	-3.55	0.0005	-0.526	-3.32	0.0011
T_ADV	-	-1.346	-1.76	0.0799	-1.265	-1.44	0.1515
T_BTM	-	-0.286	-5.45	<.0001	-0.284	-5.33	<.0001
T_GW	+	0.349	1.83	0.0692	0.307	1.50	0.1364
T_PPE	?	-0.002	-3.55	0.0005	-0.002	-3.73	0.0003
Goodwill components							
T_CAR	?	0.220	3.02	0.0030	0.203	2.94	0.0039
A_CAR	?	-0.076	-0.34	0.7310	-0.135	-0.63	0.5270
PCTSTK	+	0.122	3.03	0.0029	0.123	3.03	0.0030
Acquirer characteristics							
A_BTM	?	0.114	1.32	0.1886	0.108	1.30	0.1969
A_SIZE	?	-0.002	-0.20	0.8409	-0.004	-0.37	0.7127
A_ROA	?	-0.229	-1.47	0.1443	-0.267	-1.64	0.1035
Indicator variables							
SIC28		-0.184	-3.15	0.0020	-0.196	-3.16	0.0019
SIC35		0.087	1.42	0.1581	0.070	1.13	0.2620
SIC36		0.030	0.56	0.5735	0.012	0.24	0.8137
SIC38		0.032	0.65	0.5158	0.018	0.38	0.7023
SIC73		0.072	1.75	0.0821	0.060	1.44	0.1525
Intercept		0.682	4.23	<.0001	0.800	4.24	<.0001
Time Trend		-0.017	-3.03	0.0029			
Year fixed effects		No			Yes		
Adj. R2		38.37%			38.39%		
N		179			179		

This panel presents results from the regression of *GW* on *FTR* and control variables. A time trend is included in the first three columns and year fixed effects are included in the last three columns. *SIC28, SIC35, SIC36, SIC38,* and *SIC73* are included to control for the predominant industries in the sample. These two-digit SIC codes represent the following industries: chemicals, machinery and computer equipment, electronics, measurement instruments, and business services. Standard errors are clustered by firm (acquirer). Variables are defined in appendix A. Sample selection criteria are reported in table 1.

Table 5. Main Regression Results (continued)

Panel C. Test of H2: Technology Intangibles and Average Foreign Tax Rate, *FTR*

$$TECH/IP = \alpha_0 + \alpha_1 FTR + \alpha_2 BONUS + \alpha_3 SLACK + \alpha_4 T\_RD + \alpha_5 T\_ADV + \alpha_6 T\_BTM + \alpha_7 T\_GW + \alpha_8 T\_PPE + \alpha_9 A\_CAR + \alpha_{10} T\_CAR + \alpha_{11} PCTSTK + \alpha_{12} A\_BTM + \alpha_{13} A\_SIZE + \alpha_{14} A\_ROA$$

		Coefficient	t-statistic	p-value	Coefficient	t-statistic	p-value
FTR	-	-0.144	-1.78	0.0787	-0.158	-1.84	0.0694
Financial reporting variables							
BONUS	?	-0.008	-0.07	0.9475	-0.040	-0.27	0.7912
SLACK	?	0.085	1.40	0.1637	0.081	1.25	0.2141
Target characteristics							
T_RD	+	0.596	4.66	<.0001	0.560	3.71	0.0003
T_ADV	-	-6.701	-10.87	<.0001	-6.868	-9.56	<.0001
T_BTM	?	-0.346	-2.04	0.0436	-0.327	-1.78	0.0784
T_GW	?	0.071	0.91	0.3638	0.093	1.19	0.2382
T_PPE	?	0.002	2.78	0.0065	0.002	2.40	0.0181
Goodwill components							
T_CAR	?	-0.207	-2.93	0.0042	-0.200	-2.41	0.0178
A_CAR	?	-0.349	-1.30	0.1959	-0.203	-0.72	0.4742
PCTSTK	?	-0.086	-1.68	0.0961	-0.080	-1.37	0.1738
Acquirer characteristics							
A_BTM	?	0.102	0.98	0.3286	0.052	0.52	0.6009
A_SIZE	?	0.032	2.73	0.0074	0.029	2.23	0.0283
A_ROA	?	-0.224	-1.50	0.1377	-0.245	-1.30	0.1954
Indicator variables							
SIC28		0.414	5.47	<.0001	0.408	5.30	<.0001
SIC35		0.376	4.23	<.0001	0.378	4.07	<.0001
SIC36		0.440	6.48	<.0001	0.453	6.60	<.0001
SIC38		0.377	5.56	<.0001	0.387	5.53	<.0001
SIC73		0.458	7.49	<.0001	0.474	7.59	<.0001
Intercept		0.197	1.17	0.2437	0.147	0.68	0.4957
Time Trend		-0.008	-1.22	0.2266			
Year fixed effects		No			Yes		
Adj. R2		53.21%			52.03%		
N		135			135		

