Tax Aggressiveness and Shareholder Wealth: Evidence from Mergers and Acquisitions

by

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Abstract

In this dissertation, I examine two related questions on whether and how tax aggressiveness of firms is associated with shareholder wealth in a new context – mergers and acquisitions (M&A). The first study investigates whether and how the tax aggressiveness of the acquirers and targets affects shareholder wealth. I present the idea of tax aggressiveness transfer whereby the acquirer's propensity for tax planning applies to its target's tax function after the change in ownership. I measure the degree of tax aggressiveness transfer using the relative tax aggressiveness of the acquirer and target (i.e., the difference in tax aggressiveness between the two firms). I find that acquisitions of more tax aggressive targets by less tax aggressive acquirers generate significantly lower acquisition gains. I also document weaker evidence that acquisitions of less tax aggressive targets by more tax aggressive acquirers generate higher acquisition gains. That is, the results suggest that the shareholder wealth effects of tax aggressiveness transfer are driven by the value-destroying effect of decreases in tax aggressiveness. Cross-sectional analyses reveal that the acquirer's governance is a significant determinant of the shareholder wealth effects of tax aggressiveness transfer. Specifically, the results indicate that, when acquirers are well-governed, acquisitions of targets with lower tax aggressiveness by acquirers with higher tax aggressiveness are value-enhancing. Similarly, acquisitions of targets with higher tax aggressiveness by acquirers with lower tax aggressiveness are value-destroying. These findings are robust to various measures of tax aggressiveness. In sum, I find that tax aggressiveness transfer is a significant determinant of value creation or destruction in M&A.

The second study is devoted to studying whether and how the target's participation of tax shelters – an extreme form of tax aggressiveness – matters in acquirer's valuation of the target

firm. Using a novel dataset that identifies targets' non-participation in tax shelters, I find that the target's non-sheltering status is associated with a higher takeover premium, indicating that acquirers reward targets for not engaging in tax sheltering. This positive association is stronger for targets that are more opaque and for acquirers that are less tax aggressive. In addition, I find that the target's non-sheltering status is positively associated with acquirer returns for acquirers that are weakly governed and for targets that are more opaque. Overall, my findings suggest that the target's non-sheltering status is relevant in acquirers' valuation of the target, and that the valuation benefits of the target's non-participation in tax shelters are mainly accrued to the target's own shareholders rather than to those of the acquiring firm.

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To Yanju and Daniel
with love and appreciation

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Chapter 1

Introduction

1.1 Introduction

A relatively new area of accounting research seeks to develop a fuller understanding of the determinants and consequences of firms' aggressive tax planning behavior or tax aggressiveness. Tax aggressiveness is defined as the reduction of explicit taxes per dollar of pre-tax accounting earnings or cash flows through a continuum of tax planning strategies, where legal strategies such as tax-favored municipal bond investments are at the one end and tax sheltering is at the other end (Hanlon and Heitzman 2010). Prior research has shown that firms engage in different forms of tax planning strategies to reduce taxes, and that some firms are more aggressive in avoiding taxes than other firms. For example, there is ample evidence that shows firms with foreign operations engage in cross-border tax avoidance by shifting income to low-tax jurisdictions or offshore tax havens (e.g., Harris, Morck, Slemrod, and Yeung, 1993; Hines and Rice 1994; Klassen, Lang, and Wolfson, 1993; Klassen and Laplante 2012) and by strategically locating their interest deductions in foreign tax jurisdictions (Dhaliwal and Newberry 2001). Dyreng, Lindsey, and Thornock (2012) find that U.S. firms reduce their state effective tax rates by between 0.7 and 1.1 percentage points by shifting income into Delaware with the use of a Passive Investment Company. Furthermore, extant research also documented that some firms adopt extreme tax avoidance strategies such as Corporate-Owned Life Insurance tax shelters (Brown 2011) or reportable transaction tax shelters (Lisowsky 2010; Lisowsky, Robinson, and Schmidt 2012).

While extant literature has also shown that firms' tax aggressive behaviors can be explained by management styles, ownership, organization of tax functions, and incentive structures (e.g., Chen, Chen, Cheng, Shevlin 2010; Dyreng, Hanlon, and Maydew 2010; Robinson, Sikes, and Weaver 2010; and Wilson and Rego 2012), relatively little research (e.g., Desai and Dharmapala 2009; Hanlon and Slemrod 2009; and Wilson 2009) has examined whether and how tax aggressiveness affects shareholder wealth in part because of the lack of powerful research settings. In this dissertation, I examine two related questions on whether and how tax aggressiveness of firms is associated with shareholder wealth in a new context of M&A. The first study investigates whether and how the tax aggressiveness of the acquirer and target affects shareholder wealth. The second study is devoted to studying whether and how the target's participation of tax shelters – an extreme form of tax aggressiveness – matters in acquirer's valuation of the target firm.

1.2 Tax Aggressiveness Transfer and Shareholder Wealth

M&A presents an excellent setting for studying the implications of tax aggressiveness on shareholder wealth. Existing research in this area such as Desai and Dharmapala (2009) and Wilson (2009) find that the association between tax aggressiveness and firm value depends on the firm's corporate governance. In particular, they document a positive association between tax aggressiveness and firm value for well-governed firms only. These studies rely on long-window association tests that are based on cross-sectional or time-series variation in tax aggressiveness and corporate governance. As pointed out in Hanlon and Heitzman (2010), one empirical issue related to the use of existing tax aggressiveness measures based on financial statement data is that the variation in tax aggressiveness could be endogenous to other firm characteristics. Recognizing the potential endogeneity of tax aggressiveness, Desai and Dharmapala (2009)

employ the instrumental variable (IV) approach in their estimation. Corporate governance, however, is also endogenous (Chi 2005; Brown and Caylor 2006; Chhaochharia and Grinstein 2007, Armstrong, Jagolinzer, and Larcker 2010). For example, if higher valued firms are more likely to opt for both better governance structures and aggressive tax planning, it would be difficult to identify the impact of tax aggressiveness on shareholder wealth. In M&A, a change in ownership triggers an exogenous change in the target's tax aggressiveness and corporate governance, providing a powerful quasi-experimental setting to investigate the question of whether changes in the target's tax aggressiveness affect shareholder wealth creation.

In particular, the first study presents the idea of a tax aggressiveness transfer whereby the acquirer's propensity for tax planning applies to its target's tax function after the change in ownership and examines whether shareholder wealth is associated with the extent of tax aggressiveness transfer. I use the relative tax aggressiveness of the acquirer and target to measure the degree of tax aggressiveness transfer. Using total book-tax difference developed in Manzon and Plesko (2002) as the main proxy for tax aggressiveness, I calculate the relative tax aggressiveness by subtracting the target's tax aggressiveness proxy from the acquirer's tax aggressiveness proxy. In a sample of 844 U.S. M&A transactions completed between 1990 and 2010, I find that acquisitions of higher tax aggressiveness targets by lower tax aggressiveness acquirers generate significantly lower acquisition returns. To provide triangulating evidence, I document similar results using alternative measures of tax aggressiveness including abnormal book-tax difference (Desai and Dharmapala 2006), discretionary permanent book-tax difference (Frank, Lynch, and Rego 2009), and cash effective tax rate (Dyreng, Hanlon, and Maydew 2008). In addition, I examine the role of the acquirer's corporate governance in the association between tax aggressiveness transfer and shareholder wealth. The results show that, when

acquirers are well-governed, acquisitions of targets with lower tax aggressiveness by acquirers with higher tax aggressiveness are value-enhancing. In contrast, when acquirers are poorly-governed, acquisitions of less tax aggressive targets by more tax aggressive acquirers are value-destroying. Overall, my findings are consistent with prior research that finds corporate governance is an important determinant of the association between tax aggressiveness and firm value (Desai and Dharmapala 2009; Wilson 2009). The results of this study provide a first step towards a better understanding of whether tax planning activities can be a source of gains resulting from M&A.

1.3 The Target's Tax Sheltering Status and Shareholder Wealth

In the second study, I examine whether and how the target's participation of tax shelters – an extreme form of tax aggressiveness – matters in acquires' valuation of the target. Tax shelters are financial arrangements that aim to reduce income tax liability by exploiting loopholes in tax law (Department of Treasury 1999). Representing extreme forms of tax avoidance, tax shelters generate substantial tax savings for firms. For example, Graham and Tucker (2006) find that the median tax deduction associated with tax shelter use is more than $1 billion per firm per year, or about 9 percent of total assets for 24 of the sample firms in their study. Despite the economic significance of these tax benefits, few empirical studies specifically focus on investors' valuation of tax sheltering firms. The reason for the lack of research in this area is primarily due to limited data. As claimed by Graham and Tucker (2006), information about tax sheltering is "notoriously hard to find" because firms do not publicly disclose their use of tax shelters and the Internal Revenue Service (IRS) tax investigation reports are confidential. Moreover, it is difficult to identify tax shelter participation from firms' financial statements (Hanlon 2003; McGill and Outslay 2004). As a result, extant research on tax sheltering has generally relied on data from

Tax Court records (Graham and Tucker 2006; Wilson 2009), press releases (Hanlon and Slemrod 2009; Gallemore, Maydew, and Thornock 2012), and IRS tax shelter disclosures (Lisowsky 2010; Lisowsky et al. 2012). Without new data sources, investors' valuation of tax sheltering firms will remain an underexplored area in accounting research.

The second study of this dissertation is devoted to studying investors' valuation of tax sheltering firms by exploring a unique situation under which the target's non-sheltering status is disclosed in the Form 8-K – Agreement and Plan of Merger. The disclosed non-sheltering status allows the *ex post* public identification of targets that have not participated in tax shelters and therefore serves as an appropriate proxy for the target's underlying tax sheltering status prior to M&A. I test whether acquirers price targets differently based on whether or not the targets have engaged in tax sheltering and whether the valuation effect of the target's non-sheltering status is shared by acquirer shareholders. Using the disclosed non-sheltering status as a proxy for the target's actual non-sheltering status, I find that the target's non-sheltering status is associated with a higher takeover premium. This association remains positive and significant after controlling for the target's tax aggressiveness using existing measures. Also, this positive association is significantly stronger for targets that are more opaque and for acquirers that are less tax aggressive. Moreover, I find that the association between the target's non-sheltering status and acquirer returns is significantly positive for acquirers that are weakly governed and for targets that are more opaque. In sum, my results suggest that the positive valuation effect of the target's non-participation in tax shelters is mainly captured by the target's own shareholders rather than by those of the acquirer, but acquirer shareholders can enjoy higher acquisition gains from a non-sheltering target if the acquirer's governance is weak or if the target's information environment is not transparent. This study contributes to the tax avoidance literature by

proposing a new measure of tax aggressiveness – the firm's non-sheltering status; and by showing that acquirers factor the tax risks related to the target's tax shelter involvement into the premium determination.

1.4 Dissertation Outline

The remainder of this dissertation is organized as follows. Chapter 2 provides a review of prior research on tax aggressiveness. Chapter 3 presents the first study on tax aggressiveness transfer and shareholder wealth. Chapter 4 presents the second study on the target's tax sheltering status and shareholder wealth. Each chapter is further organized into four sections: introduction, hypothesis development, research design and main results. Chapter 5 concludes the dissertation.

Chapter 2

Literature Review

2.1 Introduction

A growing area of accounting research seeks to develop a fuller understanding of aggressive tax planning behavior. Although extant literature has shown that firms engage in different forms of tax planning strategies to reduce taxes, and that some firms are more tax aggressive than other firms are, relatively little is known regarding the valuation implications of tax aggressiveness to shareholders. This dissertation aims to provide new insights to this area by conducting two related studies that examine whether and how tax aggressiveness matters in shareholder wealth in the context of M&A. Although existing literature on the valuation effects of tax aggressiveness is more relevant to my studies, a thorough understanding of the literature on the determinants of tax aggressiveness is key to the development of my hypotheses in the first study. Therefore, in the following two sections, I review existing literature on the determinants and consequences of tax aggressiveness.

2.2 Determinants of Tax Aggressiveness

Extant literature has documented a number of observable firm-level characteristics that are associated with the cross-sectional variation in tax aggressiveness of firms using different data sources. For example, Mills, Erickson, and Maydew (1998) analyze the determinants of investments in tax planning using a confidential survey that contains tax-related expenditures data of 365 large U.S. firms from Slemrod and Blumenthal (1993). Their main findings are: (1) larger firms spend proportionately less on tax planning than small firms, (2) firms with foreign operations invest more heavily in tax planning than do firms without foreign operations, (3)

capital intensity and the number of entities in the firm are positively related to firm expenditures on tax planning, and (4) inventory intensity and leverage are not consistently related to expenditures on tax planning.

Dyreng et al. (2008) develop a measure of long-run tax avoidance based on firms' cash effective tax rates. They find that 22 percent of their 437 sample firms were able to sustain a cash effective tax rate of less than 20 percent over a ten year period. They also examine the characteristics and attributes of those successful long-run tax avoiding firms. Their findings indicate that firms that have a lower long-run effective tax rate are generally large, more profitable, incorporated in a tax haven, highly leveraged, having a lot of fixed assets and intangible assets, and reporting large special items. They also find that successful tax avoiding firms tend to be firms in certain industries such as oil and gas extraction, insurance, and real estate. They emphasize that, however, these observable factors only contribute to a fraction (at most 22.6 percent) of the cross-sectional variation in long-run effective tax rate.

Using a set of firms identified in Tax Court records and press articles as having participated in corporate tax shelters, Wilson (2009) develops a profile of the type of firm likely engaged in tax sheltering. Consistent with the findings in Rego (2003) and those in Dyreng et al. (2008), Wilson's (2009) findings suggest that firms actively engaged in tax sheltering are larger in size, more profitable, and have higher income from foreign operations. In addition, his findings also indicate that tax shelter participation is associated with larger ex post book-tax differences and more aggressive financial reporting behavior.

Also studying firm characteristics that are linked to tax shelter participation, Lisowsky (2010) extends prior research (e.g., Dyreng et al. 2008 and Wilson 2009) using confidential tax shelter data obtained from the Internal Revenue Service (IRS). He finds that tax shelter

likelihood is positively related to firm size, profitability, subsidiaries located in tax havens, foreign-source income, inconsistent book-tax treatment, litigation losses, use of promoters, and negatively related to leverage. More important, he also finds that total book-tax differences are significantly related to tax shelter usage, while discretionary permanent book-tax differences and long-run cash effective tax rates are not.

In addition to documenting the firm characteristics that explain the cross-sectional variation in tax aggressiveness, recent research also investigates the role of management styles of firm executives, organization of tax functions, and ownership in determining the tax aggressiveness of firms. For example, Dyreng et al. (2010) investigate whether individual top executives have incremental effects on their firms' tax avoidance that cannot be explained by characteristics of the firm. To identify executive effects on firms' effective tax rates, they construct a dataset that tracks the movement of 899 executives across firms over time. Their results indicate that individual executives play a significant role in determining the level of tax avoidance that firms undertake. Specifically, moving between the top and bottom quartiles of executives results in approximately an 11 percent change in effective tax rates. Overall, the paper demonstrates that executive effects are an important determinant in firms' tax avoidance and, in turn, firms' after-tax profitability.

Robinson et al. (2010) investigate why firms choose to evaluate a tax department as a profit center ("contributor to the bottom line") as opposed to as a cost center and the association between this choice and effective tax rates (ETRs). Using data from a confidential survey taken in 1999 of Chief Financial Officers, they develop and test a theory for choosing between these two methods of evaluating a tax department. They find that the likelihood of evaluating the tax department as a profit center is increasing in firm decentralization characteristics and tax

planning opportunities. They then employ instrumental variables to investigate whether evaluating a tax department as a profit center provides an effective incentive for the tax department to contribute to net income through lower ETRs. They find that their instrument for profit center firms is associated with significantly lower ETRs than cost center firms. Overall, their results indicate that the organization of tax function has a strong influence on the firm's tax practices.

Chen et al. (2010) examine the tax aggressiveness of family firms, relative to their non-family counterparts. Using multiple measures to capture tax aggressiveness and different proxies for founding family presence, they find that family firms exhibit lower tax aggressiveness, contrary to the notion that family firms would exhibit a higher level of tax aggressiveness as family owners will benefit more from tax savings. Their analysis of Graham and Tucker's (2006) tax sheltering firms also shows that family firms are less likely to use tax shelters. It also contributes toward a better understanding of the impact of ownership on firms' tax reporting practices.

Badertscher, Katz, and Rego (2011) investigate whether private equity (PE) firms influence the tax practices of their portfolio firms. In particular, they examine whether PE firms influence the extent and types of tax avoidance at portfolio firms as an additional source of economic value. They document that PE-backed portfolio firms engage in significantly more nonconforming tax planning and have lower marginal tax rates than other private firms. Moreover, they document that PE-backed portfolio firms pay 14.2 percent less income tax per dollar of pre-tax income than non-PE backed firms, after controlling for NOLs and debt tax shields. They find additional tax savings for PE-backed portfolio firms that are either majority-owned or owned by large PE firms, consistent with PE ownership stake, expertise, and resources

serving as important factors in the tax practices of portfolio firms. Overall, they infer that PE firms view tax planning as an additional source of economic value in their portfolio firms, where the benefits outweigh any potential reputational costs associated with corporate tax avoidance.

Cheng, Huang, Li, and Stanfield (2012) examine the impact of activist hedge funds on corporate tax avoidance. They find that target firms of hedge fund activism experience increases in levels of tax avoidance after fund intervention and the increases in tax avoidance are positively associated with hedge fund filers' experience in activist activities and their past success in implementing tax changes. They also document a link between changes in target firms' tax avoidance and fund activists' interest and expertise in tax issues as indicated in their SEC filings. Their findings are consistent with the hypothesis that shareholder monitoring by activist hedge funds improves tax efficiency.

In sum, existing literature suggests that, in addition to firms' operating characteristics such as firm size, profitability, and foreign operations, firm-level factors including management styles of firm executives, organization of tax functions, and ownership all have significant influence on the level of tax aggressiveness of firms.

2.3 Consequences of Tax Aggressiveness

After reviewing extant literature that examines factors explaining the cross-sectional variation of tax aggressiveness, in this section, I review research that devoted in studying the consequences of tax aggressiveness. As one of the first studies in this area, Mills et al. (1998) quantify the returns to investments in tax planning and provide empirical evidence that firms' investments in tax planning are associated with lower tax liabilities: an additional $1 investment in tax planning results in a more than $4 reduction in tax liabilities after controlling for tax opportunities.

Graham and Tucker (2006) collect a unique sample of 44 tax shelter cases at 43 firms from 1975 to 2000 and investigate the magnitude of tax shelter activity and whether participating in a shelter is related to corporate debt policy. They find that the average annual deduction produced by the shelters in their sample is approximately nine percent of asset value – more than three times as large as interest deductions for comparable companies. They also find that firms that use tax shelters use less debt on average than non-shelter firms do. Regression coefficients indicate that tax sheltering firms' debt-to-asset ratios are more than 5 percentage points lower than leverage for non-shelter firms. Their results are consistent with tax shelters being a non-debt tax shield that substitutes for the use of interest tax deductions (DeAngelo and Masulis 1980).

Thus, if aggressive tax planning were costless to the firm, firm value would increase because the tax authority could take a smaller fraction of the firm's profits (Desai and Dharmapala 2008; 2009). However, tax aggressiveness is not without cost to the firm. Firms incur higher direct costs such as compliance and consulting fees when implementing more aggressive tax planning strategies. In addition to these direct costs of tax aggressiveness, tax aggressiveness is potentially costly to many firms in a variety of dimensions.

For example, using confidential data from tax returns from the Coordinated Examination Program between 1982 and 1992, Mills (1998) finds that IRS audit adjustments increase as book-tax differences increase, suggesting that more tax aggressive firms have higher IRS scrutiny than less tax aggressive firms do, and that firms cannot maximize financial earnings and tax benefits independently in a costless way. Moreover, results from Hanlon and Slemrod (2009) suggest that aggressive tax planning is viewed negatively by the market. Hanlon and Slemrod (2009) investigate the stock market reaction to news releases of firms' participation in tax shelters. They document a negative market reaction over the three day window surrounding

major press mentions of firms' participation in tax shelters. Their results suggest that tax shelter news is viewed as a negative event by the market. However, additional tests suggest that the negative market reaction to tax shelter news is not predominantly a reputational effect.

Recognizing that the difficulty in examining the effects of reputational concern on tax aggressiveness in an empirical setting, Graham, Hanlon, Shevlin, and Shroff (2012) conduct a survey of nearly 600 corporate tax executives to better understand why some firms are more aggressive in avoiding taxes than other firms. The results of their survey indicate that tax executives consider risk of IRS challenge, possibility of restatement, and reputational costs to be important factors in their own firm's decision not to implement tax strategies marketed by accounting firms or investment banks.

In addition to the aforementioned costs that are directly related to the underlying aggressive tax positions, agency costs can offset the benefits of reduced tax payments. Desai, Dyck, and Zingales (2007) argue that the complexity and obscurity of tax avoidance arrangements can provide self-serving managers with tools and justifications for rent-diverting activities such as earnings manipulation and insider trading. Building on Desai et al.'s (2007) perspectives on tax aggressiveness, Desai and Dharmapala (2009) investigate whether tax aggressiveness advance shareholder interests by analyzing how markets capitalize these activities. They find that the simple presumption that corporate tax avoidance represents a transfer of value from the state to shareholders does not appear to be validated in the data. Rather, the patterns in the data are more consistent with the agency perspective on corporate tax avoidance, which emphasizes the mediating role of governance. In particular, they find that higher quality firm governance allows tax aggressive firms to achieve significant positive firm

value, but the association between tax aggressiveness and firm value is not statistically significant for poorly-governed firms.

Other empirical studies that examine the valuation implications of tax aggressiveness generally document results consistent with those in Desai and Dharmapala (2009). Wilson (2009) finds that active tax shelter firms with strong corporate governance earn significant positive abnormal returns, whereas tax shelter firms with weak governance earn significantly lower abnormal returns. Koester (2011) also extends this line of research using the tax reserves for uncertain tax positions under FAS 109/FIN 48 to proxy for tax aggressiveness. She finds that shareholder returns are positively associated with changes in tax aggressiveness in firms with strong governance for a sample of S&P 500 firms between 2007 and 2009.

In sum, extant research provides empirical evidence consistent with the agency perspectives of tax aggressiveness (Desai et al. 2007 and Desai and Dharmapala 2009).

2.4 The Role of Tax Attributes in M&A

A large body of research in accounting and finance has examined the roles that taxes play in the pricing of M&A by considering the tax attributes of the merging firms and their shareholders. This section provides a brief review on this stream of literature.

Prior literature on the effects of merging firms' tax attributes on M&A can trace back to Hayn (1989), which examines a sample of 640 M&A deals from 1970 to 1985 and finds that the tax attributes of targets, such as expiring tax credits and step-up in the basis of the acquired assets, are significant in explaining merger announcement abnormal returns of both target and acquiring firms. Using a sample of 200 subsidiary stock acquisitions, Erickson and Wang (2000) document evidence that acquirers pay a higher premium for tax benefits associated with the election of IRC Section 338(h) (10). Dhaliwal, Erickson, and Heitzman (2004) find that, in a

sample of hospital sales, the purchase price is higher when the seller is taxable than when the seller is tax-exempt, suggesting that sellers with larger tax liabilities demand a higher price to compensate for transactional tax liabilities from the sale. Erickson and Wang (2007) report that taxable acquisitions of S corporations carry a tax-driven purchase price premium relative to that of similar privately-held C corporation acquisitions, consistent with the prediction in Scholes, Wolfson, Erickson, Maydew, and Shevlin (2005) that the organizational form of the target influences acquisition price.

