RELATIVE VALUATION OF ALTERNATIVE METHODS OF TAX AVOIDANCE

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Abstract

This paper examines the relative valuation of alternative methods of tax avoidance. Prior studies find that firm value is positively associated with overall measures of tax avoidance; I extend this research by providing evidence that investors distinguish between methods of tax reduction in their valuation of tax avoidance. The impact of tax avoidance on firm value is a function of tax risk, permanence of tax savings, tax planning costs, implicit taxes and contrasts in disclosures of tax reduction in the financial statements. My empirical results suggest that tax avoidance resulting from stock option tax benefits is positively associated with firm value, accelerated depreciation is not associated with firm value and deferral of residual tax on foreign earnings is negatively associated with firm value. Prior studies that find the positive association between firm value and tax avoidance is attenuated in poorly governed firms suggest the discount results from investor concern of managerial opportunism. Self-serving managers conceal diversion of tax savings from investors under the pretext that aggressive tax positions must be hidden from tax authorities in the financial statements. Under this theory transparent tax reduction methods that are clearly supported by the law should not be discounted by investors of poorly governed firms. However, I find that tax avoidance resulting from transparent stock option tax deductions is discounted in poorly governed firms, while tax avoidance derived from opaque deferral of the residual tax on foreign earnings is not, inconsistent with investors believing that managers are exploiting the compromised information environment associated with complex tax transactions.

Dedication

I dedicate this dissertation to my family. Matt, thanks for the support, sacrifice and understanding along the way. Marlowe, thanks for the perspective and smiles when I needed it most. Mom, Dad, Chris and Steve, thanks for the encouragement and support, both emotionally and financially.

Penner, Owen Brown, Eric Negangard, Mike Ozlanski, Jon Pyzoha, Kathy Enget, Joanna Garcia, Gabe Saucedo, Alan Stancill, Nichole Wright, Brandon Ater, Christine Gimbar, John Lauck and Joe Rakestraw. It has been a pleasure getting to know each of you.

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1. Introduction

This paper examines the relative valuation of alternative methods of tax avoidance. Specifically, I examine two related research questions. First, do investors distinguish among methods of tax reduction in the valuation of tax avoidance? Second, is the relative valuation of tax avoidance a function of corporate governance mechanisms?

Corporate tax avoidance increases shareholder wealth to the extent that it increases the present value of expected future dividends. Recent studies find that tax avoidance is, on average, positively associated with firm value (Desai and Dharmapala 2009; Wilson 2009; among others). My study extends this literature by examining the relative valuation of alternative methods of tax reduction. The fact that different methods of tax avoidance involve varying risk profiles, permanent verses temporary tax reduction, tax planning costs, implicit taxes, and variation in disclosures in the financial statements of tax avoidance activities suggests differential valuation of specific methods of avoiding tax. Aggressive tax reduction schemes are associated with the risk of future costs (e.g. penalties and interest, cost of litigation, adverse publicity) that mitigate the value of tax avoidance to shareholders. Therefore, the value of tax avoidance to shareholders per dollar avoided is decreasing in risk. While some methods of tax reduction create permanent tax savings (i.e. stock option tax benefits), other methods reduce taxes in the current period at the expense of higher future taxes (i.e. accelerated tax depreciation deductions). The value to investors of permanent tax reduction is greater than temporary tax reduction. The benefits of tax planning are a function of the implementation costs and these costs vary with the complexity of the tax planning strategy. The value of tax avoidance is tied to the transaction or activity generating it. For example, bonus depreciation creates an implicit tax in the form of increased prices on certain types of assets (Key 2008), reducing the benefit of tax reduction. Due to the proprietary nature of tax returns, investors rely on tax disclosures in the financial statements to gather information about firms' tax avoidance and disclosures vary from vague (i.e. increase in reserve for uncertain tax positions) to straightforward (i.e.

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effective tax rate reduction from domestic manufacturing deduction). A premium may exist for tax avoidance when the source is clearly identifiable. These points suggest differential valuation across methods of tax avoidance.

Recent research suggests that poor corporate governance attenuates the positive relationship between tax avoidance and firm value (Desai and Dharmapala 2009; Wilson 2009), presumably because investors believe the benefits of tax avoidance are diverted to managers. Opacity in the financial statements is required for firms to conceal aggressive tax strategies from tax authorities. This opacity creates a compromised information environment enabling managers to divert the value of tax avoidance from shareholders. However, benign tax avoidance (e.g. stock option tax benefits and accelerated depreciation) does not require concealment from tax authorities to prevent detection because the tax positions are fully supported by the law and should not be associated with an opaque information environment conducive to diversion. Therefore, benign tax reduction should not be associated with a valuation discount. Isolating the type of tax reduction activities responsible for the differential valuation provides insight into why investors discount tax avoidance in poorly governed firms.

Traditional measures of tax avoidance, such as a corporation's cash effective tax rate (*CETR*) and total book tax differences, do not distinguish the activities creating the tax reduction. Studies that use these measures inherently treat all methods of tax avoidance the same. To study the relative valuation of tax avoidance, I focus on three specific methods of tax reduction: the tax benefits of stock option compensation, accelerated tax depreciation, and the deferral of the residual U.S. tax on foreign earnings. I select these items because they comprise a large portion of the book-tax gap (Desai 2003) and are important factors in assessing tax burdens. These methods of tax avoidance have different risk profiles, vary from temporary to permanent, and are associated with different levels of tax planning costs and implicit taxes; suggesting differential valuation. Additionally, these methods range from transparent (i.e. stock option tax benefits) to opaque (i.e. deferral of residual U.S. tax on foreign earnings), allowing for a test of whether investors in poorly governed firms only discount opaque tax reduction under the diversion

theory of tax avoidance. My study utilizes hand collected data, requiring selection of tax avoidance methods that are commonly reported in firms' financial statements. These items are generally large enough to exceed the materiality threshold for financial statement disclosure.

Prior corporate tax avoidance studies include stock compensation, fixed assets, and/or foreign earnings as control variables (Ayers, Jiang, and Laplante 2011; Dyreng, Hanlon, and Maydew 2010; Desai and Dharmapala 2009) because these activities enable firms to reduce their tax burdens relative to other firms; however, inclusion of these control variables does not result in isolation of these activities from the tax avoidance measure. The value of option grants or exercises does not capture tax reduction from option exercises because deductible and non-deductible stock options are not distinguished, only the top five executives are included, and the stock price appreciation from grant to exercise determining the tax deduction is not accounted for. A firm's level of fixed assets is not indicative of the tax benefits of accelerated depreciation because the magnitude and sign of the book-tax difference is a function of the life cycle of the firm's assets. The impact of foreign earnings on observed tax avoidance depends on foreign tax rates, repatriation decisions, and the method of reporting the deferral of residual U.S. tax in the financial statements.

The *CETR* encompasses the entire range of the tax avoidance continuum, reflecting most tax planning strategies. My study uses hand collected data to isolate avoidance related to specific activities by adjusting the *CETR*, allowing for study of alternative methods of tax avoidance. The *CETR* is selected because it is impacted by the three major categories of tax reduction examined in my study, its prevalent use to measure a firm's level of tax avoidance in recent studies, and its inclusion of both temporary and permanent tax planning strategies. Additionally, the *CETR* is not impacted by items such as the valuation allowance and tax rate changes that are not associated with changes to cash flow. Myers and Rajan (1998) argue that it is easier for managers to divert liquid assets than illiquid assets, suggesting that managers diverting tax savings are diverting cash or other fungible assets. My adjustments to the *CETR* result in an adjusted *CETR* unrelated to stock option tax benefits, accelerated tax depreciation, and

deferral of the residual tax on foreign income and isolation of the level of tax avoidance associated with each of these methods of tax reduction.

I assess the importance of adjusting the *CETR* by examining the cross-sectional variation of tax avoidance implied by the adjusted and unadjusted measures. I observe a reordering of firms on the tax avoidance continuum, suggesting a different cross-sectional variation of tax behavior than implied by the traditional measure. This is an important finding because several recent studies (Ayers, Jiang, and Laplante 2011; Blaylock, Shevlin, and Wilson 2011) use the *CETR* to identify high tax avoidance firms. My study highlights the importance of selecting a measure of tax avoidance that is appropriate for the research question under examination, in the spirit of Hanlon and Heitzman (2010). For example, a measure of tax avoidance that is impacted by the tax benefits of stock options is not necessarily indicative of a firm's level of tax planning.

I examine whether prior studies' inferences about shareholder valuation of tax avoidance are primarily associated with total tax avoidance or if specific methods of tax avoidance have different valuation implications. Understanding the way investor's value different methods of tax reduction is an important extension of the research on the valuation of tax avoidance because some firms spend staggering amounts of money to engage in high-risk aggressive tax reduction strategies[1] that investors may not view as value enhancing. Specifically, I find that tax avoidance resulting from stock option tax deductions is positively associated with firm value, accelerated tax depreciation deductions is not associated with firm value and deferral of the U.S. residual tax on foreign earnings is negatively associated with firm value. The discount on tax avoidance derived from deferral of the U.S. residual tax on foreign earnings is limited to firms with a presence in a tax-haven.

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[1] A report about the role of professional firms in the U.S. tax shelter industry by the United States Senate committee of Homeland Security and Government Affairs (permanent subcommittee on investigations) reports that the SC2 (S-corporation charitable contribution strategy) tax shelter developed and promoted by KPMG had a minimum fee of $500,000 and fees ranged as high as $2 million dollars. The report also documents that the typical BOSS (Bond Option and Sales strategy) tax shelter promoted by PwC resulted in average fees of $400,000 for a $10 million dollar capital loss transaction.

Of the types of tax avoidance examined in my study, stock option tax benefits provide permanent tax reduction, have the lowest risk, and the most transparent disclosure; suggesting the tax benefits should not be discounted in poorly governed firms under the diversion theory. Tax avoidance resulting from deferral of the residual tax is the least transparent, suggesting a discount in poorly governed firms under the diversion theory. However, I find that tax avoidance resulting from stock option deductions is discounted in poorly governed firms while tax avoidance from deferral of residual tax is not. These results are inconsistent with managers exploiting the compromised information environment associated with complex and opaque tax transactions to divert tax savings.

My study provides unique insight into how alternative methods of tax avoidance are associated with firm value. Demonstration of differential valuation of alternative methods of tax avoidance is an important extension to previous literature that focuses on overall tax avoidance (Desai and Dharmapala 2009) or narrow types of tax avoidance in isolation (Wilson 2009). A new method of measuring tax avoidance will allow researchers to focus on the type of tax avoidance that is appropriate for the research question under examination. In addition, my results add to the debate about tax avoidance in an agency context by providing evidence inconsistent with a discount on tax avoidance in poorly governed firms due to investor concern of self-serving managers diverting tax savings from complex and opaque tax transactions. Finally, my findings provide useful evidence to managers and boards of directors interested in equity investor perception of methods of reducing corporate income tax.

2. Adjusted Cash Effective Tax Rate

This section outlines the institutional details underlying my adjustments to the $CETR$[2] and reviews the tax rules and accounting methods for the tax benefit of stock options, accelerated tax

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[2] Following Dyreng, Hanlon, and Maydew (2008), the cash effective tax rate (*CETR)* is defined as: (Cash Income Taxes Paid/Earnings before tax and special items). Special items represent unusual and non-recurring items reported by the company above taxes on the income statement. All variable names are presented in *italics*. Tax avoidance measures are also presented in *CAPS*.

depreciation deductions, and deferral of the residual U.S. tax on foreign income. Determining the impact each method of tax avoidance has on the *CETR* allows for the study of the relative valuation of alternative methods of tax reduction. Measuring tax avoidance in this way enables comparison of a one percent reduction in the *CETR* across methods.

2.1 Stock option tax benefits and tax avoidance

Non-qualified stock options (NQOs) generate a tax deduction for firms equal to the amount of ordinary income recognized by the employee upon exercise (the bargain element). Under FAS 123, effective for years beginning before June 15, 2005 for large publicly traded corporations, firms were required to recognize compensation expense for stock options in the financial statements only if the options had positive intrinsic value, thus there was generally no impact to net income from stock option compensation.[3] The tax benefit was a direct to equity adjustment at the time of employee exercise; as a result the tax deduction reduced cash taxes paid with no corresponding reduction to book income, overstating tax avoidance implied by the *CETR*. In order to isolate tax avoidance related to stock option tax benefits from the measure, the cash tax benefit of stock options (*Option Tax Benefit)* is added to cash income taxes paid. Under FAS 123, the cash tax benefit of stock options (*Option Tax Benefit: Reported)*, if material, should be reported as an adjustment in the operating section of the statement of cash flows (EITF 00-15 effective 2000) because the tax benefit of the stock options decreased cash taxes paid without a corresponding decrease to current tax expense.

FAS123R (ASC 718), effective for years beginning after June 15, 2005 for large publicly traded corporations, requires firms to recognize compensation expense for the estimated value of the options at

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[3] A Bear Sterns report cited in Hanlon and Shevlin (2002) indicates that recognition of stock compensation expense under FAS 123 was rare. See Hanlon and Shevlin (2002) for a detailed discussion of accounting for the tax benefits of stock options under the FAS 123 regime. Few firms in my sample report stock option compensation expense prior to 2006.

grant over the vesting period, creating a deferred tax asset.[4] The future tax deduction reduces the deferred

tax asset, with any difference ("windfall") recognized in additional paid-in-capital. FAS 123R superseded

EITF 00-15 and requires disclosure of the actual tax benefit realized from option exercises in the share

based compensation footnote. In order to derive a post-123R adjusted *CETR* that is comparable to the

pre-123R adjusted *CETR*, post 123R observations also require the addition of stock option compensation

expense (*123R Option Expense)* to book income.

Following Kahle and Shastri (2005), I examine the statement of cash flows, statement of equity,

share based compensation footnote and tax footnote for each firm for the disclosure of the stock option

cash tax benefit.   For firms that do not disclose the benefit or lump it with another number, such as

"option exercises-net" on the statement of cash flows, I estimate the cash tax benefit from stock options

using an approach provided in Hanlon and Shevlin (2002). They estimate the deduction as the number of

options exercised multiplied by the difference between the weighted average exercise price of new grants

during the year and the weighted average exercise price of options exercised during the year. The

weighted average exercise price of new shares granted during the year is a proxy for the fair market value

of the shares that were exercised during the year because grants are generally issued at the fair market

value on the grant date. Multiplying the estimated deduction by the statutory rate (i.e. 35%) provides an

estimate of the cash tax benefit from stock option exercises (*Option Tax Benefit: Estimated).*[5] The

number of shares exercised, the weighted average exercise price of new grants, and options exercised

during the year is available on Compustat beginning in 2004 and hand collected from the share based

compensation footnote for years prior to 2004. Stock option compensation expense (*123R Option*

Expense: Reported) is hand collected from the share based compensation footnote.[6] For firms that do not

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[4] FAS123R changed the financial accounting treatment for stock options; there was no change in tax laws governing stock option tax deductions.

[5] Graham, Lang, and Shackelford (2004) use a similar approach.

[6] Compustat provides the annual stock compensation expense (DATA #398, STKCO); however this amount includes compensation for other forms of stock based compensation, such as restricted stock. The growing popularity of restricted stock limits the use of annual stock compensation expense as a proxy for stock option compensation expense.

report stock option compensation expense for years after 123R, I estimate the expense (*123R Option Expense: Estimated)* by dividing the prior year's disclosed unrecognized stock option compensation expense (i.e. unvested stock option expense) by the disclosed vesting period for the options. To summarize, my adjustment to derive an adjusted CETR unrelated to stock option tax benefits is as follows:

CETR NO STOCK =   (1)
(Cash Income Taxes Paid + Option Tax Benefit)/(Earnings before tax and special items + 123R Option Expense)

For example, Microsoft's 2004 statement of cash flows reported income taxes paid of approximately $2.5 billion and stock option income cash tax benefit of approximately $1.1 billion. Microsoft's unadjusted *CETR* is 20.5%, isolating the impact of the stock option tax benefit results in an adjusted *CETR* of 29.6%.

In contrast to my adjustment to the *CETR* to remove the impact of tax avoidance related to stock option tax benefits, the use of a measure of stock options (e.g. value of stock option grants to executives as a fraction of their total compensation in Desai and Dharmapala (2009); total value of option exercises in Dyreng et al (2010)) as a control variable does not remove the actual impact of stock option tax benefits from the measure. First, the stock price appreciation from grant to exercise, determining the firm's tax deduction, is not captured. Additionally, stock compensation data for the top five executives as reported in Execucomp disregards option compensation for all employees except the top five compensated executives. Babenko and Tserlukevich (2009) estimate that 89% of options are held by non-executives and Desai (2003) reports that only 24% of shares granted are to the top five executives. Lastly, the use of the value of option grants or exercises does not distinguish between deductible non-qualified options and non-deductible incentive stock options. Adjusting the *CETR* is an improved method of isolating tax avoidance related to the tax benefits of stock options.

2.2 Accelerated tax depreciation deductions and tax avoidance

Under the Modified Accelerated Cost Recovery System (MACRS) the default method for depreciating personal property for tax purposes is double declining balance; in contrast, the majority of firms use straight-line depreciation for financial reporting purposes. Economic stimulus packages often contain bonus depreciation provisions that further accelerate tax depreciation deductions. These factors result in larger tax depreciation deductions than book depreciation expense in the early years of an assets life. A deferred tax liability is recorded for the excess of tax depreciation over book depreciation (*DTL PPE*). Cash taxes paid are reduced by the tax depreciation deduction, while pre-tax income is reduced by book depreciation expense. In order to isolate tax avoidance related to accelerated tax depreciation deductions from the *CETR*, I add the change in the deferred tax liability on property, plant and equipment to cash taxes paid. My adjustment to derive an adjusted *CETR* unrelated to accelerated tax depreciation is as follows:

$$CETR\ NO\ DEPR = \tag{2}$$

(Cash Income Taxes Paid + Δ DTL PPE)/(Earnings before tax and special items)

For example, in 2003 Home Depot reported income taxes paid of approximately $2 billion and an increase in the deferred tax liability for accelerated depreciation of $543 million. Home Depot's unadjusted CETR is 29.8%, reversing the impact of accelerated tax depreciation results in an adjusted CETR of 37.7%.

Many studies (Chen, Chen, Cheng, and Shevlin 2010; Dyreng et al 2010; among others) include fixed assets as a control variable in cross-sectional analyses of tax avoidance; however, a firm's level of fixed assets is not necessarily indicative of the tax reduction resulting from accelerated tax depreciation deductions. The asset's stage in the life cycle, selected useful life for book purposes, and type of property (i.e. real or personal property) determines the direction and magnitude of the book-tax difference. The allocation of property across jurisdictions also impacts the tax benefit from fixed assets because MACRS

only applies to property located in the United States and state bonus depreciation conformity causes differences in state tax depreciation deductions.   Adjusting the *CETR* is an improved method of isolating tax avoidance associated with accelerated tax depreciation deductions.

2.3 Deferral of residual tax on foreign earnings and tax avoidance

The United States imposes income tax on a corporation's worldwide income, including the income of subsidiaries incorporated in foreign countries. A foreign tax credit or deduction is allowed for foreign income taxes paid to mitigate double taxation, generally resulting in residual U.S. income tax ("residual tax") only on foreign income that is taxed at a foreign rate lower than the U.S. statutory rate. The residual tax is not due until the foreign subsidiary repatriates the foreign earnings to the U.S. parent through a dividend. Deferral of the residual tax allows U.S. firms doing business abroad to operate in a tax-neutral environment with their foreign competitors.

A firm's repatriation and deferral behavior has implications on the observed level of tax avoidance implied by the *CETR*.[7] Deferral of the residual tax affects the level of tax avoidance implied by the *CETR* because the residual tax is not included in cash taxes paid whereas the related foreign earnings are included in book income. Tax avoidance implied by the *CETR* is also impacted in the period of repatriation because the residual tax is included in cash taxes paid whereas the related foreign earnings have been previously recognized in book income. The tax accounting approach utilized by a firm determines the adjustment required to remove the deferral of the residual tax from the *CETR*.

Generally there are two (not mutually exclusive) different tax accounting approaches for firms that do not repatriate foreign subsidiary earnings. Under the first approach, "PRE/Defer", the indefinite reversal criteria of Accounting Principles Board Opinion 23 allows firms to assert that unremitted foreign

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[7] Foreign earnings remitted in the period earned result in current recognition of the residual tax in the financial statements and tax return ("Provide/Pay"). This approach does not impact the *CETR* because the tax is accrued and paid in the same period the foreign income is recognized in book income.

earnings are permanently reinvested (*PRE*) in the foreign jurisdiction and no accrual of the residual tax is required. An estimate of the tax liability for the residual U.S. tax that would be due if the earnings were repatriated (*PRETAX)* is a required disclosure under FAS 109 paragraph 44. The amount disclosed should include the impact of foreign tax credits. My adjustment to obtain an adjusted *CETR* unrelated to disclosure of unrecognized liability under the "PRE/Defer" approach is as follows.

CETR NO PRETAX DISCLOSED = (3a)

(Cash Income Taxes Paid $+\Delta$ PRE TAX Disclosed)/(Earnings before tax and special items)

FAS 109 paragraph 44 provides an exception to the disclosure of the unrecognized liability, allowing firms to state that determination of the liability is impracticable and many firms do not disclose an amount. Two methods for estimating the residual tax (*PRETAX: Estimate)* are provided in the literature. Krull (2004) estimates the liability by multiplying the change in *PRE* by the difference between the statutory rate (35%) and the cumulative five-year foreign effective tax rate (*FETR5)*, estimated as current foreign taxes divided by foreign earnings before taxes summed from year t-1 to t-5. Bauman and Shaw (2008) use the cumulative three-year *FETR* to gross up *PRE* by 1 less the *FETR3* to determine the pre-tax foreign earnings that are permanently reinvested. The result is multiplied by the difference between the statutory rate and the *FETR3* (.35 less *FETR3)* to estimate the residual U.S. tax. For both estimation methods, I set the estimate of *PRETAX* to zero for firms that have estimated foreign tax rates above the statutory rate because these firms would not owe residual tax on repatriation. I use the observations reporting the unrecognized liability on unremitted foreign earnings to compare the two estimation methods. The Bauman and Shaw (2008) estimation method is closer to disclosed amount more often than the Krull (2004) method. In addition, the mean and standard deviation of the absolute difference between the estimate and disclosed amount is smaller utilizing the Bauman and Shaw (2008) method.[8] Based on this analysis, I use the Bauman and Shaw (2008) method to estimate *PRETAX* for

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[8] The Bauman and Shaw (2008) method is closer to the disclosed amount for 182 out of 400 observations. The Krull (2004) method is closer 73 out of 400 observations. There are many ties due to setting the liability to zero

firms that disclose *PRE* but do not disclose *PRETAX*. Results are robust using the Krull (2004) method and presented in supplementary tables. My adjustment to the *CETR* to remove the impact of estimated residual tax deferral is as follows:

$$\text{CETR NO PRETAX ESTIMATE} = \tag{3b}$$

(Cash Income Taxes Paid $+\Delta$ PRE TAX Estimated)/(Earnings before tax and special items)

As an alternative to permanently reinvesting earnings, firms provide for the estimated residual tax in the financial statements, recognizing deferred tax expense and a deferred tax liability (*DTL FOR*). Under the "Provide/Defer" approach, taxes are avoided on the tax return, but not in the financial statements. My adjustment to the *CETR* to remove the impact of deferring the residual tax under the "Provide/Defer" approach is as follows:

$$\text{CETR NO PROVIDE} = \tag{3c}$$

(Cash Income Taxes Paid $+\Delta$ DTL FOR)/(Earnings before tax and special items)

While some firms specifically report the deferred tax liability on unremitted foreign earnings (e.g. Apple, Inc. 2010), others report the total deferred tax liability for foreign subsidiaries (e.g. Microsoft Corporation 2009). The total deferred tax liability related to foreign subsidiaries reflects the difference between the parent's book and tax basis in the investment in the subsidiary ("outside basis difference"). Unremitted foreign earnings cause an outside basis difference because foreign earnings are included in book income, increasing the book basis, with no corresponding increase to the tax basis until the earnings are repatriated.[9] Although the change in the deferred tax liability reported for foreign subsidiaries

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when the FETR is greater than the statutory rate and estimating the residual tax at 35% for observations with a FETR equal to 0. The mean absolute difference between (standard deviation of) the disclosed and estimated amount is $68.34 million (185.398) and $84.73 million (203.223) for the Bauman and Shaw (2008) and Krull (2004) methods respectively.

[9] Unremitted foreign earnings represent only one component of the outside basis difference. Other components of the outside basis difference may include items such as cumulative translation adjustments and other comprehensive income items. A decrease in the outside basis difference indicates a repatriation of foreign earnings, but could also signal a sale, liquidation or merger of the subsidiary. PwC (2007) notes that the outside basis

measures the residual U.S. income tax to be paid with error for firms reporting the overall deferred tax liability on foreign subsidiaries, it is a useful proxy given the available data.

I hand collect *PRE*, *PRETAX* and *DTL FOR* data from firm's 10-K tax footnotes.[10] Firm year observations that report foreign earnings are permanently reinvested without disclosing a dollar amount ("amount not disclosed") are removed from the analysis because the adjustment cannot be calculated. The adjustments to unwind the "PRE /Defer" and "Provide /Defer" approaches are combined to produce one *CETR* measure of tax avoidance unrelated to the deferral of the residual tax on foreign earnings:[11]

$$CETR\ NO\ RESIDUAL = \tag{3d}$$
$$(\text{Cash Income Taxes Paid} + \Delta\ PRETAX + \Delta\ DTL\ FOR)/(\text{Earnings before tax and special items})$$

For example, in 2009 Amgen's disclosed unrecognized liability increased by $1.3 billion and the deferred tax liability on unremitted foreign earnings increased by $13 million, suggesting the residual U.S. tax was not accrued or paid on a large amount of foreign earnings. Amgen's unadjusted *CETR* is 12.9%, reversing the impact of the deferral of residual tax results in an adjusted CETR of 30%.

Several recent studies (Chen et al 2010; Dyreng et al 2010; among others) include foreign earnings as a control variable in cross-sectional analysis of tax avoidance because prior research finds there is a significant association between tax avoidance and foreign operations; however, the inclusion of foreign earnings as a control variable does not remove the impact of deferral of the residual tax from the tax avoidance measure. The impact of foreign operations on the *CETR* depends on the foreign tax rates imposed on foreign earnings, the ability to utilize foreign tax credits, repatriation decisions, and the

difference most frequently exists as a result of unremitted earnings and the largest component of the difference is generally unremitted earnings.

[10] Some firms report permanently reinvested earnings in the significant accounting policies footnote.

[11] In the normal course of business firms may determine that permanently reinvested earnings no longer meet the indefinite reversal criteria even though the foreign earnings will not be currently repatriated. In this situation the unrecognized tax liability will decrease with a corresponding increase to the deferred tax liability on unremitted foreign earnings. Firms may determine that foreign earnings for which the residual tax has previously been provided are now permanently reinvested. In this situation the deferred tax liability on unremitted foreign earnings will decrease with a corresponding increase to the unrecognized tax liability. The use of one measure accounts for both of these scenarios. Splitting the measures allows for the study of the relative valuation investors place on the financial accounting disclosure of the deferral of residual tax on foreign earnings.

method of accounting for the deferral of the residual tax. Adjusting the *CETR* is an improved method of isolating tax avoidance related to the deferral of the residual tax.

2.4 Summary of adjustments

The overall adjustment to the measure of tax avoidance, as described in detail in this section (equations 1-3d), is summarized below:

$$\text{Adjusted CETR} = \tag{4}$$
$$\text{(Cash Income Taxes Paid} + \text{Option Tax Benefit} + \Delta \text{ DTL PPE} + \Delta \text{ PRETAX} +$$
$$\Delta \text{ DTL FOR)/(Earnings before tax and special items} + \text{123R Option Expense)}$$

3. Hypotheses

3.1 Cross-sectional variation of tax avoidance

Whether the adjustment to the *CETR* impacts the cross-sectional variation of tax avoidance implied by the unadjusted measure is an empirical question. Although stock option deductions, the differential treatment of depreciation, and reporting of foreign source income comprise a large part of the book tax gap, it is unknown whether these items impact firms' observed level of tax avoidance in similar or different ways. The substitutability of tax shields may result in a similar overall adjustment to the *CETR* among firms even though the adjustment results from differing degrees of the three activities. A firm with a high level of stock compensation and no foreign activity may experience a similar total adjustment to the measure of tax avoidance as a firm with no stock compensation and a large foreign presence. A reordering of firms on the tax avoidance continuum reveals a different cross-sectional variation of tax avoidance than implied by the traditional measure, suggesting that the *CETR* is not appropriate for all tax avoidance research questions. I analyze the impact that the adjusted *CETR* has on the cross-sectional variation of tax avoidance to test my first hypothesis, stated in the null.

Hypothesis 1: The adjustment to the CETR does not result in a reordering of firms on the tax avoidance continuum.

To further explore the impact the adjustments have on tax avoidance implied by the *CETR*, I examine the adjustments for the three tax avoidance methods individually. It is important to understand the impact each of the activities has on the cross-sectional variation of tax avoidance in order to appropriately tie the measure of tax avoidance to the research question of interest.

