Personally Tax Aggressive Managers and Firm Level Tax Avoidance

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Abstract: This paper investigates whether managers that have a propensity for personal tax aggressiveness are associated with tax avoidance at the firm level. Motivated by Dhaliwal, Erickson, and Heitzman (2009) and Hanlon and Heitzman (2009), I construct a measure of personally tax aggressive ("aggressive") managers and determine whether corporate tax avoidance activities increase in their presence. The results of my study indicate that aggressive managers are associated with firm-level tax avoidance. The neoclassical view would suggest that aggressive managers' tax expertise could benefit shareholders through lower tax payments. Since aggressive managers extract their personal tax savings from shareholders, non-tax agency costs potentially increase in their presence. This has implications for the association between aggressive managers and firm value. Using the framework established through the agency view of tax avoidance (Desai and Dharmapala, 2008) I find that on average the presence of aggressive managers is associated with increased firm value. However, consistent with recent research, governance is an important moderating factor whereby firm value in the presence of aggressive managers tends to increase only for relatively better-governed firms.

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1. Introduction

Research in management organizational theory suggests that individual manager "styles" play a role in how those managers make strategic and operational decisions for the firms they manage (Betrand and Schaor, 2003; Chatterjee and Hambrick, 2007; Bamber, Jian, and Wang, 2009; Cronqvist, Makhija, and Yonker, 2009; Bennedsen, Perez-Gonzales and Wolfenzon, 2007; Liu and Yermack, 2007; Malmendier and Tate, 2007). Specifically, top executives inject a great deal of their experiences, preferences, and dispositions, into their decisions and leadership behaviors (Chatterjee and Hambrick 2007). This raises a question of interest to tax accounting researchers: do managers' personal predilection for tax avoidance spill over into the firms they run? (Hanlon and Heitzman, 2009).[1]

In this study, I examine whether personally tax aggressive managers exert influence over the firm's level of tax avoidance and overall firm value.[2] Specifically, I examine three research questions. First, is there a positive association between firm-level tax avoidance and the presence of aggressive managers? Second, are aggressive managers positively associated with firm value? Finally, is the association between the presence of aggressive managers and firm value moderated by corporate governance?

Prior empirical studies have had difficulty documenting the personal influence of a manager on firms' tax avoidance due to the difficulty of identifying a suitable proxy for personally tax-aggressive managers. For instance, Dyreng et al. (2008b) find indirect evidence that managers influence firm tax policy by using a manager fixed effect and showing that firms became more tax aggressive when those managers move between firms. Dyreng et al. (2008b), however, is limited to indirect evidence because it

[1] Recent literature has used the terms "tax avoidance" and "tax aggressiveness" often interchangeably. For the purposes of this paper I define tax avoidance consistent with Dyreng et al. (2008b) as anything that reduces the firms' taxes relative to its pretax accounting income. This study defines tax aggressiveness as how much tax risk the firm is willing to take. Since this concept is likely more difficult to quantify, I describe firm level measures exclusively as tax avoidance. Suspect stock option exercises reduce individuals' tax bills while also increasing tax risk. Thus I make the assumption that aggressive managers display tendencies towards both personal tax aggressiveness and avoidance.

[2] I borrow a technique employed by Dhaliwal, Erickson, Heitzman (2009) that I argue identifies personally tax aggressive managers. For ease of exposition I refer to the managers identified by this technique as "aggressive" managers.

jointly identifies all manager characteristics, and is unable to isolate the manager's tax aggressiveness. In a recent paper, Dhaliwal et al. (2009) identify managers who have likely backdated stock option exercises opportunistically to coincide with the lowest stock price of the month. For those executives that exercise options and hold the stock, a lower exercise price minimizes amounts subject to current tax rates while increasing the amount of future gain subject to preferential long-term capital gains tax rates. Dhaliwal et al. (2009) estimate that such "suspect" exercises provide average personal tax savings of $55,000 over non-suspect exercises, suggesting suspect exercises capture a manager's propensity for personal tax aggressiveness. In this study, I unite these two papers by using the Dhaliwal et al. (2009) technique to identify personally tax aggressive managers in order to provide a more direct mechanism for the findings of Dyreng et al. (2008b).

The neoclassical view of tax avoidance suggests that after accounting for non-tax costs and implicit taxes, any action that reduces a firms' tax bill increases after tax returns and thus adds to firm value (Scholes and Wolfson, 1992). Since the first part of my study suggests aggressive managers are negatively associated with firm level taxes, the neoclassical view would predict aggressive managers are also positively associated with firm value. However, several recent papers suggest that tax avoidance is only value increasing when it is coupled with a strong governance environment (Desai and Dharmapala, 2008; Desai and Dharmapala, 2009; Desai, Dyck, and Zingales, 2007; Hanlon and Slemrod, 2009). Specifically, these papers suggest that the technologies of tax avoidance enable managers to engage in activities that are not in the best interest of shareholders (Desai and Dharmapala, 2009). The underlying logic to this argument is that tax avoidance often demands complexity and obfuscation to prevent detection. Such obfuscation serves to increase information asymmetries between managers and shareholders that can provide a shield for managerial diversion (Desai and Dharmapala, 2008). Furthermore, these papers suggest that managers who divert profits from taxing authorities are also likely to divert profits from shareholders. If a firms' governance structure protects investors sufficiently, however, the manager will be unable to divert from shareholders. Using this intuition, this literature stream assumes that firm tax avoidance behavior is value destructive in the presence of weak corporate

governance, and value enhancing in the presence of strong corporate governance. Based on this intuition, it seems likely that the impact that tax avoidance by aggressive managers has on firm value will vary based on the corporate governance of the firm. However, it is also possible that aggressive managers may systemically choose not to work at firms with good corporate governance. Therefore, whether personal tax aggressiveness by the manager affects firm value is an empirical question.

My research is the first to directly examine the influence of managers' personal tax aggressiveness on the tax avoidance strategies of the firms they manage and offers several important results. First, I find a positive association between aggressive managers and firm level tax avoidance. For instance, average effective tax rates (long-run cash effective tax rates) are 2.7% (1.9%) lower in firms with aggressive manager presence. Second, I find that firm value (Tobin's Q) generally increases in the presence of aggressive managers. However, this association is concentrated only in firms with relatively better levels of corporate governance. After controlling for other determinants of firm value, but before controlling for corporate governance, aggressive manager presence is associated with a 9.17% increase in Tobin's Q. Once I control for corporate governance the main effect of aggressive manager presence is generally insignificant, but relatively better-governed firms with aggressive managers are associated with a 10.8% increase in Tobin's Q. These results are consistent with the agency view of tax avoidance (Desai and Dharmapala, 2008) and support the role of corporate governance in the valuation of tax avoidance activities.

Prominent scholars (Scholes, Wolfson, Erickson, Maydew and Shevlin, 2005; Desai and Dharmapala, 2006, 2008; Crocker and Slemrod, 2005) have called for more research into the examination of tax avoidance within an agency context. My study answers this call and contributes to the literature by providing an interesting setting in which to examine the agency view of tax avoidance. To date most of the studies in this area have focused solely on the interaction between measures of tax avoidance activities and measures of corporate governance or external monitoring (Desai and Dharmapala, 2009; Desai, et al., 2007; Hanlon and Slemrod, 2009; Wilson, 2009). I identify a partition of firms where I expect ex-ante agency costs will be high i.e. in the presence of aggressive managers. Only Chen, et al. (2009) examines a

setting where ex-ante agency costs are likely to increase (i.e. family owned firms). My study furthers this study since the source of potential agency concerns I consider (managers' personal tax aggressiveness) is likely to be associated with tax-related value increasing outcomes at the firm level (higher after-tax cash flows) through aggressive managers' tax savvy. Family ownership and control, the source of agency concerns in the Chen et al. (2009) study, does not share these qualities thus making my study particularly interesting for an accounting audience. My study further contributes to the tax accounting literature by providing an additional explanation for the cross-sectional variation in the levels of firm tax avoidance (Desai and Dharmapala, 2006; Dyreng, Hanlon, and Maydew, 2008a). At the same time I provide a possible answer for why more firms do not pursue tax benefits more aggressively (Graham and Tucker, 2006) and why some firms enter into tax shelters and others do not (Shevlin, 2002). My results directly support the hypothesis that individual manager characteristics are an important determinant of tax shelter participation and generally factor into the pursuit of tax benefits.

The remainder of this paper is structured as follows: In Section 2, I place my study in the context of the existing literature; in Section 3, I describe the data, proxies for tax avoidance, and empirical tests; in Section 4, I discuss the main results; in Section 5, I provide additional tests and analysis; in Section 6, I summarize the findings and conclude.

2. Background, Related Literature, and Hypothesis Development

2.1 Stock Option Exercise Backdating and Personally Tax Aggressive Manager Proxy

Several studies document a prevalence of options granted on days with relatively low share prices (Yermack, 1997; Aboody and Kaznick, 2000; Lie , 2005). These studies assumed executives timed option ***grants*** to precede the release of good news and therefore maximize option value. Lie (2005) was the first to suggest that the lenient SEC reporting requirements surrounding stock option grants could have potentially lead to systematic stock option grant backdating purposely meant to coincide with the lowest stock price of the period. Such opportunistic backdating was possible because prior to SOX, firms were not required to report stock option grants to the public until after the fiscal year end (Dhaliwal, et al.

2009).[3] Although not mentioned in these earlier studies, pre-SOX reporting requirements also facilitated a potential to backdate an ***exercise*** to the most advantageous stock price in the month (Dhaliwal et al., 2009).

Effective August 29, 2002, revised SEC reporting requirements curtailed the ability of executives to retroactively time stock option grants and exercises**.** The revised standards required firms to report option terms within 2-days of grant.[4] The revised standards also required insiders to report stock option exercises within two business days. Before the SOX effective date, insiders could wait until the 10th calendar day of the month following stock option exercise before reporting the transaction to the SEC.

While many stock option grant-backdating studies have emerged, few have investigated the potential for stock option exercise backdating. Two recent studies (Cicero 2007 and Dhaliwal et al. 2009) have examined this behavior and suggest that managers opportunistically backdate stock option exercises for personal tax reasons. The length of time a manager holds the stock after exercising the option can impact the transactions' value (Carpenter and Remmers 2001; Dhaliwal et al. 2009). Should a manager elect to sell newly exercised shares immediately, the manager maximizes after-tax wealth by exercising at the highest possible price. The spread between the stock's strike price and price at the exercise date is taxed at ordinary income tax rates, regardless of the stock price.[5] Conversely, a manager following an exercise and hold strategy could benefit from a lower stock price. By holding shares until they qualify for long-term capital gains tax treatment, managers minimize both ordinary income taxes paid on spread

[3] Lie's (2005) study and a related 2007 Pulitzer Prize winning Wall Street Journal article written by Mark Maremont, Charles Forelle and James Bandler lead to an SEC investigation into stock option backdating practices. At best, firms were clouded with suspicion, or executives and directors were dismissed. At worst, executives were brought up on criminal charges and convicted. For example: The SEC started investigating Google Inc. director Ann Mather in April 2008, but later decided in August 2009 to stop pursuing the case (The Associated Press, August 21st, 2009). On October 11, 2006 McAfee announced it had fired their President Kevin Weiss, and that CEO George Samenuk had resigned in a management shake-up attributed to an internal investigation into stock option backdating (Elinor Mills, August 21, 2009, CNET.com News). Greg Reyes former CEO of Brocade was convicted in 2007 on charges related to stock-option backdating and sentenced to 21-months in prison and a $15 million fine (Wall Street Journal Law Blog, August 18, 2009). Ryan Brandt former CEO of Take-Two Interactive Software was sentenced to 5 years probation for his role in overseeing the fraudulent backdating of stock options (Gamespot.com, February 14, 2007).

[4] Consistent with arguments that pre-SOX backdated stock option grants were opportunistic, Heron and Lie (2007) found the more stringent post-SOX reporting requirements significantly curtailed suspect stock option grant backdating.

[5] It should be noted that this tax treatment applies to non-qualified stock option grants, and not incentive stock options grants. As suggested by Dhaliwal, et al. (2009), incentive stock options carry numerous restrictions that increase the likelihood stock options in my sample period are non-qualified. Jin and Kothari (2008), and Cicero (2007) make similar assumptions regarding incentive and non-qualified stock options.

between stock and strike price, and capital gains taxes paid on the price appreciation between the stock option exercise date and the date shares are ultimately sold. According to Dhaliwal et al. (2009) the only identifiable incentive to backdate a stock option exercise to a date with a lower stock price is to minimize the option holders' income tax liability. Thus, it is likely that backdated stock option exercises capture a measure of managers' personal tax aggressiveness.[6]

2.2 Manager Characteristics and Economic Outcomes

Given that a manager is personally tax aggressive will this tax avoidance strategy carry over to the firm that they manage? Various studies investigate the relationship between personal characteristics and firm performance, and largely find that CEO and other executive characteristics do influence firm performance. Bertrand and Schoar (2003) document a manager fixed effect with respect to investment, financial policy, organizational strategy, and firm performance. They track top managers across different firms over time using the Forbes 800 files and the Execucomp database. By tracking manager movements, the study is able to separate a manager effect from a firm effect. The results largely suggest managers in similar economic environments behave differently (Bertrand and Schoar, 2003).

Other related studies have come to a similar conclusion; CEOs' and other managers' individual characteristics influence firm outcomes. Chatterjee and Hambrick (2007) employ a narcissism index, which is constructed with the following indicators of CEO narcissism: prominence of CEO's photograph in annual reports, CEO prominence in press releases, first-person singular pronouns used in interviews, and CEO relative pay (cash and non-cash). The authors find a negative and significant association between their index and industry adjusted profitability and stock returns. They also find that narcissistic CEOs tend to make larger acquisitions.

[6] While there is some intuitive appeal to this premise, studies such as McDonald (2003), and Scholes et al. (2005), have noted that exercising early to start the clock running on capital gains taxation is not optimal. Thus, readers may question whether this measure captures personal tax aggressiveness. There are two responses to this criticism. First, the stock option exercises I capture are not necessarily early exercises, but could instead coincide with option expiry dates. Second, I could very well be documenting deviations from decisions that are economically optimal along some dimensions.

Bamber et al. (2009) find that executives "exert unique and economically significant influence" on their firms' voluntary disclosures. Bamber et al. (2009) further find that executive demographic characteristics, including whether the executive is trained primarily in finance or accounting, or has a military background, is associated with distinct firm level disclosure styles.

By observing CEOs personal residence financing levels, Cronqvist et al. (2009) find that CEOs personal residence debt financing is a revealed preference of the CEOs personal attitude towards debt, that is reflected in higher corporate leverage.

Bennedsen, Perez-Gonzalez, and Wolfenzon (2007) find that CEO deaths, and deaths of relatives close to CEOs strongly correlates with a declines in various performance measures. Furthermore, they find the CEO effect to be most pronounced in rapid growth industries, which is inconsistent with the view that CEOs are perfect substitutes.

Despite a growing literature on CEO characteristics and firm outcomes, the tax literature has largely been silent on whether individual managers impact firms' tax strategies. Dyreng et al. (2008b) indirectly address this question by using the Execucomp database to track managers as they move between firms. The authors form quintiles of managers based upon the level of tax avoidance at the firm they left, and see whether tax avoidance changes at the manager's new firm. They also examine how tax avoidance changes at the firms that managers leave. The outcome of these tests provides evidence of a significant manager fixed effect on effective tax rates and long run cash effective tax rates. This effect can be substantial, resulting in a 10% effective tax rate differential between the bottom and the top of their manager quintiles.[7] In sum, there appears to be a link between manager characteristics and economic outcomes at the firm level.[8] This leads to my first testable hypothesis:

[7] Dyreng et al. (2008b) also test for correlations between significant manager fixed effects on tax avoidance with other financial outcomes such as investment in R&D, capital expenditures, and leverage levels. However, they are only able to document statistical significance consistently across their two measures of tax avoidance with investment in R&D.