In addition to examining effects of the tax attributes of the merging firms on acquisition price, prior research has also looked at the effects of the tax status of the shareholders on takeover premium. For example, by exploiting the cross-temporal variations in long-term capital gains tax rate regimes for a sample of acquisitions between 1975 and 2000, Ayers, Lefanowicz, and Robinson (2003 and 2004) find that acquisition premiums in taxable acquisitions and the use of tax-free stock-for-stock acquisitions increase with individual shareholder capital gains taxes, and these positive associations are mitigated by institutional ownership.

Recent research has also examined the effects of tax benefits and costs on takeover premium in an international setting. Mescall and Klassen (2013) develop a country-year specific measure of transfer pricing risk based on a proprietary survey of 76 transfer pricing experts from 34 countries. Their results suggest that acquirers pay a lower takeover premium to targets as the risk associated with transfer pricing policies and enforcement increases.

In keeping with this line of research on the effects of the merging firms' tax attributes on acquisition price, this dissertation considers tax aggressiveness as a tax attribute processed by both the acquires and targets, and suggests that this previously overlooked tax attribute can explain shareholder wealth creation or destruction in M&A.

2.5 Chapter Summary

In this chapter, I provide an overview of the extant literature on the determinants and consequences of tax aggressiveness. Extant research generally finds that observable firm traits such as firm size, profitability, and foreign operations can explain the cross-sectional variation in tax aggressiveness. In addition, recent studies have also shown that firm-level factors including management styles of firm executives, organization of tax functions, and ownership are key factors in determining a firm's tax aggressiveness. In addition, existing research documents results that are consistent with corporate governance to be an important determinant of the association between tax aggressiveness and firm value, as suggested by the agency perspectives of tax aggressiveness (Desai et al. 2007; Desai and Dharmapala 2009). Finally, I also provide a review on the literature that examine the roles that taxes play in the pricing of M&A. This dissertation considers tax aggressiveness to be a firm-level tax attribute that can explain shareholder wealth creation or destruction in M&A.

Chapter 3

Tax Aggressiveness Transfer and Shareholder Wealth

> *We have identified… an additional $50 million of tax related savings synergies amounting from the new structure. The ongoing effective tax rate of about 24% to 26% reflects the new company's structure before any incremental tax planning initiatives… We have over $90 million in synergies right from the start through one corporate structure and greater tax efficiencies.*
>
> —— Randall Hogan, Chairman and CEO, and John Stauch, CFO, Pentair from the Tyco-Pentair merger conference call

3.1 Introduction and Contributions

Andrade, Mitchell, and Stafford (2001) estimate that, using a sample of 3,688 completed mergers between 1973 and 1998, the average three-day abnormal return for acquirers as well as for acquirer and target combined are -0.7 percent and 1.8 percent, respectively. While the extent of acquisition gains or losses from mergers are well-documented, Andrade et al. (2001) emphasize that identifying the underlying sources of the valuation effects in M&A remains a challenging issue. A long stream of literature has considered tax to be one of the sources of value creation in M&A (e.g. Auerbach and Reishus 1988; Hayn 1989; Erickson and Wang 2007). These prior studies, however, have primarily focused on the role that tax plays at the transaction level. As noted in Hanlon and Heitzman (2010), little is known about how tax aggressiveness affects M&A. This study attempts to provide a first step towards a better understanding of whether tax aggressiveness can be a source of gains or losses resulting from M&A.

Specifically, this study presents the idea of a tax aggressiveness transfer whereby the acquirer's propensity for tax planning applies to its target's tax function after the change in ownership. In other words, I expect that the newly merged firm will share the tax aggressiveness features of the acquirer upon the change in ownership in M&A. As the traditional view of tax aggressiveness suggests, aggressive tax planning would increase firm value as the tax authority takes a smaller fraction of the firm's profits (Desai and Dharmapala, 2008; 2009). I extend this line of literature by empirically examining whether acquisitions of targets with lower tax aggressiveness by acquirers with higher tax aggressiveness generate higher acquisition gains, and vice versa.

I define tax aggressiveness as the reduction of explicit taxes per dollar of pre-tax accounting earnings or cash flows through a continuum of tax planning strategies, where strategies such as tax favored municipal bond investments are at the one end and more complicated strategies such as tax sheltering are at the other end. I determine the degree of tax aggressiveness transfer by measuring the difference between the acquirer's and the target's tax aggressiveness, or the relative tax aggressiveness of the two firms, prior to the acquisition. I break down the tax aggressiveness transfer measure into positive and negative values to investigate whether increases in tax aggressiveness create value, decreases in tax aggressiveness destroy value, or both. I use four common proxies of tax aggressiveness advanced in the literature to provide triangulating evidence. These proxies include total book-tax difference (Manzon and Plesko 2002), abnormal book-tax difference (Desai and Dharmapala 2006), discretionary permanent book-tax difference (Frank et al. 2009), and cash effective tax rates (Dyreng et al. 2008). Using a sample of 844 U.S. M&A transactions completed between 1990 and 2010, I find that, on average, acquirers have a wider book-tax difference and a lower cash

effective tax rate than targets have. Following Bradley, Desai, and Kim (1988), I measure acquisition gains for each transaction by computing the cumulative abnormal return for a value-weighted portfolio of the acquirer and the target during the five-day event window surrounding the merger announcement date. To better understand the way that the acquisition gains are divided between the shareholders of the acquirers and those of the targets, I also compute the cumulative abnormal returns separately for the acquirers and targets.

Consistent with my prediction, regression results indicate that acquisitions of more tax aggressive targets by less tax aggressive acquirers generate significantly lower acquisition gains, while acquisitions of less tax aggressive targets by more tax aggressive acquirers generate higher acquisition gains. The evidence, however, is weaker in the latter direction. That is, my findings suggest that the shareholder wealth effects of tax aggressiveness transfer are driven by the value-destroying effect of decreases in tax aggressiveness. The results also indicate that this value-destroying wealth effect of negative tax aggressiveness transfer is mainly accrued to shareholders of the acquirers rather than to those of the targets. The results are consistent across various proxies of tax aggressiveness.

Next, I examine the role of the acquirer's corporate governance in the wealth effects of tax aggressiveness transfer. Using the Governance Index (G-Index) developed in Gompers, Ishii, and Metrick (2003) to measure corporate governance, I find that the acquirer's governance is a significant determinant of the effects of tax aggressiveness transfer on shareholder wealth.[1] Specifically, I find that, when acquirers are well-governed, acquisitions of targets with lower tax aggressiveness by acquirers with higher tax aggressiveness are value-enhancing. Similarly, acquisitions of targets with higher tax aggressiveness by acquirers with lower tax aggressiveness

[1] Gompers et al. (2003) construct the G-Index based on 24 anti-takeover provisions that capture firms' shareholder rights.

are value-destroying. My findings are consistent with prior research that finds corporate governance to be a significant determinant of the relation between tax aggressiveness and firm value (Desai and Dharmapala 2009; Wilson 2009).

This study contributes to existing literature on the effects of tax aggressiveness on shareholder wealth in two ways. First, the M&A setting allows separate examination of the valuation implications of increases and decreases in tax aggressiveness, thus providing new insights into the ways in which tax aggressiveness affects shareholder wealth. Although prior literature (e.g., Desai and Dharmapala 2009; Wilson 2009) has shown that there is a positive valuation effect of tax aggressiveness for well-governed firms, those studies do not examine the valuation effects of increases and decreases in tax aggressiveness separately, in part because of the limitations of the research setting. For example, firms' tax planning policies do not typically change within a short period of time, so the year-to-year changes in tax aggressiveness measures such as changes in book-tax difference could be a noisy measure of changes in tax aggressiveness. Also, it is difficult to determine precisely when the tax shelter firms started and terminated their tax shelters in the tax shelter firm sample in Wilson (2009). In contrast, the M&A setting allows a clear identification of positive and negative changes in the target's level of tax aggressiveness, depending on which firm (i.e., the target or the acquirer) was more tax aggressive prior to the deal. My finding that the shareholder wealth effects of tax aggressiveness transfer are predominantly driven by the value-destroying effects of negative tax aggressiveness transfer contributes to a fuller understanding of the ways in which tax aggressiveness affects shareholder wealth.

Second, this study overcomes the potential limitation in addressing the endogeneity problem related to a firm's tax aggressiveness, governance practices, and firm value by adopting

a powerful research setting – M&A. Since a firm's characteristics of corporate governance practices and the firm's level of tax aggressiveness are both endogenously determined (Chi 2005; Hanlon and Heitzman 2010), results using long-window tests that are based on cross-sectional variations in tax aggressiveness and governance may be unreliable. In the context of M&A, the acquirer's governance structure will determine the governance structure of the merged firm upon a successful acquisition (Bris, Brisley, and Cabolis 2008; Wang and Xie 2008). Likewise, the acquirer's tax aggressiveness will determine the tax aggressiveness of the merged firm. In effect, this change in ownership triggers an exogenous change in the target's tax aggressiveness and corporate governance. Thus, the results of my short-window tests provide stronger inferences on the question of whether changes in firms' tax aggressiveness, along with changes in their corporate governance, affect shareholder wealth.

This paper also contributes to the literature on M&A. Prior literature documents that the benefits of change in ownership are, on average, negative for acquirer shareholders and positive for the acquirer and target combined (Andrade et al. 2001); nevertheless, the underlying sources of these valuation effects remain unclear. Devos, Kadapakkam, and Krishnamurthy (2009) investigate the relative importance of the underlying source of acquisition gains. Based on Value Line post-merger capital cash flow forecasts for a sample of 264 mergers, the authors break down the acquisition gains into two components: improvements in operating efficiency and tax savings. They estimate that, of the 10.02 percent of average acquisition gains, operating-related synergies contribute 8.38 percent, whereas tax savings contribute only 1.64 percent.

The tax savings estimate in Devos et al. (2009) only accounts for the increase in debt tax shields based on the debt level forecast for the merged firm. However, as documented in prior studies, there is ample empirical evidence that firms engage in different forms of aggressive tax

planning to reduce taxes (e.g., Dyreng et al. 2008). For example, these tax strategies include cross-border tax avoidance such as the use of foreign operations located in low-tax jurisdictions (Harris et al. 1993; Hines and Rice 1994; Klassen et al. 1993; Klassen and Laplante 2012) and tax sheltering such as the use of Corporate-Owned Life Insurance transactions (Brown 2011) or reportable transactions (Lisowsky 2010; Lisowsky et al. 2012). More important, the benefits from engaging in these aggressive tax avoidance activities could represent significant non-debt tax shields for firms (Graham and Tucker, 2006). Using the cross-sectional variation in tax aggressiveness between the acquirers and the targets, this study improves the estimates of tax-related acquisition gains by considering tax savings generated by a broader spectrum of corporate tax avoidance strategies. In keeping with the research on the roles of taxes in the pricing and structure of M&A (e.g., Hayn 1989; Erickson 1998; Erickson and Wang 2000, 2007; Ayers et al. 2003, 2004; Dhaliwal et al. 2004; Devos et al. 2009), this study contributes to the literature by showing that tax aggressiveness transfer from the acquirer to the target explains acquirer shareholder gains from M&A and responds to Hanlon and Heitzman's (2010) call for more research on whether tax aggressiveness affects M&A.

3.2 Hypotheses

3.2.1 Introduction

This section develops testable hypotheses that build on the themes reviewed in the previous section. Section 3.2.2 discusses existing literature on the benefits of a change in ownership. Section 3.2.3 summarizes findings in the previous literature that finds management styles, corporate culture, and ownership profiles to be significant determinants of a firm's aggressiveness in tax practices. Building on the discussion in Sections 3.2.2 and 3.2.3, Section

3.2.4 presents the two hypotheses related to how tax aggressiveness transfer from the acquirer to the target affects acquisition gains. Section 3.2.5 provides a summary of the section.

3.2.2 The Effects of Change in Ownership in M&A

In M&A, the acquirer's management essentially replaces the target's management after the change in ownership. Prior literature in finance has documented evidence that this change in the quality of management is an important determinant of value creation in M&A. For example, using a sample of successful tender offers from 1968 to 1980, Lang, Stulz, and Walkling (1989) and Servaes (1991) find that gains from acquisitions are larger when targets have low Tobin's *q* and acquirers have high Tobin's *q*, suggesting that acquisitions of poorly managed targets by better managed acquirers generate higher acquisition gains. In particular, they find that bidder abnormal returns, target abnormal returns, and the abnormal returns of a value-weighted portfolio of the bidder and the target are higher when bidders have higher *q* ratios and targets have low *q* ratios. The best takeovers, in terms of value creation, are those where a high *q* firm takes over a low *q* firm. If *q* is interpreted as a measure of managerial performance, their results support the view that financial markets reward well-managed firms, namely, high *q* firms, taking over poorly managed firms.

Similar to Lang et al.'s (1989), Servaes (1991) analyzes the relation between takeover gains and the *q* ratios of targets and bidders for a sample of 704 M&A transactions and tender offers over the period 1972-1987. The cross-sectional regression results show that the relative measures of Tobin's *q* can explain target, bidder, and total abnormal returns generated in the takeover. The significance of the relation between *q* and takeover gains is actually enhanced, after controlling for the characteristics of the offer and the contest. The abnormal returns of targets and bidders are larger when targets have low *q* ratios and bidders have high *q* ratios. He

further shows that returns are also related to the form of payment, the number of bidders, the reaction of target management, the time period of the takeover, and the relative size of targets and bidders.

Using the cross-country variation in investor protection regimes, Bris et al. (2008) study how changes in shareholder protection induced by cross-border mergers improve industry value. For each of 39 industries in 41 countries over the period 1990-2001, they construct measures of the corporate governance quality of the industry considering the cross-border mergers by and of firms in that industry. Using shareholder protection and accounting standards as corporate governance indicators, they find that acquisitions of firms in weaker shareholder protection countries by firms in stronger protective regimes significantly increase the value of the target industry (as measured by industry Tobin's *q*). However, targets acquired by firms from worse corporate governance environments do not lose value. Overall, they present evidence that the transfer of corporate governance practices through cross-border mergers is Pareto improving. Firms that can adopt better practices willingly do so, and the market assigns more value to better protection.

Wang and Xie (2008) find that acquisitions of poorly-governed targets by better governed acquirers create higher acquisition gains. Specifically, using the Gompers et al.'s (2003) G-Index to measure the level of shareholder rights, Wang and Xie (2008) find that acquisition gains are increasing in acquirers' shareholder rights relative to targets' shareholder rights. Their results support the hypothesis that acquisitions of firms with poor corporate governance by firms with good corporate governance generate higher total gains. Overall, the potential benefits generated by a change in ownership have been focused on the role of corporate governance as a source of

value creation. This study aims to explore an additional source of gains created by change in ownership: corporate tax aggressiveness.

3.2.3 Tax Aggressiveness Transfer in M&A

As reviewed in Section 2.2, prior literature on the determinants of tax aggressiveness supports the view that newly merged firm will share the tax aggressiveness features of the acquirers. In particular, Dyreng et al. (2010) track the movement of 899 executives across firms over time and find that individual executives play a significant role in determining the level of corporate tax aggressiveness. Using data from a confidential survey of Chief Financial Officers, Robinson et al. (2010) find that firms that choose to evaluate a tax department as a profit center are associated with significantly lower effective tax rates, suggesting that the organization of tax function has a strong influence on the firm's tax aggressiveness. Chen et al. (2010) suggest that, compared to non-family firms, firms owned or run by founding family members are less tax aggressive, possibly because they are more concerned with the costs associated with tax aggressiveness (e.g., price discount, IRS penalty, and reputational damage). Badertscher et al. (2011) find that private equity backed portfolio firms engage in significantly more non-conforming tax avoidance and have lower marginal tax rates than other private firms, suggesting that managers in private equity firms create economic value through aggressive tax planning. Similarly, investigating the role of hedge fund activism in corporate tax avoidance, Cheng et al. (2012) find that tax-savvy hedge fund activists improve the tax efficiency of their portfolio firms. Taken as a whole, evidence from existing literature suggests that management styles, corporate culture, and ownership profiles strongly influence a firm's aggressiveness in tax practices.

3.2.4 Hypotheses

Based on these findings, I expect a change in ownership will result in an increase or a decrease in the target's tax aggressiveness, depending on whether the acquirer is more or less tax aggressive than the target is. I argue that a less tax aggressive target will become more valuable, if merged with an acquirer with an aggressive tax department, and vice versa. My predictions are stated formally as hypotheses H1 and H2 below:

H1: *Acquisitions of less tax aggressive targets by more tax aggressive acquirers generate higher acquisition gains.*

H2: *Acquisitions of more tax aggressive targets by less tax aggressive acquirers generate lower acquisition gains.*

My hypotheses are not without tension. First, the hypotheses build on an assumption that the tax aggressiveness of the acquirers will apply to the targets post-acquisition. Although extant research provides support for this view, a related study suggests that this might not be the case. Blouin, Collins, and Shackelford (2005) examine the impact of foreign-controlled firms on tax aggressiveness by comparing changes in taxable income of 31 U.S. domiciled firms before and after being acquired by non-U.S. shareholders in 1996. They find no evidence that foreign-controlled firms increase the tax aggressiveness of their newly acquired U.S. targets. Although tax considerations are important in M&A, they are unlikely to be the primary reason behind a transaction. Thus, it might be difficult to detect the effects of changes in tax aggressiveness in the setting of cross-border M&A with a small sample. In this study, I employ a larger sample and focus on domestic M&A transactions between U.S. acquirers and U.S. targets, avoiding any potential unobserved attributes associated with foreign firms that may affect the results.

3.2.5 Section Summary

Extant literature has focused on the role of corporate governance as a source of value creation in a change in ownership. I argue that corporate tax aggressiveness could be an additional source of gains from a change in ownership. As management styles, corporate culture, and ownership profiles could strongly influence a firm's aggressiveness in tax practices, a change in ownership will result in an increase or a decrease in the target's tax aggressiveness, depending on whether the acquirer is more or less tax aggressive than the target is. Therefore, I hypothesize that a less tax aggressive target will become more valuable, if merged with an acquirer with an aggressive tax department, and vice versa.

3.3 Research Design

3.3.1 Introduction

This section describes the research design and sample used to test hypotheses H1 and H2 developed in Section 3.2. I begin with a description of how I measure acquisition gains in Section 3.3.2. Section 3.3.3 describes how I measure tax aggressiveness transfer from the acquirer to the target. Section 3.3.4 presents regression specifications to test the hypotheses. Section 3.3.5 outlines my sample selection criteria. Section 3.3.6 concludes.

3.3.2 Measures of Acquisition Gains

I measure acquisition gains in percentage returns using the method developed by Bradley et al. (1988). For each transaction, I form a value-weighted portfolio of the acquiring and target firms, determining weights based on the firms' respective market capitalizations on the 11^{th} trading day prior to the merger announcement date. Announcement dates are obtained from

Securities Data Corporation (SDC) Platinum Mergers and Acquisitions database. The target's capitalization is adjusted by subtracting the value of the target equity held by the acquirer before the merger announcement. The acquisition gains are defined as the portfolio cumulative abnormal return (*PCAR*) during the event window [-2, +2], in which event day 0 is the announcement date. To calculate portfolio abnormal returns, I use the simple market model to estimate expected stock return for portfolio *i* on day *t* following the standard methodology for event study analysis (Brown and Warner 1985):

$$AR_{it} = R_{it} - \alpha_i - \beta_i R_{m,t} \quad (1)$$

where $R_{i,t}$ is the realized return to portfolio *i* on day *t*. The parameters α_i and β_i are estimated over the 200-day window before the announcement period [-210, -11] using CRSP value-weighted return as the market return ($R_{m,\ t}$). The five-day announcement period cumulative abnormal return (CAR) for portfolio *i* is computed as follows:

$$CAR_i(-2, 2) = \sum_{t=-2}^{2} AR_{i,t} \quad (2)$$

Although the focus of this study is on the combined acquisition gains of both the acquirer and target, I am also interested in the split of acquisition gains between the shareholders of the two firms. To further examine the division of acquisition gains between the shareholders of the acquirer and target, I separately compute the five-day cumulative abnormal returns for the acquirer (*ACAR*) and the target (*TCAR*).

3.3.3 Measures of Tax Aggressiveness Transfer

My primary proxy for tax aggressiveness is the total book-tax difference (*BTD*) measure based on Manzon and Plesko (2002). Total BTD measures the extent to which estimated taxable income deviates from reported book income. A positive gap in total BTD indicates the firm's

aggressiveness in pursuing tax strategies that leads to a decrease in taxable income without decreasing book income. I choose total BTD to be the primary measure of tax aggressiveness because existing literature has documented evidence that BTD maps the footprints of firms' tax aggressive behaviors. For example, Mills (1998) finds that firms with higher BTD are more likely to be audited by the IRS and are subject to more audit adjustments, suggesting that BTD is used by the tax authority to identify potential tax avoiders. In addition, Wilson (2009) and Lisowsky (2010) find that total BTD is a useful proxy for explaining the incidence of tax shelter activities. Although Lisowsky et al. (2012) show that FIN 48 tax reserve is a good measure for predicting tax shelter participation, I did not choose FIN 48 tax reserve to be one of my proxies for tax aggressiveness because these data are only available after 2007 and would result in a very small sample size. My research question focuses on whether the tax aggressiveness of the acquirer relative to that of the target is associated with acquisition gains. To construct a measure of the extent of tax aggressiveness transfer, or the relative tax aggressiveness, I use the difference in tax aggressiveness (*D_BTD*) between acquirer *i* and target *j* as follows:

$$D\_BTD_{i,j,t\text{-}1} = BTD_{i,t\text{-}1} - BTD_{j,t\text{-}1} \quad (3)$$

where BTD = [(Pre-tax income – taxable income – state income taxes – other income taxes – equity in earnings) / lagged assets]

where taxable income = { [(current federal tax expense + current foreign tax expense) – change in tax loss carry-forward] / statutory tax rate }

As noted in Hanlon and Heitzman (2010), total BTD only captures aggressive behavior in non-conforming tax planning activities that generate a difference between book and taxable income; thus, cross-sectional variation in total BTD may not fully indicate tax aggressiveness across firms with varying financial reporting incentives. In my setting, I use the difference in

book-tax difference between the acquirer and target as a proxy for tax aggressiveness transfer. This measure may be biased if the acquirers engage in earnings management prior to the completion of stock-for-stock acquisitions to boost their stock prices (Erickson and Wang 1999). To mitigate the potential bias of my tax aggressiveness transfer measure, I measure *BTD* one year prior to the announcement of the deal. Although I do not expect the financial reporting incentives to vary significantly and systematically across the particular acquirer-target pairs one year prior to the merger transaction, I use three additional measures of tax aggressiveness to provide triangulating evidence to support my research question. I discuss each measure below.