Although stock option tax deductions can significantly reduce the amount of tax a firm pays, tax benefits are not the main motive for stock option grants (Babenko and Tserlukevich 2011). While it is important to consider the tax benefits of stock options in assessing a firm's tax burden, it is not appropriate to consider the tax benefits of stock options in assessing a firm's level of tax aggressiveness because the tax deductions resulting from employee option exercises are clearly supported by the law and associated with an activity undertaken primarily to compensate employees. A research question concerning a firm's level of tax planning or concealment of tax reduction strategies from tax authorities and investors should not use a measure of tax avoidance that is affected by stock option tax benefits if there is cross-sectional variation in the impact the tax benefits have on the measure of tax avoidance. The tax benefits of stock options are dependent upon a variety of factors, including the type of options used, stock price appreciation, and employee vesting and exercise behavior. Babenko and Tserlukevich (2009) report disparity in the tax benefits of stock options; in 2005 tax deductions from stock options comprise on average 14.9% of EBIT for S&P 500 firms and 77.9% of EBIT for Nasdaq 100 firms. Hanlon and Shevlin (2002) offer examples of firms with sizeable profits whose tax benefit from stock options allow them to pay little or no tax. Dyreng, Hanlon and Maydew (2008) note that a group of firms in the Business Services industry are likely on the list of the lowest 25 CETR firms due to their heavy use of stock options. Graham, Lang, and Shackelford (2004) estimate that in 2000 aggregate deductions for stock options exceeded aggregate pre-tax income for Nasdaq 100 companies, but only comprised 10% of

pre-tax income for S&P 100 companies. Evidence from these studies suggests a material cross-sectional variation in the tax benefits of stock options.

Accelerated tax depreciation reduces current tax in a benign manner, causing overstatement of aggressive tax avoidance implied by the *CETR* in the early years of a fixed asset's life cycle. A research question concerning tax behavior at the most aggressive end of the tax avoidance continuum should not use a measure of tax avoidance that is affected by accelerated tax depreciation deductions if there is cross-sectional variation in the impact the tax deductions have on the measure of tax avoidance. Differences in capital intensity result in some firms benefiting from accelerated depreciation more than others. The allocation of property across jurisdictions also impacts the tax benefit from fixed assets because MACRS only applies to property located in the United States and state bonus depreciation conformity causes differences in state tax depreciation deductions.[12] The selected useful life for book purposes, type of property (i.e. real or personal property) and age of fixed assets also impact the direction and magnitude of the book-tax difference. These points suggest a material cross-sectional variation in the tax benefits from accelerated tax depreciation.

A research question concerning tax avoidance on U.S. source income should not use a measure of tax avoidance affected by the deferral of residual tax on foreign income if there is cross-sectional variation in the impact the deferral has on the measure of tax avoidance. Bauman and Shaw (2008) state that half of the S&P 500 firms report *PRE* in their 2003 10-K's and the ratio of *PRE* to the market value of equity for firms disclosing the unrecognized liability ranges from 3.1% in the first quartile to 10.7% in the third quartile. Albring, Dzuranin, and Mills (2005) report that approximately 41% of corporations disclosing *PRE* in 2002 have foreign tax rates less than the statutory tax rate, suggesting variation in whether firms reporting *PRE* would owe tax upon repatriation. The divide between firms reporting *PRE*

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[12] Assets in foreign countries are depreciated under the Alternative Depreciation System ("ADS") requiring the 150% declining balance method. States differ in their adoption practices of federal bonus depreciation.

and the variation in the materiality of the levels of *PRE* reported suggests adjusting for the deferral of the residual tax will result in a reordering of firms on the tax avoidance continuum.

3.2 Valuation of tax avoidance

Tax avoidance signals to investors that management is actively seeking to divert money from the tax authorities to the firm and should be viewed as a positive net present value creating activity. Desai and Dharmapala (2009) document that tax avoidance has a positive effect on firm value in the presence of high institutional ownership. Their measure of tax avoidance, the difference between book income and inferred taxable income[13], does not distinguish the types of activities creating the book-tax difference. Additionally, their measure excludes stock option tax benefits and foreign activities, thus no insight can be gained on the association between firm value and these activities.

Two studies examine a more narrow type of tax avoidance and find that investors positively value aggressive tax avoidance. Wilson (2009) finds that well governed firms exhibit positive abnormal returns during the period of active tax shelter involvement, as well as 24 months before and after engagement in the tax shelter. Koester (2011) shows that investors value uncertain tax positions, measured by the disclosed contingent liability for uncertain tax positions under FIN 48. While these studies provide evidence that aggressive tax behavior is positively valued by investors, they do not address whether investors differentially value specific methods of tax avoidance.

I present four primary reasons why investors would not value a dollar of tax savings the same across all methods of tax avoidance: (1) varying risk profiles across tax reduction strategies, (2) permanent verses temporary nature of tax savings, (3) differing tax planning costs and implicit taxes, and (4) contrasts in disclosure of tax avoidance activities.

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[13] Desai and Dharmapala (2009) infer taxable income by grossing up current federal tax expense by the U.S. federal corporate tax rate. For firms with positive current federal tax expense, the graduated tax rate schedule is used. For firms with negative current federal tax expense, the top statutory rate of 35% is used.

The tax avoidance continuum ranges from evasive tax reduction strategies to benign tax avoidance. Aggressive tax positions risk being overturned upon audit and expose firms to penalties and interest. Additionally, investors are likely to believe that managers willing to cheat the government will also cheat the owners of the firm. The risks associated with tax aggressiveness, including stock price crash risk identified in Kim, Li, and Zhang (2010) and the stock price decline associated with news coverage about tax shelter involvement documented in Hanlon and Slemrod (2009), may lead investors to discount the value created from aggressive tax reduction strategies compared to benign tax avoidance. Brown, Drake, and Martin (2011) show that firm's value tax avoidance achieved through low risk methods, specifically firms that avoid the largest amount of taxes with the lowest risk reward CEO and CFO's with larger bonuses. These points suggest that the value of tax avoidance should be a function of the risk associated with the method of tax reduction.

The benefits from permanent tax avoidance are greater than temporary tax avoidance. Specifically, permanent tax reduction results in a dollar-for-dollar benefit, whereas the benefit of tax deferral is limited to the time value of money. Recent studies document managerial incentives to reduce effective tax rates via permanent reduction, but find no evidence of managerial incentives to defer taxes (Robinson, Sikes, and Weaver 2010, Armstrong, Blouin, and Larcker 2010). Koester (2011) finds that investors favorably value permanent uncertain tax avoidance, while temporary uncertain tax avoidance is not valued. Although Ayers, Laplante, and Schwab (2011) provide evidence that deferral enhances firm value, the study does not address whether the deferral enhances firm value at the same rate as permanent tax reduction.

The costs of tax planning vary across types of tax avoidance. For example, the tax reduction resulting from stock compensation comes at a lower tax planning cost than the tax reduction resulting from a transaction engaged primarily to avoid taxes. Implicit taxes also affect the true benefit of tax avoidance and distort the tax savings generated from certain activities. For example, investors pay an implicit tax on municipal bonds in the form of a lower rate of return, reducing the true tax benefit of the

tax exempt investment. Investors should discount tax avoidance that comes at a higher implementation cost or is associated with an implicit tax.

Investors do not have access to proprietary tax returns and must rely on financial statements to acquire information on a firm's tax avoidance activities. Certain tax avoidance activities are clearly disclosed in the tax footnote (i.e. accelerated depreciation), while other tax avoidance activities have less straightforward disclosure or are not disclosed at all, due to immateriality or a more sinister need to conceal the position from tax authorities. Investors may discount tax avoidance if the source of the reduction is unclear.

In sum, whether investors differentially value specific methods of tax avoidance is an empirical question, leading to my second hypothesis, stated in alternative form.

Hypothesis 2: Investors differentially value specific methods of tax avoidance.

I examine the relative valuation of three specific methods of tax avoidance: the tax benefits of stock options, accelerated tax depreciation deductions, and deferral of the residual U.S. tax on foreign subsidiary income. These items comprise a large portion of the book-tax gap (Desai 2003) and are commonly reported in firms' financial statements. In addition, these methods of tax avoidance vary in the characteristics I identified as reasons why investors would differentially value tax avoidance.

The tax benefits from stock compensation are low risk and permanent in nature, implying favorable valuation by investors. Furthermore, stock options do not require high tax planning costs and the tax benefits are transparent in the financial statements.   While there is no direct evidence on the valuation of the tax avoidance arising from stock option tax deductions, the results of Mehran (1995) and Hanlon, Rajgopal and Shevlin (2004) show that equity based compensation is positively associated with firm performance. Further, Kahle and Shastri (2005) report that firms with tax benefits from stock

options are more profitable and have more growth opportunities. It follows that the tax benefits from stock compensation are positively associated with firm value.

>Hypothesis 3A: Firm value is positively associated with tax avoidance generated through stock option tax deductions.

Accelerated depreciation deductions result in temporary tax savings and are associated with implicit taxes in the form of increased asset prices (Key 2008). Conversely, accelerated depreciation tax deductions are low risk, reducing tax in a benign manner. Raedy et al (2011) find that the deferred tax liability on property, plant, and equipment is marginally value relevant for firms in the transportation and utility industry, but is not value relevant in a broader set of firms. The value of tax avoidance from accelerated depreciation deductions is a function of firm specific costs of capital and rates of return. Firms with a higher cost of capital and higher rate of return will benefit more from tax deferral (i.e. borrowing from the government), ceteris paribus. The reversal period of the timing difference also impacts the value of tax avoidance from accelerated depreciation.

Recently, economic stimulus packages have contained provisions for further acceleration of depreciation deductions. The tax reduction from accelerated tax depreciation would be discounted if investors believe the firm was incentivized to purchase superfluous assets because of immediate expensing under bonus depreciation.   While Ayers, Laplante, and Schwab (2011) provide evidence that overall tax deferral enhances firm value; it is not clear whether deferral resulting from accelerated depreciation deductions is positively valued.   In sum, there is mixed evidence on how the tax benefits from accelerated depreciation are associated with firm value, leading to my next hypothesis, stated in the null.

>Hypothesis 3B: Firm value is not associated with tax avoidance generated through accelerated tax depreciation deductions.

Deferral of the residual tax on foreign income results in quasi-permanent tax savings, as the firm determines whether and when the residual tax is paid. The risks associated with deferral of the residual tax vary and determination of these risks is difficult with information available in financial statements. Collins, Hand, and Shackelford (2000) find that the market positively values *PRE* and negatively values the disclosed unrecognized tax liability on unremitted foreign earnings. However, the valuation inferences about the unrecognized liability relate to the disclosure of the liability and not the tax deferral associated with *PRE* because of the study's assumption that firms that do not disclose the liability will not owe tax upon remission. Bauman and Shaw (2008) show that the positive valuation of *PRE* declines as the expected residual tax liability increases, although the negative impact is smaller in firms for which the liability is estimated. Investors are found to positively value the tax deferral generated by *PRE* once the impact of the unrecognized liability on the valuation of *PRE* is accounted for.

> Hypothesis 3C: Firm value is positively associated with tax avoidance generated through the
> deferral of the residual U.S. tax on foreign subsidiary income.

Results in prior studies suggest that aggressive tax behavior is associated with foreign operations in a tax-haven. Specifically, Lisowsky (2010) finds that the likelihood that a firm engages in a tax shelter, defined as a firm that reports a listed or reportable transaction in the IRS Office of Tax Shelter analysis, is positively related to the presence of a subsidiary located in a tax-haven. Alexander and Poe (2011) find that tax shelter intensity, measured as the beginning balance of gross uncertain tax positions, is positively associated with the number of subsidiaries located in a tax-haven. These findings are consistent with firms utilizing foreign subsidiaries in tax-havens to aggressively avoid tax through complex transfer pricing and intellectual property migrations.

Cloyd, Mills, and Weaver (2003) find that the reorganization of U.S. companies in tax-haven countries is not positively valued by the market and in some cases is associated with negative announcement period returns. The estimated non-tax costs of four corporate inversions in Cloyd et al

(2003) suggest that the magnitude of non-tax costs of tax-haven operations might be relevant to shareholders. Alexander and Poe (2011) document that of firms disclosing *PRE*, only firms with subsidiaries in tax-havens have greater reserves for uncertain tax positions. Investors may discount tax avoidance resulting from deferral achieved in a tax-haven that is unlikely to be sustained upon audit. In addition, certain "island" tax-haven jurisdictions lack reinvestment opportunities, leading investors to believe that unremitted earnings will be repatriated and the residual tax will be incurred. For example, the reinvestment opportunities are likely more limited in the Cayman Islands tax-haven than in a larger non-tax-haven market such as Canada. Negative publicity[14] concerning tax-havens could result in a discount on tax avoidance from deferral in a tax-haven similar to the negative stock price reaction to news of involvement in a tax shelter identified in Hanlon and Slemrod (2009).

> Hypothesis 3D: The association between firm value and tax avoidance generated by deferral of the residual U.S. tax on foreign income is lower in firms operating in a tax-haven.

3.3 Valuation of tax avoidance in an agency context

Recent studies document that the relation between firm value and tax avoidance does not hold in poorly governed firms (Desai and Dharmapala 2009; Cheng, Huang, Li, and Stanfield 2010; Wang 2011). These studies do not examine the type of tax avoidance causing the valuation differential. My study investigates whether the differential valuation of tax avoidance across governance levels is associated with total tax avoidance or if only certain methods of tax avoidance are discounted by investors of poorly governed firms.

Prior literature attributes the discount on tax avoidance in poorly governed firms to managerial diversion. Diversion requires a compromised information environment that management asserts is

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[14] For example, a CBS 60 Minutes episode airing March 27, 2011 highlighted the use of tax havens in Switzerland. The town of Zug was reported to have a population of 26,000 residents and 30,000 companies, including the headquarters of Transocean, the drilling company associated with the BP oil spill. The only employee of Transocean present at the Swiss headquarters was a secretary.

necessary to conceal aggressive tax strategies from tax authorities; therefore, the compromised information environment should be more strongly associated with aggressive tax avoidance. Benign tax avoidance, such as the tax benefits from stock options and accelerated depreciation deductions, results from tax positions fully supported by tax law. Therefore, management is not able to disguise benign tax reduction in the financial statements from investors under the pretext of concealment from tax authorities. Under the diversion theory, the transparent tax benefits from stock options and accelerated depreciation should not be discounted by investors in poorly governed firms.

> Hypothesis 4A: The association between firm value and tax avoidance generated by stock option tax deductions and accelerated tax depreciation deductions does not vary across levels of corporate governance.

While no studies examine how governance impacts the valuation of the deferral of residual tax, insight can be gained from studies on *PRE*, cash and tax avoidance. Foley, Hartzell, Titman, and Twite (2007) find that the tax burden of repatriations is positively associated with firms' level of cash, suggesting the greater the tax deferral from *PRE*, the larger level of overall corporate cash holdings. Dittmar and Mahrt-Smith (2006) find that cash is valued significantly less in poorly governed firms than well governed firms. Investors in poorly governed firms may discount the value of taxes avoided by deferring repatriation of foreign earnings because of the value destruction associated with cash in poorly governed firms. Bryant-Kutcher, Eiler, and Guenther (2008) find that the lower valuation of *PRE* associated with disclosing the unrecognized tax liability is concentrated in firms with high amounts of excess cash. Dhaliwal, Huang, Moser, and Pereira (2011) find that tax avoidance negatively impacts investor valuation of firm cash holdings in poorly governed firms. The results of these studies suggest that the lower valuation of tax avoidance observed in poorly governed firms could be associated with investors perception of the increased overseas cash holdings resulting from taxes avoided through *PRE*. Of the three types of tax avoidance examined in my study, deferral of the residual tax is the least transparent and has the highest level of risk. Under the diversion theory, residual tax deferral is the most

likely method of tax avoidance examined in my study to be discounted by investors in poorly governed

firms, leading to my next hypothesis.

> Hypothesis 4B: The association between firm value and tax avoidance generated by deferral
>
> of the residual U.S. tax on foreign income is lower in poorly governed firms than well
>
> governed firms.

4. Research Design

4.1 Sample Selection

My study focuses on the largest U.S. multinational firms by selecting the sample from the 2005

Fortune 500 over the period 1997-2010. The necessary data for the adjustments to the *CETR* were hand

collected from10-K filings on EDGAR and company websites. Additional stock price information from

CRSP, financial data from Compustat, executive compensation data from Execucomp, governance data

from Risk Metrics and 10-K filing dates from Audit Analytics are utilized for valuation and control

variables. Tax-havens subsidiaries are identified using a text search program.

The sample of hand collected observations is reduced from 7,000 (Fortune 500 over 14 year

period 1997-2010) to 5,813 observations for the following reasons; 44 firms are excluded for specific

reasons, including firms organized as Limited Partnerships or private companies, 298 firm year

observations are lost because firms do not exist for the entire 14 year period, 230 firm year observations

are lost because form 10-K's are unavailable on Edgar or the firm's website, 27 firm year observations are

excluded due to bankruptcy filings and 16 firm year observations are lost because of missing total assets

in Compustat. Sample selection is summarized in Appendix B.

4.2 Descriptive Statistics for Hand Collected Data

Descriptive statistics for hand collected data are provided in Table 1, Panel A and correlation coefficients are presented in Table 1, Panel B.[15] The cash tax benefit from stock option exercises (*Option Tax Benefit: Reported)* is reported by 35.8% of firm year observations with a mean level of $60.027 million. Microsoft reports a cash tax benefit from stock option exercises of $5.53 billion in 2000, the largest amount reported in the sample. Necessary data to estimate the benefit (*Option Tax Benefit: Estimated)* following Hanlon and Shevlin (2002)[16] is available for 87.8% of firm year observations with a mean value of $31.216 million. Utilizing the estimate for firms not disclosing the amount results in a value for *Option Tax Benefit* for 100% of firm year observations with a mean of $36.155 million.

[Insert Table 1]

Stock option compensation expense is reported (*123R Option Expense: Reported)* by 58.9% of firm year observations under FAS 123R (i.e. time period 2006-2010) with a mean value of $38.214 million. Microsoft reports stock option compensation expense of $1.137 billion in 2009, the largest amount reported in the sample. Necessary data to estimate the expense (*123R Option Expense: Estimated)* is available for 26.6% of FAS 123R firm year observations.[17] Utilizing the estimated measure for firms not reporting the amount results in a value for *123R Option Expense* for 74% of firm year observations under FAS123R with a mean value of $40.276 million. Observations missing stock option compensation expense under FAS123R are removed from further analyses because the adjustment cannot be calculated.

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[15] Level statistics are reported for firm year observations reporting the variable and change statistics include all observations. Missing values are set to zero for change variables unless otherwise noted because firms that do not report an amount are assumed not to have a material amount of that variable.

[16] In addition to the estimation procedure the cash tax benefit from stock options is set to zero for firm year observations reporting zero option exercises or when the weighted average exercise price of options exercised exceeds the weighted average exercise price of options granted (i.e. underwater options).

[17] The estimation procedure (dividing the unrecognized compensation expense by the vesting period) results in a mean value of $48.339 for 307 firms not reporting stock option compensation expense. This mean is significantly greater than the mean reported option expense of $38.214 at p =.0921. The estimation procedure results in a mean value of $35.23 when applied to all 542 firms (including those that report stock option compensation expense) with data necessary for the calculation. This mean is not significantly different than the mean reported option expense of $38.214 at p =.5933. The 307 firms that have estimated option expense but no reported option expense are smaller (total assets), have similar levels of income, growth and age, and have slightly larger tax benefits from stock options. Results are robust to exclusion of these firms from the analysis.

A deferred tax liability for property, plant, and equipment (*DTL PPE)* is reported by 88.8% of firm year observations with a mean level (change) of $760.681 million ($52.332 million). Exxon Mobil reports a deferred tax liability for property, plant and equipment of $42.65 billion in 2010, the largest amount reported in the sample.

Approximately 50.7% of firm year observations in the sample report *PRE* with a mean level (change) of $2.445 billion ($168.56 million). General Electric reports $94 billion of *PRE* in 2010, the largest amount reported in the sample. The unrecognized residual tax is reported (*PRETAX: Reported)* by 11% of firm year observations (approximately 22% of firms reporting *PRE* report *PRETAX*) with a mean level of $354.253 million. Microsoft reports *PRETAX* of $9.2 billion in 2010 on *PRE* of $29.5 billion, the largest amount of *PRETAX* reported in the sample. The variables necessary to estimate *PRETAX* utilizing the Bauman and Shaw (2008) and Krull (2004) methods are available for 41% of firm year observations. Utilizing the Bauman and Shaw (2008) estimate of *PRETAX* (*PRETAX: Estimate)* for firms not disclosing the amount results in a value for *PRETAX* for 44% of firm year observations with a mean level (change) of $326.756 ($25.141) million. The percentage of firms reporting *PRE* is similar to that reported in Bauman and Shaw (2008), however the mean levels of *PRE* and *PRETAX* are greater.[18]

A deferred tax liability on unremitted foreign earnings (*DTL FOR)* is reported by 43.3% of firm year observations with a mean level (change) of $68.361($5.774) million. Pfizer reports a deferred tax liability on unremitted foreign earnings of $9.524 billion in 2010, the largest amount reported in the sample.

SEC registrants are required to list in Exhibit 21 the state or foreign jurisdiction of incorporation or organization of all significant subsidiaries, defined as subsidiaries in which the parent has a greater than 10% interest. Countries are identified as a tax-haven following Dyreng and Lindsey (2009) and provided in Appendix C. Tax-haven subsidiaries are identified using a text search program that scans

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[18] Limiting my sample period to the Bauman and Shaw (2008) time frame results in more consistent mean values for *PRE* and *PRETAX*.

exhibit 21 of form 10-K for each firm in the sample.[19] Firms that do not file exhibit 21 are assumed to

not have a presence in a tax-haven. Approximately 44% of firm year observations have at least one

subsidiary located in a tax-haven. On average firms with a presence in a tax-haven operate in 5.2 unique

tax-haven jurisdictions and have 20.5 total subsidiaries located in tax-havens.

4.3 Descriptive Statistics for Tax Avoidance Measures

I measure tax avoidance, *CETR AVOID,* as the difference between the statutory corporate income

tax rate of 35% and the *CETR*. Using the adjustments to the *CETR* discussed in section 2, I partition

CETR AVOID into four components; tax avoidance derived from stock option tax benefits (*STOCK*

AVOID), accelerated tax depreciation (*DEPR AVOID*), residual tax deferral (*RESIDUAL AVOID*), and the

remaining unexplained difference between the statutory rate and the *CETR* (*OTHER AVOID*). For

example, *STOCK AVOID* is the difference between the *CETR* and *CETR NO STOCK*.[20] All tax avoidance

variables are defined in Appendix A.

The adjustments to the *CETR* require one lag year, thus 338 observations from 1997 are dropped

from the analysis. A negative *CETR* reflects firms that have not paid tax or have negative pre-tax income.

This profile does not correspond to a firm that has incentives to avoid taxes.   For example, Sunoco Inc.'s

CETR was approximately -66% in 2010 on positive earnings due to a $526 million refund from a net

operating loss carryback. Sunoco appears highly aggressive based on the *CETR*, removal of the refund

results in a *CETR* of approximately 27%, altering the tax avoidance profile.   A *CETR* greater than 1

indicates an unlikely situation where a firm is paying more than a dollar of tax per dollar of income and

such observations are removed due to the lack of meaning in the measure. For example, Pitney Bowes'

CETR was approximately 138% in 2006 due to a $1.1 billion IRS tax settlement for years through 2000.

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[19] I greatly acknowledge the assistance of Patrick and Jing Fan in gathering the tax-haven subsidiary data.

[20] Tax Avoidance related to stock option tax benefits (*STOCK AVOID*) can also be defined as: Option Tax
Benefit/(Earnings before tax and special items + 123R Option Expense).

Removal of the settlement from cash taxes paid results in a *CETR* of approximately 24%, altering the tax avoidance profile. Observations with an unadjusted *CETR* below zero (425 observations) and over one (92 observations) are dropped from the analysis.[21] Removing observations missing stock option compensation expense under 123R, reporting "amount not disclosed" for *PRE* and missing other necessary control variables reduces the sample to 3,273 firm year observations. Sample reduction is detailed in Appendix B. The mean *CETR* for the sample is 24.66%.

The *CETR* can be distorted when measured over a one year period due to the variation in timing of cash tax payments and tax refunds. A long-run approach is employed to mitigate this concern, and tests are run using a long-run unadjusted and adjusted *CETR* accumulated over a three year period ("*CETR3*"). The adjustments to the *CETR3* require three lag years, thus 1,048 observations from 1997-1999 are dropped from the analysis. The sample is further reduced by 240 observations with a *CETR3* less than zero and 58 firm year observations with a *CETR3* greater than one. Removing observations missing stock option compensation expense under 123R, reporting "amount not disclosed" for *PRE,* and missing other necessary control variables reduces the *CETR3* sample to 2,612 firm year observations. The mean *CETR3* for the sample is 23.41%.

Descriptive statistics for the individual and overall adjustments are provided in Table 1 Panel C. The mean level of total unadjusted tax avoidance implied by the one year rate, *CETR AVOID,* is 10.49% and the three year rate, *CETR AVOID3*, is 10.49%. The mean level of tax avoidance that is related to the stock option tax benefits, *STOCK AVOID* (*STOCK AVOID3*), is 2.19% (2.51%). The mean level of tax avoidance related to accelerated tax depreciation, *DEPR AVOID* (*DEPR AVOID 3*), is 3.32% (3.549The mean level of tax avoidance related to the deferral of the residual tax on foreign earnings, *RESIDUAL AVOID* (*RESIDUAL AVOID 3*), is 1.62% (1.08%). An illustration of the adjustment methodology is provided in Appendix D.

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[21] Other studies censor the CETR at [0,1]. Censoring would distort the comparison of total tax avoidance (*CETR AVOID*) to the decomposed measures of tax avoidance (i.e. CETR AVOID ≠ OTHER AVOID + STOCK AVOID + DEPR AVOID + RESIDUAL AVOID).

4.4 Cross-sectional variation of tax avoidance analysis

To determine whether the cross-sectional variation of tax avoidance changes when the specific methods of tax reduction are removed from the *CETR*, I perform a ranking analysis. The first analysis utilizes Kendall's rank correlation coefficient (Kendall's tau), a nonparametric measure of rank correlation, which compares the similarity of orderings of the data when ranked by the unadjusted and adjusted *CETR*. A tau value of 1 (0) suggests perfect correlation (independence) between the orderings. The tau value for the comparison of the unadjusted and adjusted *CETR* is .5008 and *CETR3* is .48934, suggesting a meaningful reordering of observations based on the overall adjustment. The tau value for the comparison of the unadjusted *CETR* (*CETR3*) and *CETR NO STOCK* (*CETR NO STOCK3*) is .86478(.85093), *CETR NO DEPR* (*CETR NO DEPR3*) is .5968(.58509), and *CETR NO RESIDUAL* (*CETR NO RESIDUAL3*) is .8598(.86675). Consistent with my prediction, accelerated depreciation results in a meaningful reordering of firms on the tax avoidance continuum based on Kendall's rank correlation coefficient. Contrary to my prediction, stock option tax benefits and residual tax deferral do not result in a meaningful reordering based on Kendall's rank correlation coefficient.

An alternative ranking procedure assesses the extent to which firms change deciles based on the *CETR* and the adjusted *CETR*. Reordering firms based on the adjusted *CETR* (*CETR3*) causes 72.74% (71.95%) of firm year observations to change deciles.[22] Additionally, 72.74% (45.62%) of firm year observations from the lowest *CETR* (*CETR3*) decile move to a higher decile when ranked by the adjusted *CETR* (*CETR3*).[23]

Reordering based on the *CETR NO DEPR* (*CETR NO DEPR3*) causes 61.81% (63.99%) of firm year observations to change deciles, confirming the meaningful reordering based on the tau value. Additionally, 43.11% (36.54%) of firm year observations from the lowest *CETR* (*CETR3*) decile move to a higher decile when ranked by *CETR NO DEPR* (*CETR NO DEPR3*).

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[22] Deciles are determined by year.

[23] Of the firm year observations that move to a higher decile based on the adjusted CETR (adjusted CETR3), 50.29% (40%) move one decile, 10.53% (6.4%) move two deciles and 39.18%(53.6%) move more than two deciles.

Reordering based on the *CETR NO STOCK* (*CETR NO STOCK3*) causes 37.11% (38.44%) of firm year observations to change deciles and reordering based on the *CETR NO RESIDUAL* (*CETR NO RESIDUAL3*) causes 31.18% (33.9%) of firm year observations to change deciles, suggesting a more meaningful reordering than the tau value. Additionally, 12.24% (14.1%) of firm year observations from the lowest *CETR* (*CETR3*) decile move to a higher decile when ranked by *CETR NO STOCK* (*CETR NO STOCK3*) and 12.5% (13.5%) move to a higher decile when ranked by *CETR NO RESIDUAL* (*CETR NO RESIDUAL3*).

