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Real Effects of International Tax Planning: Evidence from Domestic Acquisitions

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The Real Effects of International Tax Planning Incentives: Evidence from Domestic Acquisitions

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ABSTRACT

We examine whether and how the tax haven subsidiary profiles of U.S. acquirers and targets affect M&A pairing. Using disclosed material subsidiary data, we develop two measures of tax haven subsidiary relatedness between the acquirer and its target. Examining the associations of these measures with the probability of merger pair formation, the results suggest that acquirers are more likely to select targets whose subsidiaries are located in tax havens similar to their own, consistent with economies of scale in tax planning. This relation suggests that firms' past tax planning decisions have significant effects on their future real corporate decisions.

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JEL Classifications: G34; H25; M41

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1. Introduction

This study investigates whether firms' past tax planning decisions influence their real corporate behaviors by considering domestic mergers and acquisitions (M&A). Extent research has examined the link between aggressive tax planning and financial reporting incentives (Frank, Lynch, and Rego, 2009; Lennox, Lisowsky, Pittman, 2013); and the valuation implications of aggressive tax planning to shareholders (Wilson, 2009), debtholders (Lisowsky, Mescall, Novack, and Pittman, 2010), and bondholders (Shevlin, Urcan, and Vasvari, 2013). Relatively little attention has been paid to whether aggressive tax planning has an effect on corporate operating or investment decisions, often referred to as "real" effects. This paper examines domestic M&A as a possible channel through which firms' past tax planning may affect corporate behavior. Specifically, using acquirers' existing subsidiaries in particular tax havens as a proxy for their past tax planning activities, we examine whether and how U.S. acquirers take the U.S. targets' subsidiary operations in tax havens into account when engaged in target selection in M&A.

By acquiring a domestic target, the acquirer not only gains control of the target but also of the target's subsidiaries located in foreign countries, including tax havens.[1] For example, when the acquirer does not have subsidiaries in tax havens, the acquisition of a target with tax haven subsidiaries will result in the acquirer having subsidiaries in those jurisdictions. This feature of M&A allows us to examine whether acquirers' past tax planning, as measured by their existing operations in tax havens, influences their preferences on the targets' subsidiary locations, when engaged in target selection. If so, will acquirers tend to acquire targets with similar or different tax haven locations? An acquirer may prefer a target with subsidiaries located in tax

[1] Tax haven are jurisdictions that impose no or nominal taxes and offer themselves as places to be used by non-residents to escape taxes in their country of residence (OECD, 1998). According to the Congressional Research Service, jurisdictions that are considered as tax havens include Bermuda, Cayman Islands, Hong Kong, Singapore, and Luxembourg (Gravelle, 2010). Dyreng, Lindsey, and Thornock (2013) find that Delaware serves as a domestic haven for firms to avoid taxes. The focus of this paper is on tax havens located in foreign jurisdictions.

havens where the acquirer already has subsidiaries if tax compliance costs decrease in the size of the activity in a given country (the economies of scale hypothesis; Grubert and Slemrod, 1998; Mills, Erickson, Maydew, 1998; Rego, 2003). Alternatively, will acquirers tend to acquire targets that allow the firms to diversify their subsidiary presence in different tax havens (the diversification hypothesis)? An acquirer may prefer a target with subsidiaries located in tax havens where the acquirer does not already have subsidiaries if having subsidiaries in different tax havens allows the firm to take advantage of the flexibility in international tax planning. Notwithstanding the above conjectures, acquirers may not consider targets' subsidiary locations in tax havens to be relevant because tax-planning opportunities are not likely to be the driving force behind a merger or acquisition.

Although our research question is focused on international tax planning, we have chosen to undertake the study in the research setting of domestic M&A. Domestic M&A offers a powerful research setting for observing the effects, if any, of international tax planning incentives. Prior research suggests that changes in shareholder protection laws and corporate governance systems through cross-border M&A have significant valuation implications for firms (e.g., Bris, Brisley, and Cabolis, 2008; Rossi and Volpin, 2004). Transactions between U.S. acquirers and targets allow us to hold the country-level governance systems unchanged and therefore mitigate concerns such as the lack of control for country-level economic incentives for the transactions (e.g., shareholder rights, accounting standards, and legal regimes, etc.). Also, our research design involves the formation of a pool of potential merger participants as the control sample. Due to the data limitations in identifying matched control firms for foreign targets, the cross-border M&A setting may not be practical in our case. Thus, we believe domestic M&A provides the best setting for our research question.

Our full sample consists of 437 acquirer-target pairs from M&A transactions announced between 1995 and 2010. To create a pool of potential merger participants as the control sample (pseudo mergers), we identify up to five matched acquirers and matched targets for each acquirer and target, respectively, by matching on deal announcement year, industry, and firm size. As noted in Bena and Li (2013), this matching procedure allows the clustering of M&A activities in time and industry. To address our research question, we develop two proxies to measure the degree of diversity and overlap of tax haven subsidiaries between the acquirer and target. The sample firms' subsidiary information is based on their disclosed material subsidiaries in the Exhibit 21 of the 10-K reports (Dyreng and Lindsey, 2009).

To assess the relatedness of acquirers' and targets' subsidiaries, we create proxies for the degree of diversity and of overlap. The diversity proxy measures the proportion of new tax haven subsidiaries that the acquirer gains from an acquisition. The overlap proxy measures the extent to which the subsidiary tax haven locations of the target overlap with that of the acquirer.[2] The results indicate that the diversity and overlap measures are significantly negatively and positively associated, respectively, with the probability of a merger pair formation. These findings suggest that acquirers prefer targets with subsidiary presence in tax havens similar to their own, consistent with the economies of scale in tax planning hypothesis. The results are robust to alternative explanations. For example, other observed geographic pattern such as member countries of the Organisation for Economic Co-operation and Development (OECD) or European Union (EU) do not exhibit similar relations to merger pair formation.

Finally, we explore the association between the number of tax haven subsidiaries and whether the firm is part of an M&A pair. Controlling for the number of subsidiaries in countries

[2] While it may appear that these two measures are negatively correlated, as described more fully below, differing denominators and the inclusion of zeroes leads to a small positive correlation.

other than tax havens, we show that the number of tax haven countries in which the company has a subsidiary is related to the firm being an acquirer, but has no reliable association with the firm being a target. We interpret this evidence as the tax planning activities of the acquirer are influential in its own future decisions.

This paper makes two contributions to the literature. First, it contributes to the growing literature on the real effects of tax avoidance behavior (e.g., Blouin, Devereux, and Shackelford, 2012; Hanlon, Maydew, and Saavedra, 2013). In a review of tax research, Hanlon and Heitzman (2010) state that while "the effects of taxes on 'real' corporate decisions are at times difficult to document, they are important to examine… Research in this area…will provide important contributions over the next era" (p. 42). This study finds that the similarity of subsidiaries across tax havens between the acquirer and target is a significant determinant of domestic merger pairing. This evidence suggests U.S. multinationals' past global tax planning structures shape their real corporate decisions. In addition, considering a firm's subsidiary operations in tax havens as a tax attribute, this paper adds to existing literature on the role of taxes on the structure of M&A (e.g., Auerbach and Reishus, 1988; Ayers, Lefanowicz, and Robinson, 2004; Erickson, 1998) and on the effects of taxes on cross-border M&A transactions (Arulampalam, Devereux, Liberini, 2012; Huizinga and Voget, 2009; Scholes and Wolfson, 1990).

Second, there is a substantial body of literature on tax planning by U.S. multinationals dating back to the 1990s (e.g., Collins, Kemsley, and Lang, 1998; Hines and Rice, 1994; Klassen, Lang, and Wolfson, 1993) and continuing to the present (Desai, Foley, and Hines, 2006; Dyreng and Lindsey, 2009; Dyreng and Markle, 2012; Klassen and Laplante, 2012). These studies have generally focused on the role of low-tax jurisdiction operations in facilitating U.S. multinationals' tax planning; under-explored is the question of how these firms invest in tax planning strategies in general, and expand their tax haven subsidiary operations in particular. This paper contributes to the literature by documenting evidence consistent with the economies of scale in tax planning (Grubert and Slemrod, 1998; Mills et al., 1998; Rego, 2003).[3]

This paper proceeds as follows. Section 2 reviews the setting and develops hypotheses. Section 3 proposes the research design and describes the sample selection process. Section 4 presents the empirical results. Section 5 concludes.