The second proxy for tax aggressiveness is a measure of abnormal BTD (*ABTD*), a residual-based BTD measure obtained from a fixed-effect regression of total BTD on a measure of earnings management. I use the discretionary accruals estimated from the modified Jones model by Dechow, Sloan, and Sweeney (1995) to measure earnings management.[2] Specifically, abnormal BTD (ABTD) is the residuals ($\varepsilon_{i,t}$) from the following regression:

$$BTD_{i,t} = \beta DA_{i,t} + \mu_i + \varepsilon_{i,t} \quad (4)$$

where *BTD* is total book-tax difference as defined above. DA is discretionary accruals estimated from the modified Jones model by Dechow et al. (1995).

The third measure I employ is based on the *DTAX* measure advanced by Frank et al. (2009). It is another residual-based BTD measure obtained from a regression of permanent BTD or ETR differentials (Hanlon and Heitzman 2010) on known determinants such as intangible assets, minority interests, and income from unconsolidated subsidiaries. A firm's foreign operations may contribute to higher ETR differentials for the firm (Rego, 2003), but having these foreign operations does not necessarily indicate that the acquirer is more tax aggressive than the

[2] Results are very similar using alternative proxies for earnings management (e.g., total accruals, Jones, 1991; Kothari, Leone and Wasley, 2005).

target. To alleviate the concern that our measure of tax aggressiveness transfer may be affected by cross-sectional differences in foreign operations between the merging parties, I modify the *DTAX* measure by controlling for a firm's foreign operations. Armstrong, Blouin, and Larcker (2012) make a similar adjustment to their *DTAX* measure. Specifically, the *DTAX* measure based on Frank et al. (2009) is the residuals ($\varepsilon_{i,t}$) from the following regression:

$$PERMDIFF_{i,t} = \alpha_0 + \alpha_1 INTANG_{i,t} + \alpha_2 UNCON_{i,t} + \alpha_3 MI_{i,t} + \alpha_4 CSTE_{i,t} + \alpha_5 \Delta NOL_{i,t} + \alpha_6 PERMDIFF_{i,t-1} + \alpha_7 FOREIGN_{i,t} + \varepsilon_{i,t} \quad (5)$$

where
PERMDIFF = [(Pre-tax income – taxable income) – (deferred tax expense/statutory tax rate)],
INTANG is goodwill and other intangibles,
UNCON is income (loss) reported under the equity method,
MI is income (loss) from minority interest,
CSTE is current state income tax expense,
ΔNOL is change in net operating loss carry-forwards,
FOREIGN is an indicator variable that equals 1 if the firm has foreign income, and 0 otherwise.
PERMDIFF, *INTANG*, *UNCON*, *CSTE*, and ΔNOL are all scaled by lagged assets.

The last measure of tax aggressive is Dyreng et al.'s (2008) long-run cash effective tax rate (*CASHETR5*). One benefit of using cash taxes is that this measure avoids the problem of overstated current tax expense due to differential book-tax treatment of employee stock option deductions (Dyreng et al. 2008). The five-year cash effective tax rate based on Dyreng et al. (2008) is defined as follows:

$$CASHETR5_{t,i} = \frac{\sum_{n=t-5}^{t-1} Cash\ Tax\ Paid_{n,i}}{\sum_{n=t-5}^{t-1} PTBI_{n,i} - Special\ Items_{n,i}} \quad (6)$$

where the numerator is the sum of cash tax paid over a five-year period before the merger and the denominator is the sum of pre-tax income over the same period.

Similar to my *D_BTD* measure, I measure tax aggressiveness transfer by computing the difference in tax aggressiveness between acquirer *i* and target *j* one year ahead of the merger announcement:

$$D\_ABTD_{i,j,t-1} = ABTD_{i,t-1} - ABTD_{j,t-1} \quad (7a)$$

$$D\_DTAX_{,j,t-1} = DTAX_{i,t-1} - DTAX_{j,t-1} \quad (7b)$$

$$D\_CETR_{i,j,t-1} = CASHETR5_{i,t-1} - CASHETR5_{j,t-1} \quad (7c)$$

While extent research suggests that taxes play an important role in cross-border M&A (e.g., Arulampalam, Devereux, Liberini 2012; Huizinga and Voget 2009; Mescall and Klassen 2013), the focus of this study is on U.S. transactions for research design reasons. The construction of the dependent variable requires consistent measures of the acquirer's and the target's tax aggressiveness. In the context of cross-border transactions, constructing a reliable measure of tax aggressiveness transfer for a U.S. acquirer and a foreign target would be a challenging task as differences in tax laws and accounting standards between the U.S. and the foreign country may adversely affect the validity of the measure.

3.3.4 Regression Specifications

To test my hypotheses H1 and H2, I run the following regression model:

$$PCAR = \alpha + \beta_1 D\_BTD\_POS + \beta_2 D\_BTD\_NEG + \boldsymbol{X}'\zeta + t + \varepsilon \quad (8)$$

The main dependent variable, *PCAR*, is the abnormal return of a value-weighted portfolio of the acquirer and the target, and *D_BTD* is the difference in total BTD between the merging firms. I break down D_BTD into two variables based on the sign of the values. That is, *D_BTD_POS* (*D_BTD_NEG*) measures the level of tax aggressiveness transfer for transactions in which the acquirer (target) is more aggressive than the target (acquirer) is. I expect β_1 to be

positive in Equation (8) to be consistent with hypothesis H1 that increases in targets' tax aggressiveness are associated with higher acquisition gains. Similarly, I also expect β_2 to be positive to be consistent with hypothesis H2 that decreases in targets' tax aggressiveness are associated with lower acquisition gains. $\boldsymbol{X}$ is a vector of firm-specific and deal-specific observable determinants of acquisition gains, and *t* is calendar year fixed-effects.

Following existing research on M&A (e.g., Travlos 1987; Moeller, Schlingemann, and Stulz 2004; and Wang and Xie 2008), I control for three categories of determinants of acquisition gains in Equation (8): target, acquirer, and deal characteristics. For firm characteristics, I control for the target's and acquirer's firm size (*SIZE*), Tobin's *q* (*TOBINSQ*), profitability (*ROA*), and leverage (*LEV*), all measured at the fiscal year end prior to the merger announcement. I expect portfolio abnormal returns to be negatively associated with acquirer size, consistent with Moeller et al.'s (2004) findings. Prior studies (Lang et al. 1989; Servaes 1991) show that, for acquisitions of public targets, announcement abnormal returns are higher when acquirers have high Tobin's *q* and targets have low Tobin's *q*. However, Moeller et al. (2004) provide evidence that acquirer return is negatively related to the acquirer's Tobin's *q*. Given the mixed findings documented in existing literature, I make no directional prediction on the coefficient on the acquirer's Tobin's *q*. Wang and Xie (2008) find that abnormal returns are positively associated with acquirers' and targets' profitability. Thus, I control for profitability by including returns on assets (*ROA*) in the return regression. Finally, I expect acquirer leverage to be positively associated with acquirer returns and negatively associated with target returns, consistent with the findings in Dong, Hirshleifer, Richardson, and Teoh (2005).

For deal characteristics, I include relative deal size (*DEALRATIO*) and indicator variables for whether the deal is a tender offer (*TENDER*), a stock-financed transaction (*ALLSTOCK*), a

high-tech merger (*HIGHTECH*), or a within-industry merger (*INDMATCH*). In light of prior literature which finds that tender offers generate higher gains (e.g., Bhagat, Dong, Hirshleifer, and Noah 2005), I expect *TENDER* to be positively associated with abnormal returns. To control for the possibility that the method of financing can provide signals that affect abnormal returns (Myers and Majluf 1984), I include an indicator variable for stock-for-stock transactions (*ALLSTOCK*). Consistent with the empirical findings by Travlos (1987), I expect stock-for-stock transactions to generate negative abnormal returns. Moeller et al. (2004) find a positive association between acquirer returns and relative deal size, although a negative association is observed in a subsample of large acquirers. Following Moeller et al. (2004), I control for the relative deal size (*DEALRATIO*), defined as the ratio of total consideration paid (excluding fees) to the acquirer's market value of equity. I do not have an ex ante prediction regarding the sign of *DEALRATIO*. Masulis, Wang, and Xie (2007) and Wang and Xie (2008) find that high-tech mergers are negatively associated with abnormal returns, suggesting that acquirers are more likely to underestimate the costs but to overestimate the synergies in high-tech combinations. Therefore, I also include a dummy variable *HIGHTECH* to indicate whether the transaction is a merger between firms in the high-technology industries. Finally, following Wang and Xie (2008), I include a dummy variable *INDMATCH* to control for the potential higher synergies related to economies of scale in a merger between firms in related industries.

The variables used in Equation (8) are defined as follows:

SIZE = Natural logarithm of market value of outstanding equity.

TOBINSQ = Market value of assets over book value of assets, where the market value of assets is computed as the book value of assets plus the market value of common stock less the sum of the book value of common stock.

ROA = Pre-tax income, scaled by lagged assets.

LEV = Book value of debts, scaled by lagged assets.

TENDER = Indicator variable: 1 for tender offer, and 0 otherwise.

ALLSTOCK = Indicator variable: 1 for 100% stock-financed deal, and 0 otherwise.

DEALRATIO = The total deal value (sum of all considerations paid, excluding fees) divided by the acquirer's pre-announcement market value of equity; market value of equity is defined as the number of shares outstanding multiplied by the stock price at the 6^{th} trading day prior to the merger announcement date.

HIGHTECH = Indicator variable: 1 if acquirer and target are both in a high-technology industry, and 0 otherwise.

Following the classification scheme in Kimbrough and Louis (2011), high-tech industries are as those in SIC codes 2833-2836 (Pharmaceuticals), 3570-3577 (Computers), 3600-3674 (Electronics), 7371-7379 (Programming), or 8731-8734 (R&D Services).

INDMATCH = Indicator variable: 1 if acquirer and target share a 2-digit SIC industry, and 0 otherwise.

3.3.5 Sample Selection

I draw the sample from the SDC Platinum Mergers & Acquisitions database. I only consider M&A transactions involving publicly-traded U.S. target and acquiring firms so that the firms' stock return and financial statement data are available from CRSP and Compustat. To ensure that my sample only includes deals that result in changes in control, I include only deals in which the acquirer owns less than 50% of the shares of the target prior to the merger

announcement and 100% of the target after the acquisition. I exclude transactions with deal values lower than $1 million. I also exclude firms in the financial sector (SIC 6000 – 6999) due to its unique nature of regulatory environment and data requirements. I identify 844 completed M&A transactions announced between January 1, 1990 and December 31 2010.

3.3.6 Section Summary

In this section, I discuss the empirical model for testing the two hypotheses outlined in Section 3.2. I first describe how I measure acquisition gains and tax aggressiveness transfer. Then, I specify the empirical model used to test my hypotheses. The next section presents estimation results of the model using the sample specified.

3.4 Empirical Results

3.4.1 Introduction

This section presents and discusses the results from the estimation of the empirical model specified in Equation (8). Section 3.4.2 presents the descriptive statistics relevant to my tests of hypotheses H1 and H2. The presentation also includes a review of a correlation table for my variables of interest as well as control variables. Section 3.4.3 discusses the main results for my tests of hypotheses H1 and H2. Estimation results for the main test as well as additional tests using alternative measures of tax aggressiveness are reported in Table 3.4.3 Panels A to E. Section 3.4.4 concludes the section.

3.4.2 Descriptive Statistics

Panel A of Table 3.4.2 presents the descriptive statistics for my sample. The mean (median) difference between acquirers' and targets' *BTD* is 0.03 (0.01). These differences

between acquirers' and targets' tax aggressiveness also present in the abnormal book-tax difference (*ABTD*) and in the discretionary book-tax difference (*DTAX*) measures. On average, the acquirers' cash effective tax rate (*CASHETR5*) is 2.1 percentage points lower than the target's *CASHETR5*. All the differences are statistically significant at the 5% level (one-tailed test). Overall, the statistics suggest that acquirers are slightly more tax aggressive than targets are in my sample. Note that the mean *BTD* for acquirers and the mean *BTD* for targets are negative due to the presence of firms with negative pre-tax income in my sample. Across distribution, the values of total BTD are slightly smaller than those reported in extent studies (e.g. Chen et al. 2010), but they become comparable once the loss firms have been removed. In contrast, the values of other tax aggressiveness proxies (i.e., *ABTD*, *DTAX*, and *CASHETR5*) indicate that my sample firms are slightly more tax aggressive than those in other studies (e.g., Chen et al. 2010; Dyreng et al. 2008; Frank et al. 2009).

Panel A of Table 3.4.2 also presents characteristics of the acquirers, the targets, and the transactions. In terms of firm size, the mean (median) market capitalization for acquirers and for targets is $10.5 ($1.3) billion and $1.1 ($0.16) billion respectively. The mean (median) total deal value is about 49 (24) percent of the market capitalization of the acquirers.

Turning to the performance measures, the mean (median) portfolio CAR (*PCAR*) is 2.1 (1.3) percent, a figure that is consistent with prior research (e.g. Moeller et al. 2004; Wang and Xie 2008). On average, the acquirers earn a negative abnormal return of -0.8 percent (*ACAR*), whereas the targets earn a positive abnormal return of 24.5 percent (*TCAR*). These findings are consistent with the findings in Fuller, Netter, and Stegemoller (2002) that abnormal stock returns are negative for acquirer shareholders and are positive for target shareholders in acquisitions of

public targets. *PCAR* and *TCAR* are significantly different from zero at the 1% level, and *ACAR* is significant at the 5% level.

Correlations among the main variables are reported in Table 3.4.2 Panel B. The correlations indicate that *D_BTD*, *D_ABTD*, and *D_DTAX* are positively related to all return variables (*PCAR*, *ACAR*, and *TCAR*). *D_CETR* is negatively correlated with *PCAR* only. Reported in Table 3.4.2 Panel C, the correlations among the control variables indicate that some firm-level characteristics such as firm size, leverage, and return on assets are highly correlated between the acquirers and targets. To ensure that multicollinearity is not a problem in my regressions, I examine the variance inflation factors (VIF). VIF values are less than 4 in all regressions, suggesting that multicollinearity does not negatively impact the results.

Table 3.4.2 – Panel A
Descriptive Statistics

Variable	N	Mean	Standard Deviation	Q1	Median	Q3
Tax Aggressiveness Measures						
BTD $_{Acquirer}$	844	-0.068	0.192	-0.069	-0.013	0.022
BTD $_{Target}$	844	-0.092	0.218	-0.135	-0.027	0.016
D_BTD $_{(Acquirer - Target)}$	844	0.030	0.235	-0.038	0.009	0.092
ABTD $_{Acquirer}$	844	0.081	0.196	0.073	0.130	0.164
ABTD $_{Target}$	844	0.045	0.242	0.023	0.117	0.165
D_ABTD $_{(Acquirer - Target)}$	844	0.036	0.246	-0.045	0.008	0.087
DTAX $_{Acquirer}$	844	0.018	0.412	-0.032	0.044	0.091
DTAX $_{Target}$	844	0.011	0.285	-0.017	0.045	0.087
D_DTAX $_{(Acquirer - Target)}$	844	0.032	0.249	-0.065	0.000	0.068
CASHETR5 $_{Acquirer}$	594	0.263	0.144	0.175	0.260	0.333
CASHETR5 $_{Target}$	594	0.284	0.205	0.148	0.272	0.357
D_CETR $_{(Acquirer - Target)}$	594	-0.021	0.222	-0.103	0.000	0.084
BTD $_{Acquirer\ [PI \geq 0]}$	496	-0.003	0.081	-0.035	0.001	0.033
BTD $_{Target\ [PI \geq 0]}$	496	0.006	0.104	-0.028	0.004	0.036
D_BTD $_{(Acquirer - Target)\ [PI \geq 0]}$	496	-0.009	0.122	-0.044	0.000	0.038
Acquirer Characteristics						
Total Assets [MM]	844	6,133	16,936	224.7	892.2	3,772
Market Value [MM]	844	10,454	28,274	351.7	1,336	5,570
ROA	844	0.113	0.181	0.078	0.138	0.202
TOBINSQ	844	2.968	4.917	1.353	1.921	3.073
LEV	844	0.197	0.201	0.023	0.161	0.310
G-INDEX	445	9.127	2.716	7.000	9.000	11.00
Target Characteristics						
Total Assets [MM]	844	1,287	10,290	51.05	127.0	436.1
Market Value [MM]	844	1,120	4,884	53.81	161.5	549.8
ROA	844	0.034	0.261	0.006	0.104	0.159
TOBINSQ	844	2.250	2.628	1.641	1.574	2.374
LEV	844	0.202	0.261	0.005	0.110	0.331
Deal Characteristics						
PCAR (%)	844	2.096	9.892	-2.544	1.326	6.449
ACAR (%)	844	-0.831	10.60	-5.373	-0.659	3.564

TCAR (%)	844	24.48	27.25	7.506	20.10	35.33
TENDER (dummy)	844	0.236	0.434	0.000	0.000	1.000
ALLSTOCK (dummy)	844	0.336	0.473	0.000	0.000	1.000
DEALRATIO	844	0.489	0.869	0.075	0.241	0.576
HIGHTECH (dummy)	844	0.362	0.481	0.000	0.000	1.000
INDMATCH (dummy)	844	0.679	0.467	0.000	1.000	1.000

This table presents descriptive statistics of the sample.

Table 3.4.2 – Panel B
Correlation Matrix for Test Variables

	Variable	(1)	(2)	(3)	(4)	(5)	(6)
(1)	*PCAR*						
(2)	*ACAR*	**0.85**					
(3)	*TCAR*	**0.33**	**0.16**				
(4)	*D_BTD* $_{Acquirer - Target}$	**0.07**	**0.13**	**0.13**			
(5)	*D_ABTD* $_{Acquirer - Target}$	**0.06**	**0.12**	**0.12**	**0.85**		
(6)	*D_DTAX* $_{Acquirer - Target}$	**0.06**	**0.08**	**0.14**	**0.68**	**0.64**	
(7)	*D_CETR* $_{Acquirer - Target}$	**-0.08**	0.03	-0.06	**-0.16**	**-0.19**	-0.03

This table presents Pearson correlation coefficients for the return and tax aggressiveness transfer variables. The coefficients in bold are all statistically significant at less than the 10% level in two-tailed tests.

Table 3.4.2 – Panel C
Correlation Matrix for Control Variables

	Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1)	*SIZE* $_{Acquirer}$												
(2)	*TOBINSQ* $_{Acquirer}$	**0.15**											
(3)	*LEV* $_{Acquirer}$	**-0.13**	**-0.23**										
(4)	*ROA* $_{Acquirer}$	**0.33**	**-0.16**	0.03									
(5)	*SIZE* $_{Target}$	**0.60**	**0.09**	0.04	**0.15**								
(6)	*TOBINSQ* $_{Target}$	**0.16**	**0.51**	**-0.18**	**-0.22**	**0.22**							
(7)	*LEV* $_{Target}$	**-0.11**	**-0.18**	**0.55**	0.05	-0.05	**-0.24**						
(8)	*ROA* $_{Target}$	**0.08**	**-0.17**	**0.18**	**0.45**	**0.29**	**-0.23**	**0.16**					
(9)	*TENDER*	**0.06**	**-0.06**	0.01	**0.14**	-0.02	**-0.07**	0.00	0.04				
(10)	*ALLSTOCK*	**-0.13**	**0.12**	**-0.15**	**-0.17**	**-0.06**	**0.19**	**-0.14**	**-0.11**	**-0.36**			
(11)	*DEALRATIO*	**-0.32**	-0.04	**0.17**	**-0.23**	**0.10**	-0.02	**0.14**	**0.08**	-0.04	-0.01		
(12)	*HIGHTECH*	**0.09**	**0.09**	**-0.27**	-0.03	0.00	**0.17**	**-0.28**	**-0.11**	-0.04	**0.11**	**-0.08**	
(13)	*INDMATCH*	**-0.09**	0.06	-0.03	-0.06	0.04	0.02	-0.04	**-0.07**	0.01	0.03	**0.09**	**0.21**

This table presents Pearson correlation coefficients for the control variables. The coefficients in bold are all statistically significant at less than the 10% level in two-tailed tests.

3.4.3 Tax Aggressiveness Transfer and Acquisition Gains

Panel A of Table 3.4.3 presents the results of estimating Equation (8). For *PCAR* regression, the coefficient on *D_BTD_POS* is not statistically different from zero, whereas the coefficient on *D_BTD_NEG* is positive and significant. Tests of equality of coefficients confirm the significant difference between the two regression coefficients. These results suggest that acquisitions of more tax aggressive targets by less tax aggressive acquirers are value-destroying, and that the shareholder wealth effects of tax aggressiveness transfer are driven by decreases in targets' tax aggressiveness. To gauge the economic significance of the estimates, consider a less tax aggressive acquirer (*BTD* = -0.069 at the first quartile) acquires a more tax aggressive target (*BTD* = 0.016 at the third quartile). This hypothetical transaction would yield an abnormal return of -0.743 percent.

Similar results are found for *ACAR* regression, where the coefficient on *D_BTD_NEG* is significantly positive but the coefficient on *D_BTD_POS* is not significant. The coefficients on *D_BTD_POS* and *D_BTD_NEG* are both insignificant in *TCAR* regression. These results suggest that the value-destroying effect is accrued to the shareholders of the acquirers but not to those of the targets. Overall, the results support hypothesis H2 that acquisitions of more tax aggressive targets by less tax aggressive acquirers generate lower acquisition gains, but do not support hypothesis H1.

To provide triangulating evidence, I estimate Equation (8) with alternative measures of tax aggressiveness, namely, abnormal book-tax difference (*ABTD*), discretionary book-tax difference (*DTAX*), and cash effective tax rate (*CASHETR5*). The results are reported in Panel B to D of Table 3.4.3, respectively. As reported in Panels B and C of Table 3.4.3, the results using *ABTD* and *DTAX* to measure tax aggressiveness are very similar. In particular, in both *PCAR*

regressions, the coefficients on *D_ABTD_POS* (*D_ABTD_NEG*) and *D_DTAX_POS* (*D_DTAX_NEG*) are all positive and significant, suggesting that acquisition of less (more) tax aggressive targets by (more) less tax aggressive acquirers generate significant (higher) lower acquisition gains. These results provide empirical support for both hypotheses H1 and H2.

In terms of economic significance, for example, a hypothetical transaction in which a more tax aggressive acquirer (*ABTD* = 0.164 at the third quartile) acquires a less tax aggressive target (*ABTD* = 0.023 at the first quartile) would have an abnormal return of 0.724 percent; similarly, a hypothetical acquisition in which a less tax aggressive acquirer (*ABTD* = 0.073 at the first quartile) acquires a more tax aggressive target (*ABTD* = 0.165 at the third quartile) would have an abnormal return of -0.994 percent.

Turning to the results of *ACAR* regressions in Table 3.4.3, the coefficients on the positive tax aggressiveness transfer variables (*D_ABTD_POS* and *D_DTAX_POS*) are not significant. The coefficients on the negative tax aggressiveness transfer variables (*D_ABTD_NEG* and *D_DTAX_NEG*), however, are significantly positive. These results suggest that the value-destroying effect of negative tax aggressiveness transfer is levied on the acquirer shareholders only, consistent with the results documented earlier in Panel A of Table 3.4.3 using *BTD* as the tax aggressiveness measure.