I next regress the unadjusted and adjusted tax avoidance measure on variables utilized in prior research to control for a firm's ability to reduce tax burden, specifically option compensation, property, plant, and equipment, and foreign earnings, resulting in the following models:

$$\text{CETR AVOID }_{it} = \beta_0 + \beta_1\text{Stock Option}_{it} + \beta_2\text{ PPE}_{it} + \beta_3\text{ForeignIncome}_{it} + \varepsilon_{it} \qquad (5a)$$

$$\text{OTHER AVOID }_{it} = \beta_0 + \beta_1\text{Stock Option}_{it} + \beta_2\text{ PPE}_{it} + \beta_3\text{ForeignIncome}_{it} + \varepsilon_{it} \qquad (5b)$$

$$\text{SPECIFIC AVOID }_{it} = \beta_0 + \beta_1\text{Stock Option}_{it} + \beta_2\text{ PPE}_{it} + \beta_3\text{ForeignIncome}_{it} + \varepsilon_{it} \quad (5c)$$

The dependent variable *CETR AVOID* measures the level of tax avoidance implied by the *CETR* as the difference between the statutory tax rate (i.e. 35%) and the unadjusted *CETR*. The dependent variable *OTHER AVOID* measures the tax avoidance unrelated to stock option tax benefits, accelerated tax depreciation, and deferral of the residual tax as the difference between the statutory rate and the adjusted *CETR*. The dependent variable *SPECIFIC AVOID* measures the level of tax avoidance related to stock option tax benefits, accelerated tax depreciation, and deferral of the residual tax as the sum of the adjustments for stock option deductions, accelerated tax depreciation, and deferral of residual tax. Control variables are scaled by total assets and defined in Appendix A. The purpose of this test is to determine whether the adjusted measure of tax avoidance has parceled out the effect of the specific items.

Table 2A reports the results of the analysis using the *CETR3*. The coefficient on *Stock Options* (β_1) is positive and significant, consistent with stock compensation reducing tax burden. The coefficients on *PPE* and *Foreign Income* (β_2 and β_3) are insignificant when *CETR AVOID3* is the dependent variable, inconsistent with these items enabling tax burden reduction. The coefficients on *Stock Options* and *PPE* (β_1 and $\beta2$) are negative and significant when *OTHER AVOID3* is the dependent variable and positive and significant when *SPECIFIC AVOID3* is the dependent variable, suggesting the impact of stock compensation and property, plant and equipment have been isolated from the adjusted measure of tax avoidance. The coefficient β_3 is insignificant in each model, inconsistent with foreign income reducing tax burden and questioning isolation of foreign income from the adjusted measure of tax avoidance, warranting further investigation.

[Insert Table 2A]

I perform such an investigation by replacing the dependent variable in equation 5b (5c) with tax avoidance unrelated (related) to the deferral of residual tax on foreign income, presented in Panel B. The coefficient β_3 is negative and significant when *CETR NO RESIDUAL AVOID3* is the dependent variable and positive and significant when *RESIDUAL AVOID3* is the dependent variable, confirming isolation of foreign operations from the measure and consistent with higher levels of foreign income increasing avoidance related to deferral of the residual tax on foreign income. I also perform this analysis with regard to stock options and property, plant, and equipment, confirming the results from the initial analysis. Results are consistent using the one year cash effective tax rate, presented in supplementary Table 2B.

[Insert Table 2B]

Additionally, a comparison of the residuals from the models regressing *CETR AVOID3* and *OTHER AVOID3* on the explanatory variables results in a tau value of .50987, suggesting the unexplained variance changes with the use of the adjusted tax avoidance measure. These tests suggest that the cross-

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sectional variation of tax avoidance implied by the *CETR* and *CETR3* change as a result of adjusting the measure for stock option tax benefits, accelerated tax depreciation deductions, and deferral of the residual tax, providing evidence to reject the null hypothesis H1.

Comparing the residuals from the reduced models in Table 2A Panel B suggests that accelerated tax depreciation has the most meaningful impact on the cross-sectional variation of tax avoidance implied by the *CETR3* and stock option tax benefits and deferral of the residual tax have a weak impact. Specifically, a comparison of the residual from the models regressing *CETR AVOID3* and *CETR NO DEPR AVOID3* on the explanatory variable *PPE* results in a tau value of .64115, while the tau value is .85764 for *CETR AVOID3* and *CETR NO STOCK3* regressed on the explanatory variable *Options* and .87276 for *CETR AVOID3* and *CETR NO RESIDUAL3* regressed on the explanatory variable *Foreign Income*.

4.5 Relative valuation of tax avoidance

I examine the relative valuation of tax avoidance using the following model:

$$\text{FirmValue}_{it} = \beta_0 + \beta_1 \text{OTHER AVOID}_{it} + \beta_2 \text{STOCK AVOID}_{it} + \beta_3 \text{DEPR AVOID}_{it} +$$

$$\beta_4 \text{RESIDUAL AVOID}_{it} + \sum \text{ControlVariables}_{it} + \varepsilon_{it} \tag{6}$$

Firm value is measured by *Tobin's Q*, the ratio of the market value of the firm to book value of assets at year end.[24] *Tobin's Q* is selected as the measure of firm value because of its use in studies of the valuation of tax avoidance (Desai and Dharmapala 2009; Wang 2011; De Simone and Stomberg 2011) and its common use in other accounting studies, such as recent studies by Zhao and Chen (2008) who study the impact of staggered boards on firm value and Dey (2008) who studies the impact of agency

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[24] Results are consistent measuring Tobin's Q based on the price one day and five days after the 10-K filing using the 10-K filing date from Audit Analytics. It is not possible to measure total assets one or five days after the filing date.

conflicts on firm value. Additionally, *Tobin's Q* is used as a measure of firm value in the corporate governance studies that develop the G-Index (Gompers, Ishii and Metrick 2003) and E-Index (Bebchuk, Cohen and Ferrell 2009), making it an appropriate measure in analysis of the valuation of tax avoidance in an agency context. *OTHER AVOID*, *STOCK AVOID*, *DEPR AVOID* and *RESIDUAL AVOID* measure the tax avoidance related to each item as outlined in the adjustment methodology and summarized in Appendix A. The model allows for the comparison of the relative value investors place on different methods of tax reduction.

Control variables are employed in the model following prior literature and defined in Appendix A. The first set of control variables, *Options*, *PPE*, and *Foreign Income*[25], isolate the impact of the specific types of tax avoidance on firm value. I include equity compensation (*Options*) because prior research (Morck, Shleifer, and Vishny 1988; Mehran 1995) finds that stock-based compensation is related to firm value and stock compensation allows firms to reduce their tax burden relative to other firms without stock-based compensation, ceteris paribus. In addition, controlling for stock compensation ensures that *STOCK AVOID* captures only the impact of the tax benefits of stock options on firm value. Following Dyreng et al (2010), I include a control variable for stock options measured as the average annual value realized from the exercise of options for the top five executives of options by the top five executives grossed up by the fraction of options owned by the covered executives (from Execucomp).[26] I include gross Property, Plant and Equipment (*PPE*) to account for the association between fixed assets and firm value, ensuring the variable *DEPR AVOID* is capturing the impact of the tax benefits of accelerated depreciation on firm value. Pre-tax foreign income (*Foreign Income*) proxies for a firm's

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[25] Correlation coefficients for firm value regression variables are provided in Table 3 Panel B. The Pearson correlation coefficients between *STOCK AVOID3* and Options is .5297, *DEPR AVOID3* and *PPE* is.334, and *RESIDUAL AVOID3* and *Foreign Income* is .3996, suggesting the adjustments are correlated with the control variables, but not at a level to cause a multi-collinearity concern.

[26] Desai and Dharmapala (2009) and Wang (2011) utilize the ratio of the Black-Scholes value of stock options granted to the top five managers to the value of their total compensation as reported in Execucomp. The use of the grant value does not account for stock price appreciation from grant to exercise.

international operations, ensuring *RESIDUAL AVOID* captures the impact of deferral of residual U.S. tax on firm value and not the impact of foreign operations on firm value.

Two additional control variables further ensure isolation of the impact of the specific methods of tax avoidance on firm value. Although the exercise of stock options indicates an increase in stock price, the exercise value does not fully account for the stock price appreciation from grant to exercise. Controlling for the actual stock price appreciation associated with stock options exercised during the current year is not possible because of varying vesting periods (generally between two and seven years) and an unknown lapse of time between vest and exercise. I use the change in the stock price over the prior four year period as a control for stock price appreciation (*Appreciation*). Foley et al (2007) report that firms have higher levels of cash as the tax cost of repatriation increases. Including *Cash* as a control variable minimizes the possibility that *RESIDUAL AVOID* measures the impact of foreign cash holdings on firm value instead of the impact of tax avoidance from the deferral of the residual tax on firm value.

Following prior literature, I control for a variety of factors that are associated with *Tobin's Q* and tax avoidance. I include sales as a control for firm size (*Size*) because of the association between *Tobin's Q* and firm size demonstrated in prior literature (Morck, Shleifer and Vishny 1988). Sales is selected as a control for firms' size because of the mechanical relation between other controls for size, total assets and market value of equity, and *Tobin's Q*. Additionally, total assets are mechanically related to other control variables employed in the model (*PPE*, *Cash* and *Intangible*). I include a proxy for firms' growth opportunities (*Growth*), measured as the three year average sales growth, as a control variable because *Tobin's Q* captures growth opportunities. I include stock price volatility (*Risk*) measured as the standard deviation of monthly returns over the prior 36 month period as a control for risk. Following Gompers et al (2003) I include the log of firm age as of December year t (*Firm Age*). As the substitutability of tax shields can impact the value of and incentive for engaging in tax avoidance, controls for debt (*Leverage*), book value of intangible assets (*Intangible*), and net operating losses (*NOL*) are included in the model.

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Descriptive statistics for dependent and control variables are presented in Table 3 Panel A and correlation coefficients are presented in Table 3 Panel B.

[Insert Table 3]

As tax avoidance is expected to vary across time and industries, year and industry dummies[27] are included in the model. Industries are classified according to the thirteen industries in Barth, Cram, and Nelson (2001) and two additional industries identified in Rees and Sivaramakrishnan (2007). The model is estimated using ordinary least squares (OLS) and standard errors are adjusted for heteroskedasticity using robust standard errors clustered at the firm level (Petersen 2009). Additionally, all variables are winsorized at the 1% and 99% tails.

I believe a levels-based model is the appropriate research design to test my hypotheses relative to a changes-based model. Barth, Beaver, and Landsman (2001) state that value relevance studies examining price levels are "interested in determining what is reflected in firm value", while studies examining price changes are "interested in determining what is reflected in changes in value over a specific period of time." My study examines whether information about methods of avoiding tax contained in the financial statements are used by investors in valuing firms equity. The stock price should be higher for firms that avoid tax, ceteris paribus, because the increase in cash flows provided by avoiding taxes increases expected future dividends. I predict that the impact tax avoidance has on firm value is a function of the methods of tax reduction.

Barth et al (2001) assert that studies examining whether an accounting amount is timely reflected in firm value should use a price change research design.   Information on tax avoidance is made available periodically by firms and the extent of the information provided varies with the disclosure. Effective tax rates are disclosed each quarter and tax expense is provided in earnings announcements. For most firms,

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[27] Four industries in my sample do not have sufficient firm year observations to constitute a separate dummy variable. Specifically, agriculture, pharmaceuticals, services and healthcare are underrepresented, having less than 200 firm year observations over the 14 year period. These industries are collapsed into a single industry.

the tax information required to determine my adjustments to the *CETR* is only available in the 10-K. [28]

For example, Coca-Cola does not disclose the cash tax benefit from stock options, the amount of foreign earnings that are permanently reinvested or deferred tax liabilities in their quarterly reports. Thus there is not an identifiable date that the information on a firm's tax avoidance becomes publicly available. The lack of timeliness in the disclosure of overall tax avoidance and variation of when information on tax avoidance methods becomes available to investors suggests that a levels-based design is more appropriate to study the impact of tax avoidance on firm value relative to a change-based design. [29]

Barth (2000) notes that an event study must identify the event date and specify an unexpected portion of the accounting variable of interest. Identification of expected tax avoidance is difficult because quarterly estimates of annual effective tax rates disclosed in firms' 10-Q's contain upward bias (Comprix, Mills and Schmidt 2011) and sophisticated users of financial statements have difficulty interpreting effective tax rate changes (Bauman and Shaw 2005). In addition, the variability of annual tax rates due to refunds, settlements and other tax irregularities limits the use of an annual rate as an expectation for a future year's rate. My study mitigates the variability of annual tax rates by measuring tax avoidance over a three-year period, further compounding the issue of identification of expected tax avoidance. The lack of an identifiable expectation of tax avoidance also suggests that a levels-based design is more appropriate.

In order to test Hypothesis 2, I examine the equality of the coefficients of the tax avoidance variables (β_1- β_4). Inequality of the coefficients suggests differential valuation of methods of tax avoidance. In addition, I expect a positive coefficient on *STOCK AVOID* (β_2) under Hypothesis 3A, an

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[28] I am unable to locate these amounts in a small sample of Fortune 500 firm's quarterly reports. I have not examined the quarterly report of each firm during my sample period.

[29] Two studies on tax avoidance and firm value use a price change design. These studies have an identifiable event date. Specifically, Wilson (2009) uses abnormal returns surrounding tax shelter involvement and Hanlon and Slemrod (2009) use cumulative abnormal return calculated over a 3-day window surrounding the date of news of tax shelter involvement.

insignificant coefficient on *DEPR AVOID* (β_3) under the null Hypothesis 3B, and a positive coefficient on *RESIDUAL AVOID* (β_4) under Hypothesis 3C.

In order to test Hypothesis 3D, I interact *RESIDUAL AVOID* with a measure of tax-haven presence. Specifically, *Haven* is set to 1 for firm year observations that have at least one subsidiary in a tax-haven[30]. In addition, I include *Haven* as a control variable in the model to ensure the interaction of *RESIDUAL AVOID* and *Haven* measures the impact of tax avoidance derived from residual tax deferral in a tax-haven on firm value and not the impact of the presence of a tax-haven subsidiary on firm value. I expect a negative coefficient on the interaction of *RESIDUAL AVOID* and *Haven* under Hypothesis 3D.

A comparison of hand collected residual tax deferral and regression variables for tax-haven and no tax-haven observations is presented in Table 4. On average, tax-haven observations have significantly higher levels of *PRE,* estimated levels of *PRE TAX* and *DTL FOR*, although there is not a significant difference in the reported level of *PRE TAX.* While total tax avoidance is not significantly different, tax-haven observations have significantly higher levels of tax avoidance from residual deferral (2.06% compared to 1.16%) and no tax-haven observations have significantly higher levels of tax avoidance from accelerated depreciation (4.5% compared to 2.46%).

[Insert Table 4]

I further examine the valuation of the deferral of the residual tax by decomposing *RESIDUAL AVOID* into three components: (1) tax avoidance associated with the disclosed tax liability on permanently reinvested earnings (*PRETAX DISCLOSED AVOID*) derived from equation 3a, (2) tax avoidance associated with the estimated (undisclosed) tax liability on permanently reinvested earnings (*PRETAX ESTIMATE AVOID*) derived from equation 3b, and (3) tax avoidance associated with provision

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[30] Publicly available information does not allow for the estimation of the amount of book income sourced to each subsidiary, making it impossible to determine the residual tax by foreign location. I use an indicator variable to measure tax-havens because Alexander and Poe (2011) find that the total number of tax-haven subsidiaries does not add explanatory power to their tax shelter intensity model.

of an estimate of the residual tax through a deferred tax liability (*PROVIDE AVOID*) derived from

equation 3c. Collins et al (2000) find that investors negatively value the disclosed unrecognized residual

tax liability on foreign earnings, while Bauman and Shaw (2008) find that investors positively value the

deferral of the residual tax. I address these contrasting results using the following model, expanded from

Model 6:

$$
\begin{aligned}
FirmValue_{it} = \beta_0 &+ \beta_1 OTHER\ AVOID_{it} + \beta_2 STOCK\ AVOID + \beta_3 DEPR\ AVOID_{it} + \\
&\beta_4 PROVIDEAVOID_{it} + \beta_5 PRETAX\ DISCLOSE\ AVOID_{it} + \\
&\beta_6 PRETAX\ ESTIMATE\ AVOID_{it} + \sum ControlVariables_{it} + \varepsilon_{it}
\end{aligned} \tag{7}
$$

I test the equality of the coefficients on the decomposed residual tax deferral variables to
determine whether investors differentially value methods of disclosing residual tax deferral.

4.6 Relative valuation of tax avoidance in an agency context

The agency analysis employs the model from the firm value analysis with the addition of

governance interactions. Specifically, model 6 will be amended to include the interaction of poor

governance with the tax avoidance measures:

$$
\begin{aligned}
FirmValue_{it} = \beta_0 &+ \beta_1 OTHER\ AVOID_{it} + \beta_2\ OTHER\ AVOID_{it}\ *PoorG_{it} + \beta_3 STOCK\ AVOID_{it} \\
&+ \beta_4\ STOCK\ AVOID_{it}\ *\ PoorG_{it} + \beta_5\ DEPR\ AVOID_{it} + \beta_6\ DEPR\ AVOID_{it}\ *\ PoorG_{it} + \\
&\beta_7\ RESIDUAL\ AVOID_{it} + \beta_8 RESIDUAL\ AVOID*PoorG_{it} + \sum ControlVariables_{it} + \varepsilon_{it}
\end{aligned} \tag{8}
$$

A measure of corporate governance, the G-Index (Gompers et al 2003), is used to determine if the

relative value of tax avoidance varies across levels of corporate governance. The G-Index measures

corporate governance using a point scale of the number of antitakeover provisions present in a firm,

where each provision increases the index and a high score indicates poor corporate governance.

Following prior studies of tax avoidance in an agency context (Wilson 2009; Wang 2011), firms with a

G-Index score over(under) the sample mean are designated as poorly(well) governed firms such that the

variable *PoorG* is an indicator of poor governance. In addition, the designation of poor governance will

be narrowed to firms in the highest quartile (decile) of the G-Index reported in the sample, specifically firms reporting a G-Index score above 12(14) will be designated as poorly governed firms.[31] This method accounts for the possibility that poor corporate governance is a symptom of a smaller portion of firms than suggested by splitting at the sample mean. Finally, I assign strong and poor governance at the extreme quartiles and include a variable for strong governance (*StrongG*) interacted with each of the measures of tax avoidance. This governance assignment approach, motivated by Harford, Mansi and Maxwell (2008), focuses on the difference between the valuation of tax avoidance between firms exhibiting the strongest and weakest corporate governance, whereas the previous governance assignments focused on poorly governed firms compared to all other firms in the sample.

The G-Index is selected because of its use in prior studies of the valuation of tax avoidance in an agency context (Desai and Dharmapala 2009; Wilson 2009; Wang 2011; Koester 2011). The Entrenchment index developed by Bebchuk, Cohen, and Ferrell (2009) is used as a measure of corporate governance in recent accounting and finance studies. I present results using the Entrenchment index as a measure of corporate governance using the same governance assignment approaches in supplementary analyses.

Prior research finds that cash is valued less in poorly governed firms than well governed firms (Dittmar and Mahrt-Smith 2006). To ensure that the interaction of *RESIDUAL AVOID* and *PoorG* (deferral of the residual tax in poorly governed firms) is not capturing the impact of poor governance on the valuation of cash I include a control variable for cash in poorly governed firms (*CASH * POOR G*).[32]

Descriptive statistics and t-tests for differences in means across levels of governance for dependent, tax avoidance and control variables are presented in Table 5A Panel A for the G-Index

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[31] The range of G-Index scores in my sample is 3-16, although the G-Index can range from 0-24. Approximately 25.4% of the firms in my sample report a G-Index score above 12 and 7.5% report a G-Index score above 14. It is not possible to split the sample exactly at the mean, quartile or decile because of the discrete nature of the G-Index.

[32] I also include an interaction of *Cash* and *StrongG* in the extreme quartile analysis.

governance specifications and Table 5B Panel A for the E-Index governance specifications. Well governed firms have significantly larger amounts of tax avoidance derived from stock option tax benefits across all governance specifications, highlighting the importance of the *Option* control variable. Significance of differences in the other tax avoidance measures between well and poorly governed firms depends on the governance specification. Correlation coefficients are presented in Table 5A Panel B.

[Insert Table 5A]

[Insert Table 5B]

The coefficients on the tax avoidance variables (β_1, β_3, β_5, β_7) now capture the impact of tax avoidance on firm value in well governed firms. The coefficients β_4 and β_6 are expected to be insignificant under Hypothesis 4A, suggesting investors do not differentially value tax avoidance related to the tax benefits of stock options and accelerated depreciation across levels of governance. The coefficient β_8 is expected to be negative and significant under Hypothesis 4B, suggesting investors of poorly governed firms discount the tax avoidance resulting from residual tax deferral compared to well governed firms. The relative valuation of tax avoidance across governance levels will be explored by testing the equality of the tax avoidance and governance interaction coefficients.

5. *Multivariate Results*

5.1 Differential valuation of tax avoidance

Multivariate results for the firm value models are presented in Tables 6 through 13. Collinearity diagnostics suggest the models do not have a multi-collinearity problem. Specifically, the variance inflation factor (VIF) is below 5 for all variables in the models and the condition index of all models are below 30. A VIF above 10 and/or a condition index above 30 is generally indicative of inflated standard errors resulting from a collinearity problem (Montgomery, Peck and Vining 2006). Results are robust to

exclusion of influential observations identified following the methods provided by Belsley, Kuh, and Welsch (1980).[33]

A baseline model of the relation between firm value and tax avoidance implied by the unadjusted *CETR* is presented in Table 6. Panel A includes observations with the necessary data to calculate the *CETR (CETR3)* and control variables. Tax avoidance implied by the *CETR* and *CETR3* is positively associated with firm value, specifically the coefficients on *CETR AVOID* and *CETR AVOID3* (unadjusted tax avoidance) are significant at .05 and .0766, respectively. Panel B includes observations with the necessary data to calculate all tax avoidance variables (i.e. *STOCK AVOID, DEPR AVOID and RESIDUAL AVOID)* and control variables. Observations with *CETR3* greater than one or less than zero, missing stock option compensation expense after 2005 and reporting "amount not disclosed" for permanently reinvested earnings are excluded from the analysis. This sample is comparable to samples in future analyses of the relative valuation of different methods of tax avoidance. The association between firm value and tax avoidance implied by the *CETR3* is marginally significant at the 10% level. The coefficient on *CETR AVOID* is not significant in the reduced model, suggesting tax avoidance implied by the one year cash effective rate is not associated with firm value. Therefore, I limit discussion of results in future analyses to the cumulative three-year cash effective tax rate.

[Insert Table 6]

Expansion of the measure of tax avoidance into its components in Table 7A provides insight into the valuation of specific methods of tax avoidance. Specifically, the coefficient on *STOCKAVOID3* is positive and significant (p=.0178), in support of Hypothesis 3A, suggesting tax avoidance resulting from the tax benefits of stock options is positively associated with firm value. The temporary deferral of tax

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[33] Belsley, Kuh, and Welsch (1980) propose that observations meeting the following criteria possibly have a large influence on the parameter estimation and require further investigation: (1) |Covariance ratio-1| $\geq$ (3p/n) where p is the number of parameters in the model and n is the number of observations used to estimate the model, (2) |Studentized Residual| > 2, (3) DFBETA > 2/$\sqrt{n}$, and (4) DFITS >2/$\sqrt{p/n}$. Results are robust to exclusion of influential observations identified using these four criteria.

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resulting from accelerated depreciation is not associated with firm value as indicated by the insignificant coefficient on *DEPR AVOID3* (p=.7118), suggesting there is no evidence to reject the null Hypothesis 3B. The coefficient on *RESIDUAL AVOID3* is negative and significant (p=.0045), contrary to H3C, suggesting the tax avoidance resulting from the deferral of the residual tax is negatively associated with firm value. This is consistent with investors viewing the unrecognized liability for the residual tax as an unbooked liability and valuing it accordingly. *OTHER AVOID*3 is positive and significant (p=.0763); however, no insight can be gained from this result because it is unknown what activities comprise this portion of tax avoidance.

[Insert Table 7A]

Comparison of coefficients on the tax avoidance variables reveals differential valuation of methods of tax avoidance, in support of Hypothesis 2. Specifically, the test of coefficient equality is rejected for each comparison of methods of tax avoidance. For example, the test of coefficient equality between *STOCK AVOID3* and *DEPR AVOID*3 results in a p-value of .0215, demonstrating that the tax benefits of stock options are more positively valued by investors than accelerated depreciation deductions. Results are consistent using the Krull (2004) estimation procedure for *PRE TAX* and presented in supplementary Table 7B.

[Insert Table 7B]

Table 8 presents the results of the firm value analysis including tax-havens. The coefficient on *RESIDUAL AVOID3*, measuring the impact of residual tax deferral on firm value in observations with no tax-haven presence, is insignificant. The sum of the coefficients on *RESIDUAL AVOID3* and *RESIDUAL AVOID3*Haven*, measuring the impact of residual tax deferral on firm value in observations with a tax-haven presence, is negative and significant. These results provide support for Hypothesis 3D and suggest that the discount on tax avoidance derived from residual tax deferral is limited to firms with a presence in a tax-haven. This result could be attributable to investor belief that the tax benefits of deferral

in a tax-haven are not beneficial to shareholders because of the lack of reinvestment opportunities in the tax-haven. In order for the benefits of foreign profits to accrue to shareholders, tax-haven firms will have to repatriate and pay the residual tax, whereas firms with foreign profits in non tax-haven jurisdictions have more reinvestment opportunities and will not have to repatriate in order for the benefits of foreign activity to accrue to shareholders. Further examination of investor valuation of tax avoidance derived from residual tax deferral associated with tax-haven subsidiaries is left to future research.

[Insert Table 8]

Next I decompose *RESIDUAL AVOID* into the three accounting methods used to disclose the deferral of residual tax in the financial statements, presented in Table 9A. The coefficients on *PROVIDE AVOID3* and *PRETAX DISCLOSE AVOID3* are negative and significant (p=.0838 and .0474, respectively), suggesting tax avoidance resulting from provision for the residual tax or disclosure of the amount of residual tax due upon remission of permanently reinvested earnings are negatively associated with firm value. The negative coefficient on *PRE TAX DISCLOSE AVOID*3 is consistent with Collins et al (2000) who report weak evidence of a negative association between current stock prices and the disclosed repatriation liability. In addition, the coefficients are not significantly different (p=.9406), suggesting the discount on tax avoidance is the same for providing for the residual tax or disclosing the amount due upon remission of permanently reinvested earnings. This is an interesting result because providing for the residual tax impacts the income statement, while disclosure of the unrecognized liability does not. Investors believe disclosure of the liability signals intent to repatriate and pay the tax and value the unrecognized liability accordingly. In contrast, the coefficient on *PRETAX ESTIMATE AVOID3* is insignificant (p=.2609), suggesting that the discount on tax avoidance related to deferral of the residual tax is isolated to disclosure of the estimated amount of tax due upon repatriation. This result is consistent with Bauman and Shaw (2008) who show that the negative impact of the repatriation liability is lower for firms that do not disclose the liability. Contrary to their results, I do not find that the estimated repatriation tax liabilities are positively associated with firm value. However, I use tax avoidance

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resulting from deferral instead of the level of the unrecognized liability as my independent variable of interest. In addition, my sample includes a larger number of observations over a longer time period and I use a different measure of firm value. Results are consistent using the Krull (2004) estimation procedure for *PRE TAX* and presented in supplementary Table 9B.

[Insert Table 9A]

[Insert Table 9B]

5.2 Differential valuation of tax avoidance in an agency context

Table 10A presents the results of a baseline analysis of the valuation of tax avoidance in an agency context using the G-Index (Gompers at al 2003) as a measure of corporate governance. In Panel A, I assign poor governance above the sample mean of 9.896, resulting in 1,410 poor governance observations (approx. 54%) and 1,202 strong governance observations (approx. 46%).[34] It is possible that poor corporate governance is not as widespread of a problem as splitting at the mean suggests, leading to an alternate assignment of poor governance above the third quartile (G-Index > 12) in Panel B and above the highest decile (G-Index > 14) in Panel C. The coefficient on *CETR AVOID3* is positive across all specifications of governance; however the result is only significant when governance is defined at the mean (.097) and insignificant when governance is assigned at the third quartile (.1177) and highest decile (.1336). The association between firm value and tax avoidance in poorly governed firms is insignificant across all specifications.

Next I assign strong and poor governance at the extreme quartiles (*PoorG* = G-Index > 12 and *StrongG* = G-Index < 8) in Panel D. The results suggest that firm value is positively associated with tax avoidance in firms with the strongest corporate governance (p=.0663) and not in firms with average (p=.1592) or the poorest (p=.3289) levels of corporate governance.

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[34] Due to the discrete nature of the G-index, it is not possible to split the sample exactly in half or by quartile or decile.

[Insert Table 10A]

The results of the analysis using the E-Index (Bebchuk et al 2005) as a measure of corporate governance presented in supplementary Table 10B are generally consistent with the main analysis using the G-Index.[35] Since prior studies on tax avoidance in an agency context use the G-Index as a measure of corporate governance, I limit discussion of remaining analyses to the G-Index measure of corporate governance unless results are inconsistent between the two measures of governance. Analyses using the E-Index are presented in supplementary tables.