2. The Role of Tax Haven Operations in U.S. Multinationals' Tax Planning

2.1 U.S. Taxation of Foreign Income and the Role of Tax Havens

The U.S. worldwide system of taxation generally exempts foreign earnings from U.S. tax liability until they are repatriated. When the foreign earnings are repatriated, the U.S. taxpayers can claim foreign tax credits for income tax paid to foreign governments up to the amount that would otherwise be due had the income been earned in the U.S.[4] This deferral of U.S. taxes on repatriation provides incentives for U.S. multinationals to shift income away from the U.S. to low-tax jurisdictions such as tax havens to avoid taxes. For example, General Electric (GE), one of the largest U.S. multinationals, reported 2010 U.S. profits and worldwide profits of $5.1 and $14.2 billion, respectively, but paid little, if any, U.S. federal income tax (Sloan and Gerth, 2010; Kocieniewski, 2011). A multinational can shift income to foreign subsidiaries in a variety of ways, including transfer pricing, debt location, and cost allocation.[5]

[3] Our research question examines whether the acquirers' and targets' tax haven subsidiary profiles affect M&A pairing, *conditional* on the acquirers' decisions to participate in a domestic M&A, which is different from research on the economic determinants of multinationals' entry modes into foreign countries (e.g., Barkema and Vermeulen, 1998; Brouthers and Brouthers, 2000; Eicher and Kang, 2005; Harzing, 2002; Hennart and Park, 1993; Meyer et al. 2009; and Nocke and Yeaple, 2007). Studying firms' optimal entry into tax havens is beyond the scope of our study.
[4] See, for example, Klassen and Laplante (2012) for a fuller discussion of the international taxation of U.S. firms.
[5] Transfer pricing involves amounts charged by one part of a company for products and services it provides to another part of the same company. Firms can also shift income across jurisdictions by strategically locating debt or expenses in high tax rate countries (Huizinga, Laeven, Nicdeme, 2008; Newberry and Dhaliwal, 2002).

Each of these techniques affects the calculation of the parent's and subsidiary's income, as well as the combined entity's worldwide tax bill.

Tax havens facilitate tax avoidance for multinationals.[6] Examining tax-motivated income shifting by U.S. multinationals between 1984 and 1988, Harris, Morck, Slemrod, and Yeung (1993) find that the U.S. tax liabilities of U.S. multinationals with tax haven affiliates are significantly lower than those of otherwise-similar U.S. firms. Through the analysis of affiliate-level data on U.S. multinational firms, Desai et al. (2006) find that the primary use of affiliates in larger (smaller) tax haven countries is to facilitate reallocation of taxable income (deferral of U.S. repatriation tax). Foley, Hartzell, Titman, and Twite (2007) document that U.S. multinational firms hold significant amount of cash abroad and that the extent of cash held abroad is associated with repatriation tax burdens, results that are consistent with U.S. multinational firms hiding profits offshore for tax reasons. Dyreng and Lindsey (2009) show that, on average, U.S. firms with at least one material foreign operation located in a tax haven country face a worldwide tax burden that is 1.5 percentage point lower, a number that translates into about $64 billion fewer taxes for those firms over the sample period.

Klassen and Laplante (2012) report that U.S. multinational firms were more active at shifting income out of the U.S. during 2005-2009 relative to 1998-2002 due to varying regulatory costs of income shifting. Dyreng and Markle (2012) find that income shifting from the U.S. to foreign countries is increasing in tax haven usage and research and development expenses, and decreasing in financial constraints. Finally, Altshuler and

[6] Clausing (2011), for example, estimates that the use of tax havens by U.S. multinational corporations cost the U.S. Treasury a revenue loss of $90 billion in 2008.

Grubert (2003), and Desai et al. (2003) show that multinationals with profits in low-tax jurisdictions can use tax havens to facilitate deferral of U.S. taxes through a variety of ownership arrangements. In sum, there is evidence that tax havens enable U.S. multinationals to reallocate income away from high-tax jurisdictions and repatriation taxes on income from low-tax jurisdictions is deferred.

2.2 The Role of Targets' Tax Haven Subsidiaries in Domestic M&A

Prior research has shown that international tax considerations influence firms' acquisition decisions and the returns to target shareholders. These studies, however, have mainly focused on cross-border M&A activity. For example, Scholes and Wolfson (1990) document that changes in tax regime in the 1986 Tax Reform Act increased the volume of cross-border acquisitions of US targets by foreign acquirers. Huizinga and Voget (2009) present evidence that international double taxation of foreign-source income reduces the likelihood of parent firm location in a country following a cross-border transaction. Arulampalam et al. (2012) find that the likelihood of a firm becoming a target decreases as the statutory tax rate in the target country increases. Extant literature also suggests that takeover premium in cross-border M&A is reduced by the non-resident dividend withholding taxes imposed by the target country (Huizinga, Voget, and Wagner, 2008) and transaction-specific transfer pricing risk (Mescall and Klassen, 2013).

While this research has demonstrated different aspects of international tax considerations can have an effect on cross-border M&A, the potential effects of international taxes on domestic M&A are less clear. This paper takes a new approach by employing the cross-sectional differences in firms' subsidiary profiles, or in particular, firms' tax haven subsidiary profiles, as a source of variation in international tax planning activity to investigate whether and how the U.S. acquirers' past tax planning is related to their target selection decisions.

If a U.S. firm is going to undertake a domestic acquisition, does the firm consider the potential targets' mixes of subsidiary locations, including tax haven subsidiaries, to be among its important selection criteria? Performing an early review of the deal's tax efficiencies, such as the target's transfer pricing model and its potential risks or synergies created with the acquirer's own model could increase the value of the transaction (Ernst & Young, 2013). If that is the case, will the acquirer prefer a target with subsidiaries present in tax havens similar to its own to facilitate growth of its existing subsidiaries? Alternatively, will the acquirer prefer a target with subsidiaries located in different tax havens to diversify the merged firm's subsidiary profile?

Prior literature suggests that the costs of tax planning decrease in firm size. For example, using data from a confidential survey, Mills et al. (1998) find that tax planning costs decrease in firm size. Rego (2003) also finds that firms with greater U.S. pre-tax income have lower effective tax rates than other firms, findings that are consistent with economies of scale in tax planning. Examining income shifting behavior of U.S. multinationals with affiliates in Puerto Rico, Grubert and Slemrod (1998) model the marginal cost of income shifting as a decreasing function of the real operating capital located in Puerto Rico based on the assumption that the unit cost of incremental income shifting decreases as real capital increases. In the context of this study, if the cost of income shifting to a tax haven subsidiary decreases as the size of the subsidiary increases, the acquisition of a target with similar tax haven subsidiary presence could lead to a decrease in tax planning costs for the merged firm. The economies of scale in tax planning hypothesis predicts that acquirers will prefer targets with tax haven subsidiary presence similar to their own.[7]

[7] Dyreng, Lindsey, Markle, and Shackelford (2013) find that U.S. multinationals are more likely to structure foreign operations in country pairs that have a bilateral tax treaty to reduce taxes levied on dividends paid between commonly controlled entities. However, even if the tax benefits of this foreign subsidiary structure exceed the non-tax costs, it is unclear if acquirers would prefer targets with similar or dissimilar subsidiary presence in tax havens

In addition to the above conjecture on the economies of scale in international tax planning, acquirers may prefer targets with similar tax haven locations for non-tax reasons. For example, Balakrishnan, Blouin, and Guay (2011) suggest that the number of tax haven subsidiaries of a firm reduces the transparency of the firm's information environment. In the setting of M&A, a target with subsidiaries in tax havens that are relatively unknown to the acquirer may present a higher level of opacity to the acquirer. This increased information uncertainty of the target may increase the acquirer's risk of overpayment for the target (McNichols and Stubben, 2012; Officer, Poulsen, and Stegemoller, 2009; Raman, Shivakumar, and Tamayo, 2013). Thus, acquirers may prefer targets with similar tax haven operations to targets with diverse tax haven operations because of the information uncertainty effect. Our alternative hypothesis is as follows:

H1: *The tax haven subsidiaries of acquirers and targets are more strongly related than would be observed in random pairings.*

While perhaps not as strong, there are also reasons to believe that acquirers may prefer targets with tax haven subsidiary locations different from their own. Adding new tax haven locations through acquisition increases flexibility in international tax planning. Having access to a greater number of tax haven jurisdictions may provide firms with more options to implement international tax planning such as the allocation of innovative activities (MacDonald, 2011) and tax planning structures or arrangements that require presence in multiple tax havens. For example, the Double Irish Dutch Sandwich plan, a popular tax avoidance strategy that enables multinationals such as Google to avoid billions of income taxes every year (Drucker, 2010), requires subsidiary presence in all three countries: Bermuda, Ireland, and the Netherlands. In

because the direction of the tax treaty effect, if any, would depend on the whether the acquirer has this tax-treaty-favored structure in place before the transaction. Therefore, the direction of the tax treaty effect is ambiguous.

addition, given the constantly changing rules and requirements in transfer pricing, having subsidiary presence in a variety of tax haven jurisdictions may give the multinationals more leeway in transfer pricing and hence reduce transfer pricing risk (Mescall and Klassen, 2013).

Notwithstanding the above arguments, it is also quite possible that acquirers do not consider the potential target's subsidiary locations to be relevant. Tax planning characteristics are unlikely to be the driving force for a particular acquisition target, and there are other ways to establish subsidiaries in tax havens. For example, Jansen Egbert, Vice President of Tax at ArcelorMittal, the world's largest steel producing company in the world with a best-in-class global tax function, revealed in an interview that tax was not seen as a priority before the merger of Arcelor and Mittal in 2006 (Ernst & Young, 2011). In sum, it is an empirical question whether an acquirer will consider a target's subsidiary presence to be relevant in target selection when undertaking a domestic acquisition.