[8] My primary tests examine the presence of all aggressive managers. There is some evidence that suggests executives and CEOs have differing impacts on tax avoidance (Phillips, 2003). However, Gaertner (2009) suggests the findings in Phillips (2003) are due to small sample size issues and that CEOs do exhibit pay for tax avoidance sensitivities. I generally take the view consistent with Rego and Wilson (2008) and Dyreng et al. (2008b) that CEOs have a significant impact on corporate policies and decision-making, including tax planning (even if they are not directly involved in the tax-planning process). Thus grouping CEOs and non-CEOs together is not inconsistent with each groups' potential influence on tax avoidance. I also provide some results where

H1: There is a positive association between tax avoidance and the presence of personally tax aggressive (i.e. aggressive) managers.

The neoclassical view of the firm suggests managers are perfect substitutes. This view, as Bertrand and Schoar (2003) describe it, means two firms sharing similar technologies, factor, and product market conditions will make similar choices, whether or not they also share the same management team. If this view where descriptive with respect to aggressive managers, I would not expect to find support for H1.[9]

2.3.1 Tax Avoidance and Firm Value

Engaging in tax avoidance suggests that the firm's after-tax cash flows, and consequently firm value, should increase. According to Scholes and Wolfson (1992), tax avoidance should be accretive to firm value if its after-tax benefits exceed its non-tax costs. Non-tax costs include tax strategy implementation costs (e.g. promoter and attorney fees), costs associated with IRS audits and subsequent litigation (e.g. accounting and legal fees) (Rego and Wilson, 2008), and financial reporting costs. Despite these non-tax costs, estimates suggest that on average, benefits outweigh costs. For example, Mills et al. (1998) find a $4 return for every $1 invested in tax planning, while Rego and Wilson (2008) note that in a recent study of tax shelters, firms were able to generate annual tax deductions large enough to shield income equal to almost 10% of assets.[10] In addition to this, Weisbach (2002) asserts that observed levels of IRS detection and the resulting penalties, even for the most aggressive tax positions, are quite low. Since my first hypothesis predicts an association between aggressive-manager firms and tax avoidance, and prior research finds that tax avoidance positively increases firm value, my second hypothesis follows:

H2: Firms with personally tax aggressive (i.e. aggressive) managers are associated with higher levels of firm value.

2.3.2 Corporate Governance and the Agency View of Tax Avoidance

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aggressive firms are defined only by the presence of aggressive CEOs. Findings tend to be quantitatively similar with both aggressive manager definitions.

[9] In addition, Dyreng et al. (2008b) suggest some executives, such as CEOs, may not posses the expertise necessary to influence the implementation of tax avoidance strategies.

[10] For the firms in my study, this would represent an average tax savings from tax sheltering of approximately $30 million.

While prior literature suggests that tax avoidance activities are positively associated with firm value, recent papers suggest that this association will vary depending on the firm's corporate governance environment (Desai and Dharmapala 2008, Desai and Dharmapala, 2009; Desai, Dyck, and Zingales, 2007; among others). In effect, this literature (known as the agency view of tax avoidance) introduces non-tax agency costs into the tax avoidance-firm value relationship. The agency view of tax avoidance suggests tax avoidance may be negatively associated with firm value in the presence of weak corporate governance (Desai and Dharmapala, 2008).

The intuition behind a negative association between tax avoidance and firm value in the presence of weak corporate governance is as follows. Tax avoidance strategies by design create information asymmetry between taxing authorities and the firm, so as to prevent detection from taxing authorities (Desai and Dharmapala 2008, 2009). However, a direct consequence of this behavior is increased information asymmetry between managers and shareholders. An increase in information asymmetry reduces shareholders' ability to value the firm and also creates opportunity for managerial diversion. If investors are aware of tax avoidance strategies that intend to divert resources away from the IRS, they may also be concerned about management's potential to divert resources away from them (Hanlon and Slemrod 2007). Increased managerial diversion is likely to negatively impact firm value. Thus, in response to increased information asymmetry and potential managerial diversion, investors rationally discount firm value.[11]

Given the potential role of agency costs, Desai and Dharmapala (2009) hypothesize that firm governance should be an important determinant of the valuation of purported tax savings. The intuition is that effective monitoring will mitigate the negative effects of tax avoidance on information asymmetry and managerial diversion. Recent literature has tested this assertion in settings that include compensation (Desai and Dharmapala, 2006; Rego and Wilson, 2008), ownership characteristics (Chen et al., 2009), tax

[11] There is some recent support in the literature for the investor price-protection (discount) hypothesis. With the assumption managers are aware of the potential price discount that accompanies tax avoidance, Chen, et al. (2009) predicts managers at family owned and run firms will avoid taxes to a smaller degree than non-family owned firms. This manager behavior, the study says, is in response to the increased agency costs investors are likely to expect within family firms. Consistent with this hypothesis Chen et al. (2009) find that family firms appear less willing to engage in tax avoidance activities. The authors stop short of determining whether this managerial response in family firms moderates the expected price discount.

sheltering (Wilson, 2009; Hanlon and Slemrod, 2009), and firm value (Desai and Dharmapala, 2009). Most of these studies have found that corporate governance impacts the effects of tax avoidance.

Desai and Dharmapala (2009) regress firm value (Tobin's Q) on measures of tax avoidance. In specifications partitioned on governance, tax avoidance is only significant and positive in the high governance partition. In additional regressions including cross-sectional variation in governance level, the main effect of tax avoidance is positive but insignificant while the interaction between governance levels and tax avoidance is positive and statistically significant. Both these findings are consistent with corporate governance mitigating the possibility that tax avoidance leads to a misalignment of shareholder and manager interests.

Using a returns event study approach, Hanlon and Slemrod (2009) also find evidence consistent with the moderating role of corporate governance. Results in this study show that the market penalizes all firms engaged in tax sheltering. However, CARs are less negative for well-governed firms consistent with the agency view of tax avoidance. In statistical analyses, the relatively well-governed firm partition has an average CAR that is not significantly different from zero, while the relatively poorly governed partition has a significant negative CAR. Wilson (2009) extends the tests conducted in Hanlon and Slemrod (2009) by examining long period returns for actual and predicted tax sheltering firms.[12] The purpose of this test is to examine whether tax sheltering is associated with wealth creation for shareholders or with managerial opportunism. Wilson (2009) finds that only the well-governed tax shelter firms experience positive abnormal returns during any of the periods examined in his study.

Tax avoidance activities can potentially add to firm value by increasing after-tax cash flows. However as several studies suggest, tax avoidance activities can also increase information asymmetries between managers and shareholders, thus augmenting the risk of managerial diversion. Aggressive managers opportunistically exercise stock options to minimize their personal tax expense. While doing

[12] "Predicted" tax shelter firms are identified using the prediction model Wilson (2009) specifies in the main part of his study.

so, they divert tax deductions away from shareholders.[13] This behavior is more likely to occur when agency costs are higher, thus I posit agency costs are higher in the presence of aggressive managers. Under the agency view of tax avoidance, I expect strong corporate governance will mitigate these costs.[14] This leads to my third hypothesis:

> *H3: Firm value is positively related to the interaction between personally tax aggressive (i.e. aggressive) managers and corporate governance.*

Not all studies find that tax avoidance in the presence of weak corporate governance leads to managerial diversion from shareholders and/or lower firm value. For instance, Rego and Wilson (2008) find that managerial compensation is positively associated with tax avoidance strategies, but this positive association is not affected by corporate governance.[15] Since the literature in this area is emerging, it is not certain whether the agency view of tax avoidance is descriptive in all settings.

3. Research Design

3.1 Measuring Personally Tax Aggressive Managers.

I follow closely the technique described in Dhaliwal et al. (2009) to identify suspect stock option exercises in the pre-SOX period. I begin by collecting all stock acquired by insiders through stock-option exercises between January 1st, 1996 and August 29th, 2002.[16] These are reported on SEC Form 4 and are machine readable in the Thomson Financial Insider Filing Database. I keep transaction code "M" exercises ("Exercise of in the-money derivative security acquired pursuant to Rule 16b-3 plan"). Consistent with Dhaliwal et al. (2009) I exclude transactions where the insider exercised on multiple days during the month to improve the chances of appropriately identifying an exercise and hold transaction.

[13] When exercising non-qualified stock options, managers are taxed at ordinary income tax rates on the difference between the strike price and stock price at the exercise date. At the same time, the stock granting firm receives a deduction equal to the amount managers take into income. Thus the lower the stock price at exercise, the lower the deduction the firm receives.

[14] In addition to reductions in information asymmetries, corporate governance should generally lead to improved alignment of shareholder and manager interests. As a result, the risk that unexpected costs will be borne by the firm due to risky tax strategies should diminish.

[15] By controlling for variations in corporate governance and placing aggressive firms within the agency view of tax avoidance, I introduce some uncertainty on the direction of the main effect of aggressive managers on firm value. Under the agency view of tax avoidance, this effect will depend on whether the sum of agency costs and traditional non-tax costs exceed the benefits to tax avoidance.

[16] I limited my exercise and hold collection to the pre-SOX period because SEC filing requirements changed post SOX, decreasing the potential for stock option exercise backdating. My chosen window, which coincides with the pre-SOX partition used in Dhaliwal et al. (2009), increases the chances of capturing suspect exercises.

Since I require daily share prices to determine suspect exercises, I drop exercises from firms not listed in the CRSP daily stock file. I also eliminate transactions from relatively small firms by dropping exercise transactions where the average market value of equity in the transaction month is less than $10 million. To deal with concerns of including firms with thinly traded stocks I eliminate observations where the average share price in the transaction month is less than $3.

Following Dhaliwal et al. (2009) I use the primary role variable (rolecode1) and secondary role variable (rolecode2) to separately identify exercises by CEOs and other executives. The former group contains those insiders whose primary role is CEO, President, or Chairman of the Board. The latter group contains those insiders whose primary or secondary role is Director or Officer. I then look for dispositions subsequent to stock option exercises coded "S", "F", and "D."[17] I keep only those stock option exercises that are not followed by any disposition within 30 days.[18]

After applying these data screens I am left with 18,649 exercise and hold transactions, representing 990 unique firms.[19] Of the 18,649 exercise and hold transactions 1,695 exercises are suspect (occur on the day in the month with the lowest stock price). Of the suspect exercises, 506 are by CEOs, and 1,189 are by non-CEO executives. Suspect exercises originate from 385 unique firms. There are 605 unique firms within the exercise and hold group that have no suspect exercises.

To ensure my data collection results in similar patterns documented in Dhaliwal, et al. (2009), in Figure 1 I plot the percentage of manager stock option exercises occurring on the 10 lowest stock price days of the month. If the exercise date during the month were chosen at random, I would expect to see approximately 4.69% of exercises on any given day in the month (Dhaliwal, et al., 2009). Instead I document that over 9% of Executive exercise and hold transactions occur on the day with the lowest

[17] Per Thomson Financial; Code "S" denotes "Open market or private sale of a non-derivative or derivate security; code "F" denotes "Payment of option exercise price or tax liability by delivering or withholding securities incident to exercise of a derivative security issued in accordance with Rule 16b-3; code "D" denotes "Disposition to the issuer of issuer equity securities pursuant to Rule 16b-3(e)". It is the responsibility of the insider to properly report these transaction codes.

[18] Aboody, Hughes, Liu, and Su (2008), who employ similar identification criteria, also use the 30-day cutoff in their study. The authors suggest the 30-day window is appropriate because it allows for sufficient time to sell exercised shares given a diversification or consumption motive. As part of a robustness check they track a sub-sample of designated exercise and hold transactions for a longer period. They note that 72% of the Executives in their sample of exercise and hold transactions appeared to have held on to shares for at least one year. This suggests the 30-day window captures a significant portion of shares that would benefit from long-term capital gains tax treatment.

[19] Table 1 provides additional detail on the aggressive manager sample selection process.

closing stock price of the month. Consistent with Dhaliwal, et al. (2009) I also find that this phenomenon is attenuated after SOX as less than 7% of Executive exercise and hold transactions occur on the day with the lowest closing stock price of the month.

For the majority of my subsequent main tests, I partition firm-years based on the presence of an aggressive manager (CEO plus non-CEO Executives). I consider a firm to have an aggressive manager present if there was a suspect stock option exercise in the pre-SOX period. This approach essentially assumes that aggressive managers are a firm fixed effect throughout my sample periods. I take the view that aggressive managers are likely to have a persistent impact on economic outcomes in the years with suspect exercises and the years surrounding suspect exercises. A potential criticism with this approach is that CEOs and some non-CEO Executives may move to new firms. In this circumstance I might designate a firm to have an aggressive manager presence in a year where the aggressive CEO is no longer present. I take the view that aggressive CEOs create a corporate culture or set the "tone at the top" (Dyreng, et al., 2008b) that may persist past their tenure.[20] If neither of these views were descriptive, I would expect to capture firm years where tax avoidance is lower, not higher. This would bias against finding the predicted results.[21]

3.2 Measuring Tax Avoidance.

In my first set of tests for H1, I examine the difference in magnitudes of various tax avoidance measures used in the literature between aggressive manager firms and the non- aggressive population. Since I draw from multiple sources of literature, data screening procedures and limitations in data availability give rise to some changes in sample size. My approach to empirical tests is to compare my

[20] To provide some robustness that my aggressive manager identification does not pick up a chance exercise on the lowest price of the month, rather than an intentional one, I provide some analyses using the ratio of suspect exercises to all exercise and hold transactions for aggressive firms. My expectation is that the likelihood a aggressive manager is present increases in this measure. Refer to Table 6 for results using these alternative measures.

[21] Another consideration is tracking the date of suspect exercises, to introduce more cross-sectional variation in my variable of interest (i.e. aggressive ***firm-years*** as apposed to aggressive ***firms***). This approach may bias against finding results if I were to include in the non-aggressive population sample, firm-years from otherwise aggressive firms when no suspect exercise was observed but tax avoidance persisted. This bias could be mitigated if tax aggressive managers increased firm-level tax avoidance in firm-years identified as aggressive. There is some incentive for an aggressive manager to increase tax avoidance in the year of suspect exercise if he expects the market to respond favorably, thus maximizing his after-tax return on any subsequent stock sale. However, documenting this behavior is beyond the scope of this study.

sample of aggressive firms to the broadest possible sample of firms available based on the screens typically seen in the literature. In the following paragraphs I define these measures and discuss some of their limitations.[22] For simplicity I present summary statistics in Table 3 only for variables used in multivariate regressions of effective tax rates and firm value.