[Insert Table 10B]

Table 11A presents the results of the expanded tax avoidance measures model in an agency context using the G-Index as a measure of corporate governance. Consistent with prior analysis, the coefficient on *STOCK AVOID3* is positive and significant across all specifications of governance, demonstrating the tax avoidance resulting from stock options is positively associated with firm value in well governed firms. Contrary to Hypothesis 4A, the sum of the coefficients on *STOCK AVOID3* and *STOCK AVOID3 *Poor G* (i.e. tax avoidance from stock option benefits in poorly governed firms) are not significantly different than zero in the mean, third quartile and extreme quartile samples (p = .1689, p=.6592, p=.6373 respectively) and negative in the highest decile sample (p=.0192), suggesting a discount on tax avoidance derived from stock option tax deductions in poorly governed firms. This result is inconsistent with the managerial diversion explanation of the differential valuation of tax avoidance across governance levels because stock option tax benefits are transparent, clearly supported by tax law and not associated with the compromised information environment necessary to conceal tax avoidance from investors.

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[35] The coefficient on *CETR AVOID3* is significant at .0574 when governance is assigned at the top decile of the E-Index, while the coefficient was insignificant at .1336 when governance is assigned at the top decile of the G-Index. All other results are consistent.

The coefficient on *DEPR AVOID3 *PoorG* is insignificant across all specifications of governance, indicating there is not differential valuation of tax avoidance derived from accelerated tax depreciation deductions across levels of governance and there is no evidence to reject the null Hypothesis 4A. Contrary to Hypothesis 4B, the coefficient on *RESIDUAL AVOID3*Poor G* (i.e. value of deferral of residual tax in poorly governed firms) is not statistically significant across all G-Index governance specifications[36], suggesting investors of poorly governed firms do not further discount the tax avoidance resulting from deferral of the residual tax. This result is inconsistent with the diversion theory of tax avoidance in poorly governed firms because the discount is not observed on the most opaque type of tax avoidance examined in my study. In the extreme quartile sample, the sum of the coefficients on *RESIDUAL AVOID3* and *RESIDUAL AVOID3*Strong G* (i.e. tax avoidance derived from residual tax deferral in well governed firms) are not statistically different from zero. Investors in firms with the strongest governance structures do not discount the tax avoidance resulting from deferral of the residual tax. This result suggests that the differential valuation of tax avoidance across governance levels could be driven by firms with the strongest levels of governance instead of firms with the poorest levels of governance.

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[36] The coefficient on *RESIDUAL AVOID3*Poor G* is negative and significant in the third quartile and extreme quartile E-Index analyses presented in Table 11B, inconsistent with the results of the G-Index analysis. Harford et al (2008) find that the other factors in the G-Index not captured by the E-Index or classified boards provides information about a firm's cash holdings. As discussed earlier, the prediction that investors value deferral less in poorly governed firms is based on diverting cash overseas, suggesting the G-Index is a better measure to test Hypothesis 4A. The poorly governed firms in the G-Index third quartile sample report *PRE TAX* at a significantly lower rate than well governed firms. (16.05% of poorly governed firms report *PRE TAX* and 23.32% of well governed firms report *PRE TAX,* difference is significant at .0035). There is not a significant difference between the reporting of *PRE TAX* between poorly and well governed firms in the E-Index third quartile sample. (21.9% of poorly governed firms report *PRE TAX* and 19.53% of well governed firms report *PRE TAX,* difference is not significant at .3416). There is not a significant difference between reporting *PRE TAX* among poorly and well governed firms in the other governance assignments. In addition, the E-Index third quartile sample contains a higher percentage of poorly governed firms (25.38% in G-Index sample verses 29.79% in E-Index sample) due to the discrete nature of the index preventing assignment of poor governance at exactly the third quartile of the E-Index. Approximately 25% of firms do not have the same governance classification between the G-Index and E-Index third quartile samples. Further differences between the G-Index and E-Index results, which are only observed in the third and extreme quartile governance assignments, are assumed to be due to the identified differences in governance assignments between the two samples.

A comparison of the coefficients in Panel E reveals that the differential valuation of tax avoidance across methods is stronger in well governed firms than poorly governed firms. Specifically, the test of coefficient equality in well governed firms is rejected for each comparison across all governance specifications, showing that each method of tax avoidance is valued differently in well governed firms. When poor governance is defined above the mean and third quartile, only tax avoidance from the deferral of the residual tax exhibits differential valuation, which is not surprising since deferral was the only method of tax avoidance in poorly governed firms exhibiting a significant association with firm value.

[Insert Table 11A]

[Insert Table 11B]

Inclusion of an interaction between *RESIDUAL AVOID3, Poor G* and *Haven* in Table 12, Panel A reveals that the discount on residual tax deferral is limited to poorly governed firms operating in a tax-haven when poor governance is defined above the mean of the G-Index. Specifically, the association between firm value and tax avoidance derived from residual tax deferral in poorly governed firms with operations in a tax-haven is negative and significant (i.e. the sum of the coefficients on *RESIDUAL AVOID3*, *RESIDUAL AVOID3*PoorG*, *RESIDUAL AVOID3*Haven* and *RESIDUAL AVOID3*Haven*PoorG)*; while the association is insignificant in well governed firms not operating in a tax haven (i.e. the coefficient on *RESIDUAL AVOID3),* well governed firms with operations in a tax-haven and (i.e. sum of the coefficients on *RESIDUAL AVOID3* and *RESIDUAL AVOID3*Haven)* and poorly governed firms not operating in a tax-haven *(*i.e. sum of the coefficients on *RESIDUAL AVOID3* and *RESIDUAL AVOID3*PoorG*). Results in Panel B suggest that the discount on residual tax deferral is greater in poorly governed firms operating in a tax-haven compared to other firms when poor governance is defined above the third quartile of the G-Index. Specifically, the association between firm value and tax avoidance derived from residual tax deferral in poorly governed firms with operations in a

tax-haven is more negative (i.e. sum of the coefficients on *RESIDUAL AVOID3*, *RESIDUAL AVOID3*PoorG*, *RESIDUAL AVOID3*Haven* and *RESIDUAL AVOID3*Haven*PoorG)* than well governed firms not operating in a tax haven (i.e. the coefficient on *RESIDUAL AVOID3),* well governed firms with operations in a tax-haven (i.e. sum of the coefficients on *RESIDUAL AVOID3* and *RESIDUAL AVOID3*Haven*) and poorly governed firms not operating in a tax-haven (i.e. sum of the coefficients on *RESIDUAL AVOID* and *RESIDUAL AVOID*PoorG*).

[Insert Table 12]

Table 13A presents the results of the further decomposition of the deferral of the residual tax in an agency context. When poor governance is defined above the mean (Panel A), the negative association between firm value and tax avoidance related to disclosing the estimated residual tax, either providing a deferred tax liability or disclosing the unrecognized liability on permanently reinvested earnings, is only observed in poorly governed firms. Specifically, the coefficients on *PROVIDE AVOID3* and *PRETAX DISCLOSE AVOID3* are insignificant. These coefficients were negative and significant in the main analysis. Addition of the governance interaction terms (*PROVIDE AVOID3 *PoorG* and *PRETAX DISCLOSE AVOID3 *PoorG*) reveals a negative and significant association between firm value and disclosure of the estimated residual tax. The extreme quartile sample (Panel D) confirms this result; tax avoidance from disclosure of an estimate of the residual tax is negatively associated with firm value in poorly governed firms and not associated with firm value in firms with the strongest level of governance. The tax avoidance derived from permanently reinvesting foreign earnings and asserting estimation of the tax liability is impracticable is not associated with firm value in either well or poorly governed firms across all specifications of governance. This method of disclosing tax avoidance derived from deferral of the residual tax is the most opportune for diversion because of the opaque nature of the assertion that it is not practicable to estimate the liability, revealing much less information than provision of the tax or disclosure of the unrecognized liability. Instead the more transparent tax avoidance resulting from disclosure of an estimate of the residual tax on unremitted foreign earnings is discounted by investors in

poorly governed firms. Results are generally consistent using the E-Index and presented in supplementary Table 13B.

[Insert Table 13A]

[Insert Table 13B]

6. Conclusion

This paper examines whether the relation between firm value and tax avoidance varies across alternative methods of tax avoidance. My analyses yield evidence consistent with investors distinguishing between the underlying activities creating tax reduction and valuing tax avoidance according to the risks, permanence of tax reduction, tax planning costs, implicit taxes, and financial statement disclosures of the method of tax avoidance. Specifically, I find that the tax avoidance arising from stock option tax deductions is positively associated with firm value, suggesting investors value the low-risk, permanent and transparent nature of this method of tax reduction. Tax avoidance generated through accelerated tax depreciation deductions is not associated with firm value, likely because of the temporary nature of the benefits and investor's concerns of implicit taxes and overinvestment associated with accelerated and bonus depreciation. Tax avoidance resulting from deferral of the residual U.S. tax on unremitted foreign earnings is negatively associated with firm value, consistent with investors treating the residual tax as an unbooked liability. The discount is only observed for firms with a presence in a tax-haven. The discount is also isolated to disclosure of the estimated residual tax due upon repatriation, both provision of deferred tax and disclosure of the unrecognized liability are negatively associated with firm value. The discount is not observed for estimated tax avoidance from permanently reinvested earnings for firms that state the unrecognized liability is not practicable to estimate.

I also examine whether the relation between firm value and alternative methods of tax avoidance varies as a function of firm's corporate governance structures. Prior studies posit that the lack of

association between firm value and tax avoidance in firms with poor governance mechanisms results from managerial diversion. I argue that diversion requires a compromised information environment that should only be associated with tax avoidance requiring concealment from tax authorities. Therefore, under the diversion theory, tax avoidance that is clearly supported by the law and transparent in the financial statements should not be discounted by investors of poorly governed firms. I find that tax avoidance resulting from stock option deductions is discounted in poorly governed firms, inconsistent with the diversion theory. Deferral of the residual tax is the most complex and least transparent of the methods of tax avoidance examined in my study and under the diversion theory should be most likely to exhibit differential valuation across levels of governance. I do not observe a discount on the tax avoidance from overall residual tax deferral in poorly governed firms. In addition, the only method of disclosing residual tax deferral in the financial statements that is not differentially valued by investors is the estimation of the unrecognized liability on permanently reinvested earnings. This method of disclosing tax avoidance seems the most opportune for diversion because of the open-ended assertion that it is not practicable to estimate the liability, revealing much less information than provision of the tax or disclosure of the unrecognized liability. Instead investors of poorly governed firms discount the more transparent tax avoidance resulting from disclosure of an estimate of the residual tax on unremitted foreign earnings. Overall, my results are inconsistent with investors discounting tax avoidance in poorly governed firms because they believe managers will divert tax savings from opaque tax transactions.

My analysis highlights the importance of selecting a measure of tax avoidance appropriate for the research question under examination. I offer a new method of measuring tax avoidance that enables researchers to study specific methods of tax avoidance, an improvement over prior measures that focus on total tax avoidance. My study makes a significant contribution to the literature's understating of the association between firm value and tax avoidance. I use my method of measuring tax avoidance to examine the relative valuation of alternative means of tax reduction and provide evidence that the value to investors of a dollar of tax avoidance is a function of the method deriving it. Finally, my results are

inconsistent with managers utilizing the compromised information environment to divert tax savings from

opaque tax avoidance, adding to the debate on the valuation of tax avoidance in an agency context.

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Appendix A: Variable Definitions

Reference	Variable	Description (source in parentheses, Compustat unless otherwise noted)
Hand Collected Variables and Tax Avoidance Measures		
	CETR	Cash Income Tax Paid (TXPD)/(Earnings before tax (PI)-Special Items (SPI))
	CETR3	$\sum_{t-2,t}$ (Cash Income Tax Paid (TXPD)/(Earnings before tax (PI)-Special Items (SPI))
1	**CETR NO STOCK**	Adjusted CETR unrelated to stock option tax benefits = (Cash Income Taxes Paid + Option Tax Benefit)/(Earnings before tax – Special Items + 123R Option Expense)
	STOCK AVOID	Tax Avoidance related to stock option tax benefits = Option Tax Benefit/(Earnings before tax – Special Items + 123R Option Expense)
	Option Tax Benefit	Option Tax Benefit – Reported, if missing use Option Tax Benefit – Estimated.
	Option Tax Benefit: Reported	Reported cash tax benefit from stock option deductions. (Hand collected from statement of cash flows, statement of equity, share-based compensation footnote or tax footnote.)
	Option Tax Benefit: Estimated	number of options exercised(OPTEXD)*(weighted average exercise price of new grants during the year (OPTPRCGR) less the weighted average exercise price of options exercised during the year(OPTPRCEX). (Hand collected prior to 2004.)
	123R Option Expense	123R Option Expense – Reported, if missing, use 123R Option Expense – Estimated.
	123R Option Expense: Reported	Stock option compensation expense reported in share-based compensation footnote.
	123R Option Expense: Estimated	Prior year's disclosed unrecognized option expense divided by the disclosed vesting period for the options. (Hand collected from share-based compensation footnote)
2	**CETR NO DEPR**	Adjusted CETR unrelated to accelerated tax depreciation = (Cash Income Taxes Paid + Δ DTL PPE)/(Earnings before tax – Special Items)
	DEPR AVOID	Tax Avoidance related to accelerated tax depreciation = Δ DTL PPE/(Earnings before tax – Special Items)
	DTL PPE	Deferred tax liability for property plant and equipment. (Hand collected from tax footnote.)
3a	**CETR NO PRETAX DISCLOSED**	Adjusted CETR unrelated to permanent residual tax deferral – disclosed = (Cash Income Taxes Paid + Δ PRE TAX Disclosed)/(Earnings before tax – Special Items)
	PRETAX DISCLOSED AVOID	Tax avoidance related to permanent residual tax deferral – disclosed = Δ PRE TAX Disclosed/(Earnings before tax – Special Items)
	PRETAX Disclosed	Disclosed unrecognized tax liability on unremitted foreign earnings. (Hand collected from tax footnote.)
3b	**CETR NO PRETAX ESTIMATE**	Adjusted CETR unrelated to permanent residual tax deferral – estimated = (Cash Income Taxes Paid + Δ PRE TAX Estimated)/(Earnings before tax – Special Items)
	PRE TAX ESTIMATE	Tax avoidance related to permanent residual tax deferral – estimated = Δ PRE TAX Estimated/(Earnings before tax – Special Items)

	AVOID	
	PRETAX Estimated: Bauman and Shaw	(Δ PRE/(1-FETR3)) * (35% – FETR3)
	PRETAX Estimated: Krull	Δ PRE * (35%-FETR5)
	PRE	Permanently Reinvested Earnings. (Hand collected from tax footnote.)
	FETR3	Current foreign tax expense (TXFO)/Pre-tax foreign income (PIFO) summed from t-3 to t-1
	FETR5	Current foreign tax expense (TXFO)/Pre-tax foreign income (PIFO) summed from t-5 to t-1. Requires 3 years of data.
3c	**CETR NO PROVIDE**	Adjusted CETR unrelated to provision for residual tax = (Cash Income Taxes Paid + Δ DTL FOR)/(Earnings before tax – Special Items)
	PROVDE AVOID	Tax avoidance related to provision for residual tax = Δ DTL FOR/(Earnings before tax – Special Items)
	DTL FOR	Deferred tax liability for unremitted foreign earnings. (Hand collected from tax footnote.)
3d	**CETR NO RESIDUAL**	Adjusted CETR Unrelated to residual tax deferral = (Cash Income Taxes Paid + Δ PRETAX + Δ DTL FOR)/(Earnings before tax – Special Items)
	RESIDUAL AVOID	Tax Avoidance related to residual tax deferral = (Δ PRETAX + Δ DTL FOR)/(Earnings before tax - Special Items)
4	**Adjusted CETR**	(Cash Income Taxes Paid + Option Tax Benefit + Δ DTL PPE+ Δ PRETAX + Δ DTL FOR)/(Earnings before tax – Special Items + 123R Option Expense)
5a	**CETR AVOID**	Statutory – Unadjusted CETR = 35% - CETR
5b	**OTHER AVOID**	Statutory Rate – Adjusted CETR= 35% - Adjusted CETR
5c	**SPECIFIC AVOID**	STOCK AVOID + DEPR AVOID + RESIDUAL AVOID
Reduced Models	**CETR NO STOCK AVOID**	CETR AVOID – STOCK AVOID
	CETR NO DEPR AVOID	CETR AVOID – DEPR AVOID
	CETR NO RESIDUAL AVOID	CETR AVOID – RESIDUAL AVOID
Dependent and Control Variables		
Dependent Variable	**Firm Value (Tobin's Q)**	Ratio of market value of firm to book value of firm = ((AT) + ((PRCC_C)*(CSHO))-(CEQ))/(AT)
Control Variables	**Stock Options**	Average annual value realized from the exercise of options for the top five executives of options by the top five executives grossed up by the fraction of options owned by the covered executives in year t-1 (Execucomp)
	PPE	(PPEGT/ AT_{t-1})
	Foreign Income	(PIFO/AT_{t-1})
	Size	Sales (SALE)
	Risk	Standard deviation of monthly stock returns over previous 36 months (CRSP)
	Growth	3 year average sales growth from t-2 to t = $\sum_{t-2,t}$ ($SALE_t$ – $SALE_{t-1}$)/$SALE_{t-1}$

	Leverage	(Long-term Debt + Debt in Current Liabilities)/Total Assets = (DLTT+DLC)/(AT)
	NOL	=1 if firm has tax loss Carryforward (TLCF), otherwise = 0.
	Intangibles	(INTAN/AT_{t-1}), if INTAN = . Then INTANG = 0
	Firm Age	Ln(1 + number of years listed in Compustat)
	Cash	CHE/ AT_{t-1}
	Appreciation	(Price$_{t-1}$- Price$_{t-3}$)/ Price$_{t-3}$
	Haven	=1 if firm lists a subsidiary on Exhibit 21 located in a tax-haven.
	PoorG	Indicator for Poorly Governed Firms based on G-Index (Gompers et al 2003) or E-Index (Bebchuk et al 2009.) See tables for governance assignments.
	Strong G	Indicator for strongest governed firms based on extreme quartile of G-Index (Gompers et al 2003) or E-Index (Bebchuk et al 2009.)

Appendix B: Sample Selection

2005 Fortune 500 firm year observations (1998-2010)	7,000
44 firms excluded from sample (LP, Private Company, Mutual Insurance Company, Non-profit)	(616)
Firm year observations not spanning 10 year period	(298)
Firm year observations missing 10-K	(230)
Firm year observations excluded due to bankruptcy filing	(27)
Missing total assets in Compustat	(16)
Hand collected observations	5,813
1 year Cash Effective Tax Rate (CETR) Regression Analysis Sample Reduction	
1997 firm year observations (lag year required)	(338)
CETR greater than 1	(92)
CETR less than 0	(425)
Post 123R observations missing stock option compensation expense	(603)
Reports "Amount not disclosed" for PRE	(194)
Missing control variables (CRSP, Execucomp, Risk Metrics)	(888)
CETR sample	3,273
3 year Cash Effective Tax Rate (CETR3) Analysis Sample Reduction	
1997-1999 firm year observations (3 year lag requirement)	(1,048)
CETR3 greater than 1	(58)
CETR3 less than 0	(240)
Post 123R observations missing stock option compensation expense	(810)
Reports "Amount not disclosed" for PRE	(168)
Missing control variables (CRSP, Execucomp, Risk Metrics)	(877)
CETR3 sample	2,612

Appendix C: Tax Haven Country Listing

Andorra
Anguilla
Antigua and Barbuda
Aruba
Bahamas
Bahrain
Barbados
Belize
Bermuda
Botswana
British Virgin Islands
Brunei Darussalam
Cape Verde
Cayman Islands
Cook Islands
Costa Rica
Cyprus
Dominica
Gibraltar
Grenada
Guernsey and Alderney
Hong Kong
Ireland
Isle of Man
Jersey
Jordan
Kitts and Nevis
Latvia

Lebanon
Liberia
Liechtenstein
Luxembourg
Macao
Macau
Maldives
Malta
Marshall Islands
Mauritius
Monaco
Montserrat
Nauru
Netherlands Antilles
Niue
Palau
Panama
Samoa
San Marino
Seychelles
Singapore
St. Lucia
St. Vincent and the Grenadines
Switzerland
U.S. Virgin Islands
Uruguay
Vanuatu

Tax haven country identification follows Dyreng and Lindsey (2009). Countries identified as tax havens by three of the four following sources: (1) Organization for Economic Cooperation and Development (OECD), (2) the U.S. Stop Tax Havens Abuse Act, (3) The International Monetary Fund (IMF), and (4) the Tax Research Organization.

Appendix D: Illustration of Tax Avoidance Adjustments

Variables:	
Earnings before tax (no special items)	100
Cash Taxes Paid	20
Cash Tax Benefit of Stock Options	5
Stock Option Compensation Expense	0
Δ DTL on Property, Plant and Equipment (DTL PPE Increase)	2
Δ Unrecognized tax liability on foreign earnings (PRETAX Increase)	3
Δ DTL on Unremitted foreign earnings (DTL FE Increase)	1
Tax Avoidance Measures:	
Unadjusted CETR = Cash Taxes Paid/Earnings before tax	20%
CETR AVOID = 35% - Unadjusted CETR	15%
Adjusted CETR = (Cash Taxes Paid + Cash Tax Benefit of Stock Options + Δ DTL PPE + Δ PRETAX + ΔDTL FE)/(Earnings before tax + Stock Compensation Expense)	31%
OTHER AVOID = 35% - Adjusted CETR	4%
SPECIFIC AVOID= Adjusted CETR - Unadjusted CETR (or CETR AVOID – OTHER AVOID)	11%
STOCK AVOID = Stock Option Tax/PI or (TXPD + Stock Option Tax)/(PI) - Unadjusted CETR	5%
DEPR AVOID = Δ DTL PPE/(PI) or (TXPD + Δ DTL PPE)/(PI) - Unadjusted CETR	2%
RESIDUAL AVOID = (Δ PRETAX + Δ DTL FOR)/(PI) or (TXPD + Δ PRETAX + Δ DTL FOR)/(PI) - Unadjusted CETR	4%
SPPECIFIC AVOID = Stock Benefit Tax Avoid + PPE Tax Avoid + Defer Tax Avoid	11%

*Additional examples, including journal entries, illustration of adjustments for fictitious company over 2 periods and adjustments for real companies available from the author.

Table 1							
Descriptive Statistics							

Panel A: Descriptive Statistics for Hand Collected and Estimated Variables

Variable	n[a]	% Report	Mean	Std. Dev	25th	Median	75th
Option Tax Benefit: Reported	2081	35.8%	60.027	198.43	4.000	15.896	45.831
Option Tax Benefit: Estimate	5106	87.8%	31.216	110.577	0.49	5.543	22.302
Option Tax Benefit	5813	100.0%	36.155	141.708	0.4696	6.0	26
123R Option Expense: Reported	1200	58.9%	38.214	85.97	3.7	13.05	36.05
123R Option Expense: Estimate	542	26.6%	35.23	120.144	5.6	15.619	27.49
123R Option Expense	1507	74.0%	40.276	93.988	4.0	13.68	34
DTL PPE	5163	88.8%	-760.681	2055.276	-661	-163.4	-31
PRE	2946	50.7%	2445.099	5950.905	149	665.809	2000
PRETAX disclosed	642	11.0%	354.253	841.203	2.07	55	248.7
PRETAX: estimate (Bauman and Shaw)	2382	41.0%	488.61	1394.62	0.068	79.007	356.24
PRETAX: estimate (Krull)	2382	41.0%	298.454	973.656	0.0	19.4621	183.2506
PRETAX	2560	44.0%	326.756	984.979	0	31.697	211.778
FETR (3 year)	4156	71.5%	25.5%	0.288	0.00%	19.70%	31.60%
FETR (5 year)	4156	71.5%	29.2%	0.294	0.00%	25.60%	39.00%
DTL FOR	2515	43.3%	-68.361	463.018	-4.0	0.0	0.0
Δ PRE	5813	100.0%	168.56	1154.241	0.0	0.0	58.7
Δ PRE TAX: Reported	5813	100.0%	8.182	103.94	0.0	0.0	0.0
Δ PRE TAX: Estimate (Bauman and Shaw)	5813	100.0%	31.097	0.0	0.0	0.0	0.0
Δ PRE TAX: Estimate (Krull)	5813	100.0%	20.4	165.39	0.0	0.0	0.0
Δ DTL FOR	5813	100.0%	-5.774	109.785	0.0	0.0	0.0
Δ DTL PPE	5813	100.0%	-52.332	732.228	-36.338	-2.4105	6.719
Haven	5813	100.0%	0.438	0.438	0	0	1
Unique Country	2547	43.8%	5.217	4.381	2	4	7
Total Haven	2547	43.8%	20.513	37.162	1	9	22

This table reports descriptive statistics for data hand collected from 10-K filings for the period 1997-2010 and variables estimated from this data. All values reported in millions. *Option Tax Benefit: Reported:* Cash tax benefit from stock option deductions reported in statement of cash flows, statement of equity, share-based compensation footnote or tax footnote. *Option Tax Benefit: Estimated*: Estimate of cash tax benefit from stock option deductions using Hanlon and Shevlin(2002). *Option Tax Benefit*: Reported cash tax benefit from stock option deductions. If missing, estimated benefit. *123R Option Expense: Reported*: Stock option compensation expense reported in share-based compensation footnote. *123R Option Expense: Estimated*: Reported unrecognized option compensation expense divided by reported vesting period of options, one-year lag. *123R Option Expense*: Reported stock option compensation expense. If missing, estimated expense. *DTL PPE*: Deferred tax liability for property, plant and equipment from tax footnote. *PRE*: Permanently Reinvested Earnings from tax footnote. *PRE TAX: Reported*: Unrecognized liability for residual U.S. tax on unremitted foreign earnings from tax footnote. *PRETAX: estimate (Bauman and Shaw)*: Estimated unrecognized tax liability on unremitted foreign earnings using Bauman and Shaw (2008) methodology = (ΔPRE/(1-FETR3))*(35%-FETR3). *PRETAX: estimate (Krull)*: Estimated unrecognized tax liability on unremitted foreign earnings using Krull (2004) methodology = ΔPRE*(1-FETR5). *PRETAX*: Reported unrecognized tax liability on unremitted foreign earnings. If missing, use estimate. *FETR*: Cumulative foreign effective tax rate = current foreign tax expense/foreign pretax income. *DTL FOR*: Deferred tax liability on unremitted foreign earnings from tax footnote. *Haven* is an indicator for presence in any tax haven jurisdiction. *Unique Country* identifies how many unique tax haven jurisdictions a firm operates in. *Haven Tota*l identifies the total number of subsidiaries in a tax haven jurisdiction. Tax haven jurisdictions are defined following Dyreng and Lindsay (2009). Tax haven jurisdictions are identified using web crawler technology. See Appendix C for further details and list of tax haven jurisdictions.

[a]Level statistics are reported for firm year observations reporting the variable and change statistics include all observations. Missing values are set to zero for change variables unless otherwise noted because firms that do not report an amount are assumed not to have a material amount of that variable. % Report is the percentage of firm year observations disclosing the amount or the percentage of observations with the necessary data to estimate the variable.

			Table 1		
			Descriptive Statistics		
Panel B: Correlation Coefficients for Hand Collected Data					
	PRE	PRETAX	Option Tax Benefit	DTL PPE	DTL FOR
PRE	1.000	**0.624**	**0.317**	**-0.243**	-0.015
PRETAX	**0.813**	1.000	**0.286**	**-0.124**	0.002
Option Tax Benefit	**0.121**	0.087	1.000	-0.039	**-0.048**
DTL PPE	**-0.315**	-0.008	-0.027	1.000	**-0.066**
DTL FOR	**-0.297**	**-0.294**	**-0.158**	0.013	1.000

Panel B presents Spearman (upper panel) and Pearson (lower panel) correlation coefficients for hand-collected data. Correlations significant at p < .05 in bold. See Appendix A or Panel A for variable description.

Table 1						
Descriptive Statistics						
Panel C: Descriptive Statistics for Tax Avoidance Measures and Proposed Adjustments						
Tax Avoidance Measures	n	Mean	Std. Dev	25th	Median	75th
CETR	3273	24.66%	0.155	14.15%	24.31%	32.93%
CETR AVOID	3273	10.34%	0.155	2.07%	10.69%	20.85%
STOCK AVOID	3273	2.19%	0.0544	0.10%	0.90%	0.00%
DEPR AVOID	3273	3.32%	0.316	-0.58%	0.50%	4.14%
RESIDUAL AVOID (Bauman and Shaw)	3273	1.62%	0.085	0.00%	0.00%	1.32%
RESIDUAL AVOID (Krull)	3273	1.14%	0.011	0.00%	0.00%	0.58%
OTHER AVOID	3273	3.58%	0.393	-4.20%	4.39%	15.43%
CETR3	2612	24.51%	0.1416	15.61%	23.98%	32.00%
CETR AVOID3	2612	10.49%	0.1416	2.99%	11.02%	19.39%
STOCK AVOID3	2612	2.51%	0.061	0.3%	1.1%	2.7%
DEPR AVOID3	2612	3.5%	0.1909	-0.27%	0.66%	4.33%
RESIDUAL AVOID3 (Bauman and Shaw)	2612	1.08%	0.046	0.00%	0.00%	0.69%
RESIDUAL AVOID3 (Krull)	2612	1.08%	0.011	0.00%	0.00%	0.69%
OTHER AVOID3	2612	3.57%	0.238	-3.10%	4.36%	13.49%

Panel B presents descriptive statistics for tax avoidance measures and proposed adjustments. See Appendix A for variable descriptions. *CETR* : Cash Taxes Paid/Earnings before tax and special items. *CETR AVOID* : 35%-*CETR* . *STOCK AVOID* : Tax avoidance resulting from stock option tax benefits = Option Tax Benefit/Earnings before tax and special items. *DEPR AVOID* : Tax avoidance resulting from accelerated tax depreciation deductions = ΔDTL PPE/Earnings before tax and special items. *RESIDUAL AVOID* : Tax avoidance resulting from deferral of residual U.S. tax on foreign income = (Δ PRETAX + Δ DTL unremitted foreign earnings)/Earnings before tax and special items. *OTHER AVOID* : Tax avoidance unrelated to specific methods of tax avoidance = 35%-adjusted CETR. Variables ending in "3" are cumulative three-year measures. Sample period CETR 1998-2010, CETR3 2000-2010. See Appendix B for sample selection.