3. Research Design

3.1 Measuring of Tax Haven Subsidiary Relatedness

To test our hypothesis, we develop two measures of how closely related the acquirer's and target's sets of tax haven subsidiaries are: (1) the degree of diversity of tax haven subsidiary locations between the merging firms and (2) the degree of overlap of tax haven subsidiary locations, from the acquirer's perspective. These two measures of computed from firm-year level subsidiary data reported in Exhibit 21 in firms' 10-K reports.[8] Following Black, Dikolli, and Dyreng (2012), a jurisdiction is classified as a tax haven if it is identified as a haven by a

[8] See Dyreng and Lindsey (2009) for details. We thank Professor Dyreng for making these data available to us. While the subsidiary countries listed in Exhibit 21 are not always complete, they are the public source of multinational subsidiary locations. Thus, we assume this list is also the source of information for potential acquirers.

minimum of two out of four sources listed in Miedema (2008). The list of tax haven jurisdictions is provided in Appendix B.

The tax haven subsidiary diversity measure is defined below:

$$Tax\ Haven\ Sub\ Diversity_{\,i,j,m,t-1} = \frac{No.\ of\ new\ tax\ haven\ subs_{\,i,j,m,t-1}}{No.\ of\ tax\ haven\ subs\ of\ merger\ pair_{\,i,j,m,t-1}}$$

where the numerator is the number of tax haven jurisdictions where target *j* has subsidiaries and acquirer *i* does not have subsidiaries before the transaction, based on the firms' disclosed material subsidiary information at year *t–1*. The denominator is the sum of acquirer *i*'s and target *j*'s number of tax haven jurisdictions, but common jurisdictions are counted only once. This tax haven subsidiary diversity measure is a proxy for the degree of new tax haven subsidiaries gained from acquiring target *j* by acquirer *i*.

The tax haven subsidiary overlap measure is defined below:

$$Tax\ Haven\ Sub\ Overlap_{\,i,j,m,t-1} = \frac{No.\ of\ subs\ in\ the\ same\ tax\ havens_{\,i,j,m,t-1}}{No.\ of\ tax\ haven\ subs\ of\ the\ acquirer_{\,i,j,m,t-1}}$$

where the numerator is the number of tax haven jurisdictions where both acquirer *i* and target *j* have subsidiaries before the transaction, based on the firms' disclosed material subsidiary information at year *t–1*. The denominator is the number of tax haven jurisdictions where the acquirer *i* has subsidiaries before the transaction. This tax haven subsidiary overlap proxy measures the extent of overlapping tax haven subsidiary between the potential merging firms. By construction, this measure is not defined for acquirers that do not have subsidiaries in tax havens at the time of the transaction. Such observations are code as missing in the overlap measure, but have a diversity measure equal to one.

3.2 Forming the Matched Control Sample

Following Bena and Li (2013), we create a pool of potential targets and acquirers. We form the matched control sample for the targets and acquirers by matching on deal announcement year, industry, and firm size using the Compustat database. Specifically, for each target and acquirer of a deal announced in year *t*, we find a maximum of five matched targets and five matched acquirers by industry (based on the closest SIC grouping) and by firm size (total assets) in year *t–1* that were neither a target or an acquirer in the three-year period prior to the deal announcement. We then form the matched control acquirer-target pairs sample by pairing the actual acquirer with the matches to the target, and by pairing the actual target with the matches to the acquirer. As noted in Bena and Li (2013), this matching procedure captures M&A clustering in time (Mitchell and Mulherin, 1996; Maksimovic, Phillips, and Yang, 2013) and industry (Andrade, Mitchell, and Stafford, 2001; Harford, 2005), and allows one to compare actual merger pairs to the characteristics that would result from a random pairing.

3.3 Estimating Equations

To test our hypothesis H1, we follow Bena and Li (2013) and run a conditional logit regression using cross-sectional data as of fiscal year end before the merger announcement:

$$\begin{aligned} \textit{Acquirer-Target}_{i,j,m,t} = {} & \alpha + \beta_1\,\textit{Tax Haven Subsidiary Relatedness}_{i,j,m,t-1} \\ & + \beta_2\,\textit{Foreign Subsidiary Relatedness}_{i,j,m,t-1} \\ & + \beta_3\,\textit{Acquirer Characteristics}_{i,m,t-1} + \beta_4\,\textit{Target Characteristics}_{j,m,t-1} \\ & + \textit{Common Characteristics}_{i,j,m,t-1} + \textit{Deal Fixed Effect}_m + \varepsilon_{i,j,m,t} \end{aligned} \tag{1}$$

The dependent variable, $\textit{Acquirer-Target}_{i,j,m,t}$ is an indicator variable equal to one if the acquirer-target pair is the *actual* acquirer-target pair for deal *m*, and zero if the pair is a control acquirer-target pair for deal *m*. For each deal *m*, there is one observation for the actual acquirer and target pair as well as multiple observations for the control acquirer-target pairs. *Tax Haven*

Subsidiary Relatedness$_{i,j,m,t-1}$ is one of the two measures of tax haven subsidiary relatedness (diversity and overlap) between the acquirer and target as defined previously. *Foreign Subsidiary Relatedness*$_{i,j,m,t-1}$ measures the relatedness of foreign subsidiaries between the acquirer and target, defined in a manner similar to the tax haven measure, and is included as a control variable. *Acquirer Characteristics*$_{i,m,t-1}$ and *Target Characteristics*$_{i,m,t-1}$ are firm-level control variables including return on assets, market-to-book ratio, sales growth, cash holdings, leverage, R&D expenditures, intangibles, and capital expenditures. *Common Characteristics*$_{i,j,m,t-1}$ is a vector of three indicator variables: whether the acquirer and target are incorporated in the same state (*Same Incorporation*), whether the acquirer and target are headquartered in the same state (*Same Headquarter*), and whether the deal is a within-industry transaction (*Within Industry*). *Deal Fixed Effect* $_m$ is the fixed effect for each deal (i.e., for each actual acquirer-target pair and its control pairs). Please refer to Appendix A for variable definitions.

3.4 Sample

We draw the sample from the SDC Platinum Mergers & Acquisitions database. Our full sample consists of 437 actual acquirer-target pairs from M&As announced between January 1, 1995 and December 31, 2010 that satisfy the following criteria:

(a) The acquisition is completed.

(b) Both acquirer and target are publicly listed U.S. firms.

(c) The deal value disclosed in SDC is no less than $1 million and is at least 1% of the acquirer's market capitalization measured on the 11th trading day prior to the merger announcement date.

(d) The acquirer owns less than 50% of the shares of the target prior to the merger announcement date and owns 100% of the target after the transaction.

(e) Both acquirer and target have disclosed material subsidiary data (Exhibit 21) as in

Dyreng and Lindsey (2009)

(f) Both acquirer and target have daily stock return data available from CRSP and annual financial statement data available from Compustat.

(g) Neither acquirer nor target belongs to the financial industries (SIC codes 6000-6999).

For the pool of potential merger participants (i.e., matched control acquirers and targets), we require the control firms to have disclosed material subsidiary information (Exhibit 21) and the required financial statement data to compute the control variables from Compustat. Our sample consists of 437 M&A transactions in which both the acquirer and target have at least one matched control firm. For our 437 acquirers (targets), we are able to find 1,865 (1,910) matched control acquirers (targets) that satisfy the matching requirements described in Section 3.2. We then form 3,775 matched control acquirer-target pairs. Of the 437 actual acquirer-target pairs, 240 (54.9 percent) pairs consist of acquirers and targets that both have tax haven subsidiaries at the time of the transaction. Most of our sample acquirers (363 out of 437 or 83 percent) have subsidiaries in tax havens at the time of the acquisition. This percentage is smaller for our sample targets (270 out of 437 or 62 percent). The smaller percentage is not surprising given that the acquirers are much larger firms than the targets and that larger firms are more likely to have established foreign subsidiaries. The distribution by announcement year of the actual acquirer-target pairs and their matched control pairs is presented in Table 1.

Descriptive statistics for the actual acquirers, targets, and their control counterparts are presented in Table 2. Regarding the tax haven subsidiary characteristics, our sample acquirers have a greater number of tax haven subsidiaries (*Tax Haven Subs*) and foreign subsidiaries (*Foreign Subs*) than their matched control acquirers, but they share a similar ratio of tax haven subsidiaries to foreign subsidiaries (*Tax Haven Sub Ratio*). Our sample acquirers are also larger, more profitable, exhibit higher sales growth, hold less cash, and have less R&D expenditures than their matched control counterparts. Turning to the targets, all the tax haven subsidiary characteristics are very similar between the actual target and the matched control target samples. But the two samples do differ in terms of the proportion of incorporation in Delaware, total assets, cash holding, leverage, R&D expenditures, and intangible assets.

In terms of our variables of interest, the actual acquirer-target pairs share a lower level of tax haven subsidiary diversity and a higher level of tax haven subsidiary overlap than their matched control acquirer-target pairs. For all foreign subsidiaries, the overlap measure (*Foreign Sub Overlap*) is also larger for the actual acquirer-target pairs, but the diversity measure (*Foreign Sub Diversity*) is not statistically different across the two samples. Within our sample of 437 transactions, we find that the tax havens that the sample acquirers and targets have in common are Singapore (21.5 percent), Hong Kong (16 percent), Switzerland (13.7 percent), Ireland (12.1 percent), Malaysia (7.6 percent), Bermuda (6.2 percent), Barbados (5.7 percent), Cayman Islands (4.6 percent), and Luxembourg (3 percent). Finally, 51.5 percent of actual acquirer-target pairs are incorporated in the same state (*Same Incorporation*), 27.5 percent are headquartered in the same state (*Same Headquarter*), and 39.3 percent are within industry M&As. These percentages are higher than those for their control pairs.