3.2.1 Effective Tax Rate Measures

I employ two effective tax rate measures in my empirical analysis; ETR and the long-run cash ETR. ETR is a common measure of tax avoidance in the tax accounting literature (Rego and Wilson, 2008; Chen, et al., 2009; Dyreng, et al., 2008a, 2008b; among others). In addition, policy makers such as Citizens for Tax Justice (CTJ) have used ETR in U.S. Corporation tax burden studies. For my study I define ETR as total income tax expense divided by pretax income. Consistent with Dyreng et al. (2008a, 2008b) negative realizations of pre-tax income are set to missing, and remaining ETR realizations are truncated below at 0 and above at 1. ETR is advantageous to my study because its components are readily available in Compustat allowing for a relatively less limited sample, thus increasing the power of my statistical tests. ETR incorporates tax strategies that create permanent book-tax differences including those generated by investments in lower taxed foreign jurisdictions, investment in tax exempt or tax favored assets, and participation in tax shelters that result in tax savings without impacting book income (Chen, et al., 2009). However, as Hanlon (2003) notes, ETR can understate the true level of tax avoidance. By including deferred taxes, ETR ignores potentially important tax deferral strategies that leave long-term taxes paid unchanged but minimize a firms' current tax bill. In addition, for most of the years in my sample period, GAAP allowed firms to account for the granting of employee stock options according to APB 25. Under this method firms could escape booking stock option expense provided the strike price equaled the stock price at grant date. Since the tax code does not allow a compensation deduction until stock options are exercised, there is never a book-tax difference. When options are finally

[22] While I hope that the measures of tax avoidance I employ will capture the roughly the same construct, Hanlon and Heitzman (2009) argue that not all tax avoidance measures used in empirical research are equally appropriate for every research question.

exercised, any tax savings from the realized compensation deduction are run through the statement of equity thus understating a firm's true ETR. [23]

Dyreng et al. (2008a) argue that annual ETR measures do not provide an accurate view of a firm's ability to maintain persistent tax avoidance strategies. As an alternative, they examine the long-run cash effective tax rate (*LRCASH_ETR*). This measure is constructed as the sum of cash taxes paid divided by the sum of pretax income over the measurement window. For the purposes of this study I use a five-year rolling window to calculate *LRCASH_ETR*. Aside from capturing long-term tax avoidance strategies, using cash paid taxes means this measure captures the tax benefit derived from stock option grants. Graham, Lang, and Shackelford (2004) suggest the employee stock option tax benefit can provide a non-debt tax shield large enough to impact firms' capital structure. A drawback to *LRCASH_ETR* is that it is more data intensive resulting in smaller samples and reduced power.

In the first stage of my testing for H1, I compare the differences in aggressive and non-aggressive sample averages for *LRCASH_ETR* and *ETR*. In both instances, lower measures for the aggressive manager group provides support for H1 that aggressive managers are more prone to firm-level tax avoidance. To rule out a correlation between my aggressive manager treatment group and other determinants of effective tax rates, I also use a multivariate regression approach with control variables used in Gupta and Newberry (1997) and Phillips (2003).

$$(ETR \text{ or } LRCASH\_ETR)_{it} = \alpha_0 + \beta_1 Aggressive_i + \beta_2 MULT_{iI} + \beta_3 CAPINT_{it} + \beta_4 LEV_{it} + \beta_5 SIZE_{it} + \beta_6 PT\_ROE_{it} + \beta_7 GROWTH_{it} + \beta_8 RD_{it} + e_{it}, \quad (1)$$

where:

ETR_{it} = Total income expense (data16) at time t, divided by pretax income (data170) at time t;

$LRCASH\_ETR_{it}$ = Sum of cash taxes paid (data317) over five years over the sum of pretax income excluding special items (data170 – data17) over the last five years;

$Aggressive_i$ = Indicator variable equal to one for firms with suspect stock option exercises in the pre-sox sample period;

$MULT_{it}$ = Absolute value of foreign income (data273) at time t, scaled by absolute value of pretax income (data170) at time t;

[23] For a detailed discussion of the tax implications of employee stock option accounting refer to Hanlon and Shevlin (2002).

$CAPINT_{it}$	= Net property, plant, and equipment (data8) at time t, divided by total assets (data6) at time t;
LEV_{it}	= Long-term debt (data9) at time t divided by total assets (data6) at time t;
$SIZE_{it}$	= Natural log of total assets (data6) at time t.
PT_ROE_{it}	=Pretax income (data170) divided by total book equity (data60) at time t;
$GROWTH_{it}$	=The percentage change in the market value of assets (MVA) from time t-1 to time t where MVA is calculated as [abs(data199)*data(25)] + (data181)].
RD_{it}	=Research and Development expense (data46) at time t, divided by total assets (data6) at time t.
$XNHOLD_{it}$	= Indicator variable equal to 1 if there was an exercise and hold transaction by a manager at the firm, both suspect and non-suspect, in the pre-sox sample period.

Coefficient β_1 captures the effect the presence of aggressive managers has on tax avoidance. A negative and significant loading on β_1 supports my first hypothesis that personally tax aggressive managers are positively associated with firm level tax avoidance. To address independence concerns I use robust standard errors clustered by firm (Wooldridge, 2002; Greene, 2003). I include *XNHOLD* to control for the possibility that exercise and hold firm-years (not just exercise and hold firm-years with aggressive manager presence) are associated with tax avoidance. By including this variable, the loading on β_1 captures the effect of aggressive manager presence incremental to the effect of non- aggressive exercise and hold manager presence.

Panel A of Table 3 presents summary statistics for the control variables used in effective tax rate regression analysis. I present data for the sample used when the dependent variable is *ETR*. Employing the data screens detailed above, and truncating all regressors at 1% and 99%, results in a final sample of 39,316 firm-years collected from 1995-2006.[24] Panels B and C present summary statistics for the population of firm-years without an aggressive manager presence (non- aggressive) and the set of firm-years with an aggressive manager presence, respectively. For the regressor variables used in effective tax rate testing, only the difference in pre-tax return on equity (*PT_ROE*) is not statistically different from zero. Aggressive firms appear to be larger and less capitally intensive. Aggressive firms also tend to have lower leverage and appear to have larger foreign operations. However, the latter is only true at the mean, where median values for *MULT* in both partitions are zero. None of the correlation coefficients presented

[24] Since *LR_CASHETR* requires five year rolling periods to construct the sample in *LR_CASHETR* regressions is reduced by approximately one-quarter to 29,110. To conserve space, I limit summary statistic presentation to the larger *ETR* sample.

on Table 4 Panel A exceed 0.40 suggesting multicollinearity should not be an issue in effective tax rate regressions.[25]

3.2.2 Residual Book-Tax Difference Measures

Consistent with recent tax avoidance studies by Chen, et al. (2009), Wilson (2009) Rego and Wilson, (2008) I also examine the impact aggressive managers have on book-tax differences. Wilson (2009) finds higher book-tax differences for firms accused of tax sheltering activity as compared to a sample of control firms. Mills (1998) finds a positive association between subsequent IRS audit adjustments and firms' book-tax differences. However, book-tax differences alone are likely to capture both discretionary transactions and non-discretionary accounting convention differences.[26] Desai and Dharmapala (2006) and Frank, Lynch, and Rego (2009) note that book-tax differences can capture qualities that are not related to tax avoidance. For instance, accounting accrual income that does not impact taxable income increases the book-tax gap. Thus, firms with incentives to manage income could be spuriously designated as tax aggressive. To overcome the noise inherent in the book-tax difference measure, I employ the techniques inspired by Desai and Dharmapala (2006, 2009) and Frank, et al. (2009). Both of these techniques create residual-based measures of tax avoidance meant to account for the unexplained component of book-tax differences.[27] Appendix A provides detailed methods for calculating these measures.

To test for differences in tax avoidance between aggressive firms and the non-aggressive population I analyze the difference in sample means of the residuals (*TAXAVOID_DD*, *TAXAVOID_FLR)* output from first stage regressions. Since higher levels of these residuals constitute more aggressive tax

[25] To provide additional support for this assertion, I report the highest condition index for any of the regression specifications by table and panel. In tests of H1, none of the specifications have condition indices that exceed 10. Belsley, Kuh, and Welsch (1980) suggest that condition indices of 20 or less when no interaction variables are present in the model and 30 or less when interaction variables are present in the model provides evidence that variable dependencies are not significantly affecting coefficient estimates.

[26] Rego and Wilson (2009) cite different book and tax depreciation methods as one such example. In this case, capital intensity rather than tax avoidance is the first order effect driving book-tax differences.

[27] It should be noted that Hanlon and Heitzman (2009) suggest that the Frank et al. (2009) measure is simply an "ETR differential" that can be calculated as the statutory tax rate minus the GAAP ETR, and as a consequence the measure does not capture confirming tax avoidance behavior or tax deferral strategies, but it does the effect of foreign tax credits, foreign operations, and any other items that affect GAAP ETRs.

reporting a negative and significant difference between the non-aggressive population and aggressive firm group supports H1.

3.2.3 Probability of Sheltering

The last measure of tax avoidance I consider is the probability of tax sheltering activity, designed by Wilson (2009) and employed in tests of tax avoidance by Rego and Wilson (2008). A detailed calculation of this measure is included in Appendix A. The Wilson (2009) model includes total book-tax differences as a predictor variable. However, sheltering activities have been shown to associate positively with permanent book-tax differences (Graham and Tucker, 2006; Weisbach, 2002). It is possible therefore that this measure will pick up sheltering activity not detected in either the Desai and Dharmapala (2009, 2006) or Frank et al. (2009) measures.

I compare the Wilson (2009) measure across sample partitions. Higher average values for aggressive firms would provide additional support for H1. The sample of identified sheltering firms that Wilson (2009) uses is unevenly distributed across 1-digit SIC code groupings. To control for the possibility that his measure predicts sheltering in some industries better than others, I separately analyze the difference in means across one-digit sic codes (Table 5 Panel B) for the Wilson and other measures of tax avoidance.[28]

3.3.1 Firm Value and Personally Tax Aggressive Managers

To test H2, which predicts a positive association between aggressive manager presence and firm value, I examine Tobin's Q based on Kaplan and Zingales (1997) in an OLS regression framework. Tobin's Q has long been a popular measure of firm value and performance in finance and accounting

[28] Panel C of Table 5 presents a correlation matrix of the five tax avoidance measures I use in my analysis. Not surprisingly, *ETR* and *LR_CASHETR* are positively correlated (Pearson coefficient = 0.170, *p*-value = <0.001). Both residual tax avoidance measures, *TAXAVOID_DD* and *TAXAVOID_FLR* are negatively correlated with *ETR* (Spearmen coefficient = -0.115, *p*-value = <0.001; Pearson coefficient = -0.286, *p*-value = <0.001, respectively). *LR_CASHETR* is also negatively correlated with both residual tax avoidance measures, but the correlation with *TAXAVOID_FLR* is not statistically significant (Pearson coefficient = -0.013, *p*-value = 0.160). These directions are as expected since the residual measures are designed to increase in tax avoidance. Most interesting is the relationship between *PROB_SHELT* and the other measures. *PROB_SHELT* is positively correlated with the two residual measures and with *ETR* (Pearson coefficient = 0.113, *p*-value = <0.001), but negatively correlated with *LR_CASHETR* (Pearson coefficient = -0.161, *p*-value = <0.001). These correlations suggest that while each measure of tax avoidance is related, they are not perfectly correlated. This supports using multiple tax avoidance measures in my analysis.

studies (see for instance Demsetz and Lehn, (1985); Himmelberg, Hubbard, and Palia (1999); Adams and Santos, (2006); Brown and Caylor, (2006); Desai and Dharmapala, (2009); among others). [29] A significantly higher value for Tobin's Q in aggressive firms suggests the value added from tax avoidance overcomes the non-tax costs tax avoidance transactions might impose on shareholders. Alternatively, a significantly lower value for Tobin's Q in the aggressive firm sample suggests non-tax costs dominate, leading to investor price protection or decreased growth opportunities.

I begin with a univariate regression of Tobin's Q on *Aggressive*, my indicator variable denoting the presence of a aggressive manager. Consistent with Bushman, Smith, and Zhang (2008) I exclude firms with less than $5.0 million in assets to avoid the small denominator problem. I also truncate realizations of Tobin's Q 1st and 99th percentile to control for outliers. To control for the possibility that my univariate results are concentrated within industries or are driven by macroeconomic factors, I include year and industry fixed effects. Since my aggressive firm variable does not vary by firm during the testing window, all statistics are based on error terms clustered by firm.

To control for the potential that other determinants of firm value lead to significant differences between my aggressive firm group and the population, I supplement these tests with multivariate regression analyses. To ensure I capture all potentially influential covariates and properly isolate the effect of aggressive managers, I present specifications with control variables based on the recent literature that models firm value within tax and corporate governance frameworks (this includes: Adams and Santos, 2006; Desai and Dharmapala, 2009; and Brown and Caylor, 2006)

$$TOBQ_{it} = \alpha_0 + \beta_1 Aggressive_{it} + \beta_2 SIZE_i + \beta_3 VOLT_{iI} + \beta_4 LEV_{it} + \beta_5 RD_{it} + \beta_6 FORINC_{it} + \beta_7 NOL_{it} + \beta_8 DELW_{it} + \beta_9 AGE_{it} + \beta_{10} STDROA_{it} + e_{it}, \quad (2)$$

$TOBQ_{it}$ = Based on Kaplan and Zingales (1997) and defined as the market value of assets [(data25*data199)+data6)] – less sum of book value of common stock and deferred taxes (data60 + data74) divided by the book value of assets (data6), all at time t;

$Aggressive_{it}$ = Indicator variable equal to one for firms with suspect stock option exercises in the pre-sox sample period;

$SIZE_{it}$ = Natural log of net sales (data12) at time t;

[29] Using an alternative version of Tobin's Q that excludes deferred tax expense (Desai and Dharmapala, 2009) leads to quantitatively similar results.

$VOLT_{it}$ = Daily stock return volatility measured over fiscal year t;
LEV_{it} = Long-term debt (data9) at time t divided by total assets (data6) at time t;
RD_{it} = Research and development expenses (data46) at time t, divided by total assets (data6) at time t;
$FORINC_{it}$ = Absolute value of foreign income or loss (data273) at time t scaled by total assets (data6) at time t.
NOL_{it} = Net operating loss (data52) at time t if scaled by total assets (data6) at time t, or zero if missing.
$DELW_{it}$ = Indicator variable set to 1 if firm is incorporated in Delaware, and zero otherwise;
AGE_{it} = Natural log of firm age as estimated by the number of years data is available on Compustat.
$STDROA_{it}$ = Standard deviation of ROA (measured as, Pretax income (data170) at time t, divided by average assets [(data6 – lag(data6))/2]) over the last 3 years.
$XNHOLD_{it}$ = Indicator variable equal to 1 if there was an exercise and hold transaction by a manager at the firm, both suspect and non-suspect, in the pre-sox sample period.

The coefficient β_1 captures the association between aggressive managers and firm value. The magnitude of documented benefits from tax avoidance, coupled with the likelihood management views tax avoidance as value increasing leads to a predicted positive loading. If β_1 loads positively, this is consistent with aggressive managers' tax savvy adding to firm value. Alternatively, a negative loading on β_1 would be consistent with non-tax costs decreasing firm value.

Aboody et al. (2008) find evidence that insider exercise and hold transactions are positively associated with future abnormal returns for the insider firms' stock. The authors argue this could be the result of insider information or a market response to the exercise and hold decision. Since Tobin's Q captures a measure of market value, there is the potential for a spurious relationship between Tobin's Q and aggressive manager firms given that aggressive firms are also exercise and hold firms. To ensure the aggressive firm relationship to value is not solely driven by their inclusion in the exercise and hold group, I add the dummy variable *XNHOLD* (where *XNHOLD* is equal to 1 if there was an exercise and hold transaction by the firm, both aggressive and non-aggressive, in the pre-sox sample period).

Panel A of Table 3 presents summary statistics of the variables used in firm value regressions and tests of the agency view of tax avoidance described below. Panels C and B of Table 3 present summary statistics within the aggressive and non-aggressive populations respectively. Applying all of the data

screens described above and truncating all regressors at 1% and 99% results in a final sample of 26,373 firm years collected from 1995-2006. 1,079 of these observations are from aggressive firms. Upon examination of Panels B and C, it is apparent that the sub-sample of aggressive firms is different than the non-aggressive sub-sample on all regressor dimensions except for *FORINC*; the absolute value of foreign income scaled by total assets. Average (median) Tobin's Q is 35% (33%) higher in the aggressive firm sub-sample, providing some preliminary support for H2, that predicted higher firm value for aggressive firms. The direction of this difference also supports the neoclassical view that tax avoidance increases firm value.[30]

None of the statistically significant (*p*-values < 0.10) correlation coefficients presented on Table 4 Panel C exceed 0.41 suggesting multicollinearity should not be an issue in effective tax rate regressions.[31]

3.3.2 Aggressive Managers and the Agency View of Tax Avoidance

To test H3 that predicts governance moderates the firm value association with aggressive firms, I modify equation (2) to include the effect of governance (*GOV*) and an interaction between governance and my aggressive manager indicator (*Aggressive*GOV*). Consistent with Hanlon and Slemrod (2009), Wilson (2009), and Desai and Dharmapala (2009) I use the Gompers, Ishii, and Metrick (2003) index of shareholder rights as my primary measure of corporate governance characteristics. This measure is based on 24 different provisions that serve as determinants for a firm's takeover vulnerability. Higher values of the index indicate more isolated managers and, therefore, poor governance. To aid in the interpretation of my results I redefine the index as 24 minus the realized value and label this *G_SCORE*. This way, larger values represent better governance. In line with prior studies, I partition on the median value of *G_SCORE* (Hanlon and Slemrod, 2009; Wilson, 2009). In regression analysis *GOV* acts as a partitioning variable that separates the effects of relatively well-governed firms from relatively poorly governed firms.