Interestingly, *TCAR* and *ACAR* regressions yield some asymmetric results. Specifically, as reported in Panels B and C of Table 3.4.3, the coefficients on the positive tax aggressiveness transfer variables (*D_ABTD_POS* and *D_DTAX_POS*) are significant in both *TCAR* regressions, whereas the coefficients on the negative tax aggressiveness transfer variables (*D_ABTD_NEG* and *D_DTAX_NEG*) are not significantly positive. These results are opposite to those of *ACAR* regressions. Taken as a whole, the results suggest that the value-destroying effect of negative tax

aggressiveness transfer is accrued to the target shareholders, while the value-enhancing effect of positive tax aggressiveness transfer is captured by the target shareholders. These asymmetric results are consistent with the findings in prior literature that suggest the gains from corporate acquisitions are mainly captured by shareholders of the targets rather than by those of the acquirers (Jensen and Ruback 1983; Jarrell, Brickley, and Netter 1988).

Panel D of Table 3.4.3 reports the results using *CASHETR5* as the tax aggressiveness measure. For all regressions, the coefficients on *D_CETR_POS* are in the correct sign (negative) but are not statistically significant. Also, contrary to my predictions in hypothesis H2, the coefficients on *D_CETR_NEG* are both negative and significant in the *PCAR* and *ACAR* regressions. This result implies that acquisitions of less tax aggressive targets by more tax aggressive acquirers yield lower acquisition gains. Because *CASHETR5* exhibits significant cross-industry variation (Dyreng et al. 2008), our measure *D_CETR* may capture features of tax function of the acquirers that are non-transferrable such as industry-specific tax attributes (oil and gas extraction industry) or the extent of foreign operations. To ensure that this inconsistent result is not related to the differences in industry environment, I conduct two specification checks. First, I compute industry-mean-adjusted cash effective tax rates by subtracting the industry mean *CASHETR5* from each firm's *CASHETR5*. I then use the industry-mean-adjusted *CASHETR5* to compute *D_CETR_POS* and *D_CETR_NEG* and re-estimate Equation (8). Reported in Panel E of Table 3.4.3, the results using industry-mean-adjusted *CASHETR5* are similar to those using unadjusted *CASHETR5*. Second, I include acquirer industry fixed effects based on the acquirer's two-digit SIC code to control for any industry-wide variation. Untabulated results indicate that the coefficient on *D_CETR_NEG* remains significantly positive, suggesting that the inconsistent results are not due to the cross-industry variation in *CASHETR5*.

In sum, the results using *CASHETR5* as the tax aggressiveness measure are not consistent with hypothesis H2. I will revisit these inconsistent results in Section 3.5.2.

Table 3.4.3 – Panel A
The Association between Tax Aggressiveness Transfer and Acquisition Gains

	Pred. Sign	*PCAR*	*ACAR*	*TCAR*
D_BTD_POS	+	2.195	1.879	6.507
		(0.798)	(0.656)	(0.997)
D_BTD_NEG	+	8.741***	9.171***	5.792
		(2.628)	(2.601)	(0.816)
Acquirer Traits				
SIZE		-1.007***	-0.269	4.700***
		(-4.038)	(-0.979)	(6.552)
TOBINSQ		0.031	0.023	0.091
		(0.463)	(0.298)	(0.732)
ROA		-2.036	-1.793	-0.989
		(-0.546)	(-0.533)	(-0.130)
LEV		1.426	4.726**	-9.304
		(0.798)	(2.329)	(-1.559)
Target Traits				
SIZE		-0.271	-0.567**	-6.483***
		(-1.063)	(-1.991)	(-7.758)
TOBINSQ		-0.608***	-0.488***	-0.863***
		(-3.291)	(-2.723)	(-2.788)
ROA		1.028	-0.525	0.866
		(0.357)	(-0.173)	(0.155)
LEV		-2.389*	-2.234*	2.534
		(-1.936)	(-1.667)	(0.455)
Deal Traits				
TENDER		2.082**	1.827**	4.610**
		(2.478)	(2.003)	(1.967)
ALLSTOCK		-0.698	-1.139	-3.054
		(-0.821)	(-1.178)	(-1.480)
DEALRATIO		1.173***	-0.292	1.640**
		(2.821)	(-0.405)	(2.145)
HIGHTECH		0.297	-0.669	-1.241
		(0.385)	(-0.779)	(-0.666)
IND_MATCH		-0.779	-1.133	0.390
		(-1.171)	(-1.542)	(0.201)
Intercept		15.75***	9.529***	29.03***
		(6.030)	(3.559)	(4.417)
Adjusted R^2		0.174	0.128	0.192
N		844	844	844

This table reports regression results of acquisition gains on tax aggressiveness transfer. Calendar year fixed-effects are included. Reported in parentheses are t-statistics computed using heteroskedasticity-consistent standard errors adjusted for acquirer clustering; ***, **, * represent significance levels (one-tailed for main independent variables, and two-tailed for control variables) at 1%, 5% and 10%, respectively.

Table 3.4.3 – Panel B
The Association between Tax Aggressiveness Transfer and Acquisition Gains

	Pred. Sign	*PCAR*	*ACAR*	*TCAR*
D_ABTD_POS	+	5.132*	3.394	16.59**
		(1.497)	(0.990)	(1.672)
D_ABTD_NEG	+	10.80***	11.47***	7.061
		(2.809)	(2.855)	(0.938)
Acquirer Traits				
SIZE		-0.914***	-0.148	4.804***
		(-3.654)	(-0.544)	(6.726)
TOBINSQ		-0.066	-0.076	-0.003
		(-0.573)	(-0.519)	(-0.012)
ROA		-3.666	-3.110	-7.006
		(-0.980)	(-0.888)	(-0.727)
LEV		0.385	2.715	-5.470
		(0.204)	(1.278)	(-0.869)
Target Traits				
SIZE		-0.401	-0.779**	-6.439***
		(-1.458)	(-2.581)	(-7.588)
TOBINSQ		-0.502***	-0.366**	-0.874**
		(-2.605)	(-2.000)	(-2.214)
ROA		3.617	1.377	5.686
		(1.147)	(0.427)	(0.879)
LEV		-1.913*	-1.169	0.230
		(-1.685)	(-0.935)	(0.045)
Deal Traits				
TENDER		1.898**	1.517*	5.620**
		(2.341)	(1.746)	(2.399)
ALLSTOCK		-0.740	-1.516*	-0.739
		(-0.901)	(-1.658)	(-0.328)
DEALRATIO		1.143***	-0.300	1.194
		(2.814)	(-0.554)	(1.520)
HIGHTECH		-0.816	-1.686**	-2.421
		(-1.130)	(-2.042)	(-1.184)
IND_MATCH		-0.325	-0.481	0.560
		(-0.489)	(-0.655)	(0.271)
Intercept		15.33***	9.542***	30.78***
		(6.714)	(4.123)	(5.118)
Adjusted R^2		0.164	0.130	0.163
N		844	844	844

This table reports regression results of acquisition gains on tax aggressiveness transfer. Calendar year fixed-effects are included. Reported in parentheses are t-statistics computed using heteroskedasticity-consistent standard errors adjusted for acquirer clustering; ***, **, * represent significance levels (one-tailed for main independent variables, and two-tailed for control variables) at 1%, 5% and 10%, respectively.

Table 3.4.3 – Panel C
The Association between Tax Aggressiveness Transfer and Acquisition Gains

	Pred. Sign	*PCAR*	*ACAR*	*TCAR*
D_DTAX_POS	+	3.622*	0.517	9.527*
		(1.615)	(0.248)	(1.631)
D_DTAX_NEG	+	7.457***	4.738*	5.734
		(2.595)	(1.637)	(0.849)
Acquirer Traits				
SIZE		-0.966***	-0.159	4.627***
		(-4.402)	(-0.675)	(6.790)
TOBINSQ		0.047	0.018	0.206
		(0.351)	(0.119)	(0.651)
ROA		-1.848	-1.389	-2.121
		(-0.536)	(-0.456)	(-0.245)
LEV		1.304	2.863	-2.608
		(0.750)	(1.488)	(-0.464)
Target Traits				
SIZE		-0.267	-0.617**	-5.919***
		(-1.174)	(-2.469)	(-8.242)
TOBINSQ		-0.326	-0.075	-0.566
		(-1.133)	(-0.290)	(-0.908)
ROA		2.826	-0.522	3.788
		(1.287)	(-0.224)	(0.717)
LEV		-2.971**	-1.594	-2.268
		(-2.136)	(-1.029)	(-0.500)
Deal Traits				
TENDER		1.721**	1.731**	5.764***
		(2.456)	(2.299)	(2.630)
ALLSTOCK		-1.579**	-1.770**	-2.834
		(-2.174)	(-2.248)	(-1.389)
DEALRATIO		1.208***	-0.357	1.694**
		(3.360)	(-0.624)	(2.272)
HIGHTECH		-0.742	-1.534**	-3.571*
		(-1.214)	(-2.237)	(-1.813)
IND_MATCH		0.356	0.157	1.537
		(0.589)	(0.251)	(0.816)
Intercept		13.10***	6.517***	31.70***
		(6.386)	(3.189)	(5.459)
Adjusted R^2		0.135	0.075	0.149
N		844	844	844

This table reports regression results of acquisition gains on tax aggressiveness transfer. Calendar year fixed-effects are included. Reported in parentheses are t-statistics computed using heteroskedasticity-consistent standard errors adjusted for acquirer clustering; ***, **, * represent significance levels (one-tailed for main independent variables, and two-tailed for control variables) at 1%, 5% and 10%, respectively.

Table 3.4.3 – Panel D
The Association between Tax Aggressiveness Transfer and Acquisition Gains

	Pred. Sign	*PCAR*	*ACAR*	*TCAR*
D_CETR_POS	–	-2.451	-3.069	-2.315
		(-0.836)	(-1.102)	(-0.325)
D_ CETR_NEG	–	3.654	3.737	3.063
		(1.966)	(1.628)	(0.561)
Acquirer Traits				
SIZE		-1.317***	-0.282	3.321***
		(-4.647)	(-0.933)	(3.686)
TOBINSQ		-0.062	0.126	-0.190
		(-0.178)	(0.351)	(-0.209)
ROA		2.374	0.390	25.73
		(0.485)	(0.073)	(1.548)
LEV		-1.917	-1.660	-8.849
		(-0.866)	(-0.701)	(-1.303)
Target Traits				
SIZE		-0.194	-0.517*	-5.194***
		(-0.723)	(-1.762)	(-6.114)
TOBINSQ		-0.327	-0.423	-0.670
		(-0.930)	(-1.003)	(-0.737)
ROA		3.850	2.923	11.007
		(0.810)	(0.563)	(0.746)
LEV		-0.609	1.040	6.583
		(-0.344)	(0.522)	(0.870)
Deal Traits				
TENDER		0.895	1.098	2.335
		(1.294)	(1.492)	(0.974)
ALLSTOCK		-0.979	0.177	-2.742
		(-1.208)	(0.211)	(-1.180)
DEALRATIO		1.530***	-0.180	1.780
		(2.738)	(-0.220)	(1.449)
HIGHTECH		1.312*	0.405	1.624
		(1.791)	(0.475)	(0.647)
IND_MATCH		-0.783	-0.711	-1.869
		(-1.216)	(-1.052)	(-0.943)
Intercept		15.25***	7.401***	28.15***
		(6.011)	(2.735)	(3.806)
Adjusted R^2		0.209	0.073	0.171
N		594	594	594

This table reports regression results of acquisition gains on tax aggressiveness transfer. Calendar year fixed-effects are included. Reported in parentheses are t-statistics computed using heteroskedasticity-consistent standard errors adjusted for acquirer clustering; ***, **, * represent significance levels (one-tailed for main independent variables, and two-tailed for control variables) at 1%, 5% and 10%, respectively.

Table 3.4.3 – Panel E
The Association between Tax Aggressiveness Transfer and Acquisition Gains
(Industry-Mean-Adjusted Cash ETR)

	Pred. Sign	*PCAR*	*ACAR*	*TCAR*
D_CETR_POS	–	-2.164	-2.709	-1.631
		(-0.737)	(-0.970)	(-0.230)
D_ CETR_NEG	–	3.575	3.585	3.126
		(1.917)	(1.558)	(0.584)
Acquirer Traits				
SIZE		-1.319***	-0.284	3.321***
		(-4.646)	(-0.937)	(3.683)
TOBINSQ		-0.063	0.124	-0.189
		(-0.181)	(0.346)	(-0.208)
ROA		2.459	0.496	25.871
		(0.502)	(0.093)	(1.558)
LEV		-1.861	-1.600	-8.779
		(-0.842)	(-0.677)	(-1.295)
Target Traits				
SIZE		-0.195	-0.517*	-5.197***
		(-0.724)	(-1.758)	(-6.111)
TOBINSQ		-0.325	-0.421	-0.671
		(-0.924)	(-0.996)	(-0.737)
ROA		3.843	2.928	10.938
		(0.810)	(0.564)	(0.742)
LEV		-0.605	1.042	6.598
		(-0.342)	(0.523)	(0.872)
Deal Traits				
TENDER		0.903	1.108	2.342
		(1.307)	(1.506)	(0.978)
ALLSTOCK		-0.975	0.181	-2.740
		(-1.202)	(0.215)	(-1.180)
DEALRATIO		1.531***	-0.180	1.784
		(2.734)	(-0.219)	(1.450)
HIGHTECH		1.315*	0.405	1.634
		(1.793)	(0.475)	(0.651)
IND_MATCH		-0.785	-0.713	-1.872
		(-1.219)	(-1.055)	(-0.945)
Intercept		15.21***	7.339***	28.09***
		(6.004)	(2.713)	(3.811)
Adjusted R^2		0.209	0.072	0.171
N		594	594	594

This table reports regression results of acquisition gains on tax aggressiveness transfer. Calendar year fixed-effects are included. Reported in parentheses are t-statistics computed using heteroskedasticity-consistent standard errors adjusted for acquirer clustering; ***, **, * represent significance levels (one-tailed for main independent variables, and two-tailed for control variables) at 1%, 5% and 10%, respectively.

3.4.4 Section Summary

In this section, I document strong empirical evidence that support hypothesis H2. Acquisitions of more tax aggressive targets by less tax aggressive acquirers generate lower acquisition gains. However, the evidence is weaker for hypothesis H1. Thus, results suggest that the association between tax aggressiveness transfer and shareholder wealth is predominately driven by the value-destroying effect of negative tax aggressiveness transfer. In addition, the results suggest that value-destroying effect is mainly levied on the shareholders of the acquirers rather than on those of the targets. The results are fairly consistent across various measures of tax aggressiveness.

3.5 Additional Analysis and Robustness Checks

3.5.1 Introduction

This section provides the results from performing a series of additional analysis and robustness checks on the main results reported in Section 3.4. Section 3.5.2 considers the acquirer's corporate governance as a determinant of the association between tax aggressiveness transfer and shareholder wealth, proposes a research design that incorporates the acquirer's governance in the baseline model of Equation (8), and discusses the results of the new regression model. Section 3.5.3 reports and discusses the estimation results of Equation (8) based on a subsample of firms with non-negative pre-tax income. Section 3.5.4 concludes the section.

3.5.2 The Role of the Acquirer's Corporate Governance

Prior research suggests that the strength of corporate governance determines the association between tax aggressiveness and firm value (Desai et al., 2007; Desai and Dharmapala

2008; 2009; Wilson 2009). If aggressive tax planning is a tool for creating value in well-governed firms only, the observed associations between tax aggressiveness transfer and acquisition gains could be largely determined by the acquirer's corporate governance. To test this idea, I include an indicator variable of well-governed acquirers and its interaction with my tax aggressiveness transfer measures in the regressions. Following Wang and Xie (2008), I employ Gompers et al.'s (2003) G-Index to measure the acquirer's governance strength.

Gompers et al. (2003) construct the G-Index based on 24 anti-takeover provisions that capture firms' shareholder rights, published by the Investor Responsibility Research Center (IRRC). Firms with many anti-takeover provisions are viewed as having weak corporate governance because it is difficult and costly for their shareholders to remove managers at those firms. I obtain the data for Gompers et al.'s (2003) G-Index from Andrew Metrick's website.[3] The data period is between 1990 and 2009, based on IRRC publications in years 1990, 1993, 1995, 1998, 2000, 2002, 2004, and 2006. Following the method of Gompers et al. (2003), I assume that firms have the same governance provisions as they did in the previous publication year during the gap between each publication. I do not use the 2008 vintage of RiskMetrics governance data because it is not comparable with the data in the earlier IRRC publications (Bebchuk, Cohen, and Wang 2012). Therefore, for constructing the G-Index between 2006 and 2009, I assume that the governance provisions remain unchanged from the last (2006) IRRC volume until 2009. Since IRRC covers large firms (e.g., firms included in the S&P 500 index or the corporation lists published by Fortune, Forbes, and BusinessWeek), the sample size is reduced to 445 M&A transactions after excluding acquirers that were not covered by IRRC.

To test whether acquirer corporate governance is a determinant of the associations observed in my previous findings, I estimate the following regression model:

[3] http://faculty.som.yale.edu/andrewmetrick/data.html

$$PCAR = \alpha + \beta_1 D\_BTD\_POS + \beta_2 D\_BTD\_NEG \quad (9)$$
$$+ \beta_3 GOV + \beta_4 D\_BTD\_POS \times GOV + \beta_5 D\_BTD\_NEG \times GOV + \boldsymbol{X}'\zeta + t + \varepsilon$$

where PCAR is the abnormal return of a value-weighted portfolio of the acquirer and the target, *D_BTD_POS* (*D_BTD_NEG*) is my proxy for positive (negative) tax aggressiveness transfer, *GOV* is an indicator variable that equals one if the acquirer is well-governed. I define an acquirer as well-governed if it has a below-median G-Index in the sample. I interact *GOV* with each of *D_BTD_POS* and *D_BTD_NEG* to examine whether the acquirer's governance affects the associations between tax aggressiveness transfer and acquisition gains. If the shareholder wealth effects are significantly stronger for well-governed acquirers than for poorly-governed acquirers, I expect β_4 and β_5 to be significantly positive.

The estimation results of Equation (9) are presented in Panel A of Table 3.5.2 (columns 1 to 3). In both regressions of *PCAR* and *ACAR*, the coefficients on the interaction terms (*D_BTD_POS*×*GOV* and *D_BTD_NEG*×*GOV*) are both significantly positive, suggesting that the shareholder wealth effects of tax aggressiveness transfer are significantly more positive for well-governed acquirers. Moreover, the associations between tax aggressiveness transfer and acquisition gains for well-governed acquirers are significantly positive (the *p*-values for one-tailed tests of $\beta_1+\beta_4 > 0$ and $\beta_2+\beta_5 > 0$ are both less than 0.05 and less than 0.1 in the PCAR regression and ACAR regression, respectively). These results suggest that when the acquirer's governance is strong, acquisitions of targets with lower tax aggressiveness by acquirers with higher tax aggressiveness generate significantly higher acquisition gains, and vice versa. Compared to the results in Panel A of 3.4.3, the results from Equation (9) portray a more complete picture of the relationship between tax aggressiveness transfer and shareholder wealth.

I find opposite results for poorly-governed acquirers; there is a negative association between *D_BTD_NEG* and acquisition gains for both *PCAR* and *ACAR* regressions. Specifically, these results suggest that, when the acquirers are poorly-governed, acquisitions of more tax aggressive targets by less tax aggressive acquirers generate higher acquisition gains. This finding is consistent with the interpretation that, for poorly-governed acquirers, acquirer shareholders consider the lack of further tax planning opportunities in the targets to be a positive event because tax aggressiveness is harmful for the shareholders (Desai et al. 2007; Desai and Dharmapala 2009). Taken together, the results for *PCAR* and *ACAR* are consistent with the agency view of tax avoidance that corporate governance is an important determinant of the shareholder wealth effects of tax aggressiveness transfer. Again, none of the tax aggressiveness transfer variables are significant in the *TCAR* regression, indicating that the shareholder wealth effects are accrued to acquirer shareholders but not to the target shareholders.

Since the G-Index data is only available for large firms, the sample size is reduced substantially after excluding acquirers with missing G-Index data. To ensure that the results are not sensitive to a sample of larger firms, I re-estimate the base-line model of Equation (8) using the reduced sample. As shown in Panel A of Table 3.5.2 (columns 4 to 6), the estimation results of Equation (8) using the reduced sample are very similar to those using the full sample as shown in Panel A of Table 3.4.3. These findings suggest that my previous results are robust to a subsample of larger firms.

In Section 3.4.3, I present results using *CASHETR5* as the tax aggressiveness measure and find that they are inconsistent with hypothesis H2 (as reported in Panels D and E of Table 3.4.3). I re-examine the inconsistent results by incorporating the acquirer's corporate governance into the model. Specially, I estimate Equation (9) using *CASHETR5* as the tax aggressiveness

measure. As tabulated in Table 3.5.2 Panel B, the results show that, for acquisitions by well-governed acquirers, the coefficients on *D_CETR_POS*×*GOV* are negative and significant in both *PCAR* and *ACAR* regressions, and the coefficient on *D_CETR_NEG*×*GOV* is negative and significant in *PCAR* regression. The overall effects of D_CETR_POS for well-governed acquirers are significantly negative in both PCAR and ACAR regressions (the *p*-values for one-tailed tests of $\beta_1+\beta_4 < 0$ are less than 0.05) but the overall effects of D_CETR_NEG for well-governed acquirers are not significantly different from zero. These results reinforce my prior findings that acquisitions of more tax aggressive targets by well-governed, less tax aggressive acquirers generate lower acquisition gains. Moreover, I find a significantly positive association between *D_CETR_NEG* and acquisition gains for poorly-governed acquirers, suggesting that acquisitions of less tax aggressive targets by more tax aggressive, poorly-governed acquirers are value-destroying. Overall, the above results suggest that the inconsistent findings with *CASHETR5* documented earlier are potentially caused by model misspecification because the results become consistent once the acquirer's corporate governance is incorporated into the regression model.

All in all, my findings indicate that tax aggressiveness transfer in M&A has a valuation impact on acquirer shareholders and that the impact hinges on the strength of the acquirers' corporate governance. Triangulating evidence using various measures of tax aggressiveness further supports the robustness of my previous results.