4. Empirical Results

4.1 Univariate Analysis

Table 3 presents the correlations among the common measures between the acquirers and targets. *Tax Haven Sub Diversity* (*Overlap*) is negatively (positively) related to the likelihood of merger pair formation. *Same Headquarter* is also positively related to the likelihood of becoming an acquirer-target pairing. Note that the correlation between *Tax Haven Sub Diversity* and *Tax Haven Sub Overlap* is positive, but this correlation becomes insignificant (with a negative point estimate) when we restrict our sample to transactions in which both the acquirer and target have at least one tax haven subsidiary (i.e., *Tax Haven Subs* > 0).

4.2 Regression Results – Hypothesis H1

Table 4 presents the estimation results of Equation (1) using *Tax Haven Sub Diversity* as the main independent variable. Column (1) tabulates results using the full sample. Column (3) tabulates results using a subsample of firms in which the target also has at least one tax haven subsidiary prior to the transactions. Although our control sample is formed by matching on firm size (total assets), we include with total assets in the model to ensure that the results are not affected by the remaining differences in firm size. Across both the specifications in Table 4, the results show a negative association between *Tax Haven Sub Diversity* and the likelihood a merger pair forms. This finding is consistent with the economies of scale hypothesis: acquirers are more likely to acquire targets with tax haven subsidiary presence similar to their own.

The estimation results of Equation (1) using *Tax Haven Sub Overlap* as the main independent variable are presented in Table 4, columns (2) and (4). Note that, by construction, the *Tax Haven Sub Overlap* measure is only defined for acquirers that have subsidiaries in tax havens at the time of the acquisitions. This data requirement reduces the test sample from 437 to 355 actual acquirer-target pairs. Across the two specifications in Table 4, the coefficients on *Tax Haven Sub Overlap* are positive and significant at the 5% level, indicating that the overlap of tax haven subsidiary location between the acquirer and target positively affects the likelihood of a merger pairing. These results mirror those using *Tax Haven Sub Diversity* as the test variable and are, again, consistent with the economies of scale hypothesis.

Taken together, the evidence indicates that the tax haven subsidiary relatedness between the acquirer and target positively contributes to the probability of a merger pairing. This evidence is consistent with acquirers not only considering the potential targets' subsidiaries locations, but also choosing targets with similar tax haven locations.

4.3 Robustness Check – The Netherlands as a tax haven jurisdiction

Dyreng et al. (2013) finds that U.S. multinationals funnel equity from headquarters to their foreign operating subsidiaries through intermediate equity holding companies in certain countries, particularly the Netherlands, to avoid dividend taxes and to bypass the Controlled Foreign Corporation rule. Based on the results of Dyreng et al. (2013), we consider the Netherlands a tax haven jurisdiction in constructing our tax haven diversity and overlap measures as a sensitivity test.

In our sample, the Netherlands is a popular location where the acquirer and the target have a common subsidiary (123 out of 437 deals, or 28.1 percent). The results reported in Table 5 mirror specification reported in Table 4, except that we include the Netherlands as an additional tax haven country. In columns (1) and (3), the estimated coefficients on our *Tax Haven Sub Diversity* measure is significantly negative at the 5% level, results that are consistent with those when Netherlands is not included as a tax haven in columns (1) and (3) of Table 4. Also similar to the results in Table 4 (columns (2) and (4)), the association between *Tax Haven Sub Overlap* and the probability of a merger pairing is significantly positive. In sum, the results suggest that our main conclusions are not affected by including the Netherlands as a tax haven.

4.4 Robustness Check – Are we capturing effects unrelated to tax?

A possible alternative explanation for our results is that the observed pattern is related to economic factors other than just tax haven use. For example, U.S. multinationals with subsidiary locations in another jurisdictional classifications, such as in Europe, may find targets with subsidiaries in EU countries more attractive because of the potentially higher synergies resulting from increases in market power and/or higher operating efficiency post merger. A similar argument can be made for firms with subsidiaries in OECD nations. To address this alternative explanation, we control for these non-tax economic incentives in our regressions by constructing four new of variables: *OECD Sub Diversity*/*Overlap* and *EU sub Diversity*/*Overlap* to capture the degree of subsidiary relatedness in terms of OECD and EU nations.

Descriptive results reveal that the mean value of *OECD Sub Diversity* (*EU Sub Diversity*) for actual acquirer-target pairs is 0.137 (0.143) and that for the control sample is 0.184 (0.181). Statistical tests suggest that, at the 5% level of statistical significance, the actual acquirer-target pairs and the control sample are significantly different in *OECD Sub Diversity* and *EU Sub Diversity*. The mean (median) values of *OECD Sub Overlap* and *EU Sub Overlap* are 0.341 (0.285) and 0.319 (0.238), respectively. The actual deals and their matched control counterparts share a similar level of overlap in these dimensions.

We include one of these four new control variables into our baseline regressions and the results are presented in Table 6. Columns (1) and (2) of Table 6 show that our variable of interest, *Tax Haven Sub Diversity*, remains significantly negative in both regressions, while the coefficients on *OECD Sub Diversity* and *EU Sub Diversity* are both positive but only *EU Sub Diversity* is significant. Columns (3) and (4) show that neither *OECD Sub Overlap* nor *EU Sub Overlap* are a significant determinant of the likelihood of a merger pair formation, but the coefficients on *Tax Haven Sub Overlap* remain significant at the 5% level. To provide further evidence that our results are not driven by non-tax economic incentives such as preferences in OECD or EU countries, we restrict our analyses to subsamples of transactions in which both the acquirer and target have at least one OECD or EU subsidiary. Columns (5) and (6) show that, in the subsample of firms with at least one OECD subsidiary, the coefficients on *Tax Haven Sub*

Diversity/Overlap continue to be significant but those on *OECD Sub Diversity/Overlap* are not. Similarly, in the subsample of firms with at least one EU subsidiary, the coefficients on *Tax Haven Sub Diversity/Overlap* remain significant after controlling for *EU Sub Diversity/Overlap* (Columns (7) and (8)). Overall, the acquirer-target's tax haven relatedness is a significant predictor of the likelihood of merger pair formation, and non-tax economic factors such as subsidiary relatedness in OECD and EU countries do not alter our results.

4.5 Additional Test – Are firms with more tax haven subs more likely to participate in M&A?

So far we have documented a significant negative (positive) relationship between the degree of the acquirer-target's tax haven diversity (overlap) and the probability of a merger pair formation. To complement our understanding of the observed results, we further investigate the underlying selection process. Specifically, we explore whether the number of tax haven subsidiaries of a firm is related to the likelihood of the firm becoming an acquirer or a target in the domestic M&A market. Because larger firms tend to have more foreign subsidiaries, it is expected that firms that have more foreign subsidiaries are more likely to be acquirers. However, it is less clear whether and how a firm's number of tax haven subsidiaries is related to the likelihood of being an acquirer or a target. We examine firms' likelihood of becoming acquirers and targets using the following conditional logit model (Bena and Li, 2013):

$$\begin{aligned} Target_{j,m,t} = \; & \alpha + \beta_1 Ln(Tax\ Haven\ Subs_{j,m,t-1}) + \beta_2 Ln(Non\text{-}Haven\ Subs_{j,m,t-1}) \\ & + \beta_3 Target\ Tax\ Haven\ Subs\ Ratio_{j,m,t-1} \\ & + \beta_4 Target\ Characteristics_{j,m,t-1} + Deal\ Fixed\ Effect_m + \varepsilon_{j,m,t} \end{aligned} \tag{2}$$

$$\begin{aligned} Acquirer_{i,m,t} = \; & \alpha + \beta_1 Ln(Tax\ Haven\ Subs_{i,m,t-1}) + \beta_2 Ln(Non\text{-}Haven\ Subs_{i,m,t-1}) \\ & + \beta_3 Acquirer\ Tax\ Haven\ Subs\ Ratio_{i,m,t-1} \\ & + \beta_4 Acquirer\ Characteristics_{i,m,t-1} + Deal\ Fixed\ Effect_m + \varepsilon_{i,m,t} \end{aligned} \tag{3}$$

In Equation (2), the dependent variable, $Target_{j,m,t}$, is an indicator variable that equals one if target *j* is the *actual* target for deal *m*, and zero otherwise (i.e., a control target for deal *m*). For each deal *m*, there is one observation for the actual target and multiple observations (a maximum of five) for the control targets. $Ln(Tax\ Haven\ Subs_{j,m,t-1})$ is the natural logarithms of target *j*'s number of disclosed material subsidiaries located in tax havens. Included as a control variable, $Ln(Non\text{-}Haven\ Subs_{j,m,t-1})$ is the natural logarithms of target *j*'s number of disclosed material subsidiaries located in non-haven foreign countries. $Target\ Tax\ Haven\ Subs\ Ratio_{j,m,t-1}$ is the number of tax haven subsidiaries divided by the number of foreign subsidiaries of target *j*. $Target\ Characteristics_{i,m,t-1}$ are firm-level control variables that may affect the likelihood of merger participation including return on assets, market-to-book ratio, sales growth, cash holdings, leverage, R&D expenditures, intangibles, and capital expenditures. We also include a dummy variable to indicate whether the firm in incorporated in the state of Delaware. $Deal\ Fixed\ Effect_m$ is the fixed effect for each target and its control targets.