[30] In unreported analysis, pre-tax return on assets (*ROA*) is significantly lower in the aggressive sample, with a mean (median) difference of 0.049 (0.031). To the extent a lower *ROA* signals implicit tax costs, this difference could provide preliminary evidence that aggressive firms pay a price for tax avoidance not reflected in *TOBQ*.

[31] To provide additional support for this assertion, I report the highest condition index for any of the regression specifications by table and panel. In tests of H2, none of the specifications have condition indices that exceed 20. In tests of H3, none of the specifications have condition indices that exceed 27.

Since the availability of *G_SCORE* limits my data I use an alternative measure of governance to supplement this primary test and increase the generalizability of my findings. Specifically, I include tests using dedicated institutional investors (*DED_IO*) based on the classification in Bushee (2001) and Bushee and Noe (2000). Managerial monitoring is expected to increase in institutional investor ownership. Dedicated institutional investors are hypothesized to have a stronger monitoring role because their large, long-term holdings, which are concentrated in only a few firms, provide incentive to monitor managers'' performance (Bushee, 1998). This measure is consistent with a similar measure used by Chen et al. (2009). To be consistent with my approach above, and with prior studies (Chen et al., 2009; Rego and Wilson, 2008) I partition *DED_IO* measure on the median value of dedicated institutional ownership. The empirical specifications discussed above are summarized as follows:

$$TOBQ_{it} = \alpha_0 + \beta_1 Aggressive_{it} + \beta_2 GOV_{it} + \beta_3 Aggressive*GOV_{it} + \beta_4 CONTROLS_{it} + e_{it}, \quad (3)$$

$TOBQ_{it}$	= As defined above;
$Aggressive_{it}$	= As defined above;
GOV_{it}	= Indicator variable set equal to 1 if (i) above the sample median for the Gompers et al. (2003) based *G_SCORE*, or (ii) above sample median of dedicated institutional ownership (*DED_IO*);
$CONTROLS_{it}$	=Control variables from prior literature as described in equation (2) above.

A positive loading on β_3, would suggest that increased governance or monitoring moderates the relationship between aggressive managers and firm value. Since I predict in the first stage of my study that aggressive managers are more likely to engage in tax avoidance, a positive loading on β_3 is consistent with the agency view of tax avoidance (Desai and Dharmapala, 2006).

Prior literature suggests the loading on β_2 (*GOV)* when *G_SCORE* is used in the regression is likely to be positive (Gompers, et al., 2003; Brown and Caylor, 2006). However, Wilson (2009) argues that in his abnormal returns setting there is unlikely to be a significant difference between well-governed and poorly governed firms. Bushee (1998) provides evidence that dedicated institutional investors are associated with long-term firm value, and Bushee (2001) documents evidence that myopic manager

behavior is mitigated in the presence of dedicated institutional investors. The results of these studies lead me to expect a positive loading on β_2 when I use *DED_IO* as a proxy for monitoring.

The coefficient on β_1 may be sensitive to change when controlling for corporate governance. As designed, β_1 will capture the average association of aggressive managers on firm value, while the coefficient on β_3 will capture the incremental effect relatively better governance has on aggressive managers' association with firm value. A drop in statistical significance on the β_1 coefficient would suggest that relatively well-governed aggressive firms drive the firm value association predicted in H2. Alternatively, a significant coefficient loading on β_1 would suggest all suspect firms are associated with higher firm value, but well-governed firms have even higher levels of firm value. [32]

Comparing Table 3 summary statistics Panels B and C, it is evident that non-suspect firms have a significantly higher average dedicated institutional owner base (7.4% vs. 5.9%, respectively). Median values differ by only 0.8% (2.9% vs. 2.1%). At the median, both groups have the same *G_SCORE* realization of 15 even though the mean difference (15.191 vs. 14.929) is significantly higher at the 1% level for the aggressive group. The economic significance of this difference is likely very small.

4. Results

4.1 Tax Avoidance Tests

Table 5 reports univariate results comparing the five tax avoidance measures (*ETR*, *LR_CASHETR*, *TAXAVOID_DD*, *TAXAVOID_FLR*, and *PROB_SHELT*) of the aggressive firms against the population of non-aggressive firms. For both effective tax rate measures, the presence of aggressive managers is associated with lower tax rates. The mean (median) *ETR* difference between aggressive and

[32] In general I would also expect the main effect of aggressive firms captured by β_1 to be similar to those documented in earlier tests of model (3) using both governance measures. However, given that *G_SCORE* leads to different sample composition (approximately 10,000 observations versus approximately 26,000 observations for the sample that employs *DED_IO*) I cannot be certain the main effect will be consistent with earlier tests. The Gompers, et al. (2003) measure captures takeover rights and entrenchment. Firms with Gompers et al. (2003) score measures are not necessarily a sample of firms representative of the population. Instead, they are likely to be larger, have greater analyst following, and are more mature. Thus, it is possible that I will find a different relationship between Tobin's Q and *G_SCORE* or Tobin's Q and aggressive firms. If this were the case, it would suggest that my non-directional hypothesis is sensitive to sample construction

non-aggressive firms is 2.7% (2.2%) when *EXEC* is the partitioning variable and 2.6% (2.2%) when *CEO* is the partitioning variable. The economic magnitude of this difference is large. It suggests moving from the non-aggressive population to the aggressive group would generate a mean tax savings of $6.4 million.

All *ETR* differences are statistically significant at the 1% level using a two-tailed test. For *LR_CASHETR*, the mean (median) difference between aggressive and non-aggressive firms is 1.9% (2.9%) when *EXEC* is the partitioning variable and 3.2% (3.3%) when *CEO* is the partitioning, with all differences significant at the 1% level using a two-tailed test. These findings are consistent with my prediction in H1.

Of the two residual tax avoidance measures, *TAXAVOID_DD* and *TAXAVOID_FLR*, only the former is associated with greater tax avoidance in the presence of aggressive managers. In the *EXEC* partition, the mean (median) difference for *TAXAVOID_DD* is -0.048 (-0.029). In the *CEO* partition the mean (median) difference is -0.048 (-0.030). All differences are statistically significant at the 1% level using a two-tailed test. Since tax avoidance increases in this measure, the negative differences are consistent with my prediction in H1.[33]

The last tax avoidance measure, *PROB_SHELTER*, provides some additional support for H1. In the *CEO* partition the mean (median) difference between the non-aggressive firm group and the aggressive firm group is -0.038 (-0.121). In the *EXEC* partition the mean difference is -0.024 while the median difference is -0.072. These negative and statistically significant differences (at the 1% level using a two-tailed test) are consistent with my prediction in H1. At the mean (median) these results suggest the presence of aggressive CEO increases the probability a firm engages in tax sheltering by 7.4% (21.5%).[34]

[33] The mean and median values of *TAXAVOID_FLR* in both partitions are higher for the non-aggressive firm group, but none of the differences between this group and the aggressive firm group is significantly different from zero. This finding does not provide any support for H1. In unreported tests I compare the mean level of *TAXAVOID_FLR* in the aggressive firm sample to aggressive firms with *EXEC_SUSRAT* (suspect Executive exercise and hold transactions to all Executive exercise and hold transactions) measures higher than the median. I find that *TAXAVOID_FLR* is higher in this aggressive firm sub sample. To the extent there is a higher likelihood a personally tax aggressive manager is present in this sub-sample this result provides some support consistent with H1 using the *TAXAVOID_FLR* measure.

[34] Table 2 suggests that the aggressive firm group is not as evenly distributed across industries as the non-aggressive population. For instance, in Panel A the Healthcare and Fabricated products industries combined represent approximately 50% of the aggressive firm sample, but only 26% of the non-aggressive firm population. In addition, some industries such as Tobacco Products and Recreation are not represented in the aggressive group. To provide some robustness of the findings noted above to differences in industry composition, I examine the difference in means by one-digit SIC code in Table 5 Panel B. For the most

Table 6 reports the results from multivariate regressions using the effective tax rate measures. Panel A presents results that employ *ETR* as the dependent variable. Panel B presents results where *LR_CASHETR* is the dependent variable. In both Panels I present results with various specifications for the variable of interest (*Aggressive*). In specification (1), *Aggressive* is a dichotomous variable equal to one when aggressive managers are present and zero otherwise. In (2) *Aggressive* equals one in the presence of a suspect CEO. Specification (3) uses the aggressive manager presence measure *CEO_SUSRAT*. This variable equals the firm specific ratio of supect CEO exercise and hold transactions to all CEO exercise and hold transactions. The variable *Aggressive* in specification (4) is equal to one if the observation is from a firm where the number of suspect CEO exercises exceeds the suspect CEO sample exercise median number.

The results in Panel A provide some support for the assertion that aggressive manager presence has a negative association with *ETR*, incremental to other controls. In specification (1) where *Aggressive* is defined the most broadly, the coefficient loading is negative and significant (β_1 = -0.024, *t-stat* = -3.14).[35] When I define *Aggressive* by CEO presence in specifications (2) the magnitude and statistical significance of the coefficient loading are similar to that in reported specification (1) (β_1 = -0.029, *t-stat* = -3.08). Using the alternative definitions for suspect manager presence, *CEO_SUSRAT* and *CEO_3* in specifications (3) and (4) respectively, result in negative coefficient loadings with larger magnitudes than those documented in specifications (1) and (2). When *Aggressive* is defined as *CEO_SUSRAT* β_1 = -0.046 (*t-stat* = -2.77) and β_1 = -0.041 (*t-stat* = -2.87) when *Aggressive* is defined as *CEO_3*.

When *LR_CASHETR* is the dependent variable in Panel B, coefficient loadings are negative as predicted, but are not statistically significant in specifications (1), (2), or (3). In specification (4)

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part, my findings above do not appear to be concentrated in one particular industry group. Typically, I find significant results in the predicted direction in at least half of the represented industry groups. The exception is the *EXEC* partition of *LR_CASHETR* where only 3 of 7 industry groups are significant in the predicted direction, while 3 are insignificant. The insignificant findings for *TAXAVOID_FLR* do not appear to be driven by any one industry, as 6 of the 7 industry level tests returned insignificant results. In fact, the only significant industry level result was in the predicted direction.

[35] In untabulated results, I run the same models excluding *XNHOLD***.** After dropping *XNHOLD* from the model, the coefficient on *Aggressive* is significant at the 10% level using a one-tailed test (β_1 = -0.010, *t-stat* = -1.54*)* when all aggressive managers are included in *Aggressive* (*EXEC*).

Aggressive loads negatively as predicted and is statistically significant at the 1% level (β_1 = -0.077, *t-stat* = -2.24).

The results in Table 6 are generally supportive of H1 with respect to *ETR*, but present some mixed results with respect to *LR_CASHETR*.

4.2 Firm Value Tests

Results that test the relationship association between aggressive manager presence and firm value are summarized on Table 7. I present results of univariate tests in specification (1). In specification (2) I introduce *XNHOLD* that captures the association between all exercise-and-hold firms (aggressive and non-aggressive) and firm value. In this specification, the loading on *Suspect* captures the effect aggressive manager presence has on firm value incremental to being an exercise-and-hold firm. These regression specifications, which include industry and year fixed effects, are consistent with the summary statistics on Table 3 that aggressive firms have higher measures of firm value than the non-aggressive population. In specification (1) the coefficient on *Aggressive* loads positively and is significant at the 1% level using a two-tailed test (β_1 = 0.398, *t-stat* = 4.75). Both the coefficient magnitude and statistical significance drop when *XNHOLD* is included in the regression (β_1 = 0.233, *t-stat* = 3.23). *XNHOLD* also loads positively and is significant at the 1% level (β_{12} = 0.183, *t-stat* = 3.23). One potential driver of this finding with respect to all exercise and hold firms could be the prevalence of stock option compensation in high growth firms. As the frequency of stock compensation increases, so to does the likelihood of identifying exercise and hold transactions. In addition, this could reflect managers inside information about future growth prospects, thus providing an incentive to exercise and hold.

Specifications (3) through (5) build up to the full model depicted in equation (2). The coefficient on *Aggressive* consistently loads positively as predicted, with the lowest statistical significance level found in specification (5) (β_1 = 0.162, *t-stat* = 1.72). Without the inclusion of *XNHOLD*, both the magnitude and statistical significance of my variable of interest, *Aggressive*, are higher (β_1 = 0.262, *t-stat*

= 3.21). The results of these tests suggest aggressive manager firms are associated with higher levels of firm value compared to the population of non-aggressive firms. This is consistent with my prediction in H2.

4.3 Agency View of Tax Avoidance

Tables 8 and 9 provide results examining how corporate governance impacts the association between aggressive manager presence and firm value.[36] Table 8 presents the univariate effect of the primary variables of interest in these tests including *Aggressive*, *GOV*, and the interaction between *Aggressive* and *GOV*. In both Panels A and B, *GOV* is a dummy variable equal to one for the group of relatively better-governed firms. In Panel A, relatively better governed firms are those with realizations of *G_SCORE*, based on Gompers, et al. (2003), above the sample median. In Panel B, relatively better governed firms are those with realizations of *DED_IO*, based on Bushee (2001) and Bushee and Noe (2000), above the sample median. Using the more restrictive *G_SCORE* as a measure of governance in Panel A, I document a positive univariate relationship between the presence of aggressive managers and firm value, consistent with tests in Table 7 (β_1 = 0.216, *t-stat* = 2.07). This relationship becomes negative, but insignificant, when I include *GOV* and the interaction term *GOV*Suspect*. Consistent with H3, the coefficient on the interaction term is positive and significant at the 1% level using a two-tailed test (β_3 = 0.557, *t-stat* = 3.45). An insignificant loading on *Suspect* paired with a significant and positive loading on *Aggressive*GOV* suggests relatively better-governed firms drive the association between aggressive firms and firm value documented in Table 7. In line with prior research, the main effect of *GOV* loads positive and significant at the 5% level (β_2 = 0.105, *t-stat* = 2.46). *XNHOLD* has no explanatory power in this setting (β_4 = -0.001, *t-stat* = -0.01).

Using *DED_IO* as the measure underlying *GOV* leads to a change in sample size, from 9,897 firm years to 26,373 firm years. Both the main effect of *GOV* and the interaction of *GOV* and *Aggressive* are in

[36] For ease of presentation I present the analysis for the presence of aggressive Executives. Using the presence of aggressive CEOs produces similar results.

the same direction as the tests in Panel A. However, when *XNHOLD* is introduced in specification (5), the statistical significance on the interaction term drops below the 10% level using a one-tailed test. Without including *XNHOLD*, the coefficient on the interaction term is positive and significant at the 10% level using a one-tailed test (β_3 = 0.158, *t-stat* = 1.56). Using this comparatively less restrictive sample (as compared to the *G_SCORE* tests above) the coefficient on *Suspect* is positive and significant if *XNHOLD* is excluded, suggesting aggressive managers are associated with higher firm value on average. While somewhat weaker than the tests using *G_SCORE*, these results provide some additional support for H3 and the agency view of tax avoidance.