Table 3.5.2 – Panel A
The Role of the Acquirer's Governance on the Association between Tax Aggressiveness Transfer and Acquisition Gains

	Pred. Sign	*PCAR*	*ACAR*	*TCAR*	Pred. Sign	*PCAR*	*ACAR*	*TCAR*
D_BTD_POS	?	-0.775	0.080	-5.255	+	1.012	0.889	2.914
		(-0.281)	(0.023)	(-0.327)		(0.447)	(0.347)	(0.309)
D_BTD_NEG	?	-6.448	-11.90*	21.16	+	8.158***	7.424**	17.87*
		(-1.320)	(-2.148)	(0.978)		(2.525)	(2.045)	(1.365)
D_BTD_POS × GOV	+	7.638***	5.903**	18.61				
		(2.761)	(1.686)	(0.996)				
D_BTD_NEG × GOV	+	15.25***	20.12***	-5.540				
		(2.559)	(2.872)	(-0.237)				
Acquirer Traits								
GOV		0.111	0.312	-0.292				
		(0.161)	(0.404)	(-0.107)				
SIZE		-1.048***	-0.483	3.654***		-0.903***	-0.386	3.854***
		(-3.801)	(-1.443)	(3.049)		(-3.662)	(-1.431)	(3.922)
TOBINSQ		0.461**	0.502**	-0.029		0.359*	0.417*	-0.296
		(2.010)	(2.017)	(-0.040)		(1.758)	(1.715)	(-0.363)
ROA		-0.438	-1.265	1.749		-0.364	-3.620	3.576
		(-0.110)	(-0.314)	(0.123)		(-0.117)	(-0.967)	(0.264)
LEV		0.193	2.941	-23.67***		-0.679	1.916	-25.42***
		(0.099)	(1.430)	(-3.113)		(-0.384)	(0.978)	(-3.532)
Target Traits								
SIZE		-0.227	-0.228	-4.741***		-0.376*	-0.292	-4.860***
		(-0.897)	(-0.769)	(-4.571)		(-1.692)	(-1.142)	(-5.220)
TOBINSQ		-0.314***	-0.288**	-0.603		-0.169	-0.203	-0.434
		(-2.607)	(-2.043)	(-1.044)		(-1.119)	(-1.235)	(-0.718)
ROA		2.242	0.822	-8.017		1.168	0.168	-9.523
		(0.888)	(0.254)	(-0.648)		(0.512)	(0.302)	(-1.027)
LEV		-1.914**	-0.446	2.134		-1.823*	-0.140	2.887
		(-1.992)	(-0.469)	(0.338)		(-1.675)	(-0.339)	(0.668)

Deal Traits						
TENDER	0.486	-0.290	4.398	0.225	-0.328	4.161
	(0.736)	(-0.404)	(1.632)	(0.346)	(-0.455)	(1.533)
ALLSTOCK	-0.498	-0.294	-2.104	-0.547	-0.816	-1.590
	(-0.592)	(-0.282)	(-0.706)	(-0.762)	(-1.042)	(-0.528)
DEALRATIO	1.794*	-1.894*	3.494	2.274***	-2.098**	3.741
	(1.813)	(-1.755)	(1.247)	(2.801)	(-2.354)	(1.162)
HIGHTECH	-0.521	-1.169	-1.750	-0.488	-1.530**	-1.629
	(-0.720)	(-1.502)	(-0.632)	(-0.750)	(-2.153)	(-0.638)
IND_MATCH	-0.755	-0.997	1.525	-0.686	-0.288	1.685
	(-1.170)	(-1.364)	(0.629)	(1.132)	(-0.435)	(0.704)
Intercept	13.81***	8.050***	26.13***	11.08***	5.547***	24.56***
	(5.333)	(2.732)	(2.621)	(6.190)	(2.821)	(2.581)
Adjusted R^2	0.204	0.143	0.224	0.135	0.066	0.153
N	445	445	445	445	445	445

This table reports regression results of acquisition gains on tax aggressiveness transfer. Calendar year fixed-effects are included. Reported in parentheses are t-statistics computed using heteroskedasticity-consistent standard errors adjusted for acquirer clustering; ***, **, * represent significance levels (one-tailed for main independent variables, and two-tailed for control variables) at 1%, 5% and 10%, respectively.

Table 3.5.2 – Panel B
The Role of the Acquirer's Governance on the Association between Tax Aggressiveness Transfer and Acquisition Gains

	Pred. Sign	*PCAR*	*ACAR*	*TCAR*
D_CETR_POS	?	-1.834	0.894	-10.95
		(-0.621)	(0.295)	(-1.223)
D_ CETR_NEG	?	5.235**	5.310*	-4.552
		(2.462)	(1.819)	(-0.358)
D_ CETR_POS × GOV	–	-6.508*	-9.018**	-21.22
		(-1.474)	(-1.870)	(-1.184)
D_CETR_NEG × GOV	–	-0.594	-1.424	-11.27
		(-0.161)	(-0.319)	(-0.773)
Acquirer Traits				
GOV		0.972	0.971	2.698
		(1.217)	(1.178)	(1.066)
SIZE		-1.283***	-0.178	2.580**
		(-4.174)	(-0.580)	(2.367)
TOBINSQ		0.027	0.089	-0.159
		(0.048)	(0.170)	(-0.125)
ROA		7.368	7.314	27.045
		(1.116)	(1.099)	(1.587)
LEV		0.671	1.923	-7.552
		(0.296)	(0.884)	(-1.016)
Target Traits				
SIZE		-0.180	-0.320	-4.290***
		(-0.606)	(-1.017)	(-4.442)
TOBINSQ		-0.275	-0.376	-0.242
		(-0.677)	(-0.826)	(-0.223)
ROA		3.890	2.301	5.095
		(0.757)	(0.428)	(0.323)
LEV		1.537	2.419	13.782
		(0.806)	(1.222)	(1.519)
Deal Traits				
TENDER		-0.296	-0.068	4.024
		(-0.457)	(-0.099)	(1.563)
ALLSTOCK		-1.416	0.112	-1.479
		(-1.500)	(0.118)	(-0.502)
DEALRATIO		0.676	-1.747*	0.212
		(0.785)	(-1.757)	(0.100)
HIGHTECH		1.906**	0.540	2.397
		(2.447)	(0.669)	(0.808)
IND_MATCH		-1.249*	-0.664	-2.818
		(-1.789)	(-0.931)	(-1.265)
Intercept		14.48***	4.828*	28.37***
		(5.383)	(1.785)	(3.061)

Adjusted R^2	0.197	0.107	0.202
N	445	445	445

This table reports regression results of acquisition gains on tax aggressiveness transfer. Calendar year fixed-effects are included. Reported in parentheses are t-statistics computed using heteroskedasticity-consistent standard errors adjusted for acquirer clustering; ***, **, * represent significance levels (one-tailed for main independent variables, and two-tailed for control variables) at 1%, 5% and 10%, respectively.

3.5.3 Subsample of Firms with Non-Negative Pre-Tax Income

As discussed earlier, there are some acquirers and targets with large negative pre-tax income in my sample; these loss firms lead to negative mean values of total BTD. Because it is difficult to interpret the meaning of book-tax difference for firms with negative pre-tax income, I exclude these loss firms and re-estimate Equation (8). As shown in Table 3.5.3, the coefficients on *D_BTD_NEG* remain significantly negative in both *PCAR* and *ACAR* regressions, suggesting that the results documented earlier in Panel A of Section 3.4.3 are not affected by the presence of loss firms in the sample. However, the positive coefficient on *D_BTD_NEG* becomes significant (at the 10% level, one-tailed test) when the loss firms are removed, implying that the presence of loss firms may account for to the prior insignificant relation between *D_BTD_NEG* and *TCAR*. Overall, I find consistent results when the loss firms are excluded from the sample.

Table 3.5.3
The Association between Tax Aggressiveness Transfer and Acquisition Gains
(Subsample of Firms with Non-Negative Pre-Tax Income)

	Pred. Sign	*PCAR*	*ACAR*	*TCAR*
D_BTD_POS	+	-6.446	-5.724	9.139
		(-1.056)	(-0.694)	(0.442)
D_BTD_NEG	+	8.020**	10.18***	15.20*
		(2.143)	(2.418)	(1.558)
Acquirer Traits				
SIZE		-1.224***	-0.548	3.614***
		(-4.316)	(-1.404)	(4.202)
TOBINSQ		0.125	0.236	0.191
		(1.086)	(1.514)	(0.454)
ROA		7.942**	9.683**	12.949
		(2.118)	(2.071)	(1.007)
LEV		1.465	4.401	-12.32**
		(0.622)	(1.578)	(-2.194)
Target Traits				
SIZE		-0.127	-0.243	-5.618***
		(-0.471)	(-0.714)	(-5.705)
TOBINSQ		-0.117	-0.389**	-0.224
		(-0.500)	(-2.095)	(-0.298)
ROA		5.735	3.371	1.307
		(1.248)	(0.636)	(0.094)
LEV		-3.336*	-3.567*	3.100
		(-1.805)	(-1.654)	(0.534)
Deal Traits				
TENDER		1.945**	1.703*	2.149
		(2.323)	(1.725)	(0.847)
ALLSTOCK		-0.249	-0.487	-1.373
		(-0.289)	(-0.498)	(-0.560)
DEALRATIO		1.877***	-0.208	1.454
		(3.722)	(-0.183)	(1.369)
HIGHTECH		-1.021	-1.328	-1.570
		(-1.245)	(-1.503)	(-0.629)
IND_MATCH		-0.506	-0.698	0.091
		(-0.760)	(-0.884)	(0.044)
Intercept		13.61***	7.817**	24.53***
		(4.297)	(2.102)	(3.001)
Adjusted R^2		0.225	0.115	0.171
N		496	496	496

This table reports regression results of acquisition gains on tax aggressiveness transfer. Calendar year fixed-effects are included. Reported in parentheses are t-statistics computed using heteroskedasticity-consistent standard errors adjusted for acquirer clustering; ***, **, * represent significance levels (one-tailed for main independent variables, and two-tailed for control variables) at 1%, 5% and 10%, respectively.

3.5.4 Section Summary

This section examines the role of the acquirer's corporate governance in the association between tax aggressiveness transfer and shareholder wealth. The findings are consistent with the agency view of tax avoidance that the acquirer's governance is a significant explanatory factor of the ways in which tax aggressiveness transfer affects shareholder wealth. Furthermore, I find that the prior inconsistent results using *CASHETR5* as the tax aggressiveness measure is primarily due to model misspecification. I show that the results with *CASHETR5* become consistent once the acquirer's governance is incorporated into the model. Finally, as a robustness check, I verify that my earlier findings documented in Section 3.4.3 are not adversely affected by the presence of loss firms in the sample.

3.6 Conclusions

In this study, I examine the valuation effects of tax aggressiveness transfer in the context of M&A. Specifically, building on the assumption that the acquirer's level of tax aggressiveness will apply to its target upon a successful acquisition, I test whether acquisitions of targets with lower tax aggressiveness by acquirers with higher tax aggressiveness generate higher acquisition gains, and vice versa. To test my predictions, I use the relative tax aggressiveness of the acquirer and the target to proxy for the extent of tax aggressiveness transfer from the acquirer to the target.

Consistent with my predictions, the results suggest that acquisitions of targets with higher tax aggressiveness by acquirers with lower tax aggressiveness generate significantly lower returns, while acquisitions of less tax aggressive targets by more tax aggressive acquirers generate higher acquisition gains. However, the evidence is weaker in the latter direction.

Overall, my findings suggest that the shareholder wealth effects of tax aggressiveness transfer are driven by the value-destroying effect of decreases in tax aggressiveness. The results also indicate that this wealth effect of negative tax aggressiveness transfer is predominately accrued to acquirer shareholders rather than to target shareholders.

Furthermore, I examine the role of the acquirer's governance in the valuation effects of tax aggressiveness transfer in M&A. Consistent with extant research (Desai and Dharmapala, 2009; Wilson 2009), I find that the acquirer's corporate governance is a key determinant of the shareholder wealth effects of tax aggressiveness transfer. In particular, I find that, for well-governed acquirers, acquisitions of targets with lower tax aggressiveness by acquirers with higher tax aggressiveness generate higher acquisition gains, and vice versa. My results are robust to the subsample of firms with non-negative pre-tax income.

In sum, I find that the relative tax aggressiveness of the acquirer and the target affects shareholder wealth in M&A. This paper contributes to the body of literature that examines the consequences of tax avoidance by documenting a channel (i.e., M&A) through which tax aggressiveness can have significant impact on shareholder wealth. It also contributes to the M&A literature by demonstrating tax aggressiveness transfer as an underlying source of both gains and losses resulting from M&A.

Chapter 4

Targets' Tax Sheltering Status and Shareholder Wealth

4.1 Introduction and Contributions

After documenting in the first study that the relative tax aggressiveness of the acquirer and target is a significant determinant of value creation or destruction in M&A, I take a step forward by examining whether acquirers price targets differently based on whether or not the targets have participated in tax shelters – an extreme form of tax aggressive behavior.

Tax shelter participation is not typically publicly observable. Therefore, in this study, I investigate investors' valuation of tax sheltering firms by exploring a unique situation under which the target's non-sheltering status is disclosed in the Form 8-K – Agreement and Plan of Merger. The disclosed non-sheltering status allows the *ex post* public identification of targets that have not participated in tax shelters and therefore serves as an appropriate proxy for the target's underlying tax sheltering status prior to M&A. Thus, the novel non-sheltering data presents an opportunity to investigate a fundamental and important question in tax research: "How do investors perceive corporate tax avoidance behavior?" (Hanlon and Heitzman 2010).

I explore two related research questions in this study. First, I examine whether acquirers price targets differently based on whether or not the targets have engaged in tax sheltering. While the target's tax shelters may help the merged firm to generate higher after-tax income, the acquired tax shelters are associated with increased risk of IRS challenge, possibility of restatement, and reputational costs. (Mills 1998; Hanlon and Slemrod 2009; Graham et al. 2012; Hanlon, Maydew, and Saavedra 2012). Consistent with Hanlon and Slemrod (2009), who find that firms suffer from stock price declines when their tax sheltering activities are publicly

revealed, I expect that acquirers will pay a higher premium for targets that have not engaged in tax sheltering.

Second, I examine whether the valuation effects of the target's non-sheltering status are shared by acquirer shareholders. There are reasons to expect acquirer shareholders will favor a target that has not participated in tax shelters. First, knowing that the target has not engaged in tax sheltering could ease acquirer shareholders' concerns regarding the target's tax risks (Hanlon and Slemrod 2009). Second, the acquisition of a non-sheltering target may be viewed as an indication that the acquirer does not intend to divert resources from its shareholders by participating in tax shelters (Desai et al. 2007; Desai and Dharmapala, 2008). Thus, I expect that the target's non-sheltering status is positively associated with acquirer abnormal returns.

I hand-collect the target's representation concerning its non-participation in tax shelters from each target's Form 8-K – Agreement and Plan of Merger. Using the disclosed non-sheltering status as a proxy for the target's actual non-sheltering status, I find that the target's non-sheltering status is associated with a higher takeover premium. This association remains positive and significant after controlling for the target's tax aggressiveness using existing measures. Also, this positive association is significantly stronger for targets that are more opaque and for acquirers that are less tax aggressive. Moreover, I find that the association between the target's non-sheltering status and acquirer returns is significantly positive for acquirers that are weakly governed and for targets that are more opaque. In sum, my results suggest that the positive valuation effect of the target's non-participation in tax shelters is mainly captured by the target's own shareholders rather than by those of the acquirer, but acquirer shareholders can enjoy higher acquisition gains from a non-sheltering target if the acquirer's governance is weak or if the target's information environment is not transparent.

To ensure the robustness of my results, I conduct two robustness checks. First, I employ the Heckman (1979) procedure to account for the potential endogeneity associated with the decision to disclose the target's non-sheltering status. I model the disclosure decision as a function of acquirer, target, and deal characteristics and use this disclosure model as the first-stage regression. The results indicate that my prior findings were not affected by selection bias. Second, to ensure that my prior findings were not adversely affected by potentially noisy observations (i.e., the potential presence of non-sheltering targets in the non-disclosing group), I identify targets that have a low tax sheltering probability in the non-disclosing group based on Wilson's (2009) tax shelter likelihood model. The positive association between the target's non-sheltering status and takeover premium remains highly significant when the potentially noisy observations are excluded from the estimation.

This study makes two valuable contributions to the literature. First, it documents evidence regarding how tax sheltering firms are priced by corporate investors. Prior literature in accounting and finance has examined the roles that taxes play in the pricing and structure of M&A by considering tax attributes of the merging firms and their shareholders (e.g., Hayn 1989; Erickson 1998; Erickson and Wang 2000, 2007; Ayers et al. 2003, 2004; Dhaliwal et al. 2004; Devos et al. 2009). Although an extensive body of research on corporate tax avoidance has emerged over the last several years, there is limited research about whether tax aggressiveness affects M&A.[4] Recognizing this void in the literature, Hanlon and Heitzman (2010) call for more research on whether the target's aggressive tax positions affect acquisition price (p. 20). This paper responds to the call and contributes to the literature on the effects of targets' tax attributes

[4] For example, see Dyreng et al. (2008, 2010), Frank et al. Rego (2009), Wilson (2009), Chen et al. (2010), Hanlon and Slemrod (2009), Lisowsky (2010), and Graham et al. (2012).

on M&A by showing that the target's non-sheltering status has important valuation implications for shareholders of both the targets and acquirers.

Second, this study proposes a new measure of tax aggressiveness to capture targets' tax shelter participation in particular. Hanlon and Heitzman (2010) stress that "researchers must be careful to consider whether the measure they choose is appropriate for their particular research question." There are three distinct advantages of my measure relative to using existing measures of tax aggressiveness. First, the non-sheltering status data not only enables researchers to *ex post* identify targets that have not engaged in tax sheltering prior to the deal but also allows the research question to focus on a tax avoidance strategy that is at the most aggressive end of the tax avoidance continuum – tax sheltering. If a target's tax aggressiveness has any effects on takeover premium, focusing on the target's tax sheltering status would likely improve the power to detect such effects. Also, the non-sheltering status measure allows an empirical examination of the valuation effects of targets' use of a specific class of tax shelters – reportable transactions, contributing to the relatively small but growing literature that examines specific tax avoidance strategies undertaken by firms (e.g., Engel, Erickson, and Maydew 1999; Dhaliwal and Newberry 2001; Lisowsky 2010; Brown 2011; and Dyreng et al. 2012).

Second, prior research suggests that firms' stock prices do not reflect firms' tax sheltering status unless the tax shelters are publicly revealed (Hanlon and Slemrod 2009). In my setting, prior to the public release of Form 8-K – Agreement and Plan of Merger, the target's non-sheltering status is unobservable by outside investors and is only privately observable by the acquirer via due diligence. This feature allows any identified price effect of the target's non-sheltering status to be reflected on the takeover premium, making the target's non-sheltering status measure particularly appropriate for my research question. In contrast, existing tax

aggressiveness measures constructed from firms' financial statement information are not ideal for this study because extant research suggests that market participants are not able to *ex ante* determine firms' tax sheltering status from their financial statements (Hanlon 2003; McGill and Outslay 2004). More important, given that acquirers will be able to assess the target's confidential tax returns and related working papers through M&A tax due diligence, it is unlikely that acquirers will rely on the limited tax information from the target's public sources to determine the target's tax sheltering status.

Third, although tax indemnity insurance can be used by public or private firms to insure against penalties associated with disallowed tax positions, reportable transactions are not insurable due to their aggressive nature (Aon 2009; Blitz 2009; Watchorn 2009; Hartford 2011). In M&A, neither the target itself nor the acquirer can purchase any tax indemnity insurance against the tax positions related to the target's reportable transactions. If the target's reportable transactions were insurable, I may not observe a significant association between the target's non-sheltering status and takeover premium. In terms of research design, since tax indemnity insurance can be underwritten for a wide range of federal, state, and foreign tax matters including complex issues such as transfer pricing (Aon 2009; Hartford 2011), the availability of tax insurance mitigates concerns that the identified price effects are related to other forms of tax avoidance strategies that may be employed by the target.

4.1.1 Background on Tax Shelters

Tax shelters cost the U.S. Treasury tens of billions of dollars in potential tax revenue between 1993 and 2003 (GAO 2003). Recognizing the impact and proliferation of corporate tax shelters, the Treasury Department and the IRS have made an unprecedented effort over the last decade to combat the use of tax shelters. Such efforts include significantly increased audits of tax

shelter transactions, new tax shelter disclosure initiatives and regulations, and enforcement actions against tax shelter promoters such as banks, law firms, and accounting firms.[5]

Recognizing that disclosure is an important mechanism to combat the growth of tax shelters, the IRS issued final Regulation Section 1.6011-4 – Requirement of Statement Disclosing Participation in Certain Transactions by Taxpayers on February 28, 2003. Regulation Section 1.6011 requires taxpayers to disclose their participation in "reportable transactions" on Form 8886 – Reportable Transaction Disclosure Statement as part of their tax returns to the IRS. The information regarding reportable transaction involvement disclosed on this form is part of a firm's tax return and is not publicly available. In 2004, the American Job Creation Act imposed new penalties on taxpayers who fail to disclose their participation in reportable transactions to the IRS. Failure to comply with the tax shelter disclosure requirement results in monetary and non-monetary penalties. Reportable transactions, as defined by the law, are certain transactions that that the IRS considers potentially abusive. Code section 6707A (e) requires taxpayers who file SEC Form 10-K to disclose the imposition of the penalties in Item 3 (Legal Proceedings) of Form 10-K. Code section 6707A (c) defines reportable transaction as a type of transaction which the Secretary (of State) determines as having a potential for tax avoidance or evasion, and listed transaction as a transaction specifically identified by the Secretary as a tax avoidance transaction.

Currently, there are five major categories of reportable transactions: listed transactions, confidential transactions, transactions with contractual protection, loss transactions, and transactions of interest. Transactions with a significant book-tax difference and transactions with a brief asset holding period are no longer reportable transactions, effective January 6, 2006 and

[5] In 2005, KPMG admitted that it engaged in tax shelters that generated at least $11 billion in tax losses, costing the U.S. government at least $2.5 billion in revenue. KPMG's actions resulted in a penalty of $456 million and criminal indictment of several former KPMG tax partners. In 2010, Deutsche Bank settled with the IRS for a price of $554 million for creating $29 billion in disallowed tax losses. In June 2012, BDO reached a settlement with the IRS and paid a $50 million penalty for engaging in tax shelters that resulted in $1.3 billion of evaded taxes.

August 3, 2007 respectively. Each major category covers a number of specific transactions; for example, most of the tax shelters examined in extant studies of tax sheltering (e.g., Graham and Tucker 2006; Hanlon and Slemrod 2009; Wilson 2009), including Lease in Lease Out (LILO), Sale in Lease Out (SILO), Fast Pay or Step-Down Preferred Transactions, and Contested Liability Acceleration Strategy (CLAS), all fall under the category of listed transactions.

This study chooses reportable transactions to represent tax shelters because the use of these extreme forms of tax avoidance is not uncommon and the related tax savings can be huge. For example, using confidential reportable transaction disclosure data from the IRS Office of Tax Shelter Analysis, Lisowsky et al. (2012) find that 680 firm-years, or 21 percent of their sample, involved at least one reportable transaction between 2006 and 2009. In terms of the economic significance of the tax savings, Boynton, DeFilippes, Legel, and Reum (2011) report that the reportable transactions of 250 firms lowered their taxable income by $29.5 billion (2.8 percent) in 2006 and $21.4 billion (2.1 percent) in 2007. Brown (2011) estimates that the mean amount of IRS settlement related to Corporate-Owned Life Insurance (COLI) tax shelters is $50.8 million, a figure that is nearly twice that of estimated tax savings generated by those shelters. Likewise, Lisowsky et al. (2012) document that 48 firms used reportable transactions to reduce taxable income by a total of $10.7 billion (7.5 percent) in 2007.

4.2 Hypotheses

4.2.1 Introduction

This section develops testable hypotheses that build on the themes reviewed in the previous section. Section 4.2.2 begins by discussing the benefits and costs for firms engaging in tax shelters. This discussion is followed by the argument that a tax sheltering target is expected

to bring in higher potential costs than benefits to an acquirer. The same section also presents my first hypothesis related to how the takeover premium is affected by the target's non-sheltering status. Based on findings in previous literature, Section 4.2.3 presents the argument that knowing the target's non-sheltering status could alleviate acquirer shareholders' concerns about the tax risks. Consistent with the agency view of tax avoidance, acquirer shareholders may view the acquisition of a non-sheltering target as an indication that the acquirer management does not intend to extract private benefits from its shareholders. It then follows my second hypothesis related to how acquirer returns are affected by the target's non-sheltering status. All hypotheses are stated in the alternative form. Section 4.2.4 provides a summary of the section.