As in Equation (2), in Equation (3), for each deal, there is one observation for the actual acquirer and multiple observations (maximum of five) for the control acquirers. The dependent variable, $Acquirer_{i,m,t}$, is an indicator variable that equals one if acquirer *i* is the actual acquirer for deal *m*, and zero otherwise (i.e., a control acquirer for deal *m*). Other variables are similarly defined. Please refer to Appendix A for variable definitions.

Estimation results of Equations (2) and (3) are presented in Table 7 and 8, respectively. Column (1) of Table 7 shows that the coefficient on *Ln(Tax Haven Subs)* is not significantly different from zero, suggesting that the number of tax haven subsidiaries of a firm is not reliably related to whether the firm becomes a target. Similar results are obtained when we include the

Netherlands as a tax haven, column (2), or include the number of subsidiaries in an OECD or EU nation as a control variable, columns (3) and (4).

For Equation (3), column (1) of Table 8 shows that the coefficient estimate for *Ln(Tax Haven Subs)* is positive and significant, indicating that firms with more subsidiaries located in tax havens are more likely to become acquirers. This result is robust to alternative specifications that classify the Netherlands as a tax haven, column (2), or that control for the number of OECD or EU subsidiaries, columns (3) and (4). Interestingly, the results also suggest that the number of non-haven subsidiaries is not reliably related to the probability of being an acquirer (columns 1 and 2). Although it is not surprised to find that firms with more foreign subsidiaries are more likely to be acquirers because of the size effect, these findings suggest that not all foreign subsidiaries are treated equally and that subsidiaries in tax havens are more relevant in predicting which firms are more likely to be acquirers.

Taken together, the results of Equations (2) and (3) imply that the association between the degree of acquirer-target's tax haven overlap and the probability of merger pair formation is likely from tax planning of the acquirer rather than from the target's tax planning. That is, firms with more tax haven subsidiaries tend to be more actively participate in the M&A market as acquirers and pick targets whose subsidiaries are located in tax havens similar to their own.

5. Conclusions

In this paper, we examine the real effects of international tax planning on domestic mergers and acquisitions. Specially, this paper uses the cross-sectional differences in acquirers' and targets' tax haven subsidiary profiles as a source of variation in international tax planning activity to examine whether and how the U.S. acquirers' past tax planning is related to their target selection decisions.

We identify firms' material subsidiaries located in tax havens using their disclosed material subsidiary data in Exhibit 21 of their 10-K reports and develop two measures of tax haven subsidiary relatedness between the acquirer and its target: the tax haven diversity and overlap measures. Results from our regression analyses indicate that the probability of a merger pair formation is significantly negatively (positively) associated with our tax haven diversity (overlap) measure, suggesting that acquirers are more likely to acquire targets whose subsidiaries are located in tax havens similar to their own. This finding is consistent with the economies of scale in tax planning.

This study offers fresh insights by documenting evidence regarding the role of U.S. firms' tax haven subsidiaries' locations in domestic mergers and acquisitions. The results of this study contribute to a more comprehensive understanding of the real effects of firms' past tax planning on corporate behavior.

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Appendix A

Variables	Definition and Construction
Tax Haven	Following Black et al. (2012), a jurisdiction is classified as a tax haven if it was identified as a haven by a minimum of two out of four sources listed in Miedema (2008). The list of tax haven jurisdictions is provided in Appendix B.
Tax Haven Sub Diversity	The number of tax haven jurisdictions where the target has subsidiary presence but the acquirer does not, scaled by the sum of the acquirer's and target's number of tax haven jurisdictions, but common jurisdictions are counted only once.
Non-Haven Sub Diversity	The number of non-tax haven jurisdictions where the target has subsidiary presence but the acquirer does not, scaled by the sum of the acquirer's and target's number of non-tax haven jurisdictions, but common jurisdictions are counted only once.
Foreign Sub Diversity	The number of foreign jurisdictions where the target has subsidiary presence but the acquirer does not, scaled by the sum of the acquirer's and target's number of foreign jurisdictions, but common jurisdictions are counted only once.
Tax Haven Sub Overlap	The number of tax haven jurisdictions where both the acquirer and target have subsidiary presence, scaled by the number of tax haven jurisdictions where the acquirer has subsidiary presence.
Non-Haven Sub Overlap	The number of non-tax haven jurisdictions where both the acquirer and target have subsidiary presence, scaled by the number of non-tax haven jurisdictions where the acquirer has subsidiary presence.
Foreign Sub Overlap	The number of foreign jurisdictions where both the acquirer and target have subsidiary presence, scaled by the number of foreign jurisdictions where the acquirer has subsidiary presence.
Ln(Tax Haven Subs)	The natural logarithm of the number of foreign subsidiaries located in a tax haven.
Ln(Non-Haven Subs)	The natural logarithm of the number of foreign subsidiaries located in a non-tax haven.
Ln(Foreign Subs)	The natural logarithm of the number of foreign subsidiaries.
Tax Haven Sub Ratio	The number of subsidiaries located in a tax haven divided by the number of subsidiaries located in a foreign country.

Delaware	Indicator variable that equals one if the firm is incorporated in Delaware.
Same Incorporation	Indicator variable that equals one if the acquirer and target are incorporated in the same state.
Same Headquarter	Indicator variable that equals one if the acquirer's and target's headquarters are located in the same state.
Within Industry	Indicator variable that equals one if the acquirer and target share a 2-digit SIC industry, and 0 otherwise.
Total Assets	The natural logarithm of total assets in millions.
Return on Assets	Pre-tax income scaled by total assets.
Market-to-Book	The market value of common equity scaled by the book value of common equity.
Sales Growth	The growth rate of sales.
Cash	Cash and short-term investment scaled by total assets.
Leverage	Total debt scaled by total assets.
R&D	Research & development expenses scaled by total assets
Intangible Assets	Intangible assets scaled by total assets
PP&E	Property, plant, and equipment expenditures scaled by total assets

Appendix B

A jurisdiction is classified as a tax haven if it was identified as a haven by a minimum of two out of four sources listed in Miedema (2008). The four sources are (1) the Organisation for Economic Co-Operation and Development (OECD), (2) the U.S. Stop Tax Haven Abuse Act, (3), the International Monetary Fund (IMF), and (4) Tax Research Organization.

Tax Haven Jurisdictions

Andorra
Anguilla
Antigua and Barbuda
Aruba
Bahamas
Bahrain
Barbados
Belize
Bermuda
British Virgin Islands
Cayman Islands
Cook Islands
Costa Rica
Cyprus
Dominica
Gibraltar
Grenada
Guernsey
Hong Kong
Ireland
Isle of Man
Jersey
Lebanon
Liberia
Liechtenstein
Luxembourg
Macau
Malaysia
Malta
Marshall Islands
Mauritius
Monaco
Netherlands Antilles
Panama
Saint Kitts and Nevis
Saint Lucia
Saint Vincent and the Grenadines
Samoa
San Marino
Seychelles
Singapore
Switzerland
Turks and Caicos Islands
Vanuatu

Table 1
Sample Distribution by Merger Announcement Year

The full sample consists of 437 actual acquirer-target pairs and 3,775 matched control pairs. The Acquirer-Target Pairs with Tax Haven Sub sample consists of 240 transactions in which both the acquirer and target have at least one disclosed material subsidiary located in a tax haven jurisdiction. The Acquirer (Target) with Tax Haven Sub sample consists of 363 acquirers (270 targets) that have at least one disclosed material subsidiary located in a tax haven jurisdiction.