Table 9 is structured much like Table 8 except the regression specifications in Table 9 include control variables. To conserve space I present only the coefficient loadings on the variables of interest. The "Table 7 Control Variable Reference" row lists a specification number that links to the control variables used in Table 7. The addition of control variables does not change the sign on any of the variables of interest in Panel A, but it does lead to a reduction in the statistical significance on the main effect of *GOV* in the fully specified models (4) and (5). The statistical significance on the interaction term does not drop below 10% using a two-tailed test and 5% using a one-tailed test.

In Panel B, it is apparent the addition of control variables leads to a consistently positive and significant coefficient loading on the interaction of *GOV* and *Aggressive*. At its highest, the interaction term is significant at 10% using a two-tailed test and 5% using a one-tailed test. While these results are weaker than those found in Panel A, they do provide corroborating evidence in support of H3 and the agency view of tax avoidance. The main effect of for the presence of aggressive firms is consistently positive, but is not statistically different from zero when *XNHOLD* is added in specification (3).[37]

[37] In untabulated results I run similar tests using return on assets (ROA) as an alternative firm value measure. In multivariate regressions using the structure of equation (2) none of coefficient loadings on *Aggressive* are statistically different from zero. In further untabulated results I incorporate the effect of corporate governance. The coefficient on the interaction between relatively well-governed firms and the presence of aggressive managers is negative but not statistically significant (β_3 = -0.017, *t-stat* = -1.41; β_1 = -0.017, *t-stat* = -1.40, respectively). These findings suggest the agency view of tax avoidance is not descriptive when firm value is measured by the pre-tax return on assets. Furthermore, any association between *ROA* and the presence of aggressive managers appears to be driven by their inclusion in the group of exercise and hold firms. However, even this finding is not robust to the inclusion of additional control variables.

5. Additional analysis

5.1 Cross-Sectional Variation in Aggressive Firm Tax Avoidance

As an additional test, I use the partitioning technique employed in Desai and Dharmapala (2006). Specifically, I partition my sample on the median of governance measures used in previous tests (*G_SCORE, DED_IO*) and examine how the level of various measures of tax avoidance collected from the first part of my study (*TAXAVOID*), impacts firm value in relatively high and low governance environments. Interacting measures of governance with measures of tax avoidance is similar to the approaches taken in Desai and Dharmapala (2009) and Rego and Wilson (2008). The empirical design is as follows:

$$TOBQ_{it} = \alpha_0 + \beta_1 Aggressive_{it} + \beta_2 TAXAVOID_{it} + \beta_3\, Aggressive*TAXAVOID_{it} + \beta_4 SIZE_{iT} + \beta_5 V0LT_{iI} + \beta_6 LEV_{it} + e_{it}, \quad (4)$$

$TOBQ_{it}$	= As defined above;
$Aggressive_{it}$	= As defined above;
$TAXAVOID_{it}$	= Tax avoidance measures as documented above (*ETR, TAXAVOID_DD, PROB_SHELTER*);
$SIZE_{it}$	= As defined in equation (2) above;
$VOLT_{it}$	= As defined in equation (2) above;
LEV_{it}	= As defined in equation (2) above;

I choose to analyze only *ETR, TAXAVOID_DD,* and *PROB_SHELT* because these measures yielded some of the strongest differences between aggressive manager firms and the non-aggressive population documented in Table 5. In my regression analysis I only include additional control variables when examining the tax avoidance measure *ETR*. I do this because the residual measures already include the effect of control variables by way of the first stage estimation.

The prior literature has produced mixed findings that make it difficult to formulate a specific prediction for coefficient loading. For example, Desai and Dharmapala (2006) found that tax avoidance was negatively related to firm value in low governance partitions. Similarly, Hanlon and Slemrod (2009) found that while both high and low governance partitions experienced negative returns; only the low governance partition was statistically different from zero. Thus, given the findings of Hanlon and Slemrod

(2009) and Desai and Dharmapala (2006) a strong form prediction would be a negative relationship between tax avoidance and aggressive manager presence in the relatively poorly governed partition. Desai and Dharmapala (2009), on the other hand, find that tax avoidance loads positively in high governance partitions, but is not significant in low governance partitions. Rego and Wilson (2008) find mixed results on the interaction between governance and tax avoidance. Given these findings, a weak form prediction would be a difference in variable loadings between the relatively high and low governance partitions on the interaction between aggressive manager presence and tax avoidance.

Table 10 presents the results from estimating equation (4). Panel A presents results partitioned on the sample median value of *G_SCORE*, and Panel B presents results partitioned on the sample median value of *DED_IO*. The results provide some further support for H3 and the agency view of tax avoidance. In Panel A, coefficients on the interaction between aggressive manager presence and tax avoidance are negative and significant in the relatively poorly governed partition at the 10% level using a one-tailed test when *ETR* and *PROB_SHELT* are the proxies for tax avoidance. When I use *TAXAVOID_DD* as the tax avoidance proxy, the coefficient of interest (*Aggressive*TAXAVOID*) is negative and significant at the 5% level using a two-tailed test (β_3 = -3.189, *t-stat* = -2.43). In all specifications, the interaction term for the relatively well-governed partition is not statistically different from zero. The results in Panel A thus support the strong from prediction.

The results in Table B are mixed. The coefficient on the interaction between aggressive manager presence and tax avoidance is negative only when *ETR* is the proxy for tax avoidance (specification (1)), but this loading is not statistically significant. When *TAXAVOID_DD* is the proxy for tax avoidance, the coefficient on the interaction loads positively and is significant in both the low and high governance partitions. However, the coefficient magnitude in the high governance partition is twice that of the low governance partition (5.267 vs. 2.770). A t-test confirms that the difference in magnitudes between these variable loadings is statistically significant (*t-stat* = 2.11). Inconsistent with expectations, the coefficient on the interaction term when *PROB_SHELT* is the tax avoidance proxy, is positive and significant at the 10% level using a one-tailed test in the low governance partition (β_3 = 0.747, *t-stat* = 1.50)

6. Conclusion

Using a proxy for managers' personal tax aggressiveness, which I label "aggressive", I study whether managers' who are aggressive in personal tax matters influence their firms tax positions. I document that the presence of aggressive managers is associated with tax avoidance activities at the firm level. This finding is consistent with the extant research in managerial organization and evolving research in accounting that suggests managers' individual characteristics lead to firm level economic outcomes. Having documented this relationship, I examine the association between the presence of aggressive managers and firm value. While firm value could increase in tax avoidance, the presence of aggressive managers is likely associated with increased agency costs. This suggests the relationship between aggressive managers and firm value is more nuanced than the neoclassical view of tax avoidance would propose. I find that the presence of aggressive managers is positively associated with firm value as measured by Tobin's Q. Consistent with the agency view of tax avoidance advanced by Desai and Dharmapala (2008), corporate governance proxies moderate the relationship between firm value and the presence of aggressive managers. In some settings, the addition of cross-sectional variation in governance eliminates the explanatory power of the main effect of aggressive manager presence. However, the interaction between aggressive manager presence and measures of corporate governance remains positive and significant.

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APPENDIX A
Detailed calculations for tax avoidance measures

•Residual Based Measures

To calculate the first of the residual methods, based on Desai and Dharmapala (2006) and Desai and Dharmapala (2009) measure I regress annual book-tax differences on control variables and collect the residual by firm and year.

$$BTD_{it} = \alpha_0 + \beta_1 TA_{it} + \beta_2 MVE_{it} + \beta_3 SALES_{it} + \beta_4 CAPX_{it} + \beta_5 RD_{it} + \beta_6 LTD_{it} + \beta_7 CLD_{it} + \beta_8 FORINC_{it} + \beta_8 NOLCF_{it} + TAXAVOID\_DD_{it} \quad (1)$$

where:

BTD_{it}	= Pretax domestic income (data272) less domestic taxable income (data63/statutory tax rate) divided by total assets (data6), all measured at time t;[38]
TA_{it}	= Total accruals [(data18) – (data308))] at time t divided by total assets (data6) at time t;
MVE_{it}	= Market value of equity [(data199)*data(25)] at time t divided by total assets (data6) at time t;
$SALES_{it}$	= Sales (data12) at time t;
$CAPX_{it}$	= Capital expenditures (data128) at time t divided by assets at time t;
RD_{it}	= Research and development expenses (data46) at time t, divided by total assets (data6) at time t;
LTD_{it}	= Long-term debt (data9) at time t, divided by total assets (data6) at time t;
CLD_{it}	= Debt in current liabilities (data34) at time t divided by total assets (data6) at time t;
$FORINC_{it}$	= Absolute value of foreign income or loss (data273) at time t scaled by total assets (data6) at time t.
$NOLCF_{it}$	=Unused portion of the net operating loss (data) divided by total assets (data52) at time t;

$TAXAVOID\_DD_{it}$=Residual for firm i at time t from the above regression.

Consistent with Chen et al. (2009) I calculate book-tax differences based on Manzon and Plesko (2002) and total accruals based on Hribar and Collins (2002). I also eliminate firms with total assets (data6) less than $1.0M and firms with negative taxable income ((data63) < 0). To control for outliers, realizations of *TAXAVOID_DD* are truncated at the 1st and 99th percentiles.

The residual measure is designed to increase in tax avoidance activities (Desai and Dharmapala, 2009) so I would expect to observe higher realizations of *TAXAVOID_DD* for my aggressive firm sample as compared to the non-aggressive population.

The second residual method I employ is based on Frank et al. (2009). I calculate this measure by regressing ***permanent*** book-tax differences on a set of control variables.

[38] If pretax domestic income (data272) is missing I substitute total pretax income (data170).

$$PERMBTD_{it} = \alpha_0 + \beta_1 INTANG_{it} + \beta_2 UNCON_{it} + \beta_3 MI_{it} + \beta_4 CSTE_{it} + \beta_5 \Delta NOL_{it} + \beta_6 LAGPERM_{it} + TAXAVOID\_FLR_{it} \quad (2)$$

where:

$PERMBTD_{it}$ = Total book-tax differences (as defined above) less deferred taxable income [(data50)/statutory tax rate] divided by total assets (data6), all measured at time t;

$INTANG_{it}$ = Good will and other intangibles (data33) at time t divided by total assets (data6) at time t;

$UNCON_{it}$ = Income/(loss) reported under the equity method (data55) at time t divided by total assets (data6) at time t;

MI_{it} = Income or loss attributable to minority interest (data49) at time t divided by total assets (data6) at time t;

$CSTE_{it}$ = Current state tax expense (data173) at time t divided by total assets (data6) at time t;

ΔNOL_{it} = Change in net operation loss carryforward (data52) from time t-1 to time t divided by assets (data6) at time t;

$LAGPERM_{it}$ = One year lag *PERMBTD*;

***TAXAVOID_FLR*$_{it}$**= Residual for firm i at time t from the above regression.

Consistent with Frank et al. (2009) I eliminate financial services firms and utilities from the entering the residual estimation. I also drop firms with negative book value of equity ((data60)<0)) and firms with a foreign incorporation (FINC=99). Since Frank et al. (2009) drop firms where they are unable to calculate their measure for financial statement aggressiveness, I eliminate firm years where I am unable to calculate Dechow et al. (1995) modified Jones model discretionary accruals. To account for the industry and year controls that Frank et al. (2009) include in their measure, I include year and industry fixed effects in the first stage regression. To control for outliers, realizations of *TAXAVOID_FLR* are truncated as the 1st and 99th percentile.

The most significant innovation of this specification over Desai and Dharmapala (2009) is the use of permanent rather than total book-tax differences. This model, therefore, ignores the potential tax savings firms may generate from deferral strategies but employs a measure more likely to be associated with tax sheltering activity. Shevlin (2002) for instance, argues that the preferred tax shelter generates permanent rather than temporary differences. Similar to the Desai and Dharmapala model (2009), the Frank, et al. (2009) model includes variables to control for nondiscretionary items the authors say are not typically considered aggressive tax reporting.

•Probability of Sheltering Measure

Wilson (2009) analyzes a sample of 59 identified tax shelter participants and 260 matched control firms. The coefficient loadings in his logit regression allow me to estimate the probability that firms in my sample are engaged in tax sheltering.

$$FIT\_SHELT_{it} = 4.86 + 5.20*BTD_{it} + 4.08*DA_{it} + -1.41*LEV_{it} + 0.76*SIZE_{it} + 3.51*ROA_{it} + 1.72*FORINC_{it} + 2.42*RD_{it} \quad (3)$$

FIT_SHELT_{it}	= Fitted value derived from the sum of the coefficients multiplied by realized values of firm characteristics;
BTD_{it}	= Pretax domestic income (data272) less domestic taxable income (data63/statutory tax rate) divided by total assets (data6), all measured at time t;
DA_{it}	= Dechow et al. (1995) modified Jones model discretionary accruals;
LEV_{it}	= Long-term debt (data9) at time t divided by total assets (data6) at time t;
$SIZE_{it}$	= Natural log of total assets (data6) at time t;
ROA_{it}	= Pre-tax earnings (data170) at time t, divided by total assets (data6) at time t;
$FORINC_{it}$	= Dichotomous variable set to 1 if firm reports foreign income at time t, and zero otherwise;
CLD_{it}	= Debt in current liabilities (data34) at time t divided by total assets (data6) at time t;
$FORINC_{it}$	= Absolute value of foreign income or loss (data273) at time t scaled by total assets (data6) at time t.
RD_{it}	= Research and development expenses (data46) at time t, divided by total assets (data6) at time t;

Following Rego and Wilson (2008) I calculate a predicted probability of sheltering with the following transformation:

$$\boldsymbol{Prob(Shelter_{it})} = e^{(FIT\_SHELTit)} \; / \; (1 + e^{(FIT\_SHELTit)}) \quad (4)$$

TABLE 1
Personally Tax Aggressive (Aggressive) Manager Identification
and Transaction Detail

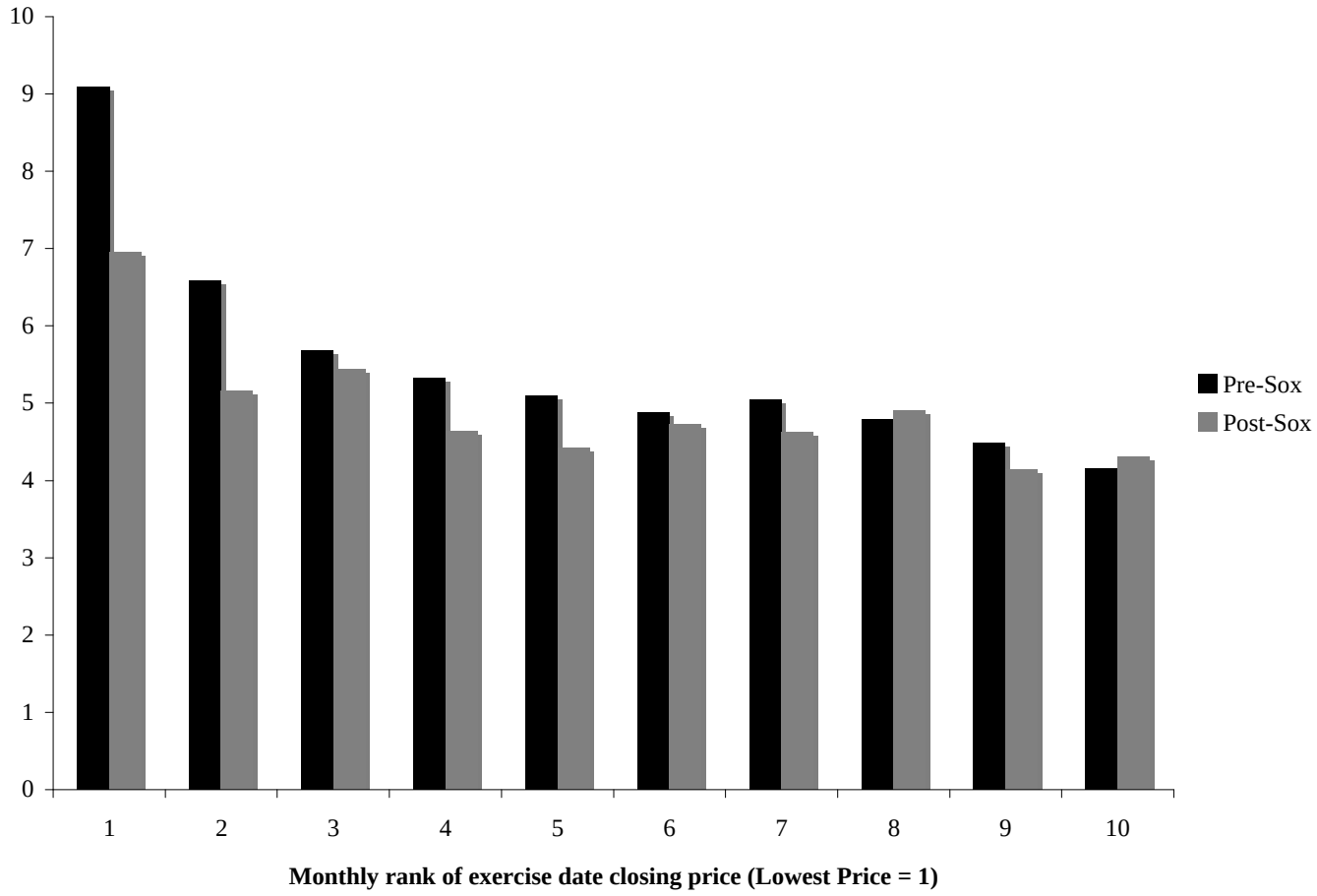
Panel A: Aggressive Manager Sample Construction