Table 2A
Test of Adjusted Tax Avoidance Measures Relation to Traditional Control Variables using CETR3

Model 5a: $\text{CETR AVOID3} = \beta_0 + \beta_1 \text{Stock Options}_{it} + \beta_2 \text{PPE}_{it} + \beta_3 \text{ForeignIncome}_{it} + \varepsilon_{it}$

Model 5b: $\text{OTHER AVOID3} = \beta_0 + \beta_1 \text{Stock Options}_{it} + \beta_2 \text{PPE}_{it} + \beta_3 \text{ForeignIncome}_{it} + \varepsilon_{it}$

Model 5c: $\text{SPECIFIC AVOID3} = \beta_0 + \beta_1 \text{Stock Options}_{it} + \beta_2 \text{PPE}_{it} + \beta_3 \text{ForeignIncome}_{it} + \varepsilon_{it}$

Panel A: Complete Model

Dependent Variable	CETR AVOID3		OTHER AVOID3		SPECIFIC AVOID3	
	Coeff.	Significance	Coeff.	Significance	Coeff.	Significance
β_0	0.0968	<.0001	0.1016	<.0001	-0.0075	0.4402
β_1 Options	0.0250	0.0154	-0.0593	0.0006	0.1039	0.0002
β_2 PPE	0.0068	0.5476	-0.1736	<.0001	0.1785	<.0001
β_3 Foreign Income	-0.0017	0.9781	0.0500	0.6112	-0.0511	0.5689
n	2612		2612		2612	
R	0.23%		3.88%		2.35%	
Adj R	0.11%		3.77%		2.24%	

Panel B: Reduced Models

Dependent Variable	CETR AVOID3		CETR NO STOCK AVOID3		STOCK AVOID3	
	Coeff.	Significance	Coeff.	Significance	Coeff.	Significance
β_0	0.0989	<.0001	0.0921	<.0001	0.0049	0.0002
β_1 Options	0.0246	0.0171	-0.0785	0.0127	0.0822	<.0001
n	2612		2612		2612	
R	0.21%		0.53%		12.83%	
Adj R	0.18%		0.50%		12.79%	

Dependent Variable	CETR AVOID3		CETR NO DEPR AVOID3		DEPR AVOID3	
	Coeff.		Coeff.	Significance	Coeff.	Significance
β_0	0.1033	<.0001	0.1217	<.0001	-0.0246	<.0001
β_2 PPE	0.0053	0.6412	-0.1858	<.0001	0.1966	<.0001
n	2612		2612		2612	
R	0.01%		1.92%		7.20%	
Adj R	-0.03%		1.88%		7.16%	

Dependent Variable	CETR AVOID3		CETR NO RESIDUAL AVOID3		RESIDUAL AVOID3	
	Coeff.	Significance	Coeff.	Significance	Coeff.	Significance
β_0	0.1046	<.0001	0.0917	<.0001	0.0053	<.0001
β_3 Foreign Income	0.0131	0.8339	-0.1710	0.0155	0.2282	<.0001
n	2612		2612		2612	
R	0.0%		0.07%		4.54%	
Adj R	-0.04%		0.04%		4.51%	

This table presents results of a regression of the unadjusted and adjusted tax avoidance measure on variables utilized in prior research to control for a firm's ability to reduce tax burden, specifically option compensation, property, plant, and equipment, and foreign earnings. See Appendix A and prior panels for variable description. Control variables defined as follows. *Options* : Average annual value realized from the exercise of options for the top five executives of options by the top five executives grossed up by the fraction of options owned by the covered executives in year t-1 (Execucomp). *PPE* : Property, plant and equipment, gross = (PPEGT/ AT_{t-1}). *Foreign Income* : Pre-tax income from foreign operations = (PIFO/AT_{t-1}). Panel A includes dependent variables *CETR AVOID3:* 35% - unadjusted CETR3; *OTHER AVOID3* : tax avoidance unrelated to stock option tax benefits, accelerated tax depreciation and residual tax deferral = 35% - adjusted CETR3 and *SPECIFIC AVOID3* : tax avoidance related to stock option tax benefits, accelerated tax depreciation and residual tax deferral.   Panel B includes dependent variables *CETR AVOID3* , *CETR NO STOCK AVOID3* : tax avoidance implied by CETR3 unrelated to stock option tax benefits, *STOCK AVOID3* : tax avoidance from stock option tax benefits, *CETR NO DEPR AVOID3* : tax avoidance implied by the CETR3 unrelated to accelerated tax depreciation deductions, *DEPR AVOID3:* tax avoidance related to accelerated tax depreciation deductions, *CETR NO RESIDUAL AVOID3* : tax avoidance implied by the CETR3 unrelated to deferral of residual U.S. tax on foreign earnings and *RESIDUAL AVOID3* : tax avoidance related to deferral of residual U.S. tax on foreign earnings.

Table 2B
Test of Adjusted Tax Avoidance Measures Relation to Traditional Control Variables using CETR

Model 5a: $CETR\ AVOID_{it} = \beta_0 + \beta_1 Stock\ Options_{it} + \beta_2 PPE_{it} + \beta_3 ForeignIncome_{it} + \varepsilon_{it}$

Model 5b: $OTHER\ AVOID_{it} = \beta_0 + \beta_1 Stock\ Options_{it} + \beta_2 PPE_{it} + \beta_3 ForeignIncome_{it} + \varepsilon_{it}$

Model 5c: $SPECIFIC\ AVOID_{it} = \beta_0 + \beta_1 Stock\ Options_{it} + \beta_2 PPE_{it} + \beta_3 ForeignIncome_{it} + \varepsilon_{it}$

Panel A: Complete Model

Dependent Variable	CETR AVOID		OTHER AVOID		SPECIFIC AVOID	
	Coeff.	Significance	Coeff.	Significance	Coeff.	Significance
β_0	0.0985	<.0001	0.1310	<.0001	-0.0430	0.0100
β_1 Options	-0.0011	0.1448	-0.0369	0.0924	0.0673	0.0213
β_2 PPE	0.0147	0.9241	-0.2747	<.0001	0.2932	<.0001
β_3 Foreign Income	0.0589	0.2757	-0.0113	0.9086	0.0607	0.6163
n	3273		3273		3273	
R	0.10%		3.63%		2.36%	
Adj R	0.01%		3.54%		2.27%	

Panel B: Reduced Models

Dependent Variable	CETR AVOID		CETR NO STOCK AVOID		STOCK AVOID	
	Coeff.	Significance	Coeff.	Significance	Coeff.	Significance
β_0	0.0993	<.0001	0.0901	<.0001	0.0072	<.0001
β_1 Options	0.0158	0.1148	-0.0394	0.0004	0.0572	<.0001
n	3273		3273		3273	
R	0.08%		0.40%		8.00%	
Adj R	0.04%		0.37%		7.97%	

Dependent Variable	CETR AVOID		CETR NO DEPR AVOID		DEPR AVOID	
	Coeff.		Coeff.	Significance	Coeff.	Significance
β_0	0.1040	<.0001	0.1638	<.0001	-0.0529	<.0001
β_2 PPE	-0.0020	0.8583	-0.2997	<.0001	0.2765	<.0001
n	3273		3273		3273	
R	0.00%		2.49%		5.70%	
Adj R	-0.03%		2.46%		5.67%	

Dependent Variable	CETR AVOID		CETR NO RESIDUAL AVOID		RESIDUAL AVOID	
	Coeff.	Significance	Coeff.	Significance	Coeff.	Significance
β_0	0.1017	<.0001	0.0961	<.0001	0.0034	0.0055
β_3 Foreign Income	0.0693	0.2023	-0.2393	<.0001	0.3245	<.0001
n	3273		3273		3273	
R	0.04%		0.25%		3.26%	
Adj R	0.01%		0.22%		3.23%	

This table presents results of a regression of the unadjusted and adjusted tax avoidance measure on variables utilized in prior research to control for a firm's ability to reduce tax burden, specifically option compensation, property, plant, and equipment, and foreign earnings. See Appendix A and prior panels for variable description. Control variables defined as follows. *Options*: Average annual value realized from the exercise of options for the top five executives of options by the top five executives grossed up by the fraction of options owned by the covered executives in year t-1 (Execucomp). *PPE*: Property, plant and equipment, gross = (PPEGT/ AT_{t-1}). *Foreign Income*: Pre-tax income from foreign operations = (PIFO/AT_{t-1}). Panel A includes dependent variables *CETR AVOID:* 35% - unadjusted CETR; *OTHER AVOID*: tax avoidance unrelated to stock option tax benefits, accelerated tax depreciation and residual tax deferral = 35%-adjusted CETR and *SPECIFIC AVOID*: tax avoidance related to stock option tax benefits, accelerated tax depreciation and residual tax deferral. Panel B includes dependent variables *CETR AVOID*, *CETR NO STOCK AVOID*: tax avoidance implied by CETR unrelated to stock option tax benefits, *STOCK AVOID*: tax avoidance from stock option tax benefits, *CETR NO DEPR AVOID*: tax avoidance implied by the CETR unrelated to accelerated tax depreciation deductions, *DEPR AVOID:* tax avoidance related to accelerated tax depreciation deductions, *CETR NO RESIDUAL AVOID*: tax avoidance implied by the CETR unrelated to deferral of residual U.S. tax on foreign earnings and *RESIDUAL AVOID*: tax avoidance related to deferral of residual U.S. tax on foreign earnings.

			Table 3			
			Descriptive Statistics			

Panel A: Descriptive Statistics for Dependent and Control Variables

	n	Mean	Std. Dev	25th	Median	75th
Tobin's Q	2612	1.7945	1.107	1.157	1.411	2.006
Options	2612	0.2457	0.266	0.0087	0.149	0.4147
PPE	2612	0.3023	0.2605	0.0887	0.2427	0.4757
Foreign Income	2612	0.0242	0.0431	0	0.0016	0.0037
Size	2612	18,637.6	33,133.6	5,004.2	8,293.1	18,187.5
Risk	2612	0.1016	0.0505	0.0678	0.0916	0.1211
Growth	2612	0.1098	0.1833	0.01756	0.0751	0.1583
Leverage	2612	0.259	0.166	0.1386	0.2439	0.3583
NOL	2612	0.3974	0.4895	0	0	1
Intangible	2612	0.1799	0.2182	0.0208	0.10699	0.27387
Firm Age	2612	3.372	0.781	2.833	3.497	4.007
Cash	2612	0.1074	0.13	0.02437	0.0596	0.1438
Appreciation	2612	0.8626	26.512	-0.2958	0.00051	0.331

Panel A presents descriptive statistics for dependent and control variables for firm value regression analysis using three-year cumulative tax avoidance measure. Letters in caps are Compustat, CRSP or Execucomp variable name. All $ values report in millions unless otherwise noted. *Tobin's Q* : Ratio of market value of firm to book value of firm = $((AT) + ((PRCC\_C)*(CSHO))-(CEQ))/(AT)$. *Options* : Average annual value realized from the exercise of options for the top five executives of options by the top five executives grossed up by the fraction of options owned by the covered executives in year t-1 (Execucomp). *PPE* : Property, plant and equipment, gross = $(PPEGT/ AT_{t-1})$. *Foreign Income* : Pre-tax income from foreign operations = $(PIFO/AT_{t-1})$. Size: Total Sales (SALE). *Risk* : Standard deviation of monthly stock returns over previous 36 months (CRSP). *Growth* : 3 year average sales growth from t-2 to t = $\sum_{t-2,t} (SALE_t - SALE_{t-1})/SALE_{t-1}$. *Leverage:* Long-term Debt = $(DLTT+DLC)/(AT)$. NOL: =1 if firm has tax loss Carryforward (TLCF), otherwise = 0. *Intangible* : Intangible assets = $(INTAN/AT_{t-1})$. *Firm Age*: Ln(1 + number of years listed in Compustat). *Cash* : Total Cash = (CHE/ AT_{t-1}). *Appreciation* : cumulative stock price appreciation over prior four years = $(Price_t - Price_{t-3})/ Price_{t-3}$.

Table 3

Descriptive Statistics

Panel B: Firm Value Regression Correlation Coefficients (3 year Tax Avoidance Measures)

	CETR AVOID3	OTHER AVOID3	STOCK AVOID3	DEPR AVOID3	RESIDUAL DEFER3	Q	Option	PPE	Foreign Income
CETR AVOID3	1.000	**0.643**	**0.118**	**0.077**	**0.108**	**-0.044**	0.020	-0.023	0.022
OTHER AVOID3	**0.514**	1.000	**-0.076**	**-0.438**	**-0.065**	**-0.070**	**-0.076**	**-0.212**	**0.055**
STOCK AVOID3	-0.043	**-0.341**	1.000	0.012	**0.084**	**0.372**	**0.530**	**-0.161**	**0.059**
DEPR AVOID3	**0.075**	**-0.721**	0.044	1.000	0.001	-0.027	0.019	**0.334**	**-0.073**
RESIDUAL DEFER	**0.074**	**-0.221**	**0.185**	0.043	1.000	**0.138**	0.043	0.006	**0.400**
Q	**0.045**	-0.003	**0.251**	**-0.061**	0.059	1.000	**0.304**	**0.117**	**0.418**
Option	**0.046**	**-0.054**	**0.358**	-0.025	0.037	**0.342**	1.000	**-0.068**	**0.054**
PPE	0.010	**-0.186**	**-0.077**	**0.268**	-0.002	-0.017	**-0.058**	1.000	0.037
Foreign Income	0.004	-0.005	-0.016	-0.038	**0.213**	**0.431**	**0.085**	0.042	1.000
Size	**-0.051**	-0.032	**-0.059**	0.008	**0.051**	-0.011	0.007	**0.053**	**0.235**
Risk	-0.001	-0.002	**0.167**	-0.052	-0.004	0.000	-0.023	**-0.076**	**-0.115**
Growth	**0.082**	**-0.077**	**0.144**	**0.106**	0.023	**0.123**	**0.177**	**0.141**	0.019
Leverage	**0.038**	0.029	**-0.142**	0.052	-0.029	**-0.206**	**-0.187**	**0.188**	**-0.199**
NOL	0.023	**0.045**	0.007	-0.049	0.035	0.016	-0.025	**-0.050**	**0.096**
Intangible	-0.006	-0.027	**0.039**	-0.003	**0.059**	0.015	0.018	**-0.155**	**0.065**
Firm Age	-0.025	-0.005	**-0.209**	**0.050**	**0.040**	**-0.065**	**-0.153**	**0.166**	**0.173**
Cash	**0.065**	0.016	**0.273**	**-0.070**	**0.076**	**0.362**	**0.201**	**-0.269**	**0.208**
Appreciation	**0.040**	0.012	-0.008	0.018	-0.005	-0.012	-0.025	**0.041**	0.002

	Size	Risk	Growth	Leverage	NOL	Intangible	Firm Age	Cash	Appreciation
CETR AVOID3	-0.010	0.032	0.006	**0.050**	0.036	-0.021	-0.033	0.021	**0.060**
OTHER AVOID3	0.016	0.003	**-0.172**	**0.054**	**0.059**	**0.047**	0.013	0.028	**0.046**
STOCK AVOID3	**-0.067**	**0.064**	**0.266**	**-0.217**	**0.070**	**0.059**	**-0.261**	**0.175**	**0.120**
DEPR AVOID3	0.004	**-0.097**	**0.175**	**0.051**	**-0.050**	**-0.055**	**0.066**	**-0.173**	**0.057**
RESIDUAL DEFER	**0.128**	-0.025	0.025	**-0.058**	**0.091**	**0.123**	**0.076**	**0.093**	-0.032
Q	-0.004	**-0.082**	**0.137**	**-0.244**	**0.087**	**0.146**	0.012	**0.269**	**0.167**
Option	**0.066**	**-0.080**	**0.258**	**-0.202**	-0.023	-0.017	**-0.122**	**0.108**	**0.069**
PPE	0.015	**-0.092**	0.012	**0.252**	-0.030	**-0.148**	**0.249**	**-0.339**	0.016
Foreign Income	**0.158**	**-0.097**	-0.031	**-0.168**	**0.184**	**0.255**	**0.188**	**0.189**	0.033
Size	1.000	**-0.236**	0.006	-0.057	-0.001	0.044	**0.249**	0.062	**-0.099**
Risk	**-0.151**	1.000	**-0.057**	-0.026	**0.118**	**-0.114**	**-0.330**	**0.187**	**-0.221**
Growth	0.019	0.002	1.000	**-0.091**	-0.028	0.023	**-0.209**	0.025	**0.214**
Leverage	**-0.084**	**0.069**	-0.003	1.000	**-0.053**	**0.084**	**0.133**	**-0.418**	**-0.054**
NOL	-0.034	**0.113**	-0.008	-0.023	1.000	**0.146**	**-0.143**	**0.082**	0.030
Intangible	-0.020	**-0.104**	0.070	0.038	0.097	1.000	0.011	**-0.082**	0.002
Firm Age	**0.163**	**-0.299**	**-0.193**	0.070	**-0.165**	-0.063	1.000	**-0.115**	**-0.054**
Cash	-0.017	**0.196**	0.079	**-0.276**	0.046	-0.037	**-0.175**	1.000	0.036
Appreciation	0.003	**0.052**	0.017	-0.026	0.036	0.014	**-0.085**	0.046	1.000

Panel B presents Spearman (upper panel) and Pearson (lower panel) correlation coefficients for variables in firm value regression analysis using cumulative three-year tax avoidance measures. Correlations significant at p < .05 in bold. See Appendix A and prior panels for variable description.

							T-test of Difference in Means
	No Tax Haven Firm Year Observations			**Tax Haven Firm Year Observations**			
	n[a]	Mean	Std. Dev	n[a]	Mean	Std. Dev	p-value
PRE	526	2429.4	2429.4	806	3884.9	9025	0.0008
PRE TAX Reported	118	442.8	924.3	209	458.7	1017	0.8882
PRE TAX Estimate B&S	504	419.7	1184.2	772	714.3	1918.3	0.0021
PRE TAX Estimate Krull	504	242	813.2	772	441.2	1311.5	0.0024
DTL FOR	138	-92.648	246.4	192	-552.4	1502.6	<.0001
Tobin's Q	1331	1.7935	1.131	1281	1.796	1.083	0.9599
Options	1331	0.248	0.273	1281	0.244	0.259	0.7224
PPE	1331	0.3352	0.2812	1281	0.2682	0.2324	<.0001
Foreign Income	1331	0.0184	0.041	1281	0.03	0.045	<.0001
Size	1331	16,496.4	31,999.4	1281	20,862.4	34,142.7	0.0008
Risk	1331	0.102	0.0484	1281	0.101	0.053	0.8866
Growth	1331	0.1213	0.213	1281	0.0978	0.1452	0.0011
Leverage	1331	0.2761	0.167	1281	0.2413	0.1637	<.0001
NOL	1331	0.3727	0.4837	1281	0.4231	0.4942	0.0084
Intang	1331	0.1557	0.2282	1281	0.2049	0.204	<.0001
Firm Age	1331	3.39	0.752	1281	3.353	0.8106	0.2291
Cash	1331	0.0981	0.132	1281	0.117	0.1274	0.0002
Appreciation	1331	0.792	24.497	1281	0.9361	28.464	0.8896
CETR3	1331	24.90%	0.145	1281	24.09%	0.138	0.1442
CETR AVOID3	1331	10.10%	0.145	1281	10.91%	0.138	0.1442
STOCK AVOID3	1331	2.54%	0.062	1281	2.48%	0.06	0.8134
DEPR AVOID3	1331	4.5%	0.2013	1281	2.46%	0.1789	0.007
RESIDUAL AVOID3 BS	1331	1.16%	0.0423	1281	2.06%	0.0571	<.0001
RESIDUAL AVOID3 KRULL	1331	0.80%	0.037	1281	1.37%	0.0536	0.0018
OTHER AVOID3 BS	1331	2.18%	0.2513	1281	4.05%	0.2258	0.046
OTHER AVOID3 KRULL	1331	2.48%	0.2503	1281	4.70%	0.2245	0.0171

Table 4

Descriptive Statistics for Dependent, Tax Avoidance and Control Variables in Tax Haven Firm Value Analysis

This table presents descriptive statistics for dependent, tax avoidance and control variables for firm value tax haven regression analysis using three-year cumulative tax avoidance measure. Tax haven jurisdictions are defined following Dyreng and Lindsay (2009). Tax haven jurisdictions are identified using web crawler technology. See Appendix C for further details and list of tax haven jurisdictions. Comparison of hand collected residual tax deferral variables are presented for observations having variable by tax haven status. Firm value analysis dependent, tax avoidance and control variables are also presented by tax haven status. T-test for difference in means presented comparing each variable between tax haven and no tax haven firm year observations.

Table 5A							
Descriptive Statistics							
Panel A: Descriptive Statistics for Dependent, Tax Avoidance and Control Variables in Agency Analysis - G-Index							
	n[a]	Mean	Std. Dev	25th	Median	75th	90th
G-Index	2612	9.896	2.499	8	10	12	14

	Well Governed Firm Year Observations			Poorly Governed Firm Year Observations			T-test of Difference in Means
	n[a]	Mean	Std. Dev	n[a]	Mean	Std. Dev	p-value
Governance Assignment 1 Mean: (Poor G = G-Index > Sample Mean 9.896)							
Tobin's Q	1202	1.923	1.2735	1410	1.685	0.929	<.0001
Options	1202	0.2704	0.281	1410	0.2248	0.2512	<.0001
PPE	1202	0.2865	0.2533	1410	0.3158	0.266	0.0042
Foreign Income	1202	0.0258	0.0464	1410	0.0229	0.04	0.0889
Size	1202	24,642.8	45,187.5	1410	13,518.3	15,392.1	<.0001
Risk	1202	0.1053	0.0538	1410	0.0985	0.0472	0.0006
Growth	1202	0.1247	0.1878	1410	0.0971	0.1785	0.0001
Leverage	1202	0.2603	0.1898	1410	0.258	0.1433	0.7244
NOL	1202	0.3802	0.4856	1410	0.4121	0.4924	0.0973
Intang	1202	0.1726	0.2458	1410	0.1861	0.1815	0.1171
Firm Age	1202	3.2605	0.8163	1410	3.467	0.7373	<.0001
Cash	1202	0.1258	0.1449	1410	0.0917	0.1137	<.0001
Appreciation	1202	0.9613	29.3827	1410	0.7785	23.8034	0.8606
CETR3	1202	24.66%	0.1464	1410	24.38%	0.1373	0.6117
CETR AVOID3	1202	10.34%	0.1464	1410	10.62%	0.1373	0.6117
STOCK AVOID3	1202	3.05%	0.0753	1410	2.05%	0.0451	<.0001
DEPR AVOID3	1202	2.7%	0.1949	1410	4.17%	0.1872	0.046
RESIDUAL AVOID3 BS	1202	1.55%	0.0493	1410	1.65%	0.0512	0.6313
RESIDUAL AVOID3 KRULL	1202	1.08%	0.043	1410	1.08%	0.0486	0.9707
OTHER AVOID3 BS	1202	3.23%	0.2434	1410	2.98%	0.2358	0.7939
OTHER AVOID3 KRULL	1202	3.70%	0.2424	1410	3.46%	0.2346	0.7951
Governance Assignment 2 Third Quartile: (Poor G = G-Index > Sample Third Quartile 12)							
Tobin's Q	1949	1.8291	1.1638	663	1.6928	0.9145	0.0062
Options	1949	0.2548	0.2749	663	0.2192	0.2367	0.003
PPE	1949	0.3075	0.2702	663	0.2873	0.2295	0.0857
Foreign Income	1949	0.024	0.0448	663	0.0247	0.0375	0.7495
Size	1949	21,158.3	37,200.9	663	11,227.7	13,564.6	<.0001
Risk	1949	0.1016	0.0512	663	0.1015	0.0481	0.9794
Growth	1949	0.1173	0.1968	663	0.0878	0.1339	0.0003
Leverage	1949	0.2631	0.1763	663	0.247	0.132	0.0306
NOL	1949	0.391	0.4881	663	0.4163	0.4933	0.25
Intang	1949	0.1736	0.2264	663	0.1984	0.1911	0.0113
Firm Age	1949	3.3067	0.8121	663	3.5639	0.6461	<.0001
Cash	1949	0.1143	0.1377	663	0.0871	0.102	<.0001
Appreciation	1949	1.1213	30.6867	663	0.1023	0.7228	0.3928
CETR3	1949	24.88%	0.1448	663	23.42%	0.1312	0.0224
CETR AVOID3	1949	10.12%	0.1448	663	11.58%	0.1312	0.0224
STOCK AVOID3	1949	2.67%	0.0637	663	2.04%	0.0523	0.0222
DEPR AVOID3	1949	3.6%	0.2061	663	3.12%	0.137	0.5645
RESIDUAL AVOID3 BS	1949	1.50%	0.0497	663	1.90%	0.052	0.0799
RESIDUAL AVOID3 KRULL	1949	1.03%	0.0472	663	1.24%	0.0429	0.3113
OTHER AVOID3 BS	1949	2.50%	0.2483	663	4.85%	0.2098	0.0287
OTHER AVOID3 KRULL	1949	2.95%	0.2477	663	5.39%	0.2069	0.0228

Panel A (Continued): Descriptive Statistics for Dependent, Tax Avoidance and Control Variables in Agency Analysis - G-Index

	Well Governed Firm Year Observations			Poorly Governed Firm Year Observations			T-test of Difference in Means
	n[a]	Mean	Std. Dev	n[a]	Mean	Std. Dev	p-value
Governance Assignment 3 Top Decile: (Poor G = G-Index > Top Decile 14)							
Tobin's Q	2415	1.8163	1.1415	197	1.5274	0.4538	0.0004
Options	2415	0.2495	0.2693	197	0.1998	0.2198	0.0118
PPE	2415	0.3017	0.2611	197	0.3104	0.2539	0.6533
Foreign Income	2415	0.0246	0.0439	197	0.0187	0.0301	0.0643
Size	2415	19,484.9	34,278.4	197	8,250.7	5,969.2	<.0001
Risk	2415	0.102	0.0513	197	0.0964	0.0382	0.1321
Growth	2415	0.112	0.186	197	0.0826	0.1433	0.03
Leverage	2415	0.2583	0.1682	197	0.2678	0.1405	0.4436
NOL	2415	0.3975	0.4895	197	0.3959	0.4903	0.9653
Intang	2415	0.1793	0.2216	197	0.1867	0.1715	0.649
Firm Age	2415	3.3516	0.7954	197	3.6215	0.522	0.0001
Cash	2415	0.1105	0.1325	197	0.0696	0.088	<.0001
Appreciation	2415	0.919	25.5714	197	0.1714	0.5592	0.7036
CETR3	2415	24.51%	0.1425	197	24.41%	0.1297	0.9201
CETR AVOID3	2415	10.49%	0.1425	197	10.59%	0.1297	0.9201
STOCK AVOID3	2415	2.57%	0.062	197	1.71%	0.0471	0.0577
DEPR AVOID3	2415	3.5%	0.1924	197	3.07%	0.1724	0.7515
RESIDUAL AVOID3 BS	2415	1.66%	0.051	197	0.96%	0.0404	0.0619
RESIDUAL AVOID3 KRUI	2415	1.14%	0.0473	197	0.30%	0.0269	0.0137
OTHER AVOID3 BS	2415	2.94%	0.241	197	5.01%	0.217	0.2419
OTHER AVOID3 KRULL	2415	3.40%	0.2396	197	5.69%	0.2191	0.1945
Governance Assignment 4 Extreme Quartiles: (Poor G = G-Index > TopQuartile 12 /Strong G = G-Index < Low Quartile 8)							
Tobin's Q	816	1.8815	1.2763	663	1.6928	0.9145	0.0014
Options	816	0.263	0.2778	663	0.2192	0.2367	0.0013
PPE	816	0.2768	0.2493	663	0.2873	0.2295	0.4036
Foreign Income	816	0.024	0.046	663	0.0247	0.0375	0.753
Size	816	27,304.9	51,660.9	663	11,227.7	13,564.6	<.0001
Risk	816	0.1077	0.0575	663	0.1015	0.0481	0.0286
Growth	816	0.1294	0.1981	663	0.0878	0.1339	<.0001
Leverage	816	0.2604	0.1993	663	0.247	0.132	0.1377
NOL	816	0.3529	0.4782	663	0.4163	0.4933	0.0126
Intang	816	0.1625	0.2424	663	0.1984	0.1911	0.0019
Firm Age	816	3.243	0.8051	663	3.5639	0.6461	<.0001
Cash	816	0.1312	0.1491	663	0.0871	0.102	<.0001
Appreciation	816	1.3572	35.658	663	0.1023	0.7228	0.3651
CETR3	816	24.74%	0.1415	663	23.42%	0.1312	0.0664
CETR AVOID3	816	10.26%	0.1415	663	11.58%	0.1312	0.0664
STOCK AVOID3	816	2.74%	0.0653	663	2.04%	0.0523	0.0253
DEPR AVOID3	816	2.9%	0.2047	663	3.12%	0.137	0.8194
RESIDUAL AVOID3 BS	816	1.43%	0.0502	663	1.90%	0.052	0.0766
RESIDUAL AVOID3 KRUI	816	0.92%	0.043	663	1.24%	0.0429	0.1611
OTHER AVOID3 BS	816	3.37%	0.2401	663	4.85%	0.2098	0.2119
OTHER AVOID3 KRULL	816	3.87%	0.2391	663	5.39%	0.2069	0.1973

Panel A presents descriptive statistics for dependent, tax avoidance and control variables in agency regression analysis using the G-Index (Gompers et al 2003) as a measure of corporate governance. Variables reported for each of four governance assignments as described in text of paper. Governance Assignment 1 Mean: Poor G = G-Index > Sample Mean 9.896.   Governance Assignment 2 Third Quartile: Poor G = G-Index > Sample Third Quartile 12. Governance Assignment 3 Top Decile: Poor G = G-Index > Top Decile 14. Governance Assignment 4 Extreme Quartiles: Poor G = G-Index > TopQuartile 12 /Strong G = G-Index < Low Quartile 8. See Appendix A and prior panels for variable description. T-test for difference in means presented comparing each variable between well and poorly governed firm year observations.