4.2.2 Hypothesis H3: The Target's Non-Sheltering Status and Takeover Premium

While tax shelters provide firms with economic benefits in the form of a lower GAAP effective tax rate or higher cash tax savings, or both, they also impose costs on the firms. First, firms incur direct costs of implementing tax shelters including consulting and planning fees paid to tax shelter promoters such as accounting firms and law firms. Second, in light of the regulatory efforts in defining and combating tax shelters in recent years, firms participating in these extreme forms of tax avoidance likely draw increased scrutiny from the IRS. If the sheltered taxes are determined to be unacceptable or disallowed by the IRS, the sheltering firms are required to pay additional taxes, interest, and penalties, and the firms' financial statements may have to be restated (Graham et al. 2012; Hanlon et al. 2012).[6] Third, sheltering firms may also suffer from negative public sentiment and reputational costs of being labeled "poor

[6] For example, on February 27, 2013, a federal court rejected Dow Chemical's tax shelters that generated $1 billion in tax deductions. In addition to repaid taxes and interest, the court imposed 20% penalty on the chemical producer.

corporate citizens" when their use of tax shelters is publicly discovered (Hanlon and Slemrod 2009; Graham et al. 2012).

In the M&A setting, acquiring a tax sheltering target is expected to bring in higher potential costs than benefits to an acquirer. Although it is possible that the target's tax shelters may help the acquirer to generate higher after-tax income after the deal, the acquirer would have participated in its own tax shelters if the acquirer had deemed them to be optimal. Given the increased tax risks associated with the target's tax shelters, I expect acquirers will offer a lower takeover premium to targets that have participated in tax shelters. I therefore state my hypothesis H3 in alternative form as follows:

H3: *The target's non-sheltering status is positively associated with takeover premium.*

It is possible that the target's non-sheltering status is not associated with takeover premium. For example, if outside investors were able to identify targets that engaged in tax sheltering prior to the deal from other public sources (e.g., the news media), then any negative price effects associated with tax sheltering would have been reflected in the targets' stock prices (Hanlon and Slemrod 2009) and therefore would not be reflected in the takeover premium. Furthermore, the agency view of tax avoidance suggests that shareholders of well-governed firms value tax avoidance behavior positively because managers in well-governed firms do not use tax shelter arrangements to facilitate rent diversion (Desai et al. 2007; Desai and Dharmapala 2008; Kim, Li, Zhang 2011). Consistent with this view, acquirers may not be concerned about the target's tax shelters if the target is well-governed. In this case, the main effect of the target's non-sheltering status on takeover premium may not be significant.

4.2.3 Hypothesis H4: The Target's Non-Sheltering Status and Acquirer Returns

Hypothesis H3 examines the valuation effects of the target's non-participation in tax shelters on target shareholders. But does the target's non-sheltering status affect acquirer shareholder wealth? Knowing that the target has not engaged in tax sheltering could alleviate acquirer shareholders' concerns about the tax risks associated with the target's tax shelters (Hanlon and Slemrod 2009; Graham et al. 2012; Hanlon et al. 2012). Also, acquirer shareholders may view the acquisition of a non-sheltering target as an indication that the acquirer management does not intend to extract private benefits from its shareholders, consistent with the agency view of tax avoidance (Desai et al. 2007; Desai and Dharmapala 2008). Therefore, I expect that the acquisition gains for acquirer shareholders will be higher for targets that have not participated in tax shelters. Formally, my hypothesis H4, stated in alternative form, is as follows:

H4: *The target's non-sheltering status is positively associated with acquirer returns.*

Notwithstanding the above arguments, acquirer shareholders may not capture the benefits of the target's non-participation in tax shelters because prior research has shown that the gains from corporate acquisitions are primarily accrued to shareholders of the targets rather than to those of the acquirers (Jensen and Ruback 1983; Jarrell, Brickley, and Netter 1988). To the extent that the target's non-participation in tax shelters represents a positive attribute, the valuation benefits associated with the target's non-sheltering status could be mostly accrued to the target's own shareholders in the form of a higher takeover premium paid by the acquirer.

4.2.4 Section Summary

In the M&A setting, acquiring a tax sheltering target is expected to bring in higher potential costs than benefits to an acquirer given the increased tax risks associated with the

target's tax shelters. Therefore, my first hypothesis predicts that acquirers will offer a lower takeover premium to targets that have participated in tax shelters. Knowing that the target has not engaged in tax sheltering could alleviate acquirer shareholders' concerns about the tax risks associated with the target's tax shelters. Also, acquirer shareholders may view the acquisition of a non-sheltering target as an indication that the acquirer management does not intend to extract private benefits from its shareholders, consistent with the agency view of tax avoidance. Therefore, I also hypothesize that the acquisition gains for acquirer shareholders will be higher for targets that have not participated in tax shelters.

4.3 Research Design

4.3.1 Introduction

This section describes the research design and sample used to test the hypotheses developed in Section 4.2. I begin with a description of the manual coding procedure I use to measure the target's non-sheltering status in Section 4.3.2. Section 4.3.3 outlines the procedure I use to construct the validity of my non-sheltering measure. Section 4.3.4 presents regression specifications to test hypotheses H3 and H4. Section 4.3.5 outlines my sample selection criteria. Section 4.3.6 concludes.

4.3.2 Measures of the Target's Non-Sheltering Status

I hand-collect the non-sheltering status information from each target's Form 8-K – Agreement and Plan of Merger under the Representation and Warranties section. Examples of the non-sheltering disclosures are provided as follows:

JAMDAT Mobile Inc., December 8, 2005

"The Company and each Company Subsidiary have disclosed on their federal income Tax returns all material positions taken therein that could, if not so disclosed, give rise to a substantial understatement penalty within the meaning of Section 6662 of the Code. Neither the Company nor any Company Subsidiary has been a party to or participated in any way in a transaction that would be defined as a "reportable transaction" within the meaning of Treasury Regulation Section 1.6011-4(b) (including, without limitation, any "listed transaction") or any confidential corporate Tax shelter within the meaning of Treasury Regulation Section 1.6111-2."

Electronic Data Systems Corp., May 13, 2008

"Neither the Company, nor any of its Subsidiaries has participated (i) in a transaction that is the same as or substantially similar to one of the types of transactions that the Internal Revenue Service has determined to be a tax avoidance transaction and identified by notice, regulation, or other form of published guidance as a listed transaction, as set forth in Treasury Regulation § 1.6011-4(b)(1) or, (ii) to the Knowledge of the Company, in a reportable transaction (other than a listed transaction), as set forth in Treasury Regulation § 1.6011-4(b)."

Varian Inc., July 26, 2009

"Neither the Company nor any Company Subsidiary has consummated, has participated in, or is currently participating in any transaction which was or is a "Tax shelter" transaction as defined in Sections 6662 or 6111 of the Code or the Treasury Regulations promulgated thereunder. Neither the Company nor any Company Subsidiary has participated in, nor are any of them currently participating in, a "Listed Transaction" or a "Reportable Transaction"

within the meaning of Section 6707A(c) of the Code or Treasury Regulation Section 1.6011-4(b), or any transaction requiring disclosure under a corresponding or similar provision of state, local, or foreign law."

Robbins & Myers Inc., October 6, 2010

"For all Tax years and periods since January 1, 2006, neither R&M nor any R&M Subsidiary has participated in or been a party to a transaction that, as of the date of this Agreement, constitutes a "listed transaction" or "reportable transaction" within the meaning of Section 6011 of the Code and applicable Treasury Regulations thereunder (or a similar provision of state law)."

As shown in the above examples, the length and style of the disclosures vary slightly, but they are very consistent in terms of content. In particular, all of the disclosures provide two pieces of important information: (i) the parties involved (the target firm only or both the acquirer and the target, including any subsidiaries) and (ii) the tax shelter transactions (reportable transactions, listed transactions, or both, with reference to the relevant regulation sections). The disclosures generally refer to non-participation in tax shelters for a target's entire history up to the Form 8-K filing date and do not contain forward-looking information regarding future tax shelter participation. Moreover, in some transactions, it is explicitly stated that neither the target nor the acquirer shall participate or engage in any reportable or listed transaction pending the closing of the deal.

I use a target's representation concerning its non-participation in tax shelters as a measure of the target's actual non-sheltering status. That is, I assume that targets that disclose their non-participation in tax shelters are non-sheltering targets in my analysis. I also assume that targets that do not disclose their non-participation in tax shelters are sheltering targets. Note that none of the targets in my sample disclose that they have participated in tax shelters.

4.3.3 Construct Validity of the Non-Sheltering Measure

Whether the target's non-sheltering disclosure measure reliably captures the firm's underlying non-sheltering status depends on two conditions: (i) no sheltering targets will misrepresent themselves by claiming non-participation in tax shelters in the Form 8-K, and (ii) no non-sheltering targets will withhold such non-sheltering status from the Form 8-K. Violation of either condition (i) or (ii) would contaminate my non-sheltering measure and bias against my predicted results. This section discusses the validity of the two conditions.

For condition (i), I argue that no sheltering targets will misrepresent themselves by claiming non-participation in tax shelters in the Form 8-K. Participants in a reportable transaction must disclose information for each reportable transaction on their tax returns. Therefore, it is easy for an acquirer to verify the target's tax sheltering status via due diligence prior to determining the takeover premium. Also, due to the complicated nature of reportable transactions, tax sheltering firms receive professional consultation and advice from tax shelter promoters before participating in tax shelters. So, it is expected that the target's team know whether their firm's tax shelters constitute reportable transactions under the law. More important, because the Form 8-K is filed with the SEC, all disclosures on the Form 8-K will be subject to antifraud provisions of the federal securities laws (Hardy 2005; Hutching 2008). For these reasons, it is unlikely that any sheltering targets will misrepresent themselves by claiming non-participation in tax shelters in the Form 8-K. Hence, condition (i) is likely to be satisfied.

For condition (ii), I argue that no non-sheltering targets will withhold such non-sheltering status from their Form 8-K. First, the target's non-sheltering disclosure is made in the Agreement and Plan of Merger under the target's Representation and Warranties section. This section allows the acquirer to obtain information about the target before signing the merger agreement

(Hutching 2008), and, more important, information contained in this section can be used as a basis for the acquirer to terminate the transaction after the merger agreement has been signed (Hutching 2008). Therefore, it is in the acquirer's best interests to have the target state its non-sheltering status in the Representation and Warranties section to protect against subsequent risk of uncovering the target's tax shelters after the merger agreement is signed. Second, from the target's point of view, a non-sheltering target would be willing to disclose its non-sheltering status on the Form 8-K especially if disclosure would facilitate the transaction. Moreover, results from prior research imply that non-sheltering targets have little incentive to withhold their non-sheltering status (Hanlon and Slemrod 2009). Hence, condition (ii) is also likely to be satisfied.

To empirically support the validity of the non-sheltering measure, in Section 4.4, I will compare my sample of disclosing and non-disclosing targets against samples of tax shelter firms employed in prior research and provide correlations between the non-sheltering status measure and existing measures of tax aggressiveness.

4.3.4 Regression Specifications

To test hypotheses H3 and H4, I run the following two regression models, respectively:

$$PREMIUM = \alpha + \beta_1 NONSHELTER + \boldsymbol{X}'\zeta + t + \varepsilon \quad (10)$$

$$ACAR = \alpha + \beta_1 NONSHELTER + \boldsymbol{X}'\zeta + t + \varepsilon \quad (11)$$

where *NONSHELTER*, my main independent variable, is an indicator variable equals 1 if the target's non-sheltering status is disclosed, and 0 otherwise. The dependent variable for Equation (10), *PREMIUM*, is either the offer premium (*PREM*) or target abnormal returns (*TCAR*). The dependent variable for Equation (11) is acquirer abnormal returns (*ACAR*). The offer premium is the ratio of offer price to the target's trading price one week (four weeks) prior to the merger

announcement date, minus one. Both *TCAR* and *ACAR* are measured over two event windows centered on the Form 8-K filing date, the three-day window [-1, +1], and the five-day window [-2, +2] to capture stock price reaction to the information disclosed in the Form 8-K in a timely manner. Following the standard methodology for event study analysis (Brown and Warner 1985), I use a market-adjusted model based on CRSP value-weighted return as the market return. I estimate a firm's daily abnormal return by subtracting the CRSP market return from the firm's daily return. I then cumulate the daily abnormal returns over the event window to obtain the cumulative abnormal returns. As a robustness check, I estimate abnormal returns using the market model with the parameters estimated over a 200-day period between day -210 and day -11, centered on the Form 8-K filing date. The results are qualitatively similar. Finally, $\boldsymbol{X}$ is a vector of firm-specific and deal-specific observable determinants of acquisition gains, and t is calendar year fixed-effects.

Following prior literature on M&A (e.g. Bradley et al. 1988; Masulis et al. 2007), I control for a number of target, acquirer, and deal characteristics in Equations (10) and (11). For target and acquirer characteristics, I control for firm size (*SIZE*), Tobin's Q (*TOBINSQ*), profitability (*ROA*), and leverage (*LEV*). Existing research suggests that targets' information uncertainty and financial reporting quality affect takeover premium and acquirer returns (Officer, Poulsen, and Stegemoller 2009; McNichols and Stubben 2012; Raman, Shivakumar, and Tamayo 2012). To control for the potential effects of the target's information uncertainty and financial reporting quality on takeover premium, I include the target's monthly stock return volatility (*VOLAT*) and its discretionary accruals (*ACCQ*), estimated from the modified Jones model of Dechow et al. (1995). All the firm-level characteristics are measured at the fiscal year end prior to the merger announcement. For deal characteristics, I control for relative deal size

(*DEALRATIO*), whether the deal is a tender offer (*TENDER*), whether the deal is a stock-financed transaction (*ALLSTOCK*), whether the deal is a within-industry merger (*INDMATCH*), and whether the deal is a merger of high-technology firms (*HIGHTECH*).

In summary, the variables used in Equations (10) and (11) are defined as follows:

SIZE	=	Natural logarithm of market value of outstanding equity.
TOBINSQ	=	Market value of assets over book value of assets, where the market value of assets is computed as the book value of assets plus the market value of common stock less the sum of the book value of common stock.
ROA	=	Pre-tax income, scaled by lagged assets.
LEV	=	Book value of debts, scaled by lagged assets.
VOLAT	=	Standard deviation of market adjusted monthly stock return measured over the 12-month period prior to merger announcement.
ACCQ	=	Discretionary accruals, estimated from the modified Jones model by Dechow et al. (1995)
TENDER	=	Indicator variable: 1 for tender offer, and 0 otherwise.
ALLSTOCK	=	Indicator variable: 1 for 100% stock-financed deal, and 0 otherwise.
DEALRATIO	=	The total deal value (sum of all considerations paid, excluding fees) divided by the acquirer's pre-announcement market value of equity; market value of equity is defined as the number of shares outstanding multiplied by the stock price at the 6^{th} trading day prior to the merger announcement date.
HIGHTECH	=	Indicator variable: 1 if acquirer and target are both in a high-technology industry, and 0 otherwise. Following the classification scheme in Kimbrough and Louis (2011), high-tech industries are as those in SIC codes 2833-2836 (Pharmaceuticals), 3570-3577 (Computers), 3600-3674 (Electronics), 7371-7379 (Programming), or 8731-8734 (R&D Services).

4.3.5 Sample Selection

I draw the sample from the SDC Platinum Mergers & Acquisitions database and obtain all completed M&A transactions involving publicly-traded U.S. target and acquiring firms. The sample firms' stock return and financial statement data are obtained from CRSP and Compustat, respectively. My sample includes transactions announced between January 1, 2005 and December 31, 2010 because very few transactions announced prior to 2005 provide such non-sheltering disclosure. To ensure that my sample only includes deals that result in changes in control, I include only deals in which the acquirer owns less than 50% of the shares of the target prior to the merger announcement and 100% of the target after the acquisition. I exclude transactions with deal values lower than $1 million.

The initial sample begins with all M&A transactions involving U.S. public acquirers and U.S. public targets listed on the SDC database for my sample period. I exclude transactions that involve firms in the financial sector (SIC 6000 – 6999) due to its unique nature of regulatory environment and data requirements. Since I hand-collect the non-sheltering information from the targets' Form 8-K – Agreement and Plan of Merger, I further exclude transactions that do not have Form 8-K filings in the SEC's EDGAR database. I also eliminate transactions in which the Form 8-K is filed before the merger announcement date or filed more than four days after the announcement date because firms are required to file a Form 8-K within four business days after the merger announcements. Finally, in computing the variables, I exclude observations with missing values. These restrictions result in sample sizes of 446 and 420 transactions for the takeover premium and acquirer abnormal return analyses, respectively.

Table 4.3.5 reports the percentage of sample transactions that disclose the target's non-sheltering status by announcement year. Of the 446 transactions in my sample, 340 transactions

(76.2%) disclose the target's non-participation in reportable transactions in their Form 8-K, and the remaining 106 transactions (23.8%) do not disclose such information. The percentage of disclosing deals increases significantly over the sample period from slightly less than 69% in 2005 to over 87% in 2010. Result from a chi-squared test suggests that this linear trend is highly significant. This upward trend suggests that acquirers may have paid more attention to a target's involvement in tax shelters in selecting potential targets or that they may have viewed disclosure of the target's non-sheltering status in the merger agreements to be increasingly important, or both.

4.3.6 Section Summary

In this section, I discuss the empirical model for testing the two hypotheses outlined in Section 4.2. I first describe how I construct the measure of the target's non-sheltering status and the procedure used to construct the validity of my non-sheltering measure. Then, I specify the empirical model used to test my hypotheses and discuss the sample selection criteria. The following section presents the results from the regression model using the sample specified.

Table 4.3.5
Panel A: Sample Distribution by Announcement Year

Year	No. of Deals (Percent of Sample)	*NON-SHELTER*=1 (Percent of Sample)	Percent of *NON-SHELTER*=1	Mean (Median) Acquirer Market Cap ($mil)	Mean (Median) Target Market Cap ($mil)	Mean (Median) Deal Ratio
2005	86	59	68.6	30,850.9	1,828.9	0.276
	(19.3)	(13.2)		(5,452.1)	(344.8)	(0.091)
2006	88	63	71.6	22,877.7	1,910.6	0.255
	(19.7)	(14.1)		(3,956.5)	(561.7)	(0.129)
2007	94	66	70.2	19,348.7	967.7	0.271
	(21.1)	(14.8)		(3,340.7)	(528.0)	(0.142)
2008	55	45	81.8	26,159.4	1,143.5	0.252
	(12.3)	(10.1)		(4,136.3)	(294.5)	(0.117)
2009	51	44	86.3	31,849.9	2,717.9	0.220
	(11.4)	(9.90)		(3,017.2)	(302.4)	(0.087)
2010	72	63	87.5	25,849.8	877.3	0.306
	(16.1)	(14.1)		(3,548.1)	(289.7)	(0.063)
Total	446	340	76.2	25,582.4	1,523.6	0.249
	(100.0)	(76.2)		(3,864.5)	(414.4)	(0.093)

The sample consists of 446 completed U.S. M&A deals between 2005 and 2010. *NONSHELTER* is an indicator variable equals 1 if the target's non-sheltering status is disclosed in the Form 8-K, and 0 otherwise. *SIZE* is the natural logarithm of the firm's market capitalization, which is defined as the number of shares outstanding multiplied by the stock price at the 6th trading day prior to announcement date. *DEALRATIO* is the ratio of the total deal value to the acquirer's pre-announcement market capitalization.

4.4 Main Results

4.4.1 Introduction

This section presents and discusses the results from the estimation of the empirical model specified in Equations (10) and (11). Section 4.4.2 presents the descriptive statistics relevant to my primary tests of hypotheses H3 and H4. The presentation also includes a review of a correlation table for my primary variables of interest (*NONSHELTER*) and other tax aggressiveness measures used in previous literature. A correlation table for my other control variables is also presented. Section 4.4.3 provides the main tables of analysis for hypothesis H3. Section 4.4.4 provides the main tables of analysis for hypothesis H4. Section 4.4.5 concludes the section.

4.4.2 Descriptive Statistics

Table 4.4.2 Panel A reports descriptive statistics for target characteristics as well as mean and median comparisons between the disclosing and non-disclosing targets. For the tax aggressiveness measures, results from mean differences tests indicate that, while disclosing targets and non-disclosing targets face similar five-year cash effective tax rates (*CASHETR5*), disclosing targets exhibit significantly lower total BTD (*BTD*), lower permanent BTD (*permBTD*), and lower uncertain tax benefits (*UTB_SC*) than non-disclosing targets. Table 4.4.2 Panel B presents Pearson correlations among *NONSHELTER* and other measures of tax aggressiveness. *NONSHELTER* is negatively correlated with *UTB_SC*, *BTD*, and *PermBTD*. These results are consistent with the findings in prior studies (Wilson 2009; Lisowsky 2010; Lisowsky et al. 2012) that total BTD and uncertain tax benefits are more useful in detecting tax shelters than other tax aggressiveness measures are. In sum, existing measures of tax

aggressiveness offer some evidence that targets that do not disclose their non-sheltering status in their Form 8-K are more tax aggressive than those who disclose.

In terms of other target characteristics, non-disclosing targets are less profitable (*ROA*), have more research and development expenditures (*R&D*), and report higher equity-method earnings (*EQEARN*) than disclosing targets. These differences are consistent with the characteristics of the samples of tax shelter firms employed in prior studies (Wilson 2009; Lisowsky 2010; Lisowsky et al. 2012).

Table 4.4.2 Panel C presents descriptive statistics on acquirer and deal characteristics of the full sample, as well as mean and median comparisons between the disclosing and non-disclosing targets. All acquirer characteristics are similar with the exception of firm size (*SIZE*), in which acquirers that acquire a non-disclosing target tend to be smaller than those acquire a disclosing target. The statistics also indicate that, on average, both takeover premium measures (*PREM* and *TCAR*) are higher in the disclosing target group than in the non-disclosing target group, but that acquirer abnormal return is not significantly different between the two groups. For both windows of measurement, *TCAR* is significantly positive (at the 1% level), and *ACAR* is significantly negative (at the 5% level). In terms of deal characteristics, deals involving a non-disclosing target are not likely to be tender offers (*TENDER*) and are usually large in relative deal size (*DEALRATIO*). The correlations presented in Table 4.4.2 Panel D confirm these differences. Overall, these univariate results also suggest that the association between the target's non-sheltering status and takeover premium is not driven by the presence of the control variables.