Insider exercises per Thomson Financial with transaction code "M"	294,202
Add/(Less):	
Small fims and firms without Compustat and CRSP identifiers	(123204)
Non-Executive insiders and firms missing rolecodes	(3976)
Multiple exercises by same Executive in a month	(71029)
Exercises followed by a subsequent sale	(71353)
Post SOX effective date exercises	(5991)
Non-suspect Exercises	(16954)
Suspect Exercises	1,695

Panel B: Exercise and Hold Transaction Detail

	N	Unique insiders	Unique Firms
Exercise and hold - All exercises			
CEO	4,854	3,723	619
Non-CEO	13,795	11,119	903
All Execuitves	18,649	14,842	990
Exercise and hold - Suspect Exercises Detail			
CEO	506	443	209
Non-CEO	1,189	1,131	302
All Execuitves	1,695	1,574	385
Exercise and hold - Firms with no Suspect Exercises			
CEO	733	463	306
Non-CEO	1,888	1,353	536
All Execuitves	2,621	1,771	605

FIGURE 1
Distribution of Exercise and Hold Stock Option Exercises On the Ten Lowest Stock Price Days of the Month



This figure plots the percentage of all exercise-and-hold transactions over 10 days ranked by *lowest* closing price of the month, with a value of 1 for the lowest price.

TABLE 2
Industry Classification (Fama-French 30)

Panel A: ETR Regression Sample

	Population		Suspect Firms		Diff - Population vs. Suspect	Exercise & Hold Firms	
	Firm Years	Percent	Firm Years	Percent		Firm Years	Percent
Steel Works	1178	3.1%	0	0.0%	3.1%	110	2.4%
Coal	212	0.6%	0	0.0%	0.6%	12	0.3%
Tobacco Products	69	0.2%	0	0.0%	0.2%	2	0.0%
Recreation	1112	2.9%	31	2.4%	0.5%	129	2.8%
Communication	588	1.5%	0	0.0%	1.5%	22	0.5%
Automobiles	912	2.4%	15	1.2%	1.2%	48	1.0%
Aircraft, Ships and Equipment	776	2.0%	15	1.2%	0.9%	85	1.8%
Personal and Business Services	3374	8.9%	154	12.1%	-3.3%	450	9.8%
Retail	954	2.5%	14	1.1%	1.4%	88	1.9%
Textiles	235	0.6%	0	0.0%	0.6%	0	0.0%
Food Products	1632	4.3%	41	3.2%	1.1%	156	3.4%
Transportation	763	2.0%	0	0.0%	2.0%	62	1.3%
Business Equipment	1794	4.7%	54	4.3%	0.5%	142	3.1%
Electrical Equipment	741	1.9%	0	0.0%	1.9%	73	1.6%
Consumer Goods	754	2.0%	19	1.5%	0.5%	59	1.3%
Apparel	341	0.9%	0	0.0%	0.9%	57	1.2%
Precious Metals and Industrial Metal Mining	408	1.1%	0	0.0%	1.1%	21	0.5%
Beer and Liquor	63	0.2%	0	0.0%	0.2%	10	0.2%
Business Supplies and Shipping Containers	1787	4.7%	20	1.6%	3.1%	134	2.9%
Petroleum and Natural Gas	1294	3.4%	39	3.1%	0.3%	127	2.8%
Healthcare, Medical Equip and Pharmaceuticals	5012	13.2%	351	27.7%	-14.5%	1109	24.0%
Fabricated Products	5063	13.3%	331	26.1%	-12.8%	799	17.3%
Construction and Const. Materials	903	2.4%	17	1.3%	1.0%	53	1.1%
Other	1415	3.7%	4	0.3%	3.4%	126	2.7%
Wholesale	1914	5.0%	30	2.4%	2.7%	222	4.8%
Chemicals	2613	6.9%	91	7.2%	-0.3%	342	7.4%
Restaurants, Hotels & Motels	934	2.5%	16	1.3%	1.2%	100	2.2%
Printing and Publishing	1206	3.2%	27	2.1%	1.0%	77	1.7%
	38,047		1,269			4,615	

(continued)

TABLE 2, continued
Industry Classification (Fama-French 30)

Panel B: Tobin's Q Regression Sample

	Population		Suspect Firms		Diff - Population vs. Suspect	Exercise & Hold Firms	
	Firm Years	Percent	Firm Years	Percent		Firm Years	Percent
Steel Works	769	63.8%	0	0.0%	63.8%	47	61.0%
Coal	124	10.3%	0	0.0%	10.3%	2	2.6%
Tobacco Products	41	3.4%	0	0.0%	3.4%	5	6.5%
Recreation	698	57.9%	33	122.2%	-64.3%	80	103.9%
Communication	418	34.7%	0	0.0%	34.7%	6	7.8%
Automobiles	599	49.7%	11	40.7%	8.9%	26	33.8%
Aircraft, Ships and Equipment	474	39.3%	9	33.3%	6.0%	38	49.4%
Personal and Business Services	2251	186.7%	165	611.1%	-424.5%	339	440.3%
Retail	645	53.5%	15	55.6%	-2.1%	33	42.9%
Textiles	202	16.7%	0	0.0%	16.7%	0	0.0%
Food Products	1077	89.3%	33	122.2%	-32.9%	55	71.4%
Transportation	646	53.6%	0	0.0%	53.6%	45	58.4%
Business Equipment	1368	113.4%	39	144.4%	-31.0%	100	129.9%
Electrical Equipment	497	41.2%	0	0.0%	41.2%	26	33.8%
Consumer Goods	505	41.9%	9	33.3%	8.5%	13	16.9%
Apparel	247	20.5%	0	0.0%	20.5%	29	37.7%
Precious Metals and Industrial Metal Mining	380	31.5%	0	0.0%	31.5%	15	19.5%
Beer and Liquor	59	4.9%	0	0.0%	4.9%	3	3.9%
Business Supplies and Shipping Containers	1417	117.5%	14	51.9%	65.6%	66	85.7%
Petroleum and Natural Gas	1113	92.3%	35	129.6%	-37.3%	82	106.5%
Healthcare, Medical Equip and Pharmaceuticals	2767	229.4%	276	1022.2%	-792.8%	695	902.6%
Fabricated Products	3149	261.1%	310	1148.1%	-887.0%	568	737.7%
Construction and Const. Materials	674	55.9%	7	25.9%	30.0%	25	32.5%
Other	1026	85.1%	0	0.0%	85.1%	38	49.4%
Wholesale	1015	84.2%	20	74.1%	10.1%	104	135.1%
Chemicals	1716	142.3%	66	244.4%	-102.2%	202	262.3%
Restaurants, Hotels & Motels	699	58.0%	10	37.0%	20.9%	55	71.4%
Printing and Publishing	718	59.5%	27	100.0%	-40.5%	48	62.3%
	25,294		1,079			2,745	

(continued)

TABLE 2, continued
Industry Classification (Fama-French 30)

This table presents the industry composition of the sample used in regression testing. Industry classifications are based on the 30 industries identified by Fama and French (1997) less the financial services and utilities industries. The table compares the firm-year industry distribution of the non-aggressive population to the aggressive firm group. In addition the last column presents the industry composition of the exercise and hold group that includes both aggressive and non- aggressive firm years. Panel A presents the industry breakdown for the ETR (tax avoidance) testing sample, and Panel B presents the industry breakdown for the Tobin's Q (firm value) testing sample.

TABLE 3
Summary Statistics

Panel A - Pooled Sample

	Obs.	Mean	Standard Deviation	25%	Median	75%
MULT	39316	0.134	0.302	0.000	0.000	0.091
CAPINT	39316	0.285	0.224	0.104	0.223	0.416
LEV	39316	0.170	0.176	0.006	0.129	0.277
SIZE	39316	5.704	2.132	4.229	5.655	7.148
PT_ROE	39316	0.189	0.441	0.082	0.169	0.268
GROWTH	39316	0.251	0.633	-0.078	0.109	0.380
RD	39316	0.029	0.058	0.000	0.000	0.033
TOBQ	26373	1.791	1.150	1.073	1.419	2.068
VOLT	26373	0.034	0.017	0.022	0.031	0.043
STDROA	26373	0.078	0.164	0.025	0.047	0.090
FORINC	26373	0.013	0.032	0.000	0.000	0.010
NOL	26373	0.085	0.354	0.000	0.000	0.018
DELW	26373	0.517	0.500	0.000	1.000	1.000
AGE	26373	2.328	0.779	1.792	2.398	2.944
G_SCORE	9897	14.941	2.703	13.000	15.000	17.000
DED_IO	26373	0.073	0.099	0.000	0.029	0.117

(continued)

TABLE 3, continued
Summary Statistics

Panel B: Non-Aggressive Population Sample

	Obs.	Mean	Standard Deviation	25%	Median	75%
MULT	38047	0.132	0.299	0.000	0.000	0.086
CAPINT	38047	0.289	0.225	0.107	0.227	0.423
LEV	38047	0.172	0.176	0.007	0.132	0.278
SIZE	38047	5.699	2.147	4.211	5.654	7.160
PT_ROE	38047	0.190	0.438	0.083	0.170	0.269
GROWTH	38047	0.246	0.620	-0.078	0.108	0.376
RD	38047	0.028	0.057	0.000	0.000	0.031
TOBQ	25294	1.766	1.121	1.068	1.405	2.038
VOLT	25294	0.034	0.016	0.022	0.030	0.042
STDROA	25294	0.076	0.160	0.025	0.046	0.088
FORINC	25294	0.013	0.032	0.000	0.000	0.010
NOL	25294	0.079	0.334	0.000	0.000	0.016
DELW	25294	0.509	0.500	0.000	1.000	1.000
AGE	25294	2.344	0.780	1.792	2.485	2.996
G_SCORE	9458	14.929	2.706	13.000	15.000	17.000
DED_IO	25294	0.074	0.100	0.000	0.029	0.118

Panel C: Aggressive Manager Sample

	Obs.	Mean		Standard Deviation	25%	Median	75%
MULT	1269	0.188	***	0.366	0.000	0.000	0.211
CAPINT	1269	0.161	***	0.154	0.053	0.109	0.224
LEV	1269	0.114	***	0.167	0.000	0.015	0.195
SIZE	1269	5.845	***	1.600	4.743	5.704	6.900
PT_ROE	1269	0.170		0.514	0.065	0.152	0.246
GROWTH	1269	0.394	***	0.926	-0.108	0.173	0.589
RD	1269	0.061	***	0.071	0.000	0.033	0.100
TOBQ	1079	2.389	***	1.577	1.322	1.865	2.858
VOLT	1079	0.043	***	0.019	0.028	0.040	0.055
STDROA	1079	0.138	***	0.232	0.037	0.076	0.137
FORINC	1079	0.013		0.031	0.000	0.000	0.010
NOL	1079	0.232	***	0.659	0.000	0.000	0.135
DELW	1079	0.703	***	0.457	0.000	1.000	1.000
AGE	1079	1.949	***	0.642	1.609	1.946	2.197
G_SCORE	439	15.191	**	2.635	14.000	15.000	17.000
DED_IO	1079	0.059	***	0.083	0.000	0.021	0.093

(continued)

TABLE 3, continued
Summary Statistics

All continuous variables are truncated at 1% and 99% to avoid the influence of outliers on statistical inference. Panel A provides descriptive statistics for all firms in the samples used for effective tax rate testing and firm value testing. Panel B provides descriptive statistics for the population of firm years where no suspect stock options exercise has been detected, (where suspect exercises are identified using the method described in Section 3.1). Panel C provides descriptive statistics for firms where aggressive managers are present. Data definitions are as follows: Multinational operations (MULTI) is the absolute value of foreign income scaled by the absolute value of pretax income. CAPINT is a measure of capital intensity, defined as net PP&E scaled by total assets. LEV is long-term debt scaled by total assets. SIZE is defined as the natural log of net sales. Pre-tax return on equity (PT_ROE) equals pretax income divided by total book equity. GROWTH measures the change in the market value of assets from t-1 to t. RD is research and development expense scaled by total assets. TOBQ is a measure of firm value and is equal to the market value of equity plus book assets minus book value of equity, all divided by book assets. Stock price volatility (VOLT) equals the standard deviation of stock returns measured over the fiscal year. STDROA measures the standard deviation of ROA (defined as pretax income divided by total assets) over that last 3 years. FORINC is defined as the absolute value of foreign income scaled by total assets. NOL is the net operating loss scaled by total assets. DELW is a dummy variable equal to 1 if the firm is incorporated in Delaware, and zero otherwise. AGE is equal to the natural log of the total years as firm has information available on COMPUSTAT. G_SCORE is based on the Gompers, Ishii and Metrick (2003) measure of shareholder rights calculated as 24 – Gindex. DED_IO captures the percentage of dedicated institutional ownership based on Bushee (2001) and Bushee and Noe (2000). *, ** and *** next to the mean indicate a 10%, 5% and 1%, respectively, significant difference between with suspect managers and the non-suspect population firms using a two-tailed test.