This panel presents results from the regression of *TECH/IP* on *FTR* and control variables. A time trend is included in the first three columns and year fixed effects are included in the last three columns. *SIC28, SIC35, SIC36, SIC38,* and *SIC73* are included to control for the predominant industries in the sample. These two-digit SIC codes represent the following industries: chemicals, machinery and computer equipment, electronics, measurement instruments, and business services. Standard errors are clustered by firm (acquirer). Variables are defined in appendix A. Sample selection criteria are reported in table 1.

Table 6. Alternative Abnormal Goodwill Regression Model

	Coefficient	t-statistic	p-value
Intercept	0.412	28.03	<.0001
SYNERGY	0.005	2.16	0.0318
GC	0.614	18.66	<.0001
Adj. R2	55.90%		
N	281		

This table presents the regression results from the model used to estimate the alternative goodwill model. The dependent variable is *GW*. *SYNERGY* is measured as the change in market value of the acquirer and target firms as a result of the acquisition announcement using the 11-day combined cumulative abnormal returns and the combined equity values 20 trading days prior to announcement. *GC* is the going concern value of the target measured as the pre-acquisition market value minus net assets. *SIC28*, *SIC35*, *SIC36*, *SIC38*, and *SIC73* are included to control for the predominant industries in the sample. Year fixed effects are included. Variables are defined in appendix A.

Table 7. Additional Analysis: Regression Results Using Abnormal Goodwill Measure

Panel A. Test of H1a: Goodwill and Multinational Indicator, *MNC*

$$ABGW = \alpha_0 + \alpha_1 MNC + \alpha_2 BONUS + \alpha_3 SLACK + \alpha_4 T\_RD + \alpha_5 T\_ADV + \alpha_6 T\_BTM + \alpha_7 T\_GW + \alpha_8 T\_PPE + \alpha_9 A\_CAR + \alpha_{10} T\_CAR + \alpha_{11} PCTSTK + \alpha_{12} A\_BTM + \alpha_{13} A\_SIZE + \alpha_{14} A\_ROA$$

		Coefficient	t-statistic	p-value	Coefficient	t-statistic	p-value
MNC	-	-0.106	-2.62	0.0096	-0.109	-2.46	0.0150
Financial reporting variables							
BONUS	+	0.087	0.71	0.4792	0.122	1.14	0.2567
SLACK	+	0.040	1.24	0.2170	0.032	0.95	0.3457
Target characteristics							
T_RD	-	-0.085	-0.67	0.5029	-0.118	-0.86	0.3928
T_ADV	-	-0.082	-0.17	0.8656	-0.115	-0.23	0.8186
T_BTM	-	-0.041	-0.87	0.3868	-0.056	-1.15	0.2518
T_GW	+	0.094	0.74	0.4620	0.094	0.70	0.4822
T_PPE	?	-0.001	-1.80	0.0738	-0.001	-1.47	0.1441
Goodwill components							
T_CAR	?						
A_CAR	?						
PCTSTK	+	0.008	0.29	0.7694	-0.003	-0.11	0.9127
Acquirer characteristics							
A_BTM	?	0.127	2.52	0.0126	0.125	2.41	0.0170
A_SIZE	?	-0.011	-1.36	0.1768	-0.009	-1.15	0.2533
A_ROA	?	0.092	0.72	0.4752	0.050	0.37	0.7118
Indicator variables							
SIC28		-0.050	-1.49	0.1389	-0.050	-1.39	0.1657
SIC35		0.046	1.06	0.2913	0.045	0.97	0.3326
SIC36		-0.028	-0.72	0.4723	-0.018	-0.43	0.6714
SIC38		0.025	0.70	0.4852	0.034	0.87	0.3880
SIC73		0.085	2.71	0.0075	0.083	2.52	0.0127
Intercept		0.111	1.13	0.2585	0.205	1.46	0.1460
Time Trend		-0.004	-1.07	0.2857			
Year fixed effects		No			Yes		
Adj. R2		17.11%			17.38%		
N		195			195		

This panel presents results from the regression of *ABGW* on *FTR* and control variables. A time trend is included in the first three columns and year fixed effects are included in the last three columns. *SIC28, SIC35, SIC36, SIC38,* and *SIC73* are included to control for the predominant industries in the sample. These two-digit SIC codes represent the following industries: chemicals, machinery and computer equipment, electronics, measurement instruments, and business services. Standard errors are clustered by firm (acquirer). Variables are defined in appendix A. Sample selection criteria are reported in table 1.