Table 4.4.2 – Panel A
Mean Comparisons of Firm-Level Variables Across Samples

Sample	This Study		Wilson (2009)		Lisowsky (2010)		Lisowsky et al. (2012)	
Sample Period	2005-2010		1975-2002		2000-2004		2006-2009	
	NON-SHELTER = 0	*NON-SHELTER* = 1	*SHELTER* = 1	*SHELTER* = 0	*SHELTER* = 1	*SHELTER* = 0	*SHELTER* = 1	*SHELTER* = 0
N	340	106	33	33	267	8,956	680	2,582
Tax Avoidance Measures								
UTB_SC	0.013*	0.008	-	-	-	-	0.013*	0.011
ETR	0.274	0.276	0.35	0.38	-	-	0.298	0.301
CASHETR5	0.258	0.273	-	-	-	-	0.265	0.261
BTD	0.028*	0.006	0.02*	-0.01	0.046*	-0.218	0.042	0.033
PermBTD	0.014*	0.005	-	-	-	-	0.025*	0.007
DTAX	0.036	0.031	-	-	-	-	0.059*	0.043
PSHELTER	0.711	0.638	-	-	-	-	-	-
Other Firm Characteristics								
SIZE	5.681	5.717	3.54	3.44	7.804*	3.942	9.514*	7.707
ROA	0.034*	0.037	0.15	0.10	0.078*	-0.443	0.061*	0.069
FOREIGN	0.013	0.012	0.02	0.01	0.007*	0.002	0.024*	0.018
LEV	0.201	0.173	0.18*	0.29	0.192*	0.261	0.211*	0.171
ACCQ	0.003	0.021	-0.01	-0.02	0.066*	-0.019	0.019	0.065
R&D	0.162*	0.112	0.05*	0.03	0.016*	0.112	0.048*	0.086
EQEARN	0.154*	0.125	-	-	0.375*	0.117	0.475*	0.321
BIG4(5)	0.752	0.769	-	-	0.981*	0.650	0.993*	0.943
TOBINSQ	2.047	2.154	-	-	-	-	-	-
VOLAT	0.104*	0.126	-	-	-	-	-	-

This table presents mean (frequency) differences between the disclosing and non-disclosing target subsamples, and mean (frequency) differences between tax shelter firm and non-shelter firm subsamples from prior studies.

Table 4.4.2 – Panel B
Pearson Correlations: Tax Aggressiveness Measures

	Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1)	*NONSHELTER*							
(2)	*UTB_SC*	**-0.158**						
(3)	*ETR*	0.040	-0.141					
(4)	*CASHETR5*	0.031	-0.010	**0.134**				
(5)	*BTD*	**-0.099**	0.119	**-0.113**	**-0.294**			
(6)	*PermBTD*	**-0.078**	0.039	**-0.337**	**-0.275**	**0.611**		
(7)	*DTAX*	-0.021	0.056	**-0.133**	0.045	**0.085**	**0.194**	
(8)	*PSHELTER*	-0.062	0.083	-0.025	**-0.304**	**0.242**	**0.282**	0.024

This table presents Pearson correlations among tax aggressiveness measures. The coefficients in bold are all statistically significant (at ≤10% level) in two-tailed tests.

Table 4.4.2 – Panel C
Descriptive Statistics

Variable	Full Sample		*NONSHELTER* = 0		*NONSHELTER* = 1		P-value for
	Mean	Median	Mean	Median	Mean	Median	Mean Diff
Acquirer Characteristics							
SIZE	8.437	8.259	7.911	7.707	8.601	8.385	**0.003**
TOBINSQ	2.111	1.771	2.178	1.863	2.095	1.769	0.511
ROA	0.099	0.095	0.099	0.103	0.097	0.093	0.649
LEV	0.197	0.177	0.218	0.184	0.191	0.174	0.150
VOLAT	0.086	0.076	0.084	0.074	0.086	0.076	0.768
BTD	0.046	0.042	0.058	0.045	0.043	0.036	0.137
CASHETR5	0.281	0.247	0.262	0.244	0.286	0.248	0.401
Deal Characteristics							
TENDER	0.212	0.000	0.151	0.000	0.231	0.000	**0.076**
ALLSTOCK	0.123	0.000	0.160	0.000	0.112	0.000	0.180
DEALRATIO	0.249	0.092	0.301	0.167	0.234	0.077	**0.078**
INDMATCH	0.637	1.000	0.660	1.000	0.631	1.000	0.576
HIGHTECH	0.407	0.000	0.349	0.000	0.425	0.000	0.163
Takeover Premium & Abnormal Return (%)							
PREM [1-WEEK]	37.61	30.64	30.09	22.97	39.96	31.90	**0.008**
PREM [4-WEEK]	41.58	32.97	32.73	26.65	44.34	34.55	**0.006**
TCAR [-1, 1]	23.44	17.61	18.24	15.56	25.07	17.94	**0.024**
TCAR [-2, 2]	25.62	19.91	20.80	19.04	27.62	20.57	**0.076**
ACAR [-1, 1]	-0.667	-0.189	-0.488	-0.625	-0.723	-0.169	0.759
ACAR [-2, 2]	-0.835	-0.344	-0.559	-0.446	-0.928	-0.317	0.629

This table presents descriptive statistics he right-most column shows the p-value for t-test (Chi-Square test) for mean (frequency) differences between the disclosing and non-disclosing deals.

Table 4.4.2 – Panel D
Panel A: Pearson Correlations: Takeover Premium & Acquirer Abnormal Return Analyses

	Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
(1)	*PREM*																		
(2)	*TCAR* [-1,1]	**0.69**																	
(3)	*ACAR* [-1,1]	**-0.09**	0.04																
(4)	*NONSHELTER*	**0.14**	**0.10**	0.02															
(5)	*SIZE*	**-0.28**	**-0.26**	0.03	0.01														
(6)	*TOBINSQ*	-0.08	-0.04	**0.12**	0.02	**0.08**													
(7)	*ROA*	**-0.19**	**-0.23**	**-0.14**	0.06	**0.32**	**-0.30**												
(8)	*LEV*	0.04	**-0.08**	0.04	-0.03	**0.16**	-0.01	-0.06											
(9)	*ACCQ*	-0.02	0.04	-0.04	0.03	-0.04	0.02	0.07	0.02										
(10)	*VOLAT*	**0.13**	**0.12**	0.06	**0.11**	**-0.16**	-0.06	-0.07	-0.05	0.04									
(11)	$SIZE_{acq}$	0.04	**0.09**	-0.03	**0.14**	**0.50**	**0.09**	**0.16**	0.04	-0.02	0.02								
(12)	$TOBINSQ_{acq}$	0.02	0.02	0.06	-0.02	0.02	**-0.15**	**0.36**	**-0.11**	0.03	-0.05	**0.15**							
(13)	ROA_{acq}	-0.03	-0.01	**-0.10**	0.08	**0.23**	**0.27**	0.01	0.05	0.02	-0.01	**0.39**	**0.14**						
(14)	LEV_{acq}	0.01	0.00	-0.01	**-0.09**	**0.08**	**0.11**	**-0.17**	**0.22**	0.04	-0.03	**-0.09**	-0.06	**-0.22**					
(15)	*TENDER*	**0.14**	**0.23**	0.01	**0.08**	-0.03	-0.04	**0.10**	-0.05	-0.05	0.04	**0.14**	**0.13**	**0.10**	**-0.17**				
(16)	*ALLSTOCK*	**-0.11**	**-0.13**	0.08	-0.04	-0.04	-0.03	-0.04	0.05	-0.04	0.03	**-0.29**	**-0.11**	**-0.13**	**0.10**	**-0.18**			
(17)	*DEALRATIO*	-0.04	**-0.11**	0.02	**-0.08**	**0.12**	**0.08**	**-0.08**	**0.13**	-0.02	-0.07	**-0.36**	-0.06	**-0.12**	**0.32**	**-0.14**	**0.16**		
(18)	*INDMATCH*	-0.01	0.03	-0.00	0.01	0.01	-0.04	-0.02	**0.11**	-0.05	0.05	**-0.11**	-0.04	0.04	0.07	-0.04	**0.12**	0.04	
(19)	*HIGHTECH*	-0.07	**-0.12**	0.04	**0.08**	-0.06	0.02	0.01	**-0.13**	-0.01	-0.01	0.07	-0.01	0.05	**-0.15**	-0.01	-0.03	-0.06	**0.20**

This table presents Pearson correlation coefficients for variables used in the takeover premium and returns analyses. PREM is the ratio of offer price to the target's trading price 1 week prior to the merger announcement date minus one. The coefficients in bold are all statistically significant (at ≤10% level) in two-tail tests.

4.4.3 The Target's Non-Sheltering Status and Takeover Premium

Table 4.4.3 Panel A presents the results of Equation (10). The coefficient estimates on *NONSHELTER* reported in columns (1) and (2) indicate that the target's non-sheltering status is significantly positively associated with takeover premium. The results are qualitatively similar whether the offer premium is calculated using the target's trading price one week prior or four weeks prior to the merger announcement date. In addition, as shown in columns (3) and (4), consistent results are found using target abnormal returns as the dependent variable. Overall, the results indicate that the target's non-sheltering status is positively associated with various measures of takeover premium.

To ensure these results are not driven by the presence of extreme observations in the offer premium measures, I adopt alternative specifications including robust and Tobit regressions that address the potential issues of outliners. First, I re-estimate Equation (10) using robust regression. Unlike OLS that assigns equal weight to all observations, robust regression weighs each observation differently depending on the behavior of the observation in the sample. Second, I find that about 3 percent of the premium values in my sample are negative. As zero should be an economically meaningful bound for takeover premium (Officer, 2003), I employ a Tobit specification with left-censoring at zero to address the negative premium values. The results (untabulated) from these alternative specifications reinforce my findings that the target's non-sheltering status is positively associated with takeover premium. The results are also robust to winsorizing the premium values at its top and bottom one-percentile.

In terms of the economic significance of the estimates, the difference in takeover premium (4.59 percent) amounts to a mean (median) of $69.7 million ($19 million) in market value. It is important to note that, due to the unique research setting and the highly aggressive nature of the type of tax shelter studied in this paper (i.e., reportable or listed transactions), the estimates of the average premium effect (4 to 5 percent) for my sample are likely to be higher than the average effects for other types of tax shelters or aggressive tax planning (i.e., non-reportable, non-listed transactions). Therefore, the magnitude of the effect reported in this study should not be generalized to other forms of tax avoidance behavior. Overall, the results lend support to hypothesis H3 that the target's non-sheltering status is associated with a higher takeover premium.

Last, the coefficient estimates for the control variables are generally consistent with the results documented in prior research (Dong et al. 2005; Moeller et al. 2004; Wang and Xie 2008). For example, the results suggest that takeover premium is significantly higher for larger acquirers, deals that are larger in relative size, and tender offers; takeover premium is lower for larger targets, stock-financed deals, and high-tech mergers.

Table 4.4.3
The Association between the Target's Non-Sheltering Status and Takeover Premium

	Pred. Sign	*PREM* [1-week]	*PREM* [4-week]	*TCAR* [-1,1]	*TCAR* [-2,2]
NONSHELTER	+	4.586**	4.011**	4.198**	4.160**
		(2.193)	(1.992)	(1.859)	(1.711)
Acquirer Traits					
SIZE		3.472***	4.326***	3.329***	3.671***
		(3.885)	(4.131)	(3.195)	(3.328)
TOBINSQ		1.491	0.534	-0.599	-0.726
		(1.268)	(0.377)	(-0.561)	(-0.657)
ROA		-13.363	0.070	-3.526	-6.415
		(-1.049)	(0.005)	(-0.315)	(-0.559)
LEV		2.078	5.599	9.849	8.477
		(0.260)	(0.688)	(1.311)	(1.068)
Target Traits					
ACCQ		0.977	1.593	0.872	0.747
		(0.790)	(1.079)	(0.775)	(0.653)
VOLAT		-2.397	-3.367	-2.073	-3.358
		(-0.134)	(-0.164)	(-0.131)	(-0.203)
SIZE		-5.883***	-7.159***	-5.566***	-5.654***
		(-6.230)	(-6.552)	(-5.025)	(-4.639)
TOBINSQ		-2.021*	0.257	-1.443	-1.647
		(-1.965)	(0.222)	(-1.334)	(-1.376)
ROA		-7.205	-5.189	-14.919	-15.558
		(-0.967)	(-0.599)	(-1.462)	(-1.466)
LEV		4.700	4.205	-10.114	-10.583
		(1.136)	(0.826)	(-1.450)	(-1.450)
Deal Traits					
TENDER		4.357	6.838*	10.22***	10.81**
		(1.273)	(1.706)	(2.675)	(2.577)
ALLSTOCK		-4.826	-3.569	-6.192**	-6.224**
		(-1.439)	(-0.905)	(-2.108)	(-1.992)
DEALRATIO		4.038***	4.996***	0.740	0.874
		(2.825)	(3.488)	(0.675)	(0.765)
INDMATCH		1.175	2.088	6.323***	6.531**
		(0.485)	(0.782)	(2.685)	(2.502)
HIGHTECH		-6.400**	-6.852**	-10.79***	-11.77***
		(-2.431)	(-2.390)	(-4.247)	(-4.186)
Intercept		48.60***	49.87***	35.61***	34.25***
		(5.412)	(4.525)	(3.944)	(3.885)
Adjusted R^2		0.236	0.240	0.228	0.233
N		446	446	401	401

This table reports regression results of takeover premium on the target's non-sheltering status. Calendar year fixed-effects are included. Reported in parentheses are t-statistics computed using heteroskedasticity-consistent standard errors adjusted for acquirer clustering; ***, **, * represent significance levels (one-tailed for *NONSHELTER*, and two-tailed for control variables) at 1%, 5% and 10%, respectively.

4.4.3.1 The Role of the Target's Uncertain Tax Benefits

Next, I address whether the target's non-sheltering status provides acquirers with value-relevant (private) information incremental to existing measures of tax aggressiveness constructed based on the target's publicly available financial data by controlling for *BTD*, tax shelter probability (*PSHELTER*), and *CASHETR5* in the premium regressions. The results in Panel A of Table 4.4.3.1 show that the coefficients on *NONSHELTER* remain significantly positive, indicating that the target's non-sheltering status plays an essential role in acquirers' valuation of target firms.

FIN 48, effective the first quarter of 2007, requires financial statement disclosure of accounting reserve for future tax contingencies or uncertain tax benefits (UTB). Using proprietary IRS data, Lisowsky et al. (2012) find that UTB reserves reflect tax shelter participation. To the extent that targets account for the contingent liabilities associated with the tax shelters by properly recording a UTB reserve for their tax shelter positions, the target's non-sheltering status may not reflect on the takeover premium. However, as discussed in Hanlon and Heitzman (2010), the amount of UTB is an accounting accrual subject to management judgment and may not be consistently recorded due to financial reporting incentives of the firms. Consistent with this view, DeSimone, Robinson, and Stomberg (2012) document a significant variation in management judgment in establishing a UTB reserve. If the target's UTB are not consistently recorded, the target's UTB may not have a significant effect on acquirers' valuation of the target's non-sheltering status. To examine the role of the target's UTB on the association between the target's non-sheltering status and takeover premium, I include the variable *UTB* and the interaction of *UTB* and

NONSHELTER in Equation (10). Following Lisowsky et al. (2012), I use both the *UTB* scaled by total assets (*UTB_SC*) and the natural log of *UTB* (*UTB_LN*).

Reported in Panel B of Table 4.4.3.1, the results show that the association between the target's non-sheltering status and takeover premium remains significantly positively after controlling for the target's UTB. Specifically, the coefficients on *UTB_SC* and *UTB_LN* are positive, and the coefficients on the interaction terms (*UTB_SC*×*NONSHELTER* and *UTB_LN*×*NONSHELTER*) are negative, but none of them is statistically significant. The negative interactive effects suggest that the positive premium effect of the target's non-sheltering status is weaker among targets that have a higher UTB reserve; however, the difference is not significant. Overall, the results suggest that the positive association between the target's non-sheltering status and takeover premium is not affected by the target's level of UTB.

Table 4.4.3.1 – Panel A
The Association between the Target's Non-Sheltering Status and Takeover Premium

	PREM [1-week]	*PREM* [1-week]	*PREM* [1-week]	*TCAR* [-1,1]	*TCAR* [-1,1]	*TCAR* [-1,1]
NONSHELTER	4.052**	4.830***	5.380**	3.857**	3.944**	4.958**
	(1.996)	(2.360)	(2.095)	(1.751)	(1.865)	(1.875)
BTD_{target}	-36.38***			-30.56**		
	(-2.844)			(-2.237)		
$PSHELTER_{target}$		-12.23***			-13.50	
		(-2.402)			(-0.935)	
$CASHETR5_{target}$			22.91***			12.22
			(3.735)			(1.352)
Control Variables	Included	Included	Included	Included	Included	Included
Adjusted R^2	0.236	0.249	0.348	0.255	0.230	0.286
N	446	446	215	401	401	215

Table 4.4.3.1 – Panel B
The Association between the Target's Non-Sheltering Status and Takeover Premium: The Role of the Target's Tax Reserves

	PREM [1-week]	*TCAR* [-1,1]	*PREM* [1-week]	*TCAR* [-1,1]
NONSHELTER	6.402**	7.154**	6.586**	5.954**
	(1.869)	(1.755)	(1.709)	(1.823)
UTB_SC_{target}	0.040	0.038		
	(0.974)	(1.072)		
UTB_SC_{target} × *NONSHELTER*	-0.113	-0.150		
	(-0.563)	(-0.774)		
UTB_LN_{target}			1.350	1.004
			(0.746)	(0.818)
UTB_LN_{target} × *NONSHELTER*			-0.956	-0.918
			(-0.590)	(-0.783)
Control Variables	Included	Included	Included	Included
Adjusted R^2	0.282	0.321	0.312	0.262
N	161	161	161	161

This table reports regression results of takeover premium on the target's non-sheltering status. year fixed-effects are included. Reported in parentheses are t-statistics computed using heteroskedasticity-consistent standard errors adjusted for acquirer clustering; ***, **, * represent significance levels (one-tailed for *NONSHELTER*, and two-tailed for control variables) at 1%, 5% and 10%, respectively.

4.4.3.2 The Role of the Target's Information Environment

The agency view of tax avoidance suggests that the complexity of tax shelter arrangements increases the opaqueness of a firm's information environment (Balakrishnan, Blouin, and Guay 2011), allowing opportunistic managers to engage in rent-diverting activities such as earnings manipulation, insider transactions, and bad news hoarding (Desai et al. 2007; Desai and Dharmapala 2008; Kim, Li, Zhang 2011). Similarly, acquirers may be more concerned that tax shelters are being used to cover up the target's corporate misdeeds or other bad news especially when the targets are opaque. Therefore, I examine whether the positive association between the target's non-sheltering status and takeover premium is stronger among targets that have a more opaque information environment.

As shown in Panel A of Table 4.4.3.2, the results using subsamples of targets with high and low information transparency (partitioned based on the median value of their stock return volatility) are consistent with the above prediction. Results (untabulated) based on interaction specifications are consistent with the results based on sample partition. Specifically, the results indicate that the positive association between the target's non-sheltering status and takeover premium is stronger among targets that have a less transparent firm-specific information environment.

4.4.3.3 The Role of the Acquirer's Tax Aggressiveness

The documented positive association between the target's non-sheltering status and takeover premium suggests that acquirers view the target's participation in tax shelters as a red flag. An alternative explanation for this result is that the acquirers intend to take advantage of the additional tax planning opportunities in an "under-sheltered" target. For

example, Badertscher et al. (2011) suggest that private equity firms actively use tax planning as a tool of economic value for their portfolio firms. Likewise, Cheng et al. (2012) find that activist, tax-savvy hedge funds improve the tax efficiency of their portfolio firms. To address this alternative explanation, I conduct two additional analyses. First, I investigate whether the positive association between the target's non-sheltering status and takeover premium varies with the acquirer's tax aggressiveness. For example, if my results are driven by the under-sheltered target explanation, acquirers that are less tax aggressive would place a lower value on the target's non-sheltering status than tax aggressive acquirers would. To examine this possibility, I partition the sample into two subsamples based on the median value of acquirers' *BTD* and re-estimate Equation (10) with the two subsamples.

Reported in columns (1) to (4) of Panel B of Table 4.4.3.2, the results show that the positive association between the target's non-sheltering status and takeover premium is significantly stronger for acquirers that are less tax aggressive. Results (untabulated) using interaction specifications indicate that the positive valuation effect of the target's non-sheltering status increases by 0.712 percent for every one percent decrease in the acquirer's BTD. Similar results are obtained using other tax aggressiveness measures. These results suggest that tax aggressive acquirers place a lower value on the target's non-sheltering status than less aggressive acquirers do, inconsistent with the alternative explanation of "under-sheltered" targets. More important, these findings highlight the essential role that the acquirer's tax aggressiveness plays in valuing the target's non-sheltering status.

4.4.3.4 Relative Tax Aggressiveness of the Acquirer and Target

Second, I include a proxy of the degree of under-sheltering of targets – the relative tax aggressiveness of the acquirer and target – as an additional control variable in Equation (10):

$$D\_BTD = BTD_{acquirer} - BTD_{target} \quad (12)$$

I use BTD to measure firms' tax aggressiveness, but the results are qualitatively similar when other measures of tax aggressiveness are used to construct the relative tax aggressiveness measure. Reported in columns (5) and (6) of Panel B of Table 4.4.3.2, the results on *D_BTD* are mixed. In particular, association between *D_BTD* and the one-week offer premium is positive and significant, but no significant association is observed between *D_BTD* and target abnormal returns. In both regressions, the coefficient on *NONSHELTER* remains significantly positive, suggesting that my prior findings are not driven by the "under-sheltered targets" explanation.

Table 4.4.3.2 – Panel A
The Association between the Target's Non-Sheltering Status and Takeover Premium: The Role of the Target's Information Environment

	PREM [1-week]		*PREM* [1-week]		*PREM* [1-week]	
Target Transparency	*Low*	*High*	*Low*	*High*	*Low*	*High*
NONSHELTER	5.684**	1.514	6.887**	1.926	7.630**	1.495
	(1.784)	(0.476)	(2.158)	(0.611)	(2.294)	(0.149)
BTD_{target}	-28.45*	-38.29**				
	(-1.746)	(-2.156)				
$PSHELTER_{target}$			-11.87	-13.14		
			(-1.293)	(-1.488)		
UTB_{target}					0.018	-0.032
					(0.118)	(-0.264)
Control Variables	Included	Included	Included	Included	Included	Included
Adjusted R^2	0.247	0.371	0.235	0.374	0.303	0.462
N	223	223	223	223	98	63

Table 4.4.3.2 – Panel B
The Association between the Target's Non-Sheltering Status and Takeover Premium: The Role of the Acquirer's Tax Aggressiveness

	PREM [1-week]		*PREM* [1-week]		*PREM* [1-week]	*TCAR* [1,1]
Acquirer Tax Aggressiveness	*Low*	*High*	*Low*	*High*		
NONSHELTER	7.282**	2.223	8.451***	2.019	5.110**	4.191**
	(1.993)	(0.681)	(2.373)	(0.613)	(2.150)	(1.854)
BTD_{target}	-33.10*	-31.07*				
	(-1.730)	(-1.840)				
$PSHELTER_{target}$			6.723	8.485		
			(0.542)	(0.898)		
D_BTD					26.44**	7.460
					(2.366)	(0.589)
Control Variables	Included	Included	Included	Included	Included	Included
Adjusted R^2	0.288	0.284	0.275	0.281	0.247	0.239
N	218	228	218	228	446	446

This table reports regression results of takeover premium on the target's non-sheltering status. Calendar year fixed-effects are included. Reported in parentheses are t-statistics computed using heteroskedasticity-consistent standard errors adjusted for acquirer clustering; ***, **, * represent significance levels (one-tailed for *NONSHELTER*, and two-tailed for control variables) at 1%, 5% and 10%, respectively.

4.4.4 The Target's Non-Sheltering Status and Acquirer Returns

Table 4.4.4 reports the regression results of acquirer cumulative abnormal returns (ACAR) on the target's non-sheltering status. As shown in columns (1) and (2) of Table 4.4.4, the coefficient on *NONSHELTER* is negative, but not statistically significant in either model. Therefore, my prediction for hypothesis H4 is not supported. These results suggest that, on average, acquirer shareholders do not share the valuation benefits of the target's non-participation in tax shelters. To better understand the insignificant relation between the target's non-sheltering status and acquirer returns, I examine whether the relation varies with (i) the acquirer's governance and (ii) the target's information environment.