TABLE 4
Pearson (above diagonal), Spearman (below diagonal) Correlation Matrix

Panel A: ETR Regression Variable Correlations

	EXEC	CEO	ETR	LR_CASHETR	MULT	CAPINT	LEV	SIZE	PT_ROE	GROWTH	RD
EXEC		0.732	-0.024	-0.022	0.032	-0.099	-0.057	0.012	-0.008	0.040	0.100
		<.0001	*<.0001*	*0.001*	*<.0001*	*<.0001*	*<.0001*	*0.019*	*0.134*	*<.0001*	*<.0001*
CEO	0.732		-0.019	-0.033	0.018	-0.068	-0.036	0.012	-0.006	0.037	0.066
	<.0001		*0.000*	*<.0001*	*0.000*	*<.0001*	*<.0001*	*0.015*	*0.232*	*<.0001*	*<.0001*
ETR	-0.024	-0.018		0.006	0.014	-0.010	-0.004	0.012	0.013	0.001	0.010
	<.0001	*0.000*		*0.361*	*0.006*	*0.044*	*0.394*	*0.020*	*0.010*	*0.830*	*0.054*
LR_CASHETR	-0.033	-0.037	0.261		-0.003	-0.114	-0.067	-0.073	-0.002	-0.015	-0.048
	<.0001	*<.0001*	*<.0001*		*0.644*	*<.0001*	*<.0001*	*<.0001*	*0.812*	*0.020*	*<.0001*
MULT	0.049	0.028	-0.048	-0.041		-0.064	0.002	0.223	-0.021	-0.039	0.095
	<.0001	*<.0001*	*<.0001*	*<.0001*		*<.0001*	*0.682*	*<.0001*	*<.0001*	*<.0001*	*<.0001*
CAPINT	-0.109	-0.072	0.043	-0.077	-0.066		0.324	0.219	0.013	-0.071	-0.282
	<.0001	*<.0001*	*<.0001*	*<.0001*	*<.0001*		*<.0001*	*<.0001*	*0.013*	*<.0001*	*<.0001*
LEV	-0.076	-0.046	0.044	-0.074	0.008	0.377		0.265	-0.020	-0.057	-0.252
	<.0001	*<.0001*	*<.0001*	*<.0001*	*0.100*	*<.0001*		*<.0001*	*<.0001*	*<.0001*	*<.0001*
SIZE	0.014	0.015	0.098	-0.096	0.320	0.247	0.350		0.054	-0.084	-0.161
	0.006	*0.003*	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*		*<.0001*	*<.0001*	*<.0001*
PT_ROE	-0.024	-0.009	0.278	0.022	0.031	0.045	-0.005	0.145		0.029	-0.041
	<.0001	*0.088*	*<.0001*	*0.001*	*<.0001*	*<.0001*	*0.303*	*<.0001*		*<.0001*	*<.0001*
GROWTH	0.019	0.018	0.014	-0.018	-0.011	-0.042	-0.018	-0.013	0.161		0.070
	0.000	*0.000*	*0.004*	*0.006*	*0.025*	*<.0001*	*0.000*	*0.010*	*<.0001*		*<.0001*
RD	0.112	0.079	-0.187	-0.073	0.292	-0.288	-0.291	-0.063	-0.024	0.014	
	<.0001	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*0.006*	

(continued)

TABLE 4, continued
Pearson (above diagonal), Spearman (below diagonal) Correlation Matrix

Panel B: Tobin's Q Regression Variable Correlations

	EXEC	CEO	TOBQ	VOLT	SIZE	LEV	STDROA	RD	FORINC	NOL	DELW	AGE	G_SCORE	DED_IO
EXEC		0.749	0.107	0.108	-0.065	-0.079	0.076	0.156	0.002	0.086	0.077	-0.101	0.020	-0.030
		<.0001	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*0.743*	*<.0001*	*<.0001*	*<.0001*	*0.047*	*<.0001*
CEO	0.749		0.081	0.070	-0.034	-0.055	0.066	0.083	-0.009	0.060	0.049	-0.064	0.011	-0.022
	<.0001		*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*0.146*	*<.0001*	*<.0001*	*<.0001*	*0.276*	*0.000*
TOBQ	0.097	0.076		-0.019	-0.005	-0.229	0.058	0.325	0.154	0.078	0.051	-0.082	0.084	0.013
	<.0001	*<.0001*		*0.003*	*0.440*	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*0.030*
VOLT	0.101	0.068	-0.129		-0.451	-0.021	0.208	0.251	-0.053	0.189	0.062	-0.262	0.206	-0.127
	<.0001	*<.0001*	*<.0001*		*<.0001*	*0.001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*
SIZE	-0.068	-0.036	0.061	-0.490		0.117	-0.150	-0.238	0.134	-0.194	-0.047	0.231	-0.228	0.080
	<.0001	*<.0001*	*<.0001*	*<.0001*		*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*
LEV	-0.101	-0.065	-0.259	-0.083	0.195		-0.233	-0.090	-0.022	0.051	-0.002	-0.070	0.013	0.016
	<.0001	*<.0001*	*<.0001*	*<.0001*	*<.0001*		*<.0001*	*<.0001*	*0.000*	*<.0001*	*0.794*	*<.0001*	*0.034*	*0.010*
STDROA	0.087	0.063	0.056	0.410	-0.310	-0.135		0.191	0.038	0.233	0.067	-0.051	0.095	-0.060
	<.0001	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*		*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*
RD	0.152	0.102	0.301	0.154	-0.129	-0.303	0.239		0.131	0.294	0.096	-0.110	0.092	-0.006
	<.0001	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*		*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*0.293*
FORINC	0.016	0.004	0.136	-0.152	0.251	-0.072	0.000	0.306		0.010	0.008	0.043	-0.049	0.027
	0.009	*0.569*	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*0.962*	*<.0001*		*0.102*	*0.198*	*<.0001*	*<.0001*	*<.0001*
NOL	0.061	0.035	-0.011	0.124	-0.057	0.020	0.188	0.142	0.103		0.073	-0.048	0.041	-0.076
	<.0001	*<.0001*	*0.054*	*<.0001*	*<.0001*	*0.001*	*<.0001*	*<.0001*	*<.0001*		*<.0001*	*<.0001*	*<.0001*	*<.0001*
DELW	0.077	0.049	0.056	0.059	-0.038	0.030	0.088	0.053	0.052	0.059		-0.038	0.127	0.101
	<.0001	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*		*<.0001*	*<.0001*	*<.0001*
AGE	-0.114	-0.073	-0.058	-0.321	0.270	0.044	-0.082	-0.024	0.160	-0.036	-0.043		-0.187	0.078
	<.0001	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*		*<.0001*	*<.0001*
G_SCORE	0.024	0.017	0.063	0.224	-0.246	-0.114	0.131	0.007	-0.109	0.016	0.134	-0.289		-0.067
	0.017	*0.098*	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*0.463*	*<.0001*	*0.103*	*<.0001*	*<.0001*		*<.0001*
DED_IO	-0.021	-0.016	0.055	-0.114	0.140	0.015	-0.086	0.022	0.111	-0.083	0.098	0.102	-0.083	
	0.001	*0.011*	*<.0001*	*<.0001*	*<.0001*	*0.009*	*<.0001*	*0.000*	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*	

(continued)

TABLE 4, continued
Correlation Coefficients

Panel A provides correlation coefficients for all regressors used in tests of H1 (effective tax rates). Panel B provides correlation coefficients for all regressors used in tests of H2 and H3 (tax avoidance and firm value). All variables definitions are defined as in Table 3. In each panel the Pearson correlation coefficients are presented above the diagonal, while the Spearman correlation coefficients are presented below the diagonal. P-values are presented in italics below each correlation value.

TABLE 5
Tax Avoidance Measure Testing

Panel A : Means and Medians Tests

		EXEC			CEO		
Tax Avoidance Measure	Group	N	Mean	Median	N	Mean	Median
	Non-Aggressive	38047	0.283	0.333	38047	0.283	0.333
ETR	Aggressive	1269	0.256	0.310	711	0.257	0.312
			0.027	0.022		0.026	0.021
			(5.24)***	(5.14)***		(3.79)***	(3.82)***
LR_CASHETR	Non-Aggressive	28325	0.303	0.295	28325	0.303	0.295
	Aggressive	785	0.283	0.265	438	0.270	0.261
			0.019	0.029		0.032	0.033
			(2.64)***	(4.42)***		(3.41)***	(4.60)***
TAXAVOID_DD	Non-Aggressive	29245	0.004	0.037	29245	0.004	0.037
	Aggressive	1705	0.052	0.066	877	0.051	0.067
			-0.048	-0.029		-0.048	-0.030
			(-10.83)***	(-7.20)***		(-7.73)***	(-5.65)***
TAXAVOID_FLR	Non-Aggressive	38537	0.015	0.033	38537	0.015	0.033
	Aggressive	1384	0.009	0.032	747	0.009	0.026
			0.006	0.001		0.006	0.006
			(0.98)	(0.10)		(0.98)	(0.10)
PROB_SHELTER	Non-Aggressive	34784	0.509	0.562	34784	0.509	0.562
	Aggressive	1414	0.533	0.633	747	0.547	0.683
			-0.024	-0.072		-0.038	-0.121
			(-2.56)***	(-3.96)***		(-3.01)***	(-3.80)***

(continued)

TABLE 5, continued
Tax Avoidance Measure Testing

	EXEC				
	ETR	LR_CASHETR	TAXAVOID_DD	TAXAVOID_FLR	PROB_SHELTER
Industry Groups with Aggressive and Population Observations	7	7	6	7	7
Significant Differences in Predicted Direction	4	3	5	1	5
Insignificant Differences	2	3	1	6	0
	CEO				
	ETR	LR_CASHETR	TAXAVOID_DD	TAXAVOID_FLR	PROB_SHELTER
Industry Groups with Aggressive and Population Observations	7	7	7	6	7
Significant Differences in Predicted Direction	4	5	4	1	5
Insignificant Differences	3	1	2	6	2

(continued)

TABLE 5, continued
Tax Avoidance Measure Testing

Panel C: Tax Avoidance Measure Correlations

	ETR	LR_CASHETR	TAXAVOID_DD	TAXAVOID_FLR	PROB_SHELT
ETR		0.170	-0.115	-0.286	0.113
		<.0001	*<.0001*	*<.0001*	*<.0001*
LR_CASHETR	0.267		-0.133	-0.013	-0.161
	<.0001		*<.0001*	*0.160*	*<.0001*
TAXAVOID_DD	*-0.138*	*-0.165*		0.211	0.280
	<.0001	*<.0001*		*<.0001*	*<.0001*
TAXAVOID_FLR	-0.288	-0.026	0.179		0.128
	<.0001	*0.005*	*<.0001*		*<.0001*
PROB_SHELT	0.063	-0.124	0.190	0.054	
	<.0001	*<.0001*	*<.0001*	*<.0001*	

Panel A provides tests of differences in means and medians between aggressive and non-aggressive manager firms across five tax avoidance measures. Panel B provides additional detail on the result of differences in means tests by 1-digit sic code. Panel C provides a correlation matrix of the tax avoidance measures used in the above testing (Pearson correlation coefficients appear above the diagonal, and Spearman below). Tax avoidance definitions are as follows: Effective tax rate (ETR) is total income tax expense divided by pretax income. Long-run cash effective tax rate (LR_CASHETR) is defined as the sum of cash taxes paid over the last five years divided by the sum of the last five year's pretax income less extraordinary items. TAXAVOID_DD is a measure of tax avoidance estimated as the residual from Appendix Equation (1) based on Desai and Dharmapala (2009). TAXAVOID_FLR is a measure of tax avoidance estimated as the residual from Appendix equation (2) as in Frank, Lynch, and Rego (2009). PROB_SHELT is the probability a firm is engaging in tax sheltering as in Wilson (2009). This measure is estimated using the transformation Appendix equation (4) on the fitted values produced by Appendix equation (3). All tax avoidance measures are truncated 1% and 99% to avoid the influence of outliers on statistical inference. *, ** and *** next to the mean (median) differences indicate a 10%, 5% and 1%, respectively, significant difference between low and high tax avoidance firms using a two-tailed test.

TABLE 6
Multivariate Regressions of Effective Tax Rate Measures on
Aggressive Manager Presence Measures

Panel A: Effective Tax Rate Analysis

Dependent Variable		ETR			
Aggressive Manager Measure		EXEC	CEO	CEO_SUSRAT	CEO_3
	Predict	(1)	(2)	(3)	(4)
Aggressive	(-)	-0.024	-0.029	-0.046	-0.041
		(-3.14)***	(-3.08)***	(-2.77)***	(-2.87)***
MULTI		-0.022	-0.022	-0.022	-0.021
		(-4.14)***	(-4.10)***	(-4.15)***	(-3.96)***
CAPINT		-0.027	-0.028	-0.028	-0.029
		(-3.03)***	(-3.10)***	(-3.08)***	(-3.15)***
LEV		-0.061	-0.060	-0.060	-0.059
		(-7.02)***	(-6.85)***	(-6.85)***	(-6.70)***
SIZE		0.015	0.015	0.016	0.015
		(19.15)***	(18.97)***	(18.94)***	(18.76)***
PT_ROE		0.035	0.035	0.035	0.035
		(8.70)***	(8.53)***	(8.53)***	(8.50)***
GROWTH		-0.007	-0.007	-0.007	-0.008
		(-4.66)***	(-4.66)***	(-4.68)***	(-4.61)***
RD		-0.409	-0.405	-0.405	0.403
		(-16.09)***	(-15.73)***	(-15.75)***	(-15.44)***
XNHOLD		0.017	0.016	0.014	0.016
		(3.45)***	(3.41)***	(3.14)***	(3.38)***
R2		0.077	0.077	0.077	0.076
Nobs		39316	38758	38758	38269
Industry Fixed Effects		Yes	Yes	Yes	Yes
Year Fixed Effects		Yes	Yes	Yes	Yes
Firm Level Clustering		Yes	Yes	Yes	Yes
Highest Condition Index	9.4				

(continued)

TABLE 6, continued
Multivariate Regressions of Effective Tax Rate Measures on
Aggressive Manager Presence Measures

Panel B: Long-Run Cash Effective Tax Rate Analysis

Dependent Variable		LR_CASHETR			
Aggressive Manager Measure		EXEC	CEO	CEO_SUSRAT	CEO_3
	Predict	(1)	(2)	(3)	(4)
Aggressive	(-)	-0.021	-0.017	-0.042	-0.077
		(-0.13)	(-0.82)	(-1.11)	(-2.24)***
MULTI		0.000	0.000	0.000	0.000
		(1.12)	(1.11)	(1.11)	(1.09)
CAPINT		-0.115	-0.116	-0.116	-0.116
		(-8.37)***	(-8.38)***	(-8.39)***	(-8.34)***
LEV		-0.029	-0.031	-0.031	-0.031
		(-2.20)**	(-2.35)***	(-2.36)**	(-2.34)***
SIZE		-0.006	-0.007	-0.007	-0.007
		(-4.73)***	(-4.65)***	(-4.64)***	(-4.56)***
PT_ROE		0.000	0.000	0.000	0.000
		(-0.94)	(-0.93)	(-0.93)	(-0.94)
GROWTH		-0.002	-0.002	-0.002	-0.002
		(-1.88)*	(-1.88)*	(-1.88)*	(-1.92)*
RD		-0.120	-0.123	-0.124	-0.131
		(-2.54)**	(-2.59)***	(-2.60)***	(-2.72)***
XNHOLD		-0.011	-0.011	-0.012	-0.012
		(-1.39)	(-1.42)	(-1.47)	(-1.42)
R2		0.056	0.057	0.057	0.057
Nobs		29110	28763	28673	28457
Industry Fixed Effects		Yes	Yes	No	Yes
Year Fixed Effects		Yes	Yes	Yes	No
Firm Level Clustering		Yes	Yes	Yes	Yes
Highest Condition Index	9.2				

(continued)

TABLE 6, continued
Multivariate Regressions of Effective Tax Rate Measures on
Aggressive Manager Presence Measures

Panel A provides regression results of equation (1) where the dependent variable is the effective tax rate (ETR) defined as total income tax expense divided by pretax income. Panel B provides regression results of equation (1) where the dependent variable is the long-run cash effective tax rate (LR_CASHETR) defined as the sum of cash taxes paid over the last five years divided by the sum of the last five year's pretax income less extraordinary items. Variables of interest are indicator variables that denote the presence of aggressive managers (EXEC) or an aggressive CEO (CEO), using the identification technique described in Section 3.1. Alternative variables of interest are defined as follows: CEO_SUSRAT is the number of suspect CEO exercise and hold transactions divided by all CEO exercise and hold transactions. CEO_3 is an indicator variable equal to 1 if the number of suspect CEO exercises exceeds the suspect CEO sample median number of suspect exercises. Other variable definitions are as follows: Multinational operations (MULTI) is the absolute value of foreign income scaled by the absolute value of pretax income. CAPINT is a measure of capital intensity, defined as net PP&E scaled by total assets. LEV is long-term debt scaled by total assets. SIZE is defined as the natural log of net sales. Pre-tax return on equity (PT_ROE) equals pretax income divided by total book equity. GROWTH measures the change in the market value of assets from t-1 to t. RD is research and development expense scaled by total assets. XNHOLD is an indicator variable equal to one if the firm has had an exercise and hold transaction as identified by the method described in Section 3.1 and zero otherwise. All continuous variables are truncated at 1% and 99% to avoid the influence of outliers on statistical inference. *t*-values reported in parentheses are calculated using heteroscedasticity-adjusted standard errors (White, 1980) clustered at the firm level. *, ** and *** indicate statistical significance at the 10%, 5% and 1%, level respectively, using a two-tailed test for control variables and variables of interest where no directional hypothesis was made, and a one-tailed test for variables of interest where a directional prediction was made.