Year	*Actual Acquirer-Target Pairs*	*Control Acquirer-Target Pairs*	*Actual Acquirer-Target Pairs with Tax Haven Sub*	*Acquirers with Tax Haven Sub*	*Targets with Tax Haven Sub*
1995	5	37	1	3	3
	(1.14)	(0.98)	(0.42)	(0.83)	(1.08)
1996	8	68	3	6	3
	(1.83)	(1.8)	(1.25)	(1.65)	(1.08)
1997	22	192	9	16	11
	(5.03)	(5.09)	(3.75)	(4.41)	(4.33)
1998	35	264	23	28	25
	(8.01)	(6.99)	(9.58)	(7.71)	(9.39)
1999	51	427	29	48	32
	(11.67)	(11.31)	(12.08)	(13.22)	(11.55)
2000	47	387	26	40	27
	(10.76)	(10.25)	(10.83)	(11.02)	(9.75)
2001	30	261	16	26	16
	(6.86)	(6.91)	(6.67)	(7.16)	(6.14)
2002	11	102	8	10	8
	(2.52)	(2.70)	(3.33)	(2.75)	(2.89)
2003	19	172	11	14	12
	(4.35)	(4.56)	(4.58)	(3.86)	(4.69)
2004	25	213	10	18	12
	(5.72)	(5.64)	(4.17)	(4.96)	(4.33)
2005	38	340	24	33	27
	(8.70)	(9.01)	(10.00)	(9.09)	(9.75)
2006	28	239	14	20	18
	(6.41)	(6.33)	(5.83)	(5.51)	(6.50)
2007	40	350	21	35	25
	(9.15)	(9.27)	(8.75)	(9.64)	(10.11)
2008	24	226	14	20	16
	(5.49)	(5.99)	(5.83)	(5.51)	(5.78)
2009	28	263	18	25	19
	(6.41)	(6.97)	(7.50)	(6.89)	(6.86)
2010	26	234	13	21	16
	(5.95)	(6.20)	(5.42)	(5.79)	(5.78)
Total	437	3,775	240	363	270

Table 2
Descriptive Statistics

The full sample consists of 437 actual acquirer-target pairs and 3,775 matched control pairs. For the 437 acquirers (targets), there are 1,865 (1,910) matched control acquirers (targets) that satisfy the matching requirements described in Section 3.2. The 3,775 matched control acquirer-target pairs sample is formed by pairing the actual acquirer with the matched control target(s), and by pairing the actual target with the matched control acquirer(s). The right-most column shows the *p*-value for t-test (Chi-Square test) for mean (frequency) differences between the actual sample and matched control sample. All variables are computed as described in Appendix.

	Actual Firms			**Matched Control Firms**			
	Mean	**Std Dev**	**Median**	**Mean**	**Std Dev**	**Median**	**P-value**
Acquirer-Target Pairs		**N=437**			**N=3,775**		
Tax Haven Sub Diversity (%)	18.04	29.15	0.00	26.82	35.74	0.00	<0.01
Non-Haven Sub Diversity (%)	19.27	25.75	6.25	27.26	31.01	13.33	<0.01
Foreign Sub Diversity (%)	19.27	23.96	8.33	27.75	29.52	15.38	<0.01
Tax Haven Sub Overlap (%)	22.05	30.22	0.00	17.39	26.52	0.00	<0.01
Non-Haven Sub Overlap (%)	31.51	30.08	22.22	30.45	31.64	20.00	
Foreign Sub Overlap (%)	30.27	29.28	23.53	28.34	29.64	18.18	
Same Incorporation (%)	51.49	50.03	100	44.15	49.68	0.00	<0.05
Same Headquarter (%)	27.46	44.68	0.00	16.45	37.08	0.00	<0.01
Within Industry (%)	39.34	48.90	0.00	36.95	48.28	0.00	
Acquirers		**N=437**			**N=1,865**		
Tax Haven Subs	4.37	3.97	4.00	2.35	2.64	1.00	<0.01
Non-Haven Subs	17.92	17.45	12.00	9.13	9.66	6.00	<0.01
Foreign Subs	22.30	21.02	16.00	11.49	11.89	7.00	<0.01
Tax Haven Sub Ratio (%)	21.52	17.95	19.05	21.07	22.01	18.18	
Delaware (%)	67.73	46.80	100.00	63.86	48.05	100.00	
Total Assets	8.20	1.80	8.14	6.78	1.83	6.78	<0.01
Return on Assets (%)	7.77	47.77	9.74	2.65	41.29	7.01	<0.05
Market-to-Book	4.45	9.18	2.96	3.21	9.58	2.32	
Sales Growth (%)	17.80	45.92	8.03	13.23	56.67	0.00	
Cash (%)	11.93	12.03	8.17	14.17	14.26	9.66	<0.01
Leverage (%)	21.33	25.86	15.44	21.28	44.62	12.97	
R&D (%)	5.38	6.55	3.42	6.34	10.54	3.56	<0.10
PP&E (%)	26.04	25.69	17.94	25.17	26.42	17.33	
Targets		**N=437**			**N=1,910**		
Tax Haven Subs	1.72	2.34	1.00	1.50	1.97	1.00	<0.05
Non-Haven Subs	7.03	8.34	4.00	6.20	7.36	3.00	<0.05
Foreign Subs	8.75	10.40	5.00	7.72	9.00	4.00	<0.05
Tax Haven Sub Ratio (%)	18.18	22.53	16.67	19.42	24.13	14.31	
Delaware (%)	69.79	45.97	100.00	62.04	48.54	100.00	<0.01
Total Assets	6.17	1.75	6.12	5.77	1.84	5.76	<0.10
Return on Assets (%)	2.94	18.18	6.26	0.72	23.89	4.37	<0.10
Market-to-Book	3.27	3.86	2.22	3.31	4.14	2.14	
Sales Growth (%)	17.09	42.16	7.76	13.24	48.22	0.00	
Cash (%)	15.19	15.57	10.50	16.47	15.94	12.13	
Leverage (%)	19.83	25.23	9.59	15.30	22.26	4.25	<0.01
R&D (%)	7.27	9.00	3.82	8.52	10.37	5.15	<0.05
PP&E (%)	23.35	22.87	16.08	22.78	22.77	15.53	

Table 3
Correlation Matrix

Pearson (pair-wise) correlation coefficients are presented below (above) the diagonal. Coefficients in bold are all statistically significant at less than the 10% level in two-tail tests.

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1)	*Acquirer-Target*		**0.04**	**0.09**	0.01	**-0.07**	**-0.09**	**-0.09**	**0.04**	0.01	0.02
(2)	*Same Incorporation*	0.03		**0.18**	**0.11**	0.02	**0.05**	**0.04**	**0.08**	**0.07**	**0.08**
(3)	*Same Headquarter*	**0.08**	**0.19**		**0.12**	-0.01	-0.01	**-0.03**	**0.10**	**0.08**	**0.08**
(4)	*Within Industry*	0.01	**0.12**	**0.12**		-0.02	**-0.03**	**-0.03**	**0.07**	**0.03**	**0.04**
(5)	*Tax Haven Sub Diversity*	**-0.05**	-0.01	0.02	0.03		**0.50**	**0.68**	**0.28**	**0.21**	**0.25**
(6)	*Non-Haven Sub Diversity*	**-0.06**	**0.05**	0.03	-0.01	**0.55**		**0.95**	**0.40**	**0.43**	**0.47**
(7)	*Foreign Sub Diversity*	**-0.07**	0.04	0.03	0.00	**0.71**	**0.97**		**0.44**	**0.41**	**0.46**
(8)	*Tax Haven Sub Overlap*	0.04	**0.08**	**0.10**	**0.07**	**0.26**	**0.32**	**0.34**		**0.47**	**0.72**
(9)	*Non-Haven Sub Overlap*	0.01	**0.05**	**0.07**	0.04	**0.15**	**0.36**	**0.29**	0.47		**0.96**
(10)	*Foreign Sub Overlap*	0.02	**0.07**	**0.08**	**0.06**	**0.20**	**0.37**	**0.33**	**0.71**	**0.93**	

Table 4
The Association between Tax Haven Sub Relatedness and the Probability of being an Acquirer-Target Pair

This table reports conditional logit regression results of the probability of being an acquirer-target pair on the two firms' tax haven subsidiary relatedness. The dependent variable is an indicator variable that equals one if the acquirer-target pair is an actual pair, and zero otherwise. All variables are computed as described in Appendix. Reported in parentheses are t-statistics computed using robust standard errors adjusted for deal clustering; ***, **, * represent statistical significance (one-tailed for *Tax Haven Sub Diversity* and *Tax Haven Sub Overlap*; two-tailed control variables) at 1%, 5% and 10%, respectively.

	All Acquirer-Target Pairs		*Acquirers & Targets with Tax Haven Sub*	
	(1)	(2)	(3)	(4)
Tax Haven Sub Diversity	-0.607***		-1.235***	
	(-2.913)		(-2.726)	
Non-Haven Sub Diversity	-0.586**		-0.152	
	(-2.455)		(-0.389)	
Tax Haven Sub Overlap		0.494**		0.554**
		(2.058)		(1.918)
Non-Haven Sub Overlap		0.152		0.097
		(0.562)		(0.280)
<u>Common Characteristics</u>				
Same Incorporation	0.330***	0.262**	0.314*	0.286*
	(2.868)	(2.011)	(1.857)	(1.691)
Same Headquarter	0.712***	0.597***	0.667***	0.725***
	(4.915)	(3.760)	(3.133)	(3.551)
Within Industry	1.444***	1.238**	1.197*	0.821
	(3.397)	(2.396)	(1.813)	(1.226)
<u>Acquirer Characteristics</u>				
Total Assets	1.125***	1.385***	1.426***	1.492***
	(9.568)	(8.573)	(6.686)	(7.133)
Return on Assets	0.077	0.24	0.515	0.314
	(0.527)	(1.630)	(1.069)	(0.667)
Market-to-Book	-0.000***	0.018**	0.005	0.009
	(-2.606)	(2.019)	(0.495)	(1.070)
Sales Growth	0.117	0.100	0.523*	0.368
	(1.361)	(0.784)	(1.916)	(1.546)
Cash	-0.110	-0.041	0.917	1.037
	(-0.232)	(-0.066)	(1.160)	(1.338)
Leverage	0.022	-0.008	0.122	0.200
	(0.206)	(-0.027)	(0.295)	(0.468)
R&D	0.246	0.887	-1.984	-1.673
	(0.263)	(0.760)	(-1.275)	(-1.116)
Intangible Assets	-0.030	-0.023	0.004	-0.064
	(-0.745)	(-0.285)	(0.031)	(-0.455)
PP&E	0.393*	0.110	-0.839	-0.772
	(1.766)	(0.324)	(-1.401)	(-1.398)