Table 7. Additional Analysis: Regression Results Using Abnormal Goodwill Measure

Panel B. Test of H1b: Abnormal Goodwill and Average Foreign Tax Rate, *FTR*

$$ABGW = \alpha_0 + \alpha_1 FTR + \alpha_2 BONUS + \alpha_3 SLACK + \alpha_4 T\_RD + \alpha_5 T\_ADV + \alpha_6 T\_BTM + \alpha_7 T\_GW + \alpha_8 T\_PPE + \alpha_9 A\_CAR + \alpha_{10} T\_CAR + \alpha_{11} PCTSTK + \alpha_{12} A\_BTM + \alpha_{13} A\_SIZE + \alpha_{14} A\_ROA$$

		Coefficient	t-statistic	p-value	Coefficient	t-statistic	p-value
FTR	-	-0.117	-1.63	0.1055	-0.146	-1.97	0.0506
Financial reporting variables							
BONUS	+	0.049	0.50	0.6154	0.116	1.15	0.2527
SLACK	+	0.048	1.49	0.1384	0.052	1.59	0.1149
Target characteristics							
T_RD	-	-0.100	-0.80	0.4279	-0.155	-1.10	0.2735
T_ADV	-	-0.258	-0.49	0.6266	-0.373	-0.71	0.4810
T_BTM	-	-0.089	-1.96	0.0526	-0.102	-2.01	0.0465
T_GW	+	0.114	0.79	0.4326	0.105	0.72	0.4747
T_PPE	?	-0.001	-2.55	0.0120	-0.001	-2.31	0.0226
Goodwill components							
T_CAR	?						
A_CAR	?						
PCTSTK	+	0.022	0.77	0.4404	0.018	0.58	0.5611
Acquirer characteristics							
A_BTM	?	0.131	1.97	0.0514	0.119	1.81	0.0729
A_SIZE	?	-0.015	-1.85	0.0662	-0.016	-1.96	0.0524
A_ROA	?	0.043	0.24	0.8103	-0.015	-0.08	0.9359
Indicator variables							
SIC28		-0.074	-2.16	0.0326	-0.085	-2.29	0.0237
SIC35		0.032	0.69	0.4907	0.022	0.48	0.6326
SIC36		-0.032	-0.82	0.4163	-0.020	-0.48	0.6341
SIC38		0.009	0.26	0.7937	0.023	0.60	0.5503
SIC73		0.076	2.47	0.0146	0.072	2.22	0.0278
Intercept		0.105	0.89	0.3735	0.176	1.13	0.2586
Time Trend		-0.004	-1.05	0.2936			
Year fixed effects		No			Yes		
Adj. R2		12.57%			13.00%		
N		170			170		

This panel presents results from the regression of *ABGW* on *FTR* and control variables. A time trend is included in the first three columns and year fixed effects are included in the last three columns. *SIC28, SIC35, SIC36, SIC38,* and *SIC73* are included to control for the predominant industries in the sample. These two-digit SIC codes represent the following industries: chemicals, machinery and computer equipment, electronics, measurement instruments, and business services. Standard errors are clustered by firm (acquirer). Variables are defined in appendix A. Sample selection criteria are reported in table 1.

Table 8. Abnormal Goodwill Residual Measure, *ABGWRES*

		Coefficient	t-statistic	p-value
T_RD	-	-0.400	-3.50	0.0005
T_ADV	-	0.420	0.86	0.3930
T_PPE	?	-0.001	-1.92	0.0555
T_GW	-	0.543	7.38	<.0001
T_BTM	+	-0.211	-5.88	<.0001
T_CAR	?	0.157	2.40	0.0173
A_CAR	?	-0.054	-0.27	0.7843
PCTSTK	+	0.101	2.86	0.0046
A_BTM	?	0.143	2.62	0.0094
BONUS	+	0.070	0.69	0.4930
SLACK	+	0.082	2.40	0.0170
SIC28		-0.209	-4.51	<.0001
SIC35		0.055	1.22	0.2236
SIC36		-0.031	-0.70	0.4831
SIC38		-0.008	-0.19	0.8512
SIC73		0.029	0.81	0.4178
Intercept		0.664	7.90	<.0001
Year Fixed Effects		Yes		
Adj. R2		38.19%		
N		287		

This table presents the regression of *GW* on control variables. *SIC28, SIC35, SIC36, SIC38,* and *SIC73* are included to control for the predominant industries in the sample. Year fixed effects are included. Variables are defined in appendix A.