Table 5A

Correlation Coefficients

Panel B: Governance Correlation Coefficients (Poor G = G-Index > 9.69)

	OTHER AVOID3	STOCK AVOID3	DEPR AVOID3	RESIDUAL DEFER3	OTHER AVOID3* PoorG	STOCK AVOID3* PoorG	DEPR AVOID3* PoorG	RESIDUAL DEFER3* PoorG
OTHER AVOID3	1.000	**-0.072**	**-0.430**	**-0.067**	**0.663**	0.008	**-0.268**	-0.034
STOCK AVOID3	**-0.342**	1.000	0.013	**0.077**	-0.008	**0.407**	0.019	**0.045**
DEPR AVOID3	**-0.709**	0.036	1.000	0.006	**-0.279**	**0.091**	**0.718**	**0.039**
RESIDUAL DEFER3	**-0.229**	**0.185**	**0.046**	1.000	-0.018	0.032	0.011	**0.703**
OTHER AVOID3*PoorG	**0.724**	**-0.179**	**-0.518**	**-0.192**	1.000	**0.220**	**-0.238**	**0.064**
STOCK AVOID3*PoorG	**-0.222**	**0.497**	0.037	**0.131**	**-0.270**	1.000	**0.301**	**0.274**
DEPR AVOID3*PoorG	**-0.523**	0.004	**0.725**	0.044	**-0.697**	0.075	1.000	**0.128**
RESIDUAL DEFER3*Poor(	**-0.180**	**0.084**	**0.050**	**0.768**	**-0.230**	**0.211**	**0.080**	1.000
Q	-0.002	**0.252**	**-0.060**	0.052	0.005	**0.081**	**-0.069**	0.001
Poor G	-0.009	**-0.083**	**0.053**	-0.004	**0.099**	**0.293**	**0.155**	**0.146**
Option	**-0.053**	**0.359**	-0.026	0.034	-0.026	**0.181**	-0.034	-0.001
PPE	**-0.194**	**-0.076**	**0.275**	-0.001	**-0.177**	-0.020	**0.259**	**0.035**
Foreign Income	-0.004	-0.019	-0.037	**0.205**	0.022	**-0.040**	**-0.059**	0.128

	Q	Poor G	Option	PPE	Foreign Income
OTHER AVOID3	**-0.072**	0.008	**-0.076**	**-0.220**	**0.055**
STOCK AVOID3	**0.374**	-0.024	**0.535**	**-0.160**	**0.051**
DEPR AVOID3	-0.021	**0.097**	0.020	**0.341**	**-0.069**
RESIDUAL DEFER3	**0.135**	-0.012	**0.040**	0.007	**0.398**
OTHER AVOID3*PoorG	-0.003	**0.278**	-0.032	**-0.163**	**0.096**
STOCK AVOID3*PoorG	**0.094**	**0.756**	**0.170**	-0.014	0.023
DEPR AVOID3*PoorG	-0.030	**0.345**	0.018	**0.203**	**-0.065**
RESIDUAL DEFER3*Poor(	**0.065**	**0.291**	0.028	0.045	**0.266**
Q	1.000	**-0.073**	**0.305**	**0.118**	**0.418**
Poor G	**-0.121**	1.000	**-0.077**	**0.052**	-0.008
Option	**0.341**	**-0.103**	1.000	**-0.071**	**0.052**
PPE	-0.016	**0.041**	**-0.060**	1.000	**0.042**
Foreign Income	**0.427**	**-0.049**	**0.080**	**0.045**	1.000

Panel B presents Spearman (upper panel) and Pearson (lower panel) correlation coefficients for variables in firm value regression analysis in an agency context using G-Index as a measure of corporate governance at the mean and cumulative three-year tax avoidance measures. Correlations significant at p < .05 in bold. See Appendix A and prior panels for variable description.

Table 5B							
Descriptive Statistics							
Panel A: Descriptive Statistics for Dependent and Control Variables in Agency Analysis - E-Index							
	n[a]	Mean	Std. Dev	25th	Median	75th	90th
E-Index	2484	2.735	1.359	2	3	4	5

		Well Governed Firm Year Observations			Poorly Governed Firm Year Observations		T-test of Difference in Means
	n[a]	Mean	Std. Dev	n[a]	Mean	Std. Dev	p-value
Governance Assignment 1 Mean: (Poor G = E-Index > Sample Mean 2.735)							
Tobin's Q	1141	2.013	1.328	1471	1.625	0.8625	<.0001
Options	1141	0.2828	0.2907	1471	0.217	0.2417	<.0001
PPE	1141	0.2881	0.243	1471	0.3134	0.273	0.0137
Foreign Income	1141	0.0291	0.0482	1471	0.0204	0.0382	<.0001
Size	1141	23,084.0	41,768.0	1471	15,189.0	23,871.0	<.0001
Risk	1141	0.1041	0.0549	1471	0.0997	0.0466	0.0277
Growth	1141	0.1199	0.1859	1471	0.1019	0.1809	0.0129
Leverage	1141	0.2628	0.1894	1471	0.2561	0.1459	0.3083
NOL	1141	0.3742	0.4841	1471	0.4154	0.493	0.0331
Intang	1141	0.18	0.2242	1471	0.1798	0.2136	0.9804
Firm Age	1141	3.331	0.8097	1471	3.404	0.7573	0.0184
Cash	1141	0.1267	0.1533	1471	0.0924	0.1063	<.0001
Appreciation	1141	1.7779	40.942	1471	0.1527	0.8007	0.1202
CETR3	1141	24.41%	0.1401	1471	24.58%	0.1428	0.763
CETR AVOID3	1141	10.59%	0.1401	1471	10.42%	0.1428	0.763
STOCK AVOID3	1141	3.32%	0.0778	1471	1.88%	0.0429	<.0001
DEPR AVOID3	1141	3.41%	0.2043	1471	3.55%	0.1799	0.856
RESIDUAL AVOID3 BS	1141	1.73%	0.0529	1471	1.51%	0.0482	0.2741
RESIDUAL AVOID3 KRUL	1141	1.20%	0.0505	1471	0.98%	0.0425	0.2286
OTHER AVOID3 BS	1141	2.32%	0.2489	1471	3.70%	0.2314	0.1453
OTHER AVOID3 KRULL	1141	2.81%	0.2484	1471	4.16%	0.2298	0.151
Governance Assignment 2 Third Quartile: (Poor G = E-Index > Sample Third Quartile 4)							
Tobin's Q	1834	1.874	1.185	778	1.606	0.08692	<.0001
Options	1834	0.2565	0.2742	778	0.2203	0.2444	0.0015
PPE	1834	0.2997	0.2619	778	0.3085	0.2575	0.4325
Foreign Income	1834	0.0251	0.0451	778	0.022	0.0379	0.0917
Size	1834	20,472.7	37,192.1	778	14,311.7	19,981.1	<.0001
Risk	1834	0.1016	0.0516	778	0.1016	0.0476	0.9929
Growth	1834	0.1214	0.1987	778	0.0824	0.1368	<.0001
Leverage	1834	0.2653	0.176	778	0.2443	0.1399	0.0033
NOL	1834	0.3839	0.4865	778	0.4293	0.4953	0.03
Intang	1834	0.1806	0.2305	778	0.1782	0.1864	0.7947
Firm Age	1834	3.363	0.7982	778	3.394	0.74	0.354
Cash	1834	0.1149	0.1401	778	0.0898	0.1005	<.0001
Appreciation	1834	1.1849	31.633	778	0.1028	0.7445	0.3402
CETR3	1834	24.07%	0.1419	778	25.55%	0.1404	0.0146
CETR AVOID3	1834	10.93%	0.1419	778	9.45%	0.1404	0.0146
STOCK AVOID3	1834	2.80%	0.0671	778	1.81%	0.0428	0.0002
DEPR AVOID3	1834	3.59%	0.2012	778	3.24%	0.1641	0.6709
RESIDUAL AVOID3 BS	1834	1.47%	0.0512	778	1.91%	0.048	0.042
RESIDUAL AVOID3 KRUL	1834	0.98%	0.0486	778	1.31%	0.0396	0.1007
OTHER AVOID3 BS	1834	3.24%	0.251	778	2.75%	0.209	0.6316
OTHER AVOID3 KRULL	1834	3.67%	0.2493	778	3.33%	0.2099	0.7391

							Table 5B				

Table 5B
Descriptive Statistics

Panel A (Continued): Descriptive Statistics for Dependent, Tax Avoidance and Control Variables in Agency Analysis - E-Index

	Well Governed Firm Year Observations			Poorly Governed Firm Year Observations			T-test of Difference in Means
	n[a]	Mean	Std. Dev	n[a]	Mean	Std. Dev	p-value
Governance Assignment 3 Top Decile: (Poor G = E-Index > Top Decile 5)							
Tobin's Q	2393	1.8246	1.434	219	1.4654	0.4699	<.0001
Options	2393	0.251	0.2485	219	0.2156	0.2541	0.0798
PPE	2393	0.3004	0.2596	219	0.3234	0.2707	0.2121
Foreign Income	2393	0.0244	0.0434	219	0.0224	0.0393	0.5228
Size	2393	19,148.6	34,053.7	219	13,054.6	19,756.9	0.0092
Risk	2393	0.1012	0.0496	219	0.1059	0.0588	0.1834
Growth	2393	0.1134	0.1862	219	0.0704	0.1428	0.0009
Leverage	2393	0.258	0.1677	219	0.2699	0.1496	0.3126
NOL	2393	0.3957	0.4891	219	0.4155	0.4939	0.567
Intang	2393	0.1808	0.2216	219	0.1698	0.1778	0.4735
Firm Age	2393	3.3645	0.7906	219	3.454	0.6674	0.1047
Cash	2393	0.1094	0.1326	219	0.0857	0.0954	0.01
Appreciation	2393	0.9373	27.6967	219	0.0463	0.8777	0.6341
CETR3	2393	24.37%	0.1415	219	26.03%	0.1411	0.0959
CETR AVOID3	2393	10.63%	0.1415	219	0.09%	0.1411	0.0959
STOCK AVOID3	2393	2.62%	0.0634	219	1.33%	0.0194	0.0029
DEPR AVOID3	2393	3.47%	0.195	219	3.67%	0.1381	0.8795
RESIDUAL AVOID3 BS	2393	1.57%	0.0505	219	1.97%	0.0482	0.263
RESIDUAL AVOID3 KRUL	2393	1.06%	0.0467	219	1.31%	0.0387	0.4351
OTHER AVOID3 BS	2393	3.19%	0.2442	219	2.05%	0.1776	0.4983
OTHER AVOID3 KRULL	2393	3.65%	0.2429	219	2.69%	0.1789	0.5674
Governance Assignment 4 Exterme Quartiles: (Poor G = E-Index > TopQuartile 4 /Strong G = G-Index < Low Quartile 2)							
Tobin's Q	768	1.907	1.3072	778	1.6062	0.8692	<.0001
Options	768	0.262	0.2783	778	0.2203	0.2444	0.0018
PPE	768	0.2757	0.2475	778	0.3085	0.2575	0.0107
Foreign Income	768	0.0241	0.0466	778	0.022	0.0379	0.3402
Size	768	27,333.1	52,442.2	778	14,311.7	19,981.1	<.0001
Risk	768	0.1079	0.0579	778	0.1016	0.0476	0.0184
Growth	768	0.1352	0.2002	778	0.0824	0.1368	<.0001
Leverage	768	0.2623	0.203	778	0.2443	0.1399	0.0431
NOL	768	0.3411	0.4744	778	0.4293	0.4953	0.0004
Intang	768	0.1572	0.2394	778	0.1782	0.1864	0.0547
Firm Age	768	3.2372	0.8029	778	3.3938	0.74	<.0001
Cash	768	0.132	0.1517	778	0.0898	0.1005	<.0001
Appreciation	768	1.4484	36.7548	778	0.1028	0.7445	0.3075
CETR3	768	24.76%	0.1417	778	25.55%	0.1404	0.2716
CETR AVOID3	768	10.24%	0.1417	778	9.45%	0.1404	0.2716
STOCK AVOID3	768	2.85%	0.067	778	1.81%	0.0428	0.0003
DEPR AVOID3	768	2.90%	0.2093	778	3.24%	0.1641	0.7181
RESIDUAL AVOID3 BS	768	1.36%	0.0498	778	1.91%	0.048	0.0256
RESIDUAL AVOID3 KRUL	768	0.87%	0.0427	778	1.31%	0.0396	0.0353
OTHER AVOID3 BS	768	3.32%	0.2442	778	2.75%	0.209	0.6193
OTHER AVOID3 KRULL	768	3.81%	0.2432	778	3.33%	0.2099	0.6794

Panel A presents descriptive statistics for dependent, tax avoidance and control variables in agency regression analysis using the E-Index (Bebchuk et al 2009) as a measure of corporate governance. Variables reported for each of four governance assignments as described in text of paper. Governance Assignment 1 Mean: Poor G = E-Index > Sample Mean 2. Governance Assignment 2 Third Quartile: Poor G = E-Index > Sample Third Quartile 3. Governance Assignment 3 Top Decile: Poor G = E-Index > Top Decile 4. Governance Assignment 4 Extreme Quartiles: Poor G = G-Index > TopQuartile 3 /Strong G = G-Index < Low Quartile 2. See Appendix A and prior panels for variable description. T-test for difference in means presented comparing each variable between well and poorly governed firm year observations.

Table 6							
Firm Value Baseline Model							
Firm Value$_{it}$ = β_0 + β_1 AVOID CETR$_{it}$ + $\sum$Control Variables $_{it}$ + ε_{it}							
	Panel A: All Observations				Panel B: Reduced Observations		
	1 year CETR		**3 year CETR**		**1 year CETR**		**3 year CETR**
	DV = Tobin's Q						
	N= 4410		N=3945		N=3273		N=2612
	Coeff.	Significance	Coeff.	Significance	Coeff.	Significance	Coeff.	Significance
β_0	1.438	0.0008	1.788	<.0001	1.318	0.0076	1.849	<.0001
AVOID CETR	0.281	0.05	0.256	0.0766	0.231	0.1668	0.257	0.0995
Options	1.069	<.0001	0.883	<.0001	1.123	<.0001	0.890	<.0001
PPE	-0.126	0.4386	-0.168	0.3445	0.042	0.79	0.033	0.8318
Foreign Income	5.585	0.0049	6.104	<.0001	7.371	0.0028	8.960	<.0001
Size	-0.00	0.5361	-0.00	0.3204	-0.00	0.6035	-0.00	0.1528
Risk	-0.137	0.1373	-1.966	<.0001	-1.304	0.2971	-2.039	<.0001
Growth	0.759	0.2051	0.317	0.0264	0.889	0.228	0.361	0.0212
Leverage	-0.610	0.0152	-0.454	0.0362	-0.431	0.1227	-0.338	0.1795
NOL	-0.086	0.2593	-0.083	0.1298	-0.110	0.2455	-0.129	0.0423
Intang	-0.635	0.0001	-0.432	0.0016	-0.622	0.0007	-0.432	0.0009
Firm Age	-0.020	0.6427	-0.028	0.3906	-0.034	0.5504	-0.066	0.1017
Cash	4.340	0.0019	2.461	<.0001	4.636	0.0063	2.312	<.0001
Appreciation	-0.00	0.3647	-0.001	0.0022	-0.001	0.3127	-0.001	0.0346
Industry Dummies	Yes		Yes		Yes		Yes	
Year Dummies	Yes		Yes		Yes		Yes	
R	32.31%		44.95%		32.30%		47.49%	
R Adj	31.76%		44.47%		31.59%		47.25%	

This table presents results of a baseline firm value model. See Appendix A and prior tables for variable description. Sample Period: 1 year CETR 1998-2010. 3 year CETR 2000-2010. P-values reflect clustering of standard errors at firm level. Panel A includes all observations with necessary data to calculate AVOID CETR and control variables and removal of observations missing total assets, foreign firms and cash effective tax rate less than 0 or greater than 1. Panel B includes all observations with necessary data to calculate all avoidance variables (OTHER AVOID, STOCK AVOID, DEPR AVOID and RESIDUAL AVOID) and control variables and removal of observations missing total assets, foreign firms, observations with cash effective tax rate less than 0 or greater than 1, firms reporting "amount not disclosed" for PRE and firms not reporting stock option expense after 2005.

Table 7A
Firm Value and Alternative Methods of Tax Avoidance Model

$$\text{Firm Value}_{it} = \beta_0 + \beta_1 \text{OTHER AVOID}_{it} + \beta_2 \text{STOCK AVOID}_{it} + \beta_3 \text{DEPR AVOID}_{it} + \beta_4 \text{RESIDUAL AVOID}_{it} + \sum \text{Control Variables}_{it} + \varepsilon_{it}$$

	1 year CETR		3 year CETR	
	DV = Tobin's Q			
	N=3273		N=2612	
	Coeff.	Significance	Coeff.	Significance
β_0	1.187	0.0313	1.8	<.0001
OTHER AVOID	0.053	0.6766	0.258	0.0763
STOCK AVOID	3.555	<.0001	1.843	0.0178
DEPR AVOID	-0.02	0.8879	0.054	0.7118
RESIDUAL AVOID	-0.319	0.3007	-1.37	0.0045
Options	0.978	<.0001	0.79	<.0001
PPE	0.066	0.6751	0.078	0.6146
Foreign Income	7.711	<.0001	9.596	<.0001
Size	-0.00	0.612	-0.00	0.1542
Risk	-1.369	0.2936	-2.215	<.0001
Growth	0.822	0.2682	0.382	0.0141
Leverage	-0.339	0.2578	-0.315	0.2125
NOL	-0.106	0.254	-0.121	0.053
Intangible	-0.64	0.0004	-0.444	0.0005
Firm Age	-0.012	0.8251	-0.054	0.1796
Cash	4.459	0.0089	2.19	<.0001
Appreciation	-0.001	0.3431	-0.001	0.0525
Industry Dummies	Yes		Yes	
Year Dummies	Yes		Yes	
R	33.20%		48.81%	
R Adj	32.39%		48.07%	

Test of Coefficient Equality on AVOID variables				
OTHER = STOCK		<.0001		0.0396
OTHER = DEPR		0.0835		0.0011
OTHER = RESIDUAL		0.1917		0.0009
STOCK = DEPR		<.0001		0.0215
STOCK = RESIDUAL		<.0001		0.003
DEPR = RESIDUAL		0.2957		0.0034

This table presents results of firm value and alternative methods of tax avoidance Model 6. See Appendix A for variable description. Sample Period: 1 year CETR 1998-2010. 3 year CETR 2000-2010. P-values reflect clustering of standard errors at firm level. Variables ending in "3" are cumulative three-year measures. STOCK AVOID(3): Tax avoidance resulting from stock option tax benefits = Option Tax Benefit/Earnings before tax and special items. DEPR AVOID(3): Tax avoidance resulting from accelerated tax depreciation deductions = ΔDTL PPE/Earnings before tax and special items. RESIDUAL AVOID(3): Tax avoidance resulting from deferral of residual U.S. tax on foreign income = (Δ PRETAX + Δ DTL unremitted foreign earnings)/Earnings before tax and special items. PRETAX – Estimate based on Bauman and Shaw (2008) estimation method. OTHER AVOID(3): Tax avoidance unrelated to specific methods of tax avoidance = 35%-adjusted CETR. Tobin's Q: Ratio of market value of firm to book value of firm = ((AT) + ((PRCC_C)*(CSHO))-(CEQ))/(AT). Options: Average annual value realized from the exercise of options for the top five executives of options by the top five executives grossed up by the fraction of options owned by the covered executives in year t-1 (Execucomp). PPE: Property, plant and equipment, gross = (PPEGT/ ATt-1). Foreign Income: Pre-tax income from foreign operations = (PIFO/ATt-1). Size: Total Sales (SALE). Risk: Standard deviation of monthly stock returns over previous 36 months (CRSP). Growth: 3 year average sales growth from t-2 to t = ∑t-2,t (SALEt – SALEt-1)/SALEt-1. Leverage: Long-term Debt = (DLTT+DLC)/(AT). NOL: NOL Carryforward/Total Assets = (TLCF/AT). Intangible: Intangible assets = (INTAN/ATt-1). Firm Age: Ln(1 + number of years listed in Compustat). Cash: Total Cash = (CHE/ ATt-1). Appreciation: cumulative stock price appreciation over prior four years = (Price t-1- Price t-3)/ Price t-3. Industry controls based on Barth, Cram and Nelson (2001) and Rees and Sivaramakrishnan (2007).

Firm Value and Alternative Methods of Tax Avoidance Model - Krull PRE TAX Estimation

Firm Value$_{it}$ = β_0 + β_1OTHER AVOID$_{it}$ + B$_2$STOCK AVOID$_{it}$ + β_3DEPR AVOID$_{it}$ + β_4RESIDUAL AVOID$_{it}$ + $\sum$Control Variables$_{it}$ + ε_{it}

	1 year CETR		3 year CETR	
		DV = Tobin's Q		
	N=3273		N=2612	
	Coeff.	Significance	Coeff.	Significance
β_0	1.188	0.0313	1.806	<.0001
OTHER AVOID	0.038	0.772	0.293	0.0466
STOCK AVOID	3.546	<.0001	1.853	0.0174
DEPR AVOID	-0.035	0.8096	0.089	0.5453
RESIDUAL AVOID	-0.357	0.3255	-1.172	0.0137
Options	0.979	<.0001	0.797	<.0001
PPE	0.067	0.6697	0.076	0.6265
Foreign Income	7.692	0.001	9.458	<.0001
Size	-0.00	0.614	-0.00	0.1568
Risk	-1.364	0.2966	-2.227	<.0001
Growth	0.822	0.2683	0.376	0.0158
Leverage	-0.337	0.2612	-0.313	0.2165
NOL	-0.108	0.2505	-0.125	0.0463
Intang	-0.639	0.0004	-0.44	0.0006
Firm Age	-0.012	0.8224	-0.055	0.1741
Cash	4.464	0.0089	2.2	<.0001
Appreciation	-0.00	0.3462	-0.00	0.0533
Industry Dummies	Yes		Yes	
Year Dummies	Yes		Yes	
R	33.19%		48.68%	
R Adj	32.39%		47.94%	
Test of Coefficient Equality on AVOID variables				
OTHER = STOCK		<.0001		0.0416
OTHER = DEPR		0.0776		0.0012
OTHER = RESIDUAL		0.2358		0.0025
STOCK = DEPR		<.0001		0.0229
STOCK = RESIDUAL		<.0001		0.0052
DEPR = RESIDUAL		0.3322		0.0092

This table presents results of a firm value and alternative methods of tax avoidance Model 6. See Appendix A for variable description. Sample Period: 1 year CETR 1998-2010. 3 year CETR 2000-2010. P-values reflect clustering of standard errors at firm level. Variables ending in "3" are cumulative three-year measures. STOCK AVOID(3): Tax avoidance resulting from stock option tax benefits = Option Tax Benefit/Earnings before tax and special items. DEPR AVOID(3): Tax avoidance resulting from accelerated tax depreciation deductions = ΔDTL PPE/Earnings before tax and special items. RESIDUAL AVOID(3): Tax avoidance resulting from deferral of residual U.S. tax on foreign income = (Δ PRETAX + Δ DTL unremitted foreign earnings)/Earnings before tax and special items. PRETAX – Estimate based on Krull (2004) estimation method. OTHER AVOID(3): Tax avoidance unrelated to specific methods of tax avoidance = 35%-adjusted CETR. Tobin's Q: Ratio of market value of firm to book value of firm = ((AT) + ((PRCC_C)*(CSHO))-(CEQ))/(AT). Options: Average annual value realized from the exercise of options for the top five executives of options by the top five executives grossed up by the fraction of options owned by the covered executives in year t-1 (Execucomp). PPE: Property, plant and equipment, gross = (PPEGT/ ATt-1). Foreign Income: Pre-tax income from foreign operations = (PIFO/ATt-1). Size: Total Sales (SALE). Risk: Standard deviation of monthly stock returns over previous 36 months (CRSP). Growth: 3 year average sales growth from t-2 to t = $\sum$t-2,t (SALEt – SALEt-1)/SALEt-1. Leverage: Long-term Debt = (DLTT+DLC)/(AT). NOL: NOL Carryforward/Total Assets = (TLCF/AT). Intangible: Intangible assets = (INTAN/ATt-1). Firm Age: Ln(1 + number of years listed in Compustat). Cash: Total Cash = (CHE/ ATt-1). Appreciation: cumulative stock price appreciation over prior four years = (Price t-1- Price t-3)/ Price t-3. Industry controls based on Barth, Cram and Nelson (2001) and Rees and Sivaramakrishnan (2007).

Table 8

Firm Value and Alternative Methods of Tax Avoidance Model including Tax Haven Interaction

$$\text{Firm Value}_{it} = \beta_0 + \beta_1\text{OTHER AVOID}_{it} + B_2\text{STOCK AVOID}_{it} + \beta_3\text{DEPR AVOID}_{it} + \beta_4\text{RESIDUAL AVOID}_{it} +$$
$$\beta_5\text{RESIDUAL AVOID}_{it}*\text{Haven}_{it} + \sum\text{Control Variables}_{it} + \varepsilon_{it}$$

	1 year CETR		3 year CETR	
		DV = Tobin's Q		
	N=3273		N=2612	
	Coeff.	Significance	Coeff.	Significance
β_0	1.218	0.0225	1.81	<.0001
OTHER AVOID	0.061	0.6362	0.263	0.0693
STOCK AVOID	3.583	<.0001	1.853	0.0178
DEPR AVOID	-0.008	0.9581	0.059	0.6831
RESIDUAL AVOID	-0.545	0.1515	-1.111	0.2118
RESIDUAL AVOID*HAVEN	0.325	0.4507	-0.388	0.6981
TAX HAVEN	-0.088	0.2807	-0.028	0.5781
Options	0.989	<.0001	0.787	<.0001
PPE	0.064	0.685	0.077	0.6204
Foreign Income	7.797	0.0008	9.619	<.0001
Size	-.000	0.6192	-.000	0.1519
Risk	-1.318	0.3215	-2.201	<.0001
Growth	0.825	0.2672	0.383	0.014
Leverage	-0.353	0.2418	-0.318	0.2079
NOL	-0.109	0.2459	-0.123	0.0497
Intangible	-0.621	0.0005	-0.438	0.0007
Firm Age	-0.014	0.8018	-0.055	0.172
Cash	4.446	0.0087	2.184	<.0001
Appreciation	-0.001	0.3482	-0.001	0.0555
Industry Dummies	Yes		Yes	
Year Dummies	Yes		Yes	
R	33.24%		48.83%	
R Adj	32.39%		48.06%	

Test of Coefficient Equality on AVOID variables

RESIDUAL AVOID + RESIDUAL AVOID*TAX HAVEN = 0	0.5335		0.003

This table presents results of firm value and alternative methods of tax avoidance model including interaction of tax haven indicator variable with residual tax deferral tax avoidance variable. See Appendix A for variable description. Tax haven jurisdictions are defined following Dyreng and Lindsay (2009). Tax haven jurisdictions are identified using web crawler technology. See Appendix C for further details and list of tax haven jurisdictions. Sample Period: 1 year CETR 1998-2010. 3 year CETR 2000-2010. P-values reflect clustering of standard errors at firm level. Variables ending in "3" are cumulative three-year measures. STOCK AVOID(3): Tax avoidance resulting from stock option tax benefits = Option Tax Benefit/Earnings before tax and special items. DEPR AVOID(3): Tax avoidance resulting from accelerated tax depreciation deductions = ΔDTL PPE/Earnings before tax and special items. RESIDUAL AVOID(3): Tax avoidance resulting from deferral of residual U.S. tax on foreign income = (Δ PRETAX + Δ DTL unremitted foreign earnings)/Earnings before tax and special items. PRETAX – Estimate based on Bauman and Shaw (2008) estimation method. OTHER AVOID(3): Tax avoidance unrelated to specific methods of tax avoidance = 35%-adjusted CETR. Haven is an indicator for presence in any tax haven jurisdiction. Tobin's Q: Ratio of market value of firm to book value of firm = ((AT) + ((PRCC_C)*(CSHO))-(CEQ))/(AT). Options: Average annual value realized from the exercise of options for the top five executives of options by the top five executives grossed up by the fraction of options owned by the covered executives in year t-1 (Execucomp). PPE: Property, plant and equipment, gross = (PPEGT/ ATt-1). Foreign Income: Pre-tax income from foreign operations = (PIFO/ATt-1). Size: Total Sales (SALE). Risk: Standard deviation of monthly stock returns over previous 36 months (CRSP). Growth: 3 year average sales growth from t-2 to t = ∑t-2,t (SALEt – SALEt-1)/SALEt-1. Leverage: Long-term Debt = (DLTT+DLC)/(AT). NOL: NOL Carryforward/Total Assets = (TLCF/AT). Intangible: Intangible assets = (INTAN/ATt-1). Firm Age: Ln(1 + number of years listed in Compustat. Cash: Total Cash = (CHE/ ATt-1). Appreciation: cumulative stock price appreciation over prior four years = (Price t-1- Price t-3)/ Price t-3. Industry controls based on Barth, Cram and Nelson (2001) and Rees and Sivaramakrishnan (2007).