TABLE 7
Multivariate Regressions of Tobin's Q on Aggressive Manager Presence

Dependent Variable		TOBQ				
Aggressive Manager Measure		EXEC				
	Predict	(1)	(2)	(3)	(4)	(5)
Aggressive	(+)	0.398	0.233	0.298	0.262	0.162
		(4.75)***	(2.37)**	(3.63)***	(3.21)***	(1.72)*
SIZE				0.048	0.053	0.053
				(5.54)***	(6.21)***	(6.20)***
VOLT				-5.238	-6.289	-6.304
				(-7.56)***	(-9.09)***	(-9.11)***
LEV				-0.995	-1.018	-1.014
				(-15.68)***	(-15.99)***	(-15.92)***
RD				4.095	3.995	3.981
				(14.48)***	(14.08)***	(14.07)***
FORINC				3.317	3.312	3.311
				(5.67)***	(5.65)***	(5.66)***
NOL				0.016	0.016	0.013
				(0.40)	(0.41)	(0.33)
DELW					0.066	0.062
					(2.73)***	(2.57)**
AGE					-0.086	-0.081
					(-6.65)***	(-6.26)***
STDROA					0.061	0.062
					(1.05)	(1.07)
XNHOLD			0.183			0.116
			(3.23)***			(2.26)**
Adj R2		0.747	0.747	0.773	0.774	0.774
Nobs		26373	26373	26373	26373	26373
Industry Fixed Effects		Yes	Yes	Yes	Yes	Yes
Year Fixed Effects		Yes	Yes	Yes	Yes	Yes
Firm Level Clustering		Yes	Yes	Yes	Yes	Yes
Highest Condition Index	19.9					

(continued)

TABLE 7, continued
Multivariate Regressions of Tobin's Q on Aggressive Manager Presence

This table provides regression results of equation (2) where the variable of interest is an indicator variable that denotes presence of aggressive managers (EXEC), using the identification technique described in Section 3.1. Other variable definitions are as follows: TOBQ is a measure of firm value and is equal to the market value of equity plus book assets minus book value of equity, all divided by book assets. SIZE is defined as the natural log of net sales. Stock price volatility (VOLT) equals the standard deviation of stock returns measured over the fiscal year. LEV is long-term debt scaled by total assets. STDROA measures the standard deviation of ROA (defined as pretax income divided by total assets) over that last 3 years. RD is research and development expense scaled by total assets. FORINC is defined as the absolute value of foreign income scaled by total assets. NOL is the net operating loss scaled by total assets. DELW is a dummy variable equal to 1 if the firm is incorporated in Delaware, and zero otherwise. AGE is equal to the natural log of the total years as firm has information available on COMPUSTAT. G_SCORE is based on the Gompers, Ishii and Metrick (2003) measure of shareholder rights calculated as 24 – Gindex.. DED_IO captures the percentage of dedicated institutional ownership based on Bushee (2001) and Bushee and Noe (2000). XNHOLD is an indicator variable equal to one if the firm has had an exercise and hold transaction as identified by the method described in Section 3.1 and zero otherwise. All continuous variables are truncated at 1% and 99% to avoid the influence of outliers on statistical inference. *t*-values reported in parentheses are calculated using heteroscedasticity-adjusted standard errors (White, 1980) clustered at the firm level. *, ** and *** indicate statistical significance at the 10%, 5% and 1%, level respectively, using a two-tailed test for control variables and variables of interest where no directional hypothesis was made, and a one-tailed test for variables of interest where a directional prediction was made.

TABLE 8
Univariate Regressions of Tobin's Q on Aggressive Manager Presence and Corporate Governance

Panel A: Gompers, Ishii, and Metrick (2003) Measure

Dependent Variable		TOBQ				
Aggressive Manager Measure		EXEC				
	Predict	(1)	(2)	(3)	(4)	(5)
Aggressive	(?)	0.216			-0.146	-0.145
		(2.07)**			(-1.45)	(-1.15)
GOV	(+)		0.126		0.102	0.105
			(3.13)***		(2.46)**	(2.46)**
Aggressive*GOV	(+)			0.454	0.557	0.557
				(3.36)***	(3.45)***	(3.45)***
XNHOLD						-0.001
						(-0.01)
R2		0.141	0.143	0.142	0.144	0.144
Nobs		9897	9897	9897	9897	9897
Industry Fixed Effects		Yes	Yes	Yes	Yes	Yes
Year Fixed Effects		Yes	Yes	Yes	Yes	Yes
Firm Level Clustering		Yes	Yes	Yes	Yes	Yes
Controls		No	No	No	No	No
Highest Condition Index	5.0					

(continued)

TABLE 8, continued
Univariate Regressions of Tobin's Q on Aggressive Manager
Presence and Corporate Governance

Panel B: Bushee (2001) Dedicated Institutional Investor Measure

Dependent Variable		TOBQ				
Aggressive Manager Measure		EXEC				
		(1)	(2)	(3)	(4)	(5)
Aggressive	(?)	0.398			0.302	0.156
		(4.75)***			(3.32)***	(1.42)
GOV	(+)		0.185		0.182	0.177
			(8.36)***		(8.54)***	(7.97)***
Aggressive*GOV	(+)			0.506	0.158	0.126
				(5.06)***	(1.56)*	(1.36)
XNHOLD	(?)					0.184
						(3.26)***
R2		0.133	0.124	0.133	0.137	0.139
Nobs		26373	26373	26373	26373	26373
Industry Fixed Effects		Yes	Yes	Yes	Yes	Yes
Year Fixed Effects		Yes	Yes	Yes	Yes	Yes
Firm Level Clustering		Yes	Yes	Yes	Yes	Yes
Controls		No	No	No	No	No
Highest Condition Index	4.8					

This table provides regression results for equation (3) where the variables of interest are an indicator variable that denotes presence of aggressive managers (EXEC) (using the identification technique described in Section 3.1) and the interaction between EXEC and governance proxies (GOV). In Panel A, GOV is an indictor variable equal to one for firms with G_SCORE above the sample median. G_SCORE is based on the Gompers, Ishii and Metrick (2003) measure of shareholder rights calculated as 24 – Gindex. In Panel B, GOV is an indicator variable equal to 1 for firms with DED_IO above the sample median. DED_IO captures the percentage of dedicated institutional ownership based on Bushee (2001) and Bushee and Noe (2000). Other variable definitions are as follows: TOBQ is a measure of firm value and is equal to the market value of equity plus book assets minus book value of equity, all divided by book assets. XNHOLD is an indicator variable equal to one if the firm has had an exercise and hold transaction as identified by the method described in Section 3.1 and zero otherwise. These regressions are run using the sample where all continuous variables have been truncated at 1% and 99% to avoid the influence of outliers on statistical inference. *t*-values reported in parentheses are calculated using heteroscedasticity-adjusted standard errors (White, 1980) clustered at the firm level. *, ** and *** indicate statistical significance at the 10%, 5% and 1%, level respectively, using a two-tailed test for control variables and variables of interest where no directional hypothesis was made, and a one-tailed test for variables of interest where a directional prediction was made.

TABLE 9
Multivariate Regressions of Tobin's Q on Aggressive Manager Presence and Corporate Governance

Panel A: Gompers, Ishii, and Metrick (2003) Governance Measure

Dependent Variable		TOBQ		
Aggressive Manager Measure		EXEC		
	Predict	(1)	(2)	(3)
Aggressive	(?)	-0.099	-0.108	-0.108
		(-0.95)	(-1.11)	(-0.96)
GOV	(+)	0.140	0.049	0.049
		(3.79)***	(1.63)	(1.63)
Aggressive*GOV	(+)	0.359	0.263	0.263
		(2.14)**	(1.90)*	(1.89)*
XNHOLD	(?)			0.000
				(0.00)
R2		0.819	0.863	0.863
Nobs		9660	9660	9660
Industry Fixed Effects		Yes	Yes	Yes
Year Fixed Effects		Yes	Yes	Yes
Firm Level Clustering		Yes	Yes	Yes
Controls		Yes	Yes	Yes
Table 7 Control Variable Reference		3	4	5
Highest Condition Index	26.4			

(continued)

TABLE 9
Multivariate Regressions of Tobin's Q on Aggressive Manager Presence and Corporate Governance

Panel B: Bushee (2001) Dedicated Institutional Investor Measure

Dependent Variable		TOBQ		
Aggressive Manager Measure		EXEC		
		(1)	(2)	(3)
Aggressive	(?)	0.204	0.134	0.030
		(2.17)**	(1.54)*	(0.31)
GOV	(+)	0.098	0.070	0.069
		(4.78)***	(3.68)***	(3.65)***
Aggressive*GOV	(+)	0.156	0.192	0.192
		(1.50)*	(1.97)**	(1.97)**
XNHOLD	(?)			0.120
				(2.53)**
R2		0.774	0.802	0.802
Nobs		26373	26373	26373
Industry Fixed Effects		Yes	Yes	Yes
Year Fixed Effects		Yes	Yes	Yes
Firm Level Clustering		Yes	Yes	Yes
Controls		Yes	Yes	Yes
Table 7 Control Variable Reference		3	4	5
Highest Condition Index	20.5			

(continued)

TABLE 9
Multivariate Regressions of Tobin's Q on Aggressive Manager Presence and Corporate Governance

This table provides regression results for equation (3) where the variables of interest are an indicator variable that denotes presence of aggressive managers (EXEC), using the identification technique described in Section 3.1, and, the interaction between EXEC and governance proxies (GOV). In Panel A, GOV is an indictor variable equal to one for firms with G_SCORE above the sample median. G_SCORE is based on the Gompers, Ishii and Metrick (2003) measure of shareholder rights calculated as 24 – Gindex. In Panel B, GOV is an indicator variable equal to 1 for firms with DED_IO above the sample median. DED_IO captures the percentage of dedicated institutional ownership based on Bushee (2002) and Bushee and Noe (2000). Other variable definitions are as follows: TOBQ is a measure of firm value and is equal to the market value of equity plus book assets minus book value of equity, all divided by book assets. XNHOLD is an indicator variable equal to one if the firm has had an exercise and hold transaction as identified by the method described in Section 3.1 and zero otherwise. The Table 7 Control Variable reference row denotes from which specification in Table 7 controls variables are taken. Control variables specific to these reference papers and used in the model specifications can be found in equation (6) and include the following: SIZE is defined as the natural log of net sales. Stock price volatility (VOLT) equals the standard deviation of stock returns measured over the fiscal year. LEV is long-term debt scaled by total assets. STDROA measures the standard deviation of ROA (defined as pretax income divided by total assets) over the last 3 years. RD is research and development expense scaled by total assets. FORINC is defined as the absolute value of foreign income scaled by total assets. NOL is the net operating loss scaled by total assets. DELW is a dummy variable equal to 1 if the firm is incorporated in Delaware, and zero otherwise. AGE is equal to the natural log of the total years as firm has information available on COMPUSTAT. t-values reported in parentheses are calculated using heteroscedasticity-adjusted standard errors (White, 1980) clustered at the firm level. *, ** and *** indicate statistical significance at the 10%, 5% and 1%, level respectively, using a two-tailed test for control variables and variables of interest where no directional hypothesis was made, and a one-tailed test for variables of interest where a directional prediction was made.

TABLE 10
Partition Regressions of Tobin's Q on Aggressive Manager Presence and Tax Avoidance Measures

Panel A: Partitioned on G_SCORE

Tax Avoidance Measure	ETR		TAXAVOID_DD		PROB_SHELTER	
Governance Partition	Low	High	Low	High	Low	High
	(1)	(2)	(3)	(4)	(5)	(6)
Aggressive	0.485	0.456	-0.051	-0.111	0.628	1.162
	(0.99)	(0.54)	(-0.26)	(-0.41)	(1.37)	(1.62)
TAXAVOID	-0.016	-0.059	1.781	1.184	1.480	1.737
	(-0.15)	(-0.56)	(2.58)***	(2.34)**	(7.81)***	(9.05)***
Aggressive*TAXAVOID	-1.089	-0.248	-3.189	1.835	-0.882	-0.840
	(-1.59)*	(-0.24)	(-2.43)**	(0.92)	(-1.41)*	(-0.88)
R2	0.219	0.236	0.180	0.133	0.168	0.182
Nobs	3846	4706	1992	2541	2494	3230
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm Level Clustering	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	n/a	n/a	n/a	n/a
Highest Condition Index	14.5					

(continued)

TABLE 10, continued
Partition Regressions of Tobin's Q on Aggressive Manager Presence and Tax Avoidance Measures

Panel B: Partitioned on IO_DED

Tax Avoidance Measure	ETR		TAXAVOID_DD		PROB_SHELTER	
Governance Partition	Low	High	Low	High	Low	High
	(1)	(2)	(3)	(4)	(5)	(6)
Aggressive	0.878	0.775	-0.113	0.190	0.068	0.575
	(1.77)*	(1.02)	(-0.63)	(1.15)	(0.21)	(1.17)
TAXAVOID	0.621	0.315	-2.638	0.051	-0.805	0.143
	(7.19)***	(3.99)***	(-6.58)***	(0.11)	(-4.49)***	(1.08)
Aggressive*TAXAVOID	-0.561	0.067	2.770	5.267	0.747	0.365
	(-0.94)	(0.07)	(2.04)**	(3.29)***	(1.50)*	(0.49)
R2	0.122	0.131	0.115	0.135	0.103	0.136
Nobs	12151	12386	7630	7699	9260	9457
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm Level Clustering	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	n/a	n/a	n/a	n/a
Highest Condition Index	15.7					

This table provides regression results of equation (4) where the variable of interest is the interaction between tax avoidance proxies (TAXAVOID) and an indicator variable that denotes presence of aggressive managers (EXEC). Aggressive manager presence is ascertained using the identification technique described in Section 3.1. In Panel A is partitioned on the median value of G_SCORE. G_SCORE is based on the Gompers, Ishii and Metrick (2003) measure of shareholder rights calculated as 24 – Gindex. Panel B is partitioned on the median value of DED_IO. DED_IO captures the percentage of dedicated institutional ownership based on Bushee (2002) and Bushee and Noe (2000). TAXAVOID variable definitions are as follows: Effective tax rate (ETR) is total income tax expense divided by pretax income. TAXAVOID_DD is a measure of tax avoidance estimated as the residual from Appendix Equation (1) as in Desai and Dharmapala (2009). PROB_SHELT is the probability a firm is engaging in tax sheltering as in Wilson (2009). This measure is estimated using the transformation Appendix equation (4) on the fitted values produced by Appendix equation (4). Control variables include the following: SIZE is defined as the natural log of net sales. Stock price volatility (VOLT) equals the standard deviation of stock returns measured over the fiscal year. LEV is long-term debt scaled by total assets. *t*-values reported in parentheses are calculated using heteroscedasticity-adjusted standard errors (White, 1980) clustered at the firm level. *, ** and *** indicate statistical significance at the 10%, 5% and 1%, level respectively, using a two-tailed test for control variables and variables of interest where no directional hypothesis was made, and a one-tailed test for variables of interest where a directional prediction was made.