Table 9. Correlation with Change in Future Tax Rates

	ABGWRES	ABGW	FTRCHG_1	FTRCHG_2	FTRCHG_3
GW	**0.7314**	**0.6888**	0.0757	0.0500	0.0677
	<.0001	*<.0001*	*0.3007*	*0.5238*	*0.4319*
	287	281	189	165	137
ABGWRES	1.0000	**0.4949**	**0.1278**	**0.1679**	**0.1954**
		<.0001	*0.0967*	*0.0400*	*0.0304*
	287	276	170	150	123
ABGW			-0.0199	0.1269	**0.1614**
			0.7987	*0.1283*	*0.0808*
			166	145	118

This table presents the correlations between goodwill measures and changes in future average foreign tax rates. The goodwill measures are defined in Appendix A. *FTRCHG_1* is the change in average foreign tax rate from t to t+1. *FTRCHG_2* is the change in average foreign tax rate from t to t+2. *FTRCHG_3* is the change in average foreign tax rate from t to t+3. Two-sided p-values are italicized and the number of observations is shown below the p-values.

Table 10. Additional Test of H2: Technology Intangibles and Tax Haven Presence

$$TECH/IP = \alpha_0 + \alpha_1 A\_HAVEN + \alpha_2 BONUS + \alpha_3 SLACK + \alpha_4 T\_RD + \alpha_5 T\_ADV + \alpha_6 T\_BTM + \alpha_7 T\_GW + \alpha_8 T\_PPE + \alpha_9 A\_CAR + \alpha_{10} T\_CAR + \alpha_{11} PCTSTK + \alpha_{12} A\_BTM + \alpha_{13} A\_SIZE + \alpha_{14} A\_ROA$$

		Coefficient	t-statistic	p-value	Coefficient	t-statistic	p-value
A_HAVEN	-	-0.226	-2.36	0.0212	-0.245	-2.47	0.0158
Financial reporting variables							
BONUS	?	0.091	0.52	0.6033	0.062	0.32	0.7479
SLACK	?	0.058	0.79	0.4295	0.079	0.98	0.3303
Target characteristics							
T_RD	+	0.525	3.16	0.0023	0.618	2.62	0.0106
T_ADV	-	-3.993	-2.78	0.0068	-3.831	-2.96	0.0041
T_BTM	?	0.138	1.42	0.1601	0.160	1.56	0.1238
T_GW	?	-0.230	-1.08	0.2821	-0.203	-0.81	0.4217
T_PPE	?	0.002	2.19	0.0315	0.002	1.95	0.0553
Goodwill components							
T_CAR	?	-0.311	-0.81	0.4194	-0.446	-1.03	0.3057
A_CAR	?	-0.043	-0.32	0.7484	-0.047	-0.32	0.7470
PCTSTK	?	-0.029	-0.36	0.7233	-0.044	-0.52	0.6015
Acquirer characteristics							
A_BTM	?	-0.030	-0.22	0.8283	-0.034	-0.23	0.8180
A_SIZE	?	0.032	1.53	0.1298	0.034	1.45	0.1514
A_ROA	?	-0.204	-1.03	0.3058	-0.258	-1.14	0.2594
Indicator variables							
SIC28		0.349	2.64	0.0100	0.341	2.47	0.0157
SIC35		0.252	1.70	0.0936	0.250	1.63	0.1072
SIC36		0.303	2.45	0.0167	0.266	2.12	0.0372
SIC38		0.236	1.87	0.0656	0.199	1.49	0.1404
SIC73		0.356	3.51	0.0008	0.351	3.28	0.0016
Intercept		0.339	1.31	0.1955	0.387	1.24	0.2194
Time Trend		0.006	0.41	0.6832			
Year fixed effects		No			Yes		
Adj. R2		40.05%			38.55%		
N		90			90		

This panel presents results from the regression of *TECH/IP* on *A_HAVEN* and control variables. A time trend is included in the first three columns and year fixed effects are included in the last three columns. *SIC28, SIC35, SIC36, SIC38,* and *SIC73* are included to control for the predominant industries in the sample. These two-digit SIC codes represent the following industries: chemicals, machinery and computer equipment, electronics, measurement instruments, and business services. Standard errors are clustered by firm (acquirer). Variables are defined in appendix A. Sample selection criteria are reported in table 1.