Target Characteristics

Total Assets	0.464***	0.389***	0.479***	0.399***
	(7.452)	(5.638)	(4.556)	(3.729)
Return on Assets	0.304**	0.476**	0.255	0.392
	(2.013)	(2.466)	(0.714)	(1.03)
Market-to-Book	-0.000*	0.005**	0.006*	0.005*
	(-1.923)	(2.300)	(1.661)	(1.915)
Sales Growth	-0.025	-0.006*	0.021	0.036
	(-0.392)	(-1.859)	(0.207)	(0.345)
Cash	0.401	0.784*	1.167**	1.347**
	(1.087)	(1.889)	(1.969)	(2.178)
Leverage	0.392**	0.504**	0.603*	0.672**
	(2.060)	(2.351)	(1.853)	(2.061)
R&D	0.233	0.508	-0.469	-0.712
	(0.393)	(0.754)	(-0.346)	(-0.522)
Intangible Assets	0.751***	0.892***	1.211***	1.211***
	(4.290)	(4.440)	(2.862)	(2.807)
PP&E	0.220	0.368	0.481	0.429
	(0.707)	(0.924)	(0.852)	(0.749)
Deal Fixed Effects	YES	YES	YES	YES
No. of Observations	4,212	3,014	1,710	1,651
No. of Control Deals	3,775	2,659	1,470	1,415
No. of Actual Deals	437	355	240	236
Pseudo R^2	0.166	0.155	0.217	0.209

Table 5

The Association between Tax Haven Sub Relatedness and the Probability of being an Acquirer-Target Pair including the Netherlands as a Tax Haven

This table reports conditional logit regression results of the probability of being an acquirer-target pair on the two firms' tax haven subsidiary relatedness. The dependent variable is an indicator variable that equals one if the acquirer-target pair is an actual pair, and zero otherwise. All variables are computed as described in Appendix. Reported in parentheses are t-statistics computed using robust standard errors adjusted for deal clustering; ***, **, * represent statistical significance (one-tailed for *Tax Haven Sub Diversity* and *Tax Haven Sub Overlap*; two-tailed for control variables) at 1%, 5% and 10%, respectively.

	All Acquirer-Target Pairs		*Acquirers & Targets with Tax Haven Sub*	
	(1)	(2)	(3)	(4)
Tax Haven Sub Diversity	-0.473**		-1.055**	
	(-2.182)		(-1.981)	
Non-Haven Sub Diversity	-0.621**		-0.216	
	(-2.526)		(-0.507)	
Tax Haven Sub Overlap		0.456**		0.575**
		(1.923)		(1.985)
Non-Haven Sub Overlap		0.132		0.065
		(0.490)		(0.193)
<u>Common Characteristics</u>				
Same Incorporation	0.330***	0.262**	0.314*	0.284*
	(2.875)	(2.010)	(1.858)	(1.695)
Same Headquarter	0.717***	0.600***	0.676***	0.714***
	(4.963)	(3.775)	(3.186)	(3.454)
Within Industry	1.436***	1.253**	1.187*	1.202*
	(3.385)	(2.430)	(1.787)	(1.789)
<u>Acquirer Characteristics</u>				
Total Assets	1.123***	1.384***	1.427***	1.492***
	(9.589)	(8.554)	(6.571)	(7.119)
Return on Assets	0.085	0.244*	0.527	0.335
	(0.595)	(1.669)	(1.096)	(0.712)
Market-to-Book	-0.000***	0.018**	0.005	0.009
	(-2.609)	(2.019)	(0.499)	(1.053)
Sales Growth	0.116	0.103	0.518*	0.372
	(1.346)	(0.801)	(1.929)	(1.575)
Cash	-0.097	-0.036	0.840	1.041
	(-0.204)	(-0.058)	(1.055)	(1.337)
Leverage	0.024	-0.005	0.151	0.216
	(0.226)	(-0.018)	(0.370)	(0.514)
R&D	0.222	0.989	-1.882	-1.532
	(0.236)	(0.849)	(-1.217)	(-1.017)
Intangible Assets	-0.031	-0.022	0.005	-0.060
	(-0.773)	(-0.276)	(0.042)	(-0.435)
PP&E	0.380*	0.107	-0.837	-0.786
	(1.725)	(0.316)	(-1.423)	(-1.419)

Target Characteristics

Total Assets	0.458***	0.393***	0.475***	0.402***
	(7.418)	(5.689)	(4.531)	(3.769)
Return on Assets	0.299**	0.477**	0.283	0.397
	(2.003)	(2.468)	(0.786)	(1.032)
Market-to-Book	-0.000**	0.005**	0.006*	0.005*
	(-1.963)	(2.297)	(1.684)	(1.942)
Sales Growth	-0.025	-0.006*	0.019	0.038
	(-0.384)	(-1.874)	(0.180)	(0.363)
Cash	0.394	0.777*	1.181**	1.357**
	(1.073)	(1.869)	(1.985)	(2.182)
Leverage	0.380**	0.506**	0.603*	0.669**
	(1.991)	(2.358)	(1.862)	(2.060)
R&D	0.236	0.513	-0.472	-0.708
	(0.399)	(0.762)	(-0.349)	(-0.520)
Intangible Assets	0.756***	0.894***	1.224***	1.217***
	(4.307)	(4.445)	(2.896)	(2.813)
PP&E	0.236	0.374	0.437	0.434
	(0.754)	(0.938)	(0.772)	(0.755)
Deal Fixed Effects	YES	YES	YES	YES
No. of Observations	4,212	3,014	1,710	1,651
No. of Control Deals	3,775	2,659	1,470	1,415
No. of Actual Deals	437	355	240	236
Pseudo R^2	0.164	0.154	0.215	0.209

Table 6

The Association between Tax Haven Sub Relatedness and the Probability of being an Acquirer-Target Pair

This table reports conditional logit regression results of the probability of being an acquirer-target pair on the two firms' tax haven subsidiary relatedness. The dependent variable is an indicator variable that equals one if the acquirer-target pair is an actual pair, and zero otherwise. All variables are computed as described in Appendix. Reported in parentheses are t-statistics computed using robust standard errors adjusted for deal clustering; ***, **, * represent statistical significance (one-tailed for *Tax Haven Sub Diversity* and *Tax Haven Sub Overlap*; two-tailed for control variables) at 1%, 5% and 10%, respectively.

	All Acquirer-Target Pairs				*Acquirers & Targets with OECD Sub*		*Acquirers & Targets with EU Sub*	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Tax Haven Sub Diversity	-0.623***	-0.681***			-0.572**		-0.542**	
	(-2.979)	(-3.196)			(-2.353)		(-1.742)	
Non-Haven Sub Diversity	-0.872*	-1.125***			-0.443		-1.450**	
	(-1.935)	(-3.237)			(-0.672)		(-2.531)	
OECD Sub Diversity	0.316				-0.287			
	(0.739)				(-0.412)			
EU Sub Diversity		0.639**					0.867	
		(2.290)					(1.554)	
Tax Haven Sub Overlap			0.486**	0.435**		0.501**		0.531**
			(1.987)	(1.815)		(1.902)		(1.798)
Non-Haven Sub Overlap			0.082	-0.148		0.232		0.474
			(0.163)	(-0.401)		(0.391)		(0.889)
OECD Sub Overlap			0.079			0.060		
			(0.160)			(0.109)		
EU Sub Overlap				0.407				-0.188
				(1.280)				(-0.426)
Common Characteristics								
Same Incorporation	0.261**	0.255*	0.332***	0.334***	0.281**	0.327**	0.246	0.274*
	(2.004)	(1.947)	(2.878)	(2.880)	(2.004)	(2.538)	(1.577)	(1.876)
Same Headquarter	0.597***	0.602***	0.707***	0.702***	0.604***	0.738***	0.628***	0.760***
	(3.768)	(3.795)	(4.885)	(4.854)	(3.601)	(4.800)	(3.358)	(4.300)
Within Industry	1.240**	1.269**	1.448***	1.466***	1.530***	2.015***	1.064*	1.409***
	(2.404)	(2.488)	(3.421)	(3.385)	(2.978)	(4.741)	(1.809)	(2.855)