Firm Value and Alternative Methods of Tax Avoidance Model
Expansion of Residual Tax Deferral

$$\text{Firm Value}_{it} = \beta_0 + B_1\text{OTHER AVOID}_{it} + \beta_2\text{STOCKAVOID}_{it} + \beta_3\text{DEPR AVOID}_{it} + \beta_4\text{PROVIDE AVOID}_{it} + \beta_5\text{PRETAX DISCLOSE AVOID}_{it} + \beta_6\text{PRETAX ESTIMATE AVOID}_{it} + \sum\text{Control Variables}_{it} + \varepsilon_{it}$$

	1 year CETR		3 year CETR	
	DV = Tobin's Q			
	N=3273		N=2612	
	Coeff.	Significance	Coeff.	Significance
β_0	1.191	0.0308	1.809	<.0001
OTHER AVOID	0.072	0.5503	0.346	0.0171
STOCK AVOID	3.586	<.0001	1.881	0.0182
DEPR AVOID	-0.0004	0.9975	0.131	0.3637
PROVIDE AVOID	-0.845	0.2576	-1.616	0.0838
PRETAX DISCLOSE AVOID	-0.555	0.269	-1.712	0.0474
PRETAX ESTIMATE AVOID	-0.349	0.2758	-0.339	0.2609
Options	0.974	<.0001	0.796	<.0001
PPE	0.072	0.6511	0.084	0.5929
Foreign Income	7.649	0.0012	9.326	<.0001
Size	-0.00	0.6448	-0.00	0.1776
Risk	-1.402	0.284	-2.197	<.0001
Growth	0.825	0.2672	0.373	0.016
Leverage	-0.344	0.2535	-0.324	0.2032
NOL	-0.107	0.2489	-0.123	0.0511
Intang	-0.631	0.0005	-0.441	0.0007
Firm Age	-0.014	0.7941	-0.057	0.1582
Cash	4.461	0.0088	2.182	<.0001
Appreciation	-0.001	0.3256	-0.001	0.0464
Industry Dummies	Yes		Yes	
Year Dummies	Yes		Yes	
R	33.24%		48.70%	
R Adj	32.39%		47.92%	

Test of Coefficient Equality on AVOID variables				
PROVIDE = PRETAX DISCLOSE		0.7222		0.9406
PROVIDE = PRETAX ESTIMATE		0.4901		0.1847
PRETAX DISCLOSE = PRETAX ESTIMATE		0.6814		0.103
OTHER = PROVIDE		0.2007		0.0371
OTHER = PRETAX DISCLOSE		0.2099		0.0186
OTHER =PRETAX ESTIMATE		0.1939		0.0396
STOCK = PROVIDE		<.0001		0.0198
STOCK = PRETAX DISCLOSE		<.0001		0.0071
STOCK =PRETAX ESTIMATE		<.0001		0.0112
DEPR = PROVIDE		0.2345		0.0631
DEPR = PRETAX DISCLOSE		0.2676		0.035
DEPR =PRETAX ESTIMATE		0.2833		0.1537

This table presents results of firm value and alternative methods of tax avoidance Mode 7 including the expansion of RESIDUAL AVOID(3) into the three methods of disclosing residual tax deferral. See Appendix A for variable description. Sample Period: 1 year CETR 1998-2010. 3 year CETR 2000-2010. P-values reflect clustering of standard errors at firm level. Variables ending in "3" are cumulative three-year measures. STOCK AVOID(3): Tax avoidance resulting from stock option tax benefits = Option Tax Benefit/Earnings before tax and special items. DEPR AVOID(3): Tax avoidance resulting from accelerated tax depreciation deductions = ΔDTL PPE/Earnings before tax and special items. PROVIDE AVOID(3): Tax avoidance related to provision of deferred tax expense on unrepatriated foreign earnings. PRETAX DISCLOSE AVOID(3): Tax avoidance related to disclosed unrecognized tax liability on unrepatriated foreign earnings. PRETAX ESTIMATE AVOID(3): Tax avoidance related to estimated unrecognized tax liability on unrepatriated foreign earnings. PRETAX – Estimate based on Bauman and Shaw (2008) estimation method. OTHER AVOID(3): Tax avoidance unrelated to specific methods of tax avoidance = 35%-adjusted CETR. Tobin's Q: Ratio of market value of firm to book value of firm = ((AT) + ((PRCC_C)*(CSHO))-(CEQ))/(AT). Options: Average annual value realized from the exercise of options for the top five executives of options by the top five executives grossed up by the fraction of options owned by the covered executives in year t-1 (Execucomp). PPE: Property, plant and equipment, gross = (PPEGT/ ATt-1). Foreign Income: Pre-tax income from foreign operations = (PIFO/ATt-1). Size: Total Sales (SALE). Risk: Standard deviation of monthly stock returns over previous 36 months (CRSP). Growth: 3 year average sales growth from t-2 to t = ∑t-2,t (SALEt – SALEt-1)/SALEt-1. Leverage: Long-term Debt = (DLTT+DLC)/(AT). NOL: NOL Carryforward/Total Assets = (TLCF/AT). Intangible: Intangible assets = (INTAN/ATt-1). Firm Age: Ln(1 + number of years listed in Compustat). Cash: Total Cash = (CHE/ ATt-1). Appreciation: cumulative stock price appreciation over prior four years = (Price t-1- Price t-3)/ Price t-3. Industry controls based on Barth, Cram and Nelson (2001) and Rees and Sivaramakrishnan (2007).

Firm Value and Alternative Methods of Tax Avoidance Model - Krull PRE TAX Estimation
Expansion of Residual Tax Deferral

Firm Value$_{it}$ = β_0 + B$_1$OTHER AVOID$_{it}$ + β_2STOCKAVOID$_{it}$ + β_3DEPR AVOID$_{it}$ + β_4PROVIDE AVOID$_{it}$ + β_5PRETAX DISCLOSE AVOID$_{it}$ + β_6PRETAX ESTIMATE AVOID$_{it}$ + $\sum$Control Variables$_{it}$ + ε_{it}

	1 year CETR		3 year CETR	
			DV = Tobin's Q	
	N=3273		N=2612	
	Coeff.	Significance	Coeff.	Significance
β_0	1.192	0.0307	1.809	<.0001
OTHER AVOID	0.0646	0.6048	0.349	0.0169
STOCK AVOID	3.583	<.0001	1.884	0.0178
DEPR AVOID	-0.009	0.946	0.135	0.3528
PROVIDE AVOID	-0.861	0.2553	-1.597	0.0867
PRETAX DISCLOSE AVOID	-0.5304	0.2893	-1.721	0.0455
PRETAX ESTIMATE AVOID	-0.326	0.3793	-0.374	0.2526
Options	0.975	<.0001	0.798	<.0001
PPE	0.0715	0.6513	0.085	0.5891
Foreign Income	7.62	0.0013	9.284	<.0001
Size	-0.00	0.646	-0.00	0.1798
Risk	-1.396	0.2858	-2.2	<.0001
Growth	0.824	0.2674	0.372	0.0163
Leverage	-0.342	0.2563	-0.321	0.2073
NOL	-0.108	0.2456	-0.126	0.0465
Intang	-0.631	0.0005	-0.439	0.0007
Firm Age	-0.0144	0.7942	-0.058	0.1561
Cash	4.463	0.0088	2.188	<.0001
Appreciation	-0.001	0.3298	-0.001	0.047
Industry Dummies	Yes		Yes	
Year Dummies	Yes		Yes	
R	33.22%		48.49%	
R Adj	32.38%		47.73%	

Test of Coefficient Equality on AVOID variables			
PROVIDE = PRETAX DISCLOSE		0.7029	0.9234
PROVIDE = PRETAX ESTIMATE		0.4825	0.2107
PRETAX DISCLOSE = PRETAX ESTIMATE		0.6925	0.1093
OTHER = PROVIDE		0.2034	0.0378
OTHER = PRETAX DISCLOSE		0.2379	0.0173
OTHER =PRETAX ESTIMATE		0.3202	0.0465
STOCK = PROVIDE		<.0001	0.0199
STOCK = PRETAX DISCLOSE		<.0001	0.0066
STOCK =PRETAX ESTIMATE		<.0001	0.0106
DEPR = PROVIDE		0.2387	0.0643
DEPR = PRETAX DISCLOSE		0.3016	0.0328
DEPR =PRETAX ESTIMATE		0.4212	0.1572

This table presents results of firm value and alternative methods of tax avoidance Model 7 including the expansion of RESIDUAL AVOID(3) into the three methods of disclosing residual tax deferral. See Appendix A for variable description. Sample Period: 1 year CETR 1998-2010. 3 year CETR 2000-2010. P-values reflect clustering of standard errors at firm level. Variables ending in "3" are cumulative three-year measures. STOCK AVOID(3): Tax avoidance resulting from stock option tax benefits = Option Tax Benefit/Earnings before tax and special items. DEPR AVOID(3): Tax avoidance resulting from accelerated tax depreciation deductions = ΔDTL PPE/Earnings before tax and special items. PROVIDE AVOID(3): Tax avoidance related to provision of deferred tax expense on unrepatriated foreign earnings. PRETAX DISCLOSE AVOID(3): Tax avoidance related to disclosed unrecognized tax liability on unrepatriated foreign earnings. PRETAX ESTIMATE AVOID(3): Tax avoidance related to estimated unrecognized tax liability on unrepatriated foreign earnings. PRETAX – Estimate based on Krull (2004) estimation method. OTHER AVOID(3): Tax avoidance unrelated to specific methods of tax avoidance = 35%-adjusted CETR. Tobin's Q: Ratio of market value of firm to book value of firm = ((AT) + ((PRCC_C)*(CSHO))-(CEQ))/(AT). Options: Average annual value realized from the exercise of options for the top five executives of options by the top five executives grossed up by the fraction of options owned by the covered executives in year t-1 (Execucomp). PPE: Property, plant and equipment, gross = (PPEGT/ ATt-1). Foreign Income: Pre-tax income from foreign operations = (PIFO/ATt-1). Size: Total Sales (SALE). Risk: Standard deviation of monthly stock returns over previous 36 months (CRSP). Growth: 3 year average sales growth from t-2 to t = $\sum$t-2,t (SALEt – SALEt-1)/SALEt-1. Leverage: Long-term Debt = (DLTT+DLC)/(AT). NOL: NOL Carryforward/Total Assets = (TLCF/AT). Intangible: Intangible assets = (INTAN/ATt-1). Firm Age: Ln(1 + number of years listed in Compustat). Cash: Total Cash = (CHE/ ATt-1). Appreciation: cumulative stock price appreciation over prior four years = (Price t-1- Price t-3)/ Price t-3. Industry controls based on Barth, Cram and Nelson (2001) and Rees and Sivaramakrishnan (2007).

Table 10A
Firm Value and Governance Baseline Models - G-Index

Firm Value $_{it}$ = β_0 + β_1CETR AVOID3$_{it}$ + β_2CETR AVOID3$_{it}$*PoorG$_{it}$ + β_3CETR AVOID3$_{it}$*StrongG$_{it}$ + $\sum$Control Variables$_{it}$ + ε_{it}

DV = Tobin's Q

	Panel A: PoorG @ mean		Panel B: Poor G @ Q3		Panel C: Poor G @ Top Decile		Panel D: Strong G @ Q2/Poor G @ Q3	
N	2,612		2,612		2,612		2,612	
% of Poor Governance Firms	1,410	53.98%	663	25.38%	197	7.54%	663	25.38%
% of Strong Governance Firms	1,202	46.02%	1,949	74.62%	2,415	92.46%	816	31.24%
Variables	Coeff.	Significance	Coeff.	Significance	Coeff.	Significance	Coeff.	Significance
β_0	1.863	<.0001	1.853	<.0001	1.851	<.0001	1.851	<.0001
CETR AVOID3	0.400	0.097	0.275	0.1177	0.245	0.1336	0.219	0.1592
CETR AVOID3*PoorG	-0.283	0.322	-0.028	0.9301	-0.184	0.613	0.029	0.9236
CETR AVOID3*StrongG							0.142	0.6783
PoorG	-0.084	0.346	-0.070	0.3921	-0.049	0.5281	-0.065	0.4122
StrongG							0.018	0.8695
Options	0.877	<.0001	0.888	<.0001	0.885	<.0001	0.889	<.0001
PPE	0.055	0.711	0.031	0.843	0.030	0.8468	0.041	0.7892
Foreign Income	8.884	<.0001	8.958	<.0001	8.914	<.0001	8.948	<.0001
SIZE	0.000	0.090	0.000	0.1338	0.000	0.1361	0.000	0.1197
Risk	-2.109	<.0001	-2.028	<.0001	-2.071	<.0001	-2.069	<.0001
Growth	0.337	0.027	0.361	0.0215	0.348	0.0254	0.353	0.0264
Leverage	-0.378	0.123	-0.345	0.1712	-0.351	0.1638	-0.353	0.1498
NOL	-0.120	0.052	-0.129	0.0407	-0.128	0.0438	-0.126	0.0428
Intang	-0.425	0.001	-0.431	0.0011	-0.431	0.001	-0.425	0.0013
Firm Age	-0.056	0.164	-0.061	0.1346	-0.064	0.111	-0.061	0.1373
Cash	2.362	<.0001	2.255	<.0001	2.353	<.0001	2.200	<.0001
Cash*PoorG	-0.218	0.756	0.240	0.724	-1.297	0.0721	0.299	0.6459
Cash*StrongG							0.094	0.9089
Appreciation	-0.001	<.0001	-0.001	0.0339	-0.001	0.0362	-0.001	0.0251
Industry Dummies	Yes		Yes		Yes		Yes	
Year Dummies	Yes		Yes		Yes		Yes	
R	48.32%		47.98%		48.10%		37.03%	
Adj R	47.58%		47.24%		47.35%		28.01%	
Panel E: Test Value of Tax Avoidance in poorly/strong governed firms								
CETRAVOID3+CETRAVOID3*PoorG=0		0.4984		0.3721		0.2025		0.3289
CETRAVOID3+CETRAVOID3*StrongG=0								0.0663

Table 10A
Firm Value and Governance Baseline Models - G-Index

Table Notes:

This table presents a baseline firm value model in an agency context. See Appendix A for variable description. Sample Period: 2000-2010. P-values reflect clustering of standard errors at firm level. Governance measured using G-Index (Gompers et al 2003). Variables reported for each of four governance assignments as described in text of paper. Governance Assignment 1 Mean: Poor G = G-Index > Sample Mean 9.896. Governance Assignment 2 Third Quartile: Poor G = G-Index > Sample Third Quartile 12. Governance Assignment 3 Top Decile: Poor G = G-Index > Top Decile 14. Governance Assignment 4 Extreme Quartiles: Poor G = G-Index > TopQuartile 12 /Strong G = G-Index < Low Quartile 8. AVOID STOCK3: Tax avoidance resulting from stock option tax benefits = Option Tax Benefit/Earnings before tax and special items. DEPR AVOID3: Tax avoidance resulting from accelerated tax depreciation deductions = ΔDTL PPE/Earnings before tax and special items. RESIDUAL AVOID3: Tax avoidance resulting from deferral of residual U.S. tax on foreign income = (Δ PRETAX + Δ DTL unremitted foreign earnings)/Earnings before tax and special items. PRETAX – Estimate based on Bauman and Shaw (2008) estimation method. OTHER AVOID3: Tax avoidance unrelated to specific methods of tax avoidance = 35%-adjusted CETR. Tobin's Q: Ratio of market value of firm to book value of firm = ((AT) + ((PRCC_C)*(CSHO))-(CEQ))/(AT). Options: Average annual value realized from the exercise of options for the top five executives of options by the top five executives grossed up by the fraction of options owned by the covered executives in year t-1 (Execucomp). PPE: Property, plant and equipment, gross = (PPEGT/ ATt-1). Foreign Income: Pre-tax income from foreign operations = (PIFO/ATt-1). Size: Total Sales (SALE). Risk: Standard deviation of monthly stock returns over previous 36 months (CRSP). Growth: 3 year average sales growth from t-2 to t = ∑t-2,t (SALEt – SALEt-1)/SALEt-1. Leverage: Long-term Debt = (DLTT+DLC)/(AT). NOL: NOL Carryforward/Total Assets = (TLCF/AT). Intangible: Intangible assets = (INTAN/ATt-1). Firm Age: Ln(1 + number of years listed in Compustat). Cash: Total Cash = (CHE/ ATt-1). Appreciation: cumulative stock price appreciation over prior four years = (Price t-1- Price t-3)/ Price t-3. Industry controls based on Barth, Cram and Nelson (2001) and Rees and Sivaramakrishnan (2007).

	Table 10B							
	Firm Value and Governance Baseline Models - E-Index							
	Firm Value $_{it}$ = β_0 + β_1CETR AVOID3$_{it}$ + β_2CETR AVOID3$_{it}$ *PoorG$_{it}$ + β_3 CETR AVOID3$_{it}$ *StrongG $_{it}$+ $\sum$Control Variables $_{it}$ + ε_{it}							
	DV = Tobin's Q							
	Panel A: PoorG @ mean		Panel B: Poor G @ Q3		Panel C: Poor G @ Top Decile		Panel D: Strong G @ Q2/Poor G @ Q3	
N	2,612		2,612		2,612		2,612	
% of Poor Governance Firms	1,471	56.32%	778	29.79%	219	8.38%	778	29.79%
% of Strong Governance Firms	1,141	43.68%	1,834	70.21%	2,393	91.62%	768	29.40%
Variables	Coeff.	Significance	Coeff.	Significance	Coeff.	Significance	Coeff.	Significance
β_0	1.9196	<.0001	1.8891	<.0001	1.8427	<.0001	1.9271	<.0001
CETR AVOID3	0.4413	0.0735	0.2547	0.1683	0.3128	0.0574	0.1527	0.4184
CETR AVOID3*PoorG	-0.2969	0.2973	0.0036	0.9902	-0.6734	0.1121	0.1040	0.7281
CETR AVOID3*StrongG							0.4156	0.3260
PoorG	-0.0827	0.3081	-0.1096	0.1955	0.0233	0.7995	-0.1369	0.0999
StrongG							-0.0604	0.5762
Options	0.8660	<.0001	0.8865	<.0001	0.8894	<.0001	0.8817	<.0001
PPE	0.0542	0.7249	0.0385	0.8035	0.0459	0.7633	0.0506	0.7417
Foreign Income	8.8192	<.0001	8.9373	<.0001	8.9374	<.0001	8.8522	<.0001
SIZE	0.0000	0.0893	0.0000	0.1161	0.0000	0.1349	0.0000	0.1142
Risk	-2.1327	<.0001	-2.0483	<.0001	-1.9918	<.0001	-2.0659	<.0001
Growth	0.3633	0.0180	0.3594	0.0210	0.3494	0.0252	0.3425	0.0303
Leverage	-0.3722	0.1336	-0.3656	0.1406	-0.3534	0.1573	-0.3802	0.1102
NOL	-0.1229	0.0448	-0.1291	0.0333	-0.1269	0.0447	-0.1221	0.0455
Intang	-0.4337	0.0008	-0.4388	0.0007	-0.4429	0.0007	-0.4200	0.0011
Firm Age	-0.0656	0.1045	-0.0677	0.0948	-0.0652	0.1069	-0.0681	0.0931
Cash	2.2980	<.0001	2.2616	<.0001	2.3506	<.0001	1.9642	<.0001
Cash*PoorG	-0.0971	0.8919	0.1265	0.8941	-1.0224	0.1106	0.4133	0.6610
Cash*StrongG							0.5844	0.4418
Appreciation	-0.0012	0.0243	-0.0011	0.0299	-0.0011	0.0320	-0.0012	0.0308
Industry Dummies	Yes		Yes		Yes		Yes	
Year Dummies	Yes		Yes		Yes		Yes	
R	48.24%		48.08%		48.15%		48.26%	
Adj R	47.49%		47.34%		47.41%		47.45%	
Panel E: Test Value of Tax Avoidance in poorly/strong governed firms								
CETRAVOID3+CETRAVOID3*PoorG=0		0.4122		0.2933		0.3594		0.2922
CETRAVOID3+CETRAVOID3*StrongG=0								0.0591

	Table 10B
	Firm Value and Governance Baseline Models - E-Index

Table Notes

This table presents a baseline firm value model in an agency context. See Appendix A for variable description. Sample Period: 2000-2010. P-values reflect clustering of standard errors at firm level. Governance measured using E-Index (Bebchuk et al 2005). Variables reported for each of four governance assignments as described in text of paper. Governance Assignment 1 Mean: Poor G = E-Index > Sample Mean 2.735. Governance Assignment 2 Third Quartile: Poor G = E-Index > Sample Third Quartile 4. Governance Assignment 3 Top Decile: Poor G = E-Index > Top Decile 5. Governance Assignment 4 Extreme Quartiles: Poor G = E-Index > TopQuartile 4 /Strong G = G-Index < Low Quartile 2. AVOID STOCK3: Tax avoidance resulting from stock option tax benefits = Option Tax Benefit/Earnings before tax and special items. DEPR AVOID3: Tax avoidance resulting from accelerated tax depreciation deductions = ΔDTL PPE/Earnings before tax and special items. RESIDUAL AVOID3: Tax avoidance resulting from deferral of residual U.S. tax on foreign income = (Δ PRETAX + Δ DTL unremitted foreign earnings)/Earnings before tax and special items. PRETAX – Estimate based on Bauman and Shaw (2008) estimation method. OTHER AVOID3: Tax avoidance unrelated to specific methods of tax avoidance = 35%-adjusted CETR. Tobin's Q: Ratio of market value of firm to book value of firm = ((AT) + ((PRCC_C)*(CSHO))-(CEQ))/(AT). Options: Average annual value realized from the exercise of options for the top five executives of options by the top five executives grossed up by the fraction of options owned by the covered executives in year t-1 (Execucomp). PPE: Property, plant and equipment, gross = (PPEGT/ ATt-1). Foreign Income: Pre-tax income from foreign operations = (PIFO/ATt-1). Size: Total Sales (SALE). Risk: Standard deviation of monthly stock returns over previous 36 months (CRSP). Growth: 3 year average sales growth from t-2 to t = ∑t-2,t (SALEt – SALEt-1)/SALEt-1. Leverage: Long-term Debt = (DLTT+DLC)/(AT). NOL: NOL Carryforward/Total Assets = (TLCF/AT). Intangible: Intangible assets = (INTAN/ATt-1). Firm Age: Ln(1 + number of years listed in Compustat). Cash: Total Cash = (CHE/ ATt-1). Appreciation: cumulative stock price appreciation over prior four years = (Price t-1- Price t-3)/ Price t-3. Industry controls based on Barth, Cram and Nelson (2001) and Rees and Sivaramakrishnan (2007).

Firm Value and Expaned Avoidance Measure Governance Models -G-Index

Firm Value$_{it}$ = β_0 + β_1OTHER AVOID3$_{it}$ + β_2OTHER AVOID3$_{it*}$PoorG$_{it}$ + β_3STOCK AVOID3$_{it}$ + β_4STOCK AVOID3$_{it*}$PoorG$_{it}$ + β_5DEPR AVOID3$_{it}$ + β_6DEPR AVOID3$_{it}$*PoorG$_{it}$ + β_7RESIDUAL AVOID3$_{it}$ + β_8RESIDUAL AVOID3$_{it}$*PoorG$_{it}$ + $\sum$Control Variables$_{it}$ + ε_{it}

	DV = Tobin's Q							
	Panel A: PoorG @ mean		Panel B: Poor G @ Q3		Panel C: Poor G @ Top Decile		Panel D: Strong G @ Q2/Poor G @ Q3	
	N=2612		N=2612		N=2612		N=2612	
Variables	Coeff.	Significance	Coeff.	Significance	Coeff.	Significance	Coeff.	Significance
β_0	1.8196	<.0001	1.7890	<.0001	1.7949	<.0001	1.7799	<.0001
OTHER AVOID3	0.4484	0.0596	0.3218	0.0616	0.2547	0.0949	0.2757	0.0793
OTHER AVOID3*PoorG	-0.3671	0.1867	-0.3006	0.3266	-0.0169	0.9622	-0.2526	0.3940
OTHER AVOID3*StrongG							0.0963	0.7852
STOCK AVOID3	2.0707	0.0295	2.1958	0.0170	1.9979	0.0153	2.3501	0.0303
STOCK AVOID3*PoorG	-0.6066	0.6544	-1.7802	0.1505	-3.2238	0.0008	-1.9052	0.1476
STOCK AVOID3*StrongG							0.1285	0.9415
DEPR AVOID3	0.1803	0.4225	0.1032	0.5506	0.0352	0.8182	0.0980	0.5845
DEPR AVOID3*PoorG	-0.2302	0.3942	-0.1407	0.6641	0.3414	0.2352	-0.1347	0.6845
DEPR AVOID3*StrongG							0.0185	0.9573
RESIDUAL AVOID3	-1.2877	0.0592	-1.3597	0.0057	-1.4318	0.0053	-1.9723	0.0022
RESIDUAL AVOID3*PoorG	-0.1952	0.8255	0.0199	0.9854	0.2987	0.7355	0.6223	0.5794
RESIDUAL AVOID3*StrongG							1.3008	0.2219
PoorG	-0.0741	0.4010	-0.0298	0.7080	-0.0132	0.8578	-0.0294	0.7105
StrongG							0.0186	0.8624
Options	0.7798	<.0001	0.7817	<.0001	0.7748	<.0001	0.7788	<.0001
PPE	0.0970	0.5176	0.0755	0.6274	0.0762	0.6262	0.0894	0.5590
Foreign Income	9.5330	<.0001	9.6272	<.0001	9.5898	<.0001	9.6506	<.0001
SIZE	0.0000	0.0959	0.0000	0.1434	0.0000	0.1366	0.0000	0.1147
Risk	-2.3000	<.0001	-2.1779	<.0001	-2.2239	<.0001	-2.1786	<.0001
Growth	0.3572	0.0180	0.3898	0.0123	0.3914	0.0117	0.3758	0.0173
Leverage	-0.3549	0.1479	-0.3207	0.2063	-0.3316	0.1898	-0.3292	0.1844
NOL	-0.1122	0.0658	-0.1210	0.0524	-0.1202	0.0548	-0.1150	0.0624
Intang	-0.4362	0.0007	-0.4549	0.0005	-0.4455	0.0005	-0.4530	0.0004
Firm Age	-0.0443	0.2645	-0.0469	0.2527	-0.0497	0.2145	-0.0445	0.2800
Cash	2.2242	0.0002	2.0816	<.0001	2.2061	<.0001	1.9991	<.0001
Cash*PoorG	-0.1728	0.8007	0.3942	0.5625	-1.0744	0.1384	0.4815	0.4580
Cash*StrongG							0.1062	0.8979
Appreciation	-0.0010	0.0228	-0.0010	0.0509	-0.0010	0.0564	-0.0010	0.0423
Industry Dummies	Yes		Yes		Yes		Yes	
Year Dummies	Yes		Yes		Yes		Yes	
R	49.19%		48.95%		49.09%		49.05%	
Adj R	48.34%		48.10%		48.24%		48.07%	