4.4.4.1 The Role of the Acquirer's Corporate Governance

Prior research finds that tax avoidance increases firm value when the firm is well-governed (Desai and Dharmapala 2009; Wilson 2009). In M&A, shareholders of well-governed acquirers may view that the firms are not optimally aggressive in their tax planning when acquiring a non-sheltering target. In contrast, shareholders of weakly governed acquirers may be concerned that the firms may use the tax shelters to cover up any misbehavior when acquiring a sheltering target. I test this idea by including an indicator variable of well governed acquirers and its interaction with *NONSHELTER* in the model. Following Gompers et al.'s (2003), I consider acquirers with strong governance (*GOODGOV*) if the acquirers have a G-Index of 5 or less (i.e., the Democracy firms). The results reported in Table 4.4.4 (columns 3 and 4) show that, in both regressions, the coefficient on *NONSHELTER* is significantly positive, indicating that the target's non-sheltering status is associated with a higher acquirer return for poorly-governed acquirers. In

addition, the coefficient on the interaction term (*GOODGOV* × *NONSHELTER*) suggests that the association between the target's non-sheltering status and acquirer returns is significantly more negative for well-governed acquirers than for weakly governed acquirers, although the main effect for well-governed acquirers is indistinguishable from zero. These results are consistent with the agency view of tax avoidance that the target's non-sheltering status is viewed by shareholders of acquirers with weak (strong) corporate governance to be a favorable (neutral) event. Finally, consistent with the findings in Masulis et al. (2007), I find a positive association between well-governed acquirers and acquirer returns.

Table 4.4.4
The Association between the Target's Non-Sheltering Status and Acquirer Returns

	Pred. Sign	*ACAR* [-1,1]	*ACAR* [-2,2]	*ACAR* [-1,1]	*ACAR* [-2,2]
NONSHELTER	+	-0.085	-0.796	1.941*	1.264*
		(-0.225)	(-0.960)	(1.822)	(1.946)
$GOODGOV_{acquirer}$				2.017*	1.003
				(1.694)	(1.612)
$GOODGOV_{acquirer}$ × *NONSHELTER*				-2.317*	-1.297*
				(-1.723)	(-1.720)
Acquirer Traits					
SIZE		0.295	0.622	-0.067	-0.057
		(1.146)	(0.917)	(-0.249)	(-0.786)
TOBINSQ		-0.155	-0.186	-0.225	-0.317
		(-0.514)	(-0.685)	(-0.712)	(-0.583)
ROA		2.627	3.225	3.078	3.221
		(0.763)	(0.837)	(0.983)	(1.230)
LEV		-0.579	-0.996	0.257	0.171
		(-0.432)	(-0.430)	(0.731)	(0.835)
Target Traits					
ACCQ		0.564***	0.601***	0.191	-0.214**
		(2.613)	(2.804)	(0.765)	(-2.228)
VOLAT		-2.163	-2.902	-0.263	-0.486
		(-0.625)	(-0.812)	(-0.656)	(-0.430)
SIZE		-0.486*	-0.449*	-0.374*	-0.574*
		(-1.667)	(-1.710)	(-1.763)	(-1.808)
TOBINSQ		-0.484*	-0.479*	-0.415*	-0.530*
		(-1.859)	(-1.927)	(-1.690)	(-1.781)
ROA		2.129***	1.963**	-1.639	-1.322
		(2.624)	(2.265)	(-0.912)	(-0.782)
LEV		-1.179	-1.307	-1.245	-0.970
		(-1.055)	(-1.249)	(-1.277)	(-1.392)
BTD		3.136	2.828	9.879**	6.745**
		(0.921)	(0.863)	(2.109)	(2.213)
Deal Traits					
TENDER		-0.287	-0.146	-0.283	-0.192
		(-0.354)	(-0.177)	(-0.646)	(-0.515)
ALLSTOCK		-1.201*	-1.208	-3.925**	-2.243**
		(-1.732)	(-1.339)	(-2.340)	(-2.209)
DEALRATIO		0.298	0.360	-0.287	0.158
		(0.483)	(0.793)	(-0.342)	(0.101)
INDMATCH		0.634	0.837	0.362	0.795
		(1.087)	(1.201)	(0.553)	(0.630)
HIGHTECH		-1.026	-0.999	-0.443	-1.185

	(-1.479)	(-1.392)	(-1.593)	(-1.412)
Intercept	1.230	1.872	3.403	3.142
	(0.872)	(0.829)	1.398	1.445
Adjusted R^2	0.062	0.064	0.072	0.075
N	420	420	305	305

This table reports regression results of acquirer returns on the target's non-sheltering status. Calendar year fixed-effects are included. Reported in parentheses are t-statistics computed using heteroskedasticity-consistent standard errors adjusted for acquirer clustering; ***, **, * represent significance levels (one-tailed for *NONSHELTER*, and two-tailed for control variables) at 1%, 5% and 10%, respectively.

4.4.5 Section Summary

The results reported in this section are generally consistent with the notion that the target's non-sheltering status is significantly positively associated with takeover premium. Alternative specifications including robust and Tobit regressions confirm that the documented results are not driven by the presence of extreme observations in the offer premium measures. However, the results of my regression model as specified in Equation (11) do not support my prediction for Hypothesis H4, suggesting that, on average, acquirer shareholders do not share the valuation benefits of the target's non-participation in tax shelters. By partitioning acquirers into well- and poorly-governed firms, the cross-sectional analysis reveals that the target's non-sheltering status is viewed by shareholders of acquirers with weak (strong) corporate governance to be a favorable (neutral) event. In addition, I find a positive association between the target's non-sheltering status and acquirer returns for targets that have a less transparent information environment.

4.5 Additional Analyses and Robustness Checks

4.5.1 Introduction

This section provides the results from performing a series of additional analysis and robustness checks on the main results reported in Section 4.4. In order to mitigate the concern that the positive association between the target's non-sheltering status and takeover premium is driven by the potential endogenous disclosure decision, Section 4.5.2 and Section 4.5.3 reports the results from employing the Heckman's two-stage approach. Specifically, Section 4.5.2 specifies the probit regression model used to estimate the target's decision to disclose its non-sheltering status. Section 4.5.3 presents the results of the empirical model as

specified in Equations (10) and (11) including the inverse Mills ratio calculated from the probit model in Section 4.5.2 as an additional regressor. Section 4.5.4 presents the results of the main regression model after excluding firms with a low predicted probability of tax sheltering in the non-disclosing group in order to mitigate the influence of contaminated control sample on my results. Section 4.5.5 concludes the section.

4.5.2 Determinants of the the Target's Non-Sheltering Disclosure

Due to the voluntary nature of the non-sheltering disclosure, one concern is that the decision to disclose the target's non-sheltering status is determined by the acquirer management. In that case, the relation between *NONSHELTER* and the dependent variable (*PREM* or *TCAR*) may be endogenous. That is, the observed higher takeover premium may be due to other economic factors that are associated with the target or acquirer. To examine whether the positive association between the target's non-sheltering status and takeover premium is driven by the potential endogenous disclosure decision, I employ the Heckman's (1979) two-stage approach. The next section discusses possible economic factors that may affect the decision to disclose the target's non-sheltering status disclosure choice.

Prior research suggests that tax aggressiveness is related to firms' propensity to provide supplemental tax-related disclosures. For example, Gleason and Mills (2002) document that firms rarely disclose IRS claims for tax deficiencies and that the likelihood of disclosure increases as the materiality of the claim increases. McGuire (2009) finds that firms with higher ETR-related earnings are more likely to provide an explanation for the decrease in ETR. In this study, I expect less tax aggressive acquirers to be more likely to disclose the target's non-sheltering status. Existing literature suggests that a firm's tax aggressiveness

reflects the preferences of the firm's shareholders (Badertscher et al. 2011; Cheng et al. 2012). Assuming that firms that are less tax aggressive are mostly owned by investors who take a less aggressive view on the firms' tax avoidance strategies, acquirers that are less tax aggressive will be subject to higher investors' demand for information regarding the target's tax sheltering status. I use total BTD to measure the acquirer's tax aggressiveness because prior research shows that, among various proxies of tax aggressiveness, total BTD is more useful in explaining tax shelter participation (Wilson 2009; Lisowsky 2010).

The decision to release the target's non-sheltering status may also be associated with the acquirer's overall disclosure practice. Following Lang and Lundholm (1993), I include acquirer firm size (*SIZE*), profitability (*ROA*), and information environment (*VOLAT*) to control for the possible effects of the acquirer's overall disclosure policies on the decision to disclose the target's non-sheltering status. I expect these determinants of disclosure policies to be positively associated with the probability of non-sheltering disclosure. Following Kimbrough and Louis (2011), I include indicator variables for transactions in the high-technology industries (*HIGHTECH*) and transactions that are financed with stocks (*ALLSTOCK*) to control for the acquirer's propensity to provide supplemental disclosure in M&A.

To control for the target's tax shelter likelihood in the determinant model, I include factors that were found to be associated with the use of tax shelters in prior research. Specifically, following Wilson (2009) and Lisowsky (2010), I control for target size (*SIZE*), profitability (*ROA*), total BTD, income from foreign operation (*FOREIGN*), leverage (*LEV*), accounting quality (*ACCQ*), research and development expenditures (*R&D*), inconsistent book-tax treatment as measured by the presence of equity method earnings (*EQEARN*), the

use of a Big Four auditor (*BIG4*), and the target's stock return volatility (*VOLAT*), a proxy for the transparency of the target's information environment. I expect these variables to be negatively associated with the likelihood of non-sheltering disclosure.

In sum, after controlling for the target's tax sheltering likelihood, I model the decision to disclose the target's non-sheltering status as a function of firm and deal-level determinants. I run the following probit model:

$$\begin{aligned}\Pr(NONSHELTER=1) = \Phi\,(&\alpha + \beta_1 ACCQ_{target} + \beta_2 VOLAT_{target} + \beta_3 SIZE_{target} \\ &+ \beta_4 ROA_{target} + \beta_5 LEV_{target} + \beta_6 BTD_{target} + \beta_7 FOREIGN_{target} \\ &+ \beta_8 R\&D_{target} + \beta_9 EQEARN_{target} + \beta_{10} BIG4_{target} \\ &+ \beta_{11} SIZE_{acq} + \beta_{12} ROA_{acq} + \beta_{13} VOLAT_{acq} + \beta_{14} BTD_{acq} \\ &+ \beta_{15} ALLSTOCK + \beta_{16} HIGHTECH + \varepsilon)\end{aligned} \quad (13)$$

where *NONSHELTER* is an indicator variable equals 1 if the target's non-sheltering status is disclosed, and 0 otherwise.

Table 4.5.3 presents the results of the disclosure determinant model. As expected, the association between acquirer BTD and disclosure is negative and significant, suggesting that the target's non-sheltering status is more likely to be disclosed in transactions that involve a less tax aggressive acquirer. Acquirer size is also a significant determinant of disclosure but the degree of information uncertainty of the acquirers (*VOLAT*) is not. Overall, these results indicate that the acquirer's tax aggressiveness and size are positively associated with the likelihood of disclosing the target's non-sheltering status.

In terms of target characteristics, I find that the target's stock return volatility and profitability are both positively related to the target's non-sheltering disclosure, consistent with the interpretation that acquirers are more likely to disclose the target's non-sheltering status when the targets are more opaque and more profitable. Also, the target's BTD and

equity in earnings (*EQEARN*) are both negatively related to the target's non-sheltering disclosure. These results are consistent with those in Lisowsky et al. (2012) and suggest that these firm-level variables are useful in identifying non-sheltering targets. Finally, mergers between high-tech firms are also associated with a higher likelihood of non-sheltering disclosure.

4.5.3 Potential Endogeneity of the Target's Non-Sheltering Disclosure

To verify that my results are not driven by the potential endogenous disclosure decision, I first implement Heckman's (1979) procedure by using the probit model in Equation (13) as the first-stage regression. The coefficient estimates in the probit model can be used to compute the "inverse Mills ratio" (λ), which is then included as an additional regressor in the estimation of Equations (10) and (11) using OLS to correct for self-selection bias. The results of this estimation are reported in Table 4.5.3. When the Heckman approach is used to control for self-selection bias, the coefficient estimates on *NONSHELTER* remain significantly positive across premium regressions, but the coefficient estimate on *NONSHELTER* remains statistically insignificant in the acquirer return regressions (untabulated). For all specifications, the estimated coefficients on the self-selection parameter λ (*LAMBDA*) are not statistically significant, suggesting that the results are unlikely to be driven by selection bias.

Table 4.5.3
2SLS Estimation:
The Association between the Target's Non-Sheltering Status and Takeover Premium

		First-stage	Second-stage	
	Pred. Sign	*NONSHELTER*	*PREM* [1-week]	*TCAR* [-1,1]
NONSHELTER	+		4.626**	4.048**
			(1.975)	(1.845)
LAMBDA	?		5.875	8.453
			(0.920)	(1.141)
Acquirer Traits				
SIZE	+	0.114***	3.897***	3.674***
		(2.519)	(4.173)	(3.330)
TOBINSQ			0.963	-0.587
			(0.819)	(-0.509)
ROA	+	0.471	-7.047	-1.134
		(0.737)	(-0.645)	(-0.436)
LEV			1.895	8.741
			(0.542)	(1.143)
VOLAT	+	0.390		
		(0.366)		
BTD	–	-2.541**		
		(-2.207)		
Target Traits				
ACCQ	–	-0.041	1.043	1.325
		(-0.801)	(0.843)	(1.185)
VOLAT	+	1.441*	2.788	-6.863
		(1.695)	(0.165)	(-0.403)
SIZE	–	-0.027	-6.147***	5.692***
		(0.518)	(-6.451)	(-5.092)
TOBINSQ			-2.057**	-1.239
			(-1.972)	(-1.049)
ROA	–	0.379**	-0.708	-14.91
		(2.021)	(-0.974)	(-1.514)
LEV	+	0.113	5.118	-10.58
		(0.460)	(1.223)	(-1.482)
BTD	–	-2.852***		
		(-3.028)		
FOREIGN	–	-0.029		
		(-0.204)		
R&D	–	0.203		
		(0.405)		
EQEARN	–	-14.01***		
		(-2.742)		
BIG4	–	0.084		
		(0.963)		

Deal Traits				
TENDER			5.086	9.950***
			(1.433)	(2.543)
ALLSTOCK	+	0.117	-3.927	-6.245**
		(0.432)	(-1.165)	(-2.002)
DEALRATIO			4.289***	0.949
			(3.231)	(1.348)
INDMATCH			0.442	5.455**
			(0.189)	(2.334)
HIGHTECH	+	0.235*	-5.360**	-9.952***
		(1.691)	(-2.004)	(-3.701)
Intercept			44.34***	30.31***
			(4.733)	(3.320)
Log-Likelihood		-235.80		
Chi-Square		38.73***		
Pseudo R^2		0.073		
Adjusted R^2			0.247	0.238
N		446	446	401

This table reports regression results of takeover premium on the target's non-sheltering status, based on Heckman's (1979) two-stage approach using Equation (13) as the first-stage regression. *LAMBDA* is the inverse Mill's ratio. Calendar year fixed-effects are included. Reported in parentheses are t-statistics computed using heteroskedasticity-consistent standard errors adjusted for acquirer clustering; ***, **, * represent significance levels (One-tailed for the variables in the first-stage regression; one-tailed for *NONSHELTER*, and two-tailed for control variables in the second-stage regression) at 1%, 5% and 10%, respectively.

4.5.4 Potential Contamination of the Sheltering Target Sample

I assume that targets that do not disclose their non-participation in tax shelters are tax shelter participants. However, since a target's actual tax sheltering status is not observable, a non-disclosing target may not always indicate that it is engaging in tax sheltering. Therefore, the potential presence of any non-sheltering targets in the non-disclosing group would contaminate my control sample. In an attempt to mitigate the influence of contaminated control sample on my results, I identify targets that have a low predicted probability of tax sheltering in the non-disclosing group and exclude them from the estimation. I compute the firm-level tax sheltering probability using Wilson's (2009) tax shelter likelihood models.

Reported in Table 4.5.4, the coefficients on *NONSHELTER* remain positive and highly significant across takeover premium regressions. Coefficients on the control variables are similar to those documented previously. After the noisy observations in the non-disclosing group are dropped, both the magnitude and statistical significance level of the coefficients on *NONSHELTER* increase slightly compared with those reported in Table 4.4.2. In sum, the potential presence of non-sheltering targets in the non-disclosing group does not adversely affect my main findings that acquirers reward non-sheltering targets with higher takeover premiums.

Table 4.5.4
The Association between the Target's Non-Sheltering Status and Takeover Premium

	Pred. Sign	***PREM*** [1-week]	***PREM*** [4-week]	***TCAR*** [-1,1]	***TCAR*** [-2,2]
NONSHELTER	+	6.067***	5.8112**	4.769**	5.233**
		(2.659)	(2.131)	(1.973)	(2.090)
Acquirer Traits					
SIZE		3.348***	4.120***	3.820***	3.984***
		(3.115)	(5.349)	(2.964)	(2.545)
TOBINSQ		1.543	0.449	-0.162	-0.573
		(1.412)	(0.280)	(-0.142)	(-0.746)
ROA		-12.84	-0.650	5.492	14.31
		(-0.998)	(-0.235)	(0.774)	(1.230)
LEV		4.763	3.874	14.43*	29.45*
		(0.648)	(0.438)	(1.809)	(1.803)
Target Traits					
SIZE		-5.993***	-7.054***	-5.739***	-5.032***
		(-5.621)	(-5.828)	(-5.020)	(-4.989)
TOBINSQ		-2.072**	0.582	-1.201	-1.442
		(-2.345)	(0.631)	(-0.894)	(-1.343)
ROA		-9.554**	-3.879	-23.54**	-29.70**
		(-1.991)	(-1.374)	(-2.202)	(-2.223)
LEV		3.801	3.238*	-2.023	10.23
		(1.225)	(1.790)	(-0.667)	(1.578)
Deal Traits					
TENDER		3.547	5.350*	10.15**	8.342**
		(1.466)	(1.793)	(2.350)	(2.302)
ALLSTOCK		-3.211	-3.212	-8.453**	-7.903**
		(-1.201)	(-1.192)	(-2.108)	(-2.338)
DEALRATIO		4.401***	4.917***	0.844	-0.932
		(2.890)	(3.021)	(0.423)	(-0.293)
INDMATCH		0.889	2.342	5.058*	3.721
		(0.647)	(0.833)	(1.743)	(0.801)
HIGHTECH		-6.010**	-5.626**	-10.32***	-12.02***
		(-2.213)	(-2.209)	(-3.775)	(-3.182)
Intercept		47.04***	47.34***	34.92***	34.12***
		(5.079)	(4.210)	(4.023)	(3.934)
Adjusted R^2		0.230	0.235	0.222	0.228
N		420	420	378	378

This table reports regression results of takeover premium on targets' non-sheltering status after dropping observations that are in the bottom quartile of the tax-sheltering probabilities from the non-disclosing group. Coefficients on control variables are not reported for brevity. Calendar year fixed-effects are included. Reported in parentheses are t-statistics computed using heteroskedasticity-consistent standard errors adjusted for acquirer clustering; ***, **, * represent significance levels (one-tailed for *NONSHELTER*, and two-tailed for control variables) at 1%, 5% and 10%, respectively.

4.5.5 Section Summary

To address the concern about the potential endogeneity of the decision to disclose the target's non-sheltering status, I employ Heckman's two-stage approach to control for self-selection bias. To do this, I develop a first-stage disclosure determinant model based on existing literature on tax sheltering and disclosure. The results suggest that my prior results are not affected by the potential endogeneity. In addition, I identify the noisy observations based on estimated tax shelter probability computed using Wilson's (2009) tax shelter likelihood model and remove them from the estimation. The results suggest that the potential presence of non-sheltering targets in the non-disclosing group does not adversely affect my main findings that acquirers reward non-sheltering targets with higher takeover premiums.

4.6 Conclusions

Hanlon and Heitzman (2010) call for research on the effects of tax avoidance on M&A. In response, this study examines whether and how the target's non-sheltering status affects takeover premium and acquirer returns. Specifically, using a novel dataset that identifies targets' non-participation in tax shelters in a sample of 446 transactions, I find that the target's non-sheltering status is associated with a higher takeover premium. This positive association is stronger for acquirers that are less tax aggressive. I also find that the target's non-sheltering status is positively associated with acquirer returns for weakly governed acquirers and for opaque targets. Overall, the results indicate that, while the valuation benefits of the target's non-participation in tax shelters are mainly accrued to the target's own shareholders rather than to those of the acquiring firm, acquirer shareholders can enjoy

higher acquisition gains from a non-sheltering target if the acquirer is weakly governed or if the target is opaque.

My findings are subject to at least one limitation. In this study, I assume that targets that do not disclose their non-participation in tax shelters are sheltering targets. However, because tax sheltering participation is not observable from publicly available data, it is not possible to determine the amount of noise in the non-disclosing group (i.e., the number of non-sheltering targets in the non-disclosing group). While I attempt to overcome this inherent limitation by teasing out the noisiest observations, I acknowledge that there is no way to ensure that every target in the non-disclosing group is a sheltering target.

Despite this limitation, this study contributes to a fuller understanding of the consequences of tax sheltering by demonstrating the importance of the target's non-sheltering status in M&A.

Chapter 5

Conclusions

In this dissertation, I examine two related questions on whether and how tax aggressiveness of firms is associated with shareholder wealth in a new context of M&A. The first study investigates whether and how the tax aggressiveness of the acquirers and targets affects shareholder wealth. I present the idea of tax aggressiveness transfer whereby the acquirer's propensity for tax planning applies to its target's tax function after the change in ownership. I measure the degree of tax aggressiveness transfer using the relative tax aggressiveness of the acquirer and target (i.e., the difference in tax aggressiveness between the two firms). I hypothesize and find that acquisition gains are positively associated with the relative tax aggressiveness of the acquirer and target. Cross-sectional analysis indicates that acquirer corporate governance is an important determinant of shareholder wealth effects. In particular, I find that, when acquirers are well-governed, acquisitions of targets with lower tax aggressiveness by acquirers with higher tax aggressiveness generate significantly higher acquisition gains. The results are robust to various measures of tax aggressiveness. In sum, my findings suggest that the relative tax aggressiveness of the acquirer and target is a significant determinant of value creation or destruction in M&A.

The second study is devoted to studying whether and how the target's participation of tax shelters – an extreme form of tax aggressiveness – matters in acquires' valuation of the target firm. Using a novel dataset that identifies targets' non-participation in tax shelters, I find that the target's non-sheltering status is associated with a higher takeover premium, indicating that acquirers reward targets for not engaging in tax sheltering. This positive

association is stronger for targets that are more opaque and for acquirers that are less tax aggressive. In addition, I find that the target's non-sheltering status is positively associated with acquirer returns for acquirers that are weakly governed and for targets that are more opaque. Overall, my findings suggest that the target's non-sheltering status is relevant in acquirers' valuation of the target, and that the valuation benefits of the target's non-participation in tax shelters are mainly accrued to the target's own shareholders rather than to those of the acquiring firm.

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