Acquirer Characteristics								
Total Assets	1.385***	1.387***	1.124***	1.137***	1.495***	1.292***	1.611***	1.432***
	(8.558)	(8.621)	(9.497)	(9.592)	(8.198)	(8.999)	(6.998)	(8.442)
Return on Assets	0.239	0.243*	0.074	0.080	0.208	0.018	0.241	-0.065
	(1.620)	(1.652)	(0.506)	(0.544)	(1.199)	(0.130)	(1.241)	(-0.418)
Market-to-Book	0.018**	0.018**	-0.000***	-0.000***	0.015**	-0.000**	0.014*	0.010*
	(2.024)	(2.054)	(-2.632)	(-2.665)	(1.975)	(-2.426)	(1.829)	(1.717)
Sales Growth	0.101	0.109	0.116	0.113	-0.052	-0.042	0.212	0.301**
	(0.790)	(0.845)	(1.346)	(1.317)	(-0.399)	(-0.423)	(1.120)	(2.232)
Cash	-0.040	-0.087	-0.100	-0.014	0.381	0.013	0.517	0.382
	(-0.065)	(-0.139)	(-0.211)	(-0.029)	(0.573)	(0.025)	(0.655)	(0.597)
Leverage	-0.015	-0.032	0.019	0.030	-0.022	0.054	0.235	0.074
	(-0.047)	(-0.105)	(0.176)	(0.263)	(-0.050)	(0.422)	(0.523)	(0.222)
R&D	0.872	0.841	0.237	0.300	1.077	0.421	1.038	1.136
	(0.738)	(0.729)	(0.252)	(0.318)	(0.859)	(0.440)	(0.774)	(1.196)
Intangible Assets	-0.023	-0.026	-0.030	-0.030	-0.101	-0.133	-0.096	-0.076
	(-0.280)	(-0.303)	(-0.768)	(-0.772)	(-0.866)	(-1.214)	(-0.762)	(-0.820)
PP&E	0.114	0.131	0.378*	0.423*	-0.013	0.430	-1.070	-0.566
	(0.337)	(0.382)	(1.673)	(1.876)	(-0.025)	(1.149)	(-1.588)	(-1.051)
Target Characteristics								
Total Assets	0.388***	0.387***	0.465***	0.459***	0.390***	0.479***	0.357***	0.495***
	(5.598)	(5.556)	(7.448)	(7.326)	(5.258)	(7.106)	(4.322)	(6.114)
Return on Assets	0.476**	0.475**	0.310**	0.312**	0.357*	0.221	0.169	0.108
	(2.463)	(2.461)	(2.032)	(2.011)	(1.925)	(1.528)	(1.432)	(0.897)
Market-to-Book	0.005**	0.005**	-0.000*	-0.000	0.005**	-0.000*	0.005**	0.004*
	(2.304)	(2.375)	(-1.740)	(-1.628)	(2.364)	(-1.917)	(2.433)	(1.650)
Sales Growth	-0.006*	-0.006*	-0.024	-0.029	-0.007*	-0.010	0.053	0.018
	(-1.863)	(-1.892)	(-0.380)	(-0.439)	(-1.735)	(-0.773)	(0.573)	(0.195)
Cash	0.785*	0.792*	0.406	0.406	0.912**	0.474	0.405	-0.070
	(1.888)	(1.894)	(1.098)	(1.095)	(1.978)	(1.159)	(0.739)	(-0.139)
Leverage	0.504**	0.503**	0.397**	0.396**	0.414*	0.384*	0.616**	0.481**
	(2.353)	(2.352)	(2.092)	(2.097)	(1.747)	(1.845)	(2.419)	(2.026)
R&D	0.503	0.484	0.212	0.169	0.336	0.253	-0.273	-0.142
	(0.744)	(0.713)	(0.357)	(0.286)	(0.491)	(0.401)	(-0.313)	(-0.168)

Intangible Assets	0.892***	0.886***	0.754***	0.757***	1.078***	0.856***	0.734**	0.609**
	(4.438)	(4.372)	(4.317)	(4.356)	(3.722)	(3.452)	(2.441)	(2.197)
PP&E	0.369	0.374	0.231	0.248	0.409	0.224	0.024	-0.190
	(0.926)	(0.936)	(0.745)	(0.802)	(0.938)	(0.582)	(0.046)	(-0.399)
Deal Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES
No. of Observations	4,212	4,212	3,014	3,014	3,503	2,641	2,561	2,098
No. of Control Deals	3,775	3,775	2,659	2,659	3,116	2,317	2,254	1,824
No. of Actual Deals	437	437	355	355	387	324	307	274
Pseudo R^2	0.166	0.168	0.155	0.156	0.186	0.169	0.194	0.181

Table 7
The Association between a Firm's Subsidiary Profile and the Probability of being a Target

This table reports conditional logit regression results of the probability of being a target on the firm's tax haven subsidiary profile. The dependent variable is an indicator variable that equals one if the firm is an actual target, and zero if the firm is a matched control target. All variables are computed as described in Appendix. Reported in parentheses are t-statistics computed using robust standard errors adjusted for deal clustering; ***, **, * represent statistical significance (two-tailed) at 1%, 5% and 10%, respectively.

	(1)	(2)	(3)	(4)
Ln(Tax Haven Subs)	0.167	0.197	0.070	0.042
	(0.711)	(0.780)	(0.382)	(0.244)
Ln(Non-Haven Subs)	-0.087	-0.118		
	(-0.547)	(-0.670)		
Ln(OECD Subs)			-0.004	
			(-0.039)	
Ln(EU Subs)				0.021
				(0.189)
Tax Haven Sub Ratio	-0.699	-0.722	-0.494	-0.449
	(-1.271)	(-1.276)	(-1.181)	(-1.151)
Delaware	0.334***	0.335***	0.332***	0.331***
	(2.662)	(2.676)	(2.641)	(2.633)
Total Assets	0.368***	0.369***	0.363***	0.361***
	(5.164)	(5.176)	(5.074)	(5.047)
Return on Assets	0.251	0.252	0.252	0.253
	(1.482)	(1.488)	(1.486)	(1.488)
Market-to-Book	-0.000*	-0.000*	-0.000*	-0.000*
	(-1.884)	(-1.861)	(-1.912)	(-1.909)
Sales Growth	-0.058	-0.061	-0.055	-0.055
	(-0.752)	(-0.785)	(-0.718)	(-0.711)
Cash	0.548	0.557	0.546	0.545
	(1.274)	(1.289)	(1.269)	(1.268)
Leverage	0.438**	0.439**	0.442**	0.443**
	(2.077)	(2.075)	(2.104)	(2.114)
R&D	-0.323	-0.306	-0.342	-0.356
	(-0.494)	(-0.469)	(-0.522)	(-0.541)
Intangible Assets	0.815***	0.816***	0.823***	0.823***
	(3.818)	(3.807)	(3.827)	(3.821)
PP&E	0.402	0.407	0.407	0.410
	(1.083)	(1.082)	(1.101)	(1.106)
Deal Fixed Effects	YES	YES	YES	YES
No. of Observations	2,346	2,346	2,346	2,346
No. of Control Firms	1,910	1,910	1,910	1,910
No. of Actual Targets	437	437	437	437
Pseudo R^2	0.057	0.057	0.057	0.057

Table 8

The Association between a Firm's Subsidiary Profile and the Probability of being an Acquirer

This table reports conditional logit regression results of the probability of being an acquirer on the firm's tax haven subsidiary profile. The dependent variable is an indicator variable that equals one if the firm is an actual acquirer, and zero if the firm is a matched control acquirer. All variables are computed as described in Appendix. Reported in parentheses are t-statistics computed using robust standard errors adjusted for deal clustering; ***, **, * represent statistical significance (two-tailed) at 1%, 5% and 10%, respectively.

	(1)	(2)	(3)	(4)
Ln(Tax Haven Subs)	0.765***	0.763**	0.736***	0.771***
	(2.673)	(2.562)	(3.265)	(3.714)
Ln(Non-Haven Subs)	-0.315	-0.327		
	(-1.397)	(-1.384)		
Ln(OECD Subs)			-0.281*	
			(-1.756)	
Ln(EU Subs)				-0.333**
				(-2.257)
Tax Haven Sub Ratio	-1.547**	-1.590**	-1.329**	-1.382***
	(-2.147)	(-2.169)	(-2.475)	(-2.652)
Delaware	0.407***	0.403***	0.416***	0.406***
	(2.723)	(2.695)	(2.780)	(2.715)
Total Assets	1.591***	1.594***	1.586***	1.589***
	(10.53)	(10.53)	(10.59)	(10.53)
Return on Assets	0.081	0.077	0.074	0.078
	(0.307)	(0.296)	(0.284)	(0.293)
Market-to-Book	-0.000*	-0.000*	-0.000**	-0.000*
	(-1.852)	(-1.862)	(-2.047)	(-1.956)
Sales Growth	0.132	0.136	0.133	0.133
	(1.109)	(1.134)	(1.114)	(1.090)
Cash	0.425	0.432	0.450	0.420
	(0.676)	(0.688)	(0.715)	(0.668)
Leverage	-0.074	-0.069	-0.082	-0.077
	(-0.425)	(-0.411)	(-0.447)	(-0.401)
R&D	0.739	0.792	0.696	0.754
	(0.642)	(0.687)	(0.603)	(0.654)
Intangible Assets	-0.033	-0.033	-0.034	-0.032
	(-1.002)	(-0.989)	(-1.034)	(-0.974)
PP&E	0.453	0.448	0.446	0.446
	(1.433)	(1.428)	(1.407)	(1.402)
Deal Fixed Effects	YES	YES	YES	YES
No. of Observations	2,302	2,302	2,302	2,302
No. of Control Firms	1,865	1,865	1,865	1,865
No. of Actual Acquirers	437	437	437	437
Pseudo R^2	0.367	0.367	0.368	0.369