Table 11A				
Firm Value and Expaned Avoidance Measure Governance Models -G-Index				
Panel E: Tests of coefficient equality on AVOID variables				
	Panel A: PoorG @ mean	Panel B: Poor G @ Q3	Panel C: Poor G @ Top Decile	Panel D: Strong G @ Q2/Poor G @ Q3
	Significance	Significance	Significance	Significance
Test Value of types of tax avoidance in poorly governed firms				
OTHER + OTHER *PoorG = 0	0.6046	0.9349	0.4717	0.9292
STOCK + STOCK *PoorG=0	0.1689	0.6592	0.0192	0.6373
DEPR + DEPR *PoorG=0	0.762	0.8914	0.1351	0.8935
RESIDUAL + RESIDUAL *PoorG = 0	0.0117	0.1865	0.1331	0.1848
Test Difference in value among types of avoidance in well governed firms				
OTHER =STOCK	0.0898	0.0437	0.0334	0.2336
OTHER =DEPR	0.0009	0.0002	0.0003	0.0087
OTHER =RESIDUAL	0.0083	0.0003	0.0011	0.1793
STOCK = DEPR	0.0538	0.0257	0.0178	0.3382
STOCK =RESIDUAL	0.017	0.004	0.0029	0.1051
DEPR =RESIDUAL	0.0235	0.0018	0.0044	0.3072
Test Difference in value among types of avoidance in poorly governed firms				
OTHER +OTHER *PoorG=STOCK +STOCK *PoorG	0.1774	0.6576	0.0005	0.6354
OTHER +OTHER *PoorG=DEPR +DEPR *PoorG	0.152	0.7932	0.5011	0.7888
OTHER +OTHER *PoorG=RESIDUAL +RESIDUAL *PoorG	0.0109	0.2133	0.1026	0.2116
STOCK +STOCK *PoorG =DEPR + DEPR *PoorG	0.1374	0.6216	0.001	0.5998
STOCK +STOCK *PoorG=RESIDUAL +RESIDUAL *PoorG	0.017	0.004	0.0029	0.0048
DEPR +DEPR *PoorG=RESIDUAL +RESIDUAL *PoorG	0.0217	0.2278	0.0491	0.2259
Test Value of types of tax avoidance in strong governance firms				
OTHER + OTHER *StrongG = 0				0.2665
STOCK + STOCK *StrongG = 0				0.1413
DEPR + DEPR *StrongG = 0				0.7117
RESIDUAL + RESIDUAL *StrongG = 0				0.4165

This table presents results of firm value and alternative methods of tax avoidance Model 8 in an agency context. See Appendix A for variable description. Sample Period: 2000-2010. P-values reflect clustering of standard errors at firm level. Governance measured using G-Index (Gompers et al 2003). Variables reported for each of four governance assignments as described in text of paper. Governance Assignment 1 Mean: Poor G = G-Index > Sample Mean 9.896. Governance Assignment 2 Third Quartile: Poor G = G-Index > Sample Third Quartile 12. Governance Assignment 3 Top Decile: Poor G = G-Index > Top Decile 14. Governance Assignment 4 Extreme Quartiles: Poor G = G-Index > TopQuartile 12 /Strong G = G-Index < Low Quartile 8. AVOID STOCK3: Tax avoidance resulting from stock option tax benefits = Option Tax Benefit/Earnings before tax and special items. DEPR AVOID3: Tax avoidance resulting from accelerated tax depreciation deductions = ΔDTL PPE/Earnings before tax and special items. RESIDUAL AVOID3: Tax avoidance resulting from deferral of residual U.S. tax on foreign income = (Δ PRETAX + Δ DTL unremitted foreign earnings)/Earnings before tax and special items. PRETAX – Estimate based on Bauman and Shaw (2008) estimation method. OTHER AVOID3: Tax avoidance unrelated to specific methods of tax avoidance = 35%-adjusted CETR. Tobin's Q: Ratio of market value of firm to book value of firm = ((AT) + ((PRCC_C)*(CSHO))-(CEQ))/(AT). Options: Average annual value realized from the exercise of options for the top five executives of options by the top five executives grossed up by the fraction of options owned by the covered executives in year t-1 (Execucomp). PPE: Property, plant and equipment, gross = (PPEGT/ ATt-1). Foreign Income: Pre-tax income from foreign operations = (PIFO/ATt-1). Size: Total Sales (SALE). Risk: Standard deviation of monthly stock returns over previous 36 months (CRSP). Growth: 3 year average sales growth from t-2 to t = $\sum$t-2,t (SALEt – SALEt-1)/SALEt-1. Leverage: Long-term Debt = (DLTT+DLC)/(AT). NOL: NOL Carryforward/Total Assets = (TLCF/AT). Intangible: Intangible assets = (INTAN/ATt-1). Firm Age: Ln(1 + number of years listed in Compustat). Cash: Total Cash = (CHE/ ATt-1). Appreciation: cumulative stock price appreciation over prior four years = (Price t-1- Price t-3)/ Price t-3. Industry controls based on Barth, Cram and Nelson (2001) and Rees and Sivaramakrishnan (2007).

Firm Value and Expaned Avoidance Measure Governance Models -E-Index

Firm Value$_{it}$ = β_0 + β_1OTHER AVOID3$_{it}$ + β_2OTHER AVOID3$_{it*}$PoorG$_{it}$ + β_3STOCK AVOID3$_{it}$ + β_4STOCK AVOID3$_{it*}$PoorG$_{it}$ + β_5DEPR AVOID3$_{it}$ + β_6DEPR AVOID3$_{it}$*PoorG$_{it}$ + β_7RESIDUAL AVOID3$_{it}$ + β_8RESIDUAL AVOID3$_{it}$*PoorG$_{it}$ + $\sum$Control Variables$_{it}$ + ε_{it}

	DV = Tobin's Q							
	Panel A: PoorG @ mean		Panel B: Poor G @ Q3		Panel C: Poor G @ Top Decile		Panel D: Strong G @ Q2/Poor G @ Q3	
	N=2612		N=2612		N=2612		N=2612	
Variables	Coeff.	Significance	Coeff.	Significance	Coeff.	Significance	Coeff.	Significance
β_0	1.8792	<.0001	1.8325	<.0001	1.7998	<.0001	1.8720	<.0001
OTHER AVOID3	0.4801	0.0553	0.2664	0.1341	0.2942	0.0555	0.1547	0.3977
OTHER AVOID3*PoorG	-0.3536	0.2167	0.0924	0.7428	-0.2902	0.4494	0.1969	0.4967
OTHER AVOID3*StrongG							0.2928	0.4538
STOCK AVOID3	2.1243	0.0250	2.0730	0.0204	1.8794	0.0163	1.2297	0.1200
STOCK AVOID3*PoorG	-0.6073	0.6605	-1.0143	0.6086	-6.9702	0.0021	-0.1025	0.9579
STOCK AVOID3*StrongG							3.7491	0.0103
DEPR AVOID3	0.2141	0.3489	0.1068	0.5524	0.0988	0.5099	0.0801	0.6677
DEPR AVOID3*PoorG	-0.2426	0.3675	-0.0964	0.7215	-0.4389	0.1970	-0.0660	0.8077
DEPR AVOID3*StrongG							-0.0239	0.9463
RESIDUAL AVOID3	-1.3149	0.0501	-0.9207	0.0844	-1.2429	0.0129	-0.8835	0.1352
RESIDUAL AVOID3*PoorG	-0.0087	0.9921	-1.4769	0.0780	-1.5621	0.1877	-1.5257	0.0820
RESIDUAL AVOID3*StrongG							0.0167	0.9904
PoorG	-0.0901	0.2670	-0.0801	0.3924	0.0999	0.2881	-0.1130	0.2269
StrongG							-0.0523	0.6089
Options	0.7664	<.0001	0.7862	<.0001	0.8146	<.0001	0.7610	<.0001
PPE	0.1010	0.5123	0.0848	0.5880	0.1009	0.5124	0.1056	0.5021
Foreign Income	9.4773	<.0001	9.6493	<.0001	9.6230	<.0001	9.6140	<.0001
SIZE	0.0000	0.0895	0.0000	0.1106	0.0000	0.1358	0.0000	0.1091
Risk	-2.3177	<.0001	-2.2638	<.0001	-2.1938	<.0001	-2.2945	<.0001
Growth	0.3850	0.0114	0.3943	0.0109	0.3758	0.0158	0.3572	0.0189
Leverage	-0.3472	0.1634	-0.3405	0.1725	-0.3327	0.1854	-0.3343	0.1629
NOL	-0.1171	0.0533	-0.1194	0.0465	-0.1191	0.0558	-0.1064	0.0779
Intang	-0.4460	0.0005	-0.4525	0.0004	-0.4510	0.0004	-0.4304	0.0005
Firm Age	-0.0539	0.1783	-0.0518	0.1971	-0.0530	0.1835	-0.0523	0.1957
Cash	2.1274	0.0002	2.0827	<.0001	2.2158	<.0001	1.8889	<.0001
Cash*PoorG	0.0242	0.9722	0.3660	0.6930	-0.8768	0.1314	0.5548	0.5479
Cash*StrongG							0.0721	0.9330
Appreciation	-0.0011	0.0374	-0.0010	0.0519	-0.0010	0.0517	-0.0010	0.0810
Industry Dummies	Yes		Yes		Yes		Yes	
Year Dummies	Yes		Yes		Yes		Yes	
R	49.12%		49.14%		49.12%		49.82%	
Adj R	48.27%		48.29%		48.26%		48.86%	

Table 11B				
Firm Value and Expaned Avoidance Measure Governance Models -E-Index				
Panel E: Tests of coefficient equality on AVOID variables				
	Panel A: PoorG @ mean	Panel B: Poor G @ Q3	Panel C: Poor G @ Top Decile	Panel D: Strong G @ Q2/Poor G @ Q3
	Significance	Significance	Significance	Significance
Test Value of types of tax avoidance in poorly governed firms				
OTHER +OTHER *PoorG = 0	0.4333	0.1219	0.9908	0.1264
STOCK +STOCK *PoorG=0	0.165	0.5482	0.0226	0.5241
DEPR + DEPR *PoorG=0	0.8692	0.9632	0.2937	0.9497
RESIDUAL +RESIDUAL *PoorG = 0	0.0312	0.0014	0.0116	0.0012
Test Difference in value among types of avoidance in well governed firms				
OTHER =STOCK	0.0813	0.0432	0.0398	0.0022
OTHER =DEPR	0.0009	0.0172	0.0017	0.0001
OTHER =RESIDUAL	0.0045	0.0213	0.0023	0.3096
STOCK = DEPR	0.0467	0.0302	0.0228	0.1548
STOCK =RESIDUAL	0.0102	0.0137	0.0045	0.0007
DEPR =RESIDUAL	0.0145	0.0465	0.0075	0.4708
Test Difference in value among types of avoidance in poorly governed firms				
OTHER +OTHER *PoorG=STOCK +STOCK *PoorG	0.1922	0.67	0.0194	0.6384
OTHER +OTHER *PoorG=DEPR +DEPR *PoorG	0.1099	0.0743	0.2419	0.0808
OTHER +OTHER *PoorG=RESIDUAL +RESIDUAL *PoorG	0.0259	0.0008	0.0176	0.0007
STOCK +STOCK *PoorG =DEPR + DEPR *PoorG	0.1483	0.5443	0.0298	0.5216
STOCK +STOCK *PoorG=RESIDUAL +RESIDUAL *PoorG	0.0414	0.1206	0.3707	0.1136
DEPR +DEPR *PoorG=RESIDUAL +RESIDUAL *PoorG	0.0502	0.0021	0.0263	0.0018
Test Value of types of tax avoidance in strong governance firms				
OTHER +OTHER *StrongG = 0				0.2213
STOCK +STOCK *StrongG = 0				0.0006
DEPR +DEPR *StrongG = 0				0.8657
RESIDUAL +RESIDUAL *StrongG = 0				0.4679

This table presents results of firm value and alternative methods of tax avoidance model in an agency context. See Appendix A for variable description. Sample Period: 2000-2010. P-values reflect clustering of standard errors at firm level. Governance measured using E-Index (Bebchuk et al 2005). Variables reported for each of four governance assignments as described in text of paper. Governance Assignment 1 Mean: Poor G = E-Index > Sample Mean 2.735. Governance Assignment 2 Third Quartile: Poor G = E-Index > Sample Third Quartile 4. Governance Assignment 3 Top Decile: Poor G = E-Index > Top Decile 5. Governance Assignment 4 Extreme Quartiles: Poor G = E-Index > TopQuartile 4 /Strong G = G-Index < Low Quartile 2. AVOID STOCK3: Tax avoidance resulting from stock option tax benefits = Option Tax Benefit/Earnings before tax and special items. DEPR AVOID3: Tax avoidance resulting from accelerated tax depreciation deductions = ΔDTL PPE/Earnings before tax and special items. RESIDUAL AVOID3: Tax avoidance resulting from deferral of residual U.S. tax on foreign income = (Δ PRETAX + Δ DTL unremitted foreign earnings)/Earnings before tax and special items. PRETAX – Estimate based on Bauman and Shaw (2008) estimation method. OTHER AVOID3: Tax avoidance unrelated to specific methods of tax avoidance = 35%-adjusted CETR. Tobin's Q: Ratio of market value of firm to book value of firm = ((AT) + ((PRCC_C)*(CSHO))-(CEQ))/(AT). Options: Average annual value realized from the exercise of options for the top five executives of options by the top five executives grossed up by the fraction of options owned by the covered executives in year t-1 (Execucomp). PPE: Property, plant and equipment, gross = (PPEGT/ ATt-1). Foreign Income: Pre-tax income from foreign operations = (PIFO/ATt-1). Size: Total Sales (SALE). Risk: Standard deviation of monthly stock returns over previous 36 months (CRSP). Growth: 3 year average sales growth from t-2 to t = ∑t-2,t (SALEt – SALEt-1)/SALEt-1. Leverage: Long-term Debt = (DLTT+DLC)/(AT). NOL: NOL Carryforward/Total Assets = (TLCF/AT). Intangible: Intangible assets = (INTAN/ATt-1). Firm Age: Ln(1 + number of years listed in Compustat). Cash: Total Cash = (CHE/ ATt-1). Appreciation: cumulative stock price appreciation over prior four years = (Price t-1- Price t-3)/ Price t-3. Industry controls based on Barth, Cram and Nelson (2001) and Rees and Sivaramakrishnan (2007).

	Table 12							
	Firm Value and Expanded Avoidance Measure Governance Models -G-Index and Tax Havens							

Firm Value$_{it}$ = β_0 + β_1OTHER AVOID3$_{it}$ + β_2OTHER AVOID3$_{it*}$PoorG$_{it}$ + β_3STOCK AVOID3$_{it}$ + β_4STOCK AVOID3$_{it*}$PoorG$_{it}$ + β_5DEPR AVOID3$_{it}$ + β_6DEPR AVOID3$_{it}$*PoorG$_{it}$ + β_7RESIDUAL AVOID3$_{it}$ + β_8RESIDUAL AVOID3$_{it}$ *Haven$_{it}$ + β_9RESIDUAL AVOID3$_{it}$*PoorG$_{it}$*Haven$_{it}$ + $\sum$Control Variables$_{it}$ + ε_{it}

	DV = Tobin's Q							
	Panel A: PoorG @ mean		Panel B: Poor G @ Q3		Panel C: Poor G @ Top Decile		Panel D: Strong G @ Q2/Poor G @ Q3	
	N=2522		N=2522		N=2522		N=2522	
Variables	Coeff.	Significance	Coeff.	Significance	Coeff.	Significance	Coeff.	Significance
β_0	1.941	<.0001	1.831	<.0001	1.836	<.0001	1.78	<.0001
OTHER AVOID3	0.424	0.1091	0.36	0.046	0.269	0.0834	0.309	0.0658
OTHER AVOID3*PoorG	-0.261	0.3875	-0.34	0.236	0.079	0.8428	-0.281	0.3114
OTHER AVOID3*StrongG							0.132	0.726
STOCK AVOID3	2.367	0.0394	2.294	0.0154	1.972	0.017	2.621	0.0269
STOCK AVOID3*PoorG	-1.181	0.3995	-2.293	0.0593	-3.05	0.0024	-2.575	0.0636
STOCK AVOID3*StrongG							-0.456	0.8028
DEPR AVOID3	0.102	0.6709	0.102	0.5548	0.026	0.8642	0.121	0.515
DEPR AVOID3*PoorG	-0.041	0.885	-0.065	0.8373	0.47	0.2013	-0.081	0.8055
DEPR AVOID3*StrongG							0.009	0.9782
RESIDUAL AVOID3	-1.99	0.3674	-1.496	0.0591	-1.163	0.2194	-1.543	0.0484
RESIDUAL AVOID3*Haven	0.146	0.9256	0.329	0.7273	-0.279	0.7888	-0.823	0.3493
RESIDUAL AVOID3*PoorG	0.177	0.9151	0.995	0.5308	0.953	0.6622	1.036	0.5049
RESIDUAL AVOID3*PoorG*Haven	-0.9	0.6349	-1.879	0.324	-1.006	0.7111	-0.739	0.6937
RESIDUAL AVOID3*StrongG							0.099	0.9622
RESIDUAL AVOID3*StrongG*Haven							2.231	0.3512
Haven	-0.159	0.0538	-0.075	0.2375	-0.042	0.4373	-0.027	0.7194
PoorG	-0.214	0.0388	-0.06	0.502	-0.069	0.4753	-0.023	0.7955
PoorG*Haven	0.233	0.0126	0.155	0.0959	0.132	0.2115	0.107	0.2834
StrongG							0.1	0.4402
StrongG*Haven							-0.116	0.3318
Options	0.742	<.0001	0.752	<.0001	0.758	<.0001	0.741	<.0001
PPE	0.092	0.5441	0.095	0.5503	0.096	0.5522	0.103	0.5082
Foreign Income	9.654	<.0001	9.673	<.0001	9.572	<.0001	9.71	<.0001
SIZE	-.000	0.0738	-.000	0.1389	-.000	0.1356	-.000	0.0971
Risk	-2.406	<.0001	-2.265	<.0001	-2.352	<.0001	-2.272	<.0001
Growth	0.417	0.0069	0.432	0.0081	0.445	0.0066	0.426	0.0092
Leverage	-0.376	0.138	-0.346	0.1899	-0.353	0.1795	-0.362	0.1595
NOL	-0.116	0.0636	-0.124	0.0531	-0.127	0.0473	-0.119	0.0592
Intang	-0.434	0.0024	-0.439	0.0028	-0.433	0.0027	-0.439	0.0018
Firm Age	-0.041	0.3274	-0.041	0.3444	-0.047	0.2604	-0.038	0.3786
Cash	2.176	0.001	2.197	<.0001	2.212	<.0001	2.214	<.0001
Cash*PoorG	0.011	0.9891	-0.211	0.7618	-1.144	0.1573	-0.223	0.7496
Cash*StrongG							-0.048	0.96
Appreciation	-0.002	<.0001	-0.002	<.0001	-0.002	<.0001	-0.002	<.0001
Industry Dummies	Yes		Yes		Yes		Yes	
Year Dummies	Yes		Yes		Yes		Yes	
R	49.52%		49.21%		49.13%		49.39%	
Adj R	48.56%		48.24%		48.16%		48.26%	

Table 12				
Firm Value and Expaned Avoidance Measure Governance Models -G-Index and Tax Havens				
Panel E: Tests of coefficient equality on AVOID variables				
	Panel A: PoorG @ mean	Panel B: Poor G @ Q3	Panel C: Poor G @ Top Decile	Panel D: Strong G @ Q2/Poor G @ Q3
	Significance	Significance	Significance	Significance
Test Value of types of tax avoidance in poorly governed firms				
RESIDUAL AVOID3 + RESIDUAL AVOID3*HAVEN = 0	0.2213	0.0484	0.0075	0.0035
RESIDUAL AVOID3 + RESIDUAL AVOID3*PoorG = 0	0.2950	0.7247	0.9618	0.7233
RESIDUAL AVOID3 + RESIDUAL AVOID3*HAVEN+RESIDL	0.0008	0.0198	0.1626	0.0189
RESIDUAL AVOID3 + RESIDUAL AVOID3*HAVEN+ RESIDUAL AVOID3*HAVEN*STRONGG = 0				0.7836

This table presents results of firm value and alternative methods of tax avoidance model in an agency context. See Appendix A for variable description. Sample Period: 2000-2010. P-values reflect clustering of standard errors at firm level. Governance measured using G-Index (Gompers et al 2003). Variables reported for each of four governance assignments as described in text of paper. Governance Assignment 1 Mean: Poor G = G-Index > Sample Mean 9.896. Governance Assignment 2 Third Quartile: Poor G = G-Index > Sample Third Quartile 12. Governance Assignment 3 Top Decile: Poor G = G-Index > Top Decile 14. Governance Assignment 4 Extreme Quartiles: Poor G = G-Index > TopQuartile 12 /Strong G = G-Index < Low Quartile 8. AVOID STOCK3: Tax avoidance resulting from stock option tax benefits = Option Tax Benefit/Earnings before tax and special items. DEPR AVOID3: Tax avoidance resulting from accelerated tax depreciation deductions = ΔDTL PPE/Earnings before tax and special items. RESIDUAL AVOID3: Tax avoidance resulting from deferral of residual U.S. tax on foreign income = (Δ PRETAX + Δ DTL unremitted foreign earnings)/Earnings before tax and special items. PRETAX – Estimate based on Bauman and Shaw (2008) estimation method. OTHER AVOID3: Tax avoidance unrelated to specific methods of tax avoidance = 35%-adjusted CETR. Tobin's Q: Ratio of market value of firm to book value of firm = ((AT) + ((PRCC_C)*(CSHO))-(CEQ))/(AT). Options: Average annual value realized from the exercise of options for the top five executives of options by the top five executives grossed up by the fraction of options owned by the covered executives in year t-1 (Execucomp). PPE: Property, plant and equipment, gross = (PPEGT/ ATt-1). Foreign Income: Pre-tax income from foreign operations = (PIFO/ATt-1). Size: Total Sales (SALE). Risk: Standard deviation of monthly stock returns over previous 36 months (CRSP). Growth: 3 year average sales growth from t-2 to t = ∑t-2,t (SALEt – SALEt-1)/SALEt-1. Leverage: Long-term Debt = (DLTT+DLC)/(AT). NOL: NOL Carryforward/Total Assets = (TLCF/AT). Intangible: Intangible assets = (INTAN/ATt-1). Firm Age: Ln(1 + number of years listed in Compustat). Cash: Total Cash = (CHE/ ATt-1). Appreciation: cumulative stock price appreciation over prior four years = (Price t-1- Price t-3)/ Price t-3. Industry controls based on Barth, Cram and Nelson (2001) and Rees and Sivaramakrishnan (2007).

Firm Value and Alternative Avoidance Measure Governance Models - G-Index

Expansion of Residual Tax Deferral

Firm Value$_{it}$ = β_0 + β_1OTHER AVOID3 + β_2OTHER AVOID3*PoorG$_{it}$ + β_3STOCK AVOID3 + β_4STOCK AVOID3*PoorG$_{it}$ + β_5DEPR AVOID3$_{it}$ + β_6DEPR AVOID3*PoorG$_{it}$ +β_7PROVIDEAVOID3 + β_8PROVIDEAVOID3*PoorG$_{it}$ + β_9PRETAX DISCLOSE AVOID3 + β_{10}PRETAX DISCLOSE AVOID3*PoorG$_{it}$ +β_{11}PRETAX ESTIMATE AVOID3 + β_{12}PRETAX ESTIMATE AVOID3*PoorGit + $\sum$Control Variables$_{it}$ + ε_{it}

	DV = Tobin's Q							
	Panel A: PoorG @ mean		Panel B: Poor G @ Q3		Panel C: Poor G @ Top Decile		Panel D: Strong G @ Q2/Poor G @ Q3	
	N=2612		N=2612		N=2612		N=2612	
Variables	Coeff.	Significance	Coeff.	Significance	Coeff.	Significance	Coeff.	Significance
β_0	1.8340	<.0001	1.7944	<.0001	1.8055	<.0001	1.8048	<.0001
OTHER AVOID3	0.5063	0.0295	0.3998	0.0147	0.3447	0.0225	0.3570	0.0249
OTHER AVOID3*PoorG	-0.3305	0.2368	-0.2979	0.3646	-0.0830	0.8172	-0.2491	0.4420
OTHER AVOID3*StrongG							0.0644	0.8498
STOCK AVOID3	2.1031	0.0369	2.2609	0.0187	2.0414	0.0156	2.3147	0.0451
STOCK AVOID3*PoorG	-0.6526	0.6421	-1.9120	0.1224	-3.2621	0.0010	-1.9209	0.1497
STOCK AVOID3*StrongG							-0.0137	0.9939
DEPR AVOID3	0.2217	0.3178	0.1714	0.3004	0.1131	0.4545	0.1661	0.3606
DEPR AVOID3*PoorG	-0.1794	0.5139	-0.1304	0.6949	0.2941	0.2975	-0.1258	0.7134
DEPR AVOID3*StrongG							-0.0164	0.9610
PROVIDE AVOID3	-1.4774	0.2811	-1.5495	0.1561	-1.7097	0.0817	-1.5991	0.4092
PROVIDE AVOID3*PoorG	-0.6320	0.7211	-2.0860	0.4224	0.8109	0.6157	-2.0410	0.5259
PROVIDE AVOID3*StrongG							-0.1948	0.9386
PRETAX DISCLOSE AVOID3	-0.8033	0.6977	-1.6171	0.1089	-1.7361	0.0456	-2.1089	0.0355
PRETAX DISCLOSE AVOID3*PoorG	-1.2645	0.5743	-0.3098	0.8758	51.5399	0.2228	0.1952	0.9196
PRETAX DISCLOSE AVOID3*StrongG							4.1778	0.3050
PRETAX ESTIMATE AVOID3	-0.4418	0.3580	-0.2661	0.4030	-0.3060	0.3196	-0.0488	0.8835
PRETAX ESTIMATE AVOID3*PoorG	0.1643	0.7817	-0.2717	0.7044	-0.5141	0.5616	-0.4939	0.4921
PRETAX ESTIMATE AVOID3*StrongG							-0.4805	0.4443
PoorG	-0.0794	0.3753	-0.0292	0.7206	0.0053	0.9422	-0.0260	0.7512
StrongG							0.0271	0.7980
Options	0.7850	<.0001	0.7861	<.0001	0.7800	<.0001	0.7793	<.0001
PPE	0.0965	0.5210	0.0841	0.5895	0.0815	0.6048	0.0926	0.5448
Foreign Income	9.2687	<.0001	9.3703	<.0001	9.3309	<.0001	9.3979	<.0001
Size	0.0000	0.1084	0.0000	0.1619	0.0000	0.1578	0.0000	0.1377
Risk	-2.2764	<.0001	-2.1727	<.0001	-2.2025	<.0001	-2.2159	<.0001
Growth	0.3529	0.0197	0.3818	0.0139	0.3785	0.0144	0.3747	0.0185
Leverage	-0.3646	0.1428	-0.3220	0.2096	-0.3378	0.1852	-0.3317	0.1886
NOL	-0.1161	0.0588	-0.1227	0.0501	-0.1219	0.0541	-0.1212	0.0500
Intang	-0.4325	0.0008	-0.4490	0.0007	-0.4442	0.0006	-0.4439	0.0005
Firm Age	-0.0483	0.2296	-0.0506	0.2211	-0.0532	0.1882	-0.0534	0.1965
Cash	2.1865	0.0002	2.0731	<.0001	2.2008	<.0001	2.0249	<.0001
Cash*PoorG	-0.1170	0.8650	0.3838	0.5813	-1.0980	0.1313	0.4390	0.5086
Cash*StrongG							0.0224	0.9785
Appreciation	-0.0010	0.0211	-0.0010	0.0457	-0.0010	0.0500	-0.0010	0.0424
Industry Dummies	Yes		Yes		Yes		Yes	
Year Dummies	Yes		Yes		Yes		Yes	
R	49.10%		48.89%		48.99%		49.05%	
R Adj	48.17%		47.96%		48.05%		47.95%	

Table 13A				
Firm Value and Alternative Avoidance Measure Governance Models - G-Index				
Expansion of Residual Tax Deferral				

Panel E: Tests of coefficient equality on AVOID variables

	Panel A: PoorG @ mean	Panel B: Poor G @ Q3	Panel C: Poor G @ Top Decile	Panel D: Strong G @ Q2/Poor G @ Q3
	Significance	Significance	Significance	Significance
Test Value of types of tax avoidance in poorly governed firms				
PROVIDE +PROVIDE *PoorG = 0	0.0705	0.1062	0.4867	0.1
PRETAX DISCLOSE +PRETAX DISCLOSE *PoorG = 0	0.0107	0.2667	0.2387	0.02694
PRETAX ESTIMATE + PRETAX ESTIMATE *PoorG = 0	0.4468	0.4108	0.3292	0.408
Test Difference in value among types of avoidance in well governed firms				
PROVIDE = PRETAX DISCLOSE	0.801	0.9654	0.9841	0.3582
PROVIDE = PRETAX ESTIMATE	0.4541	0.2456	0.1643	0.3797
PRETAX DISCLOSE = PRETAX ESTIMATE	0.8645	0.1766	0.0916	0.5193
Test Difference in value among types of avoidance in poorly governed firms				
PROVIDE +PROVIDE *PoorG = PRETAX DISCLOSE +PRETAX DISCLOSE *PoorG	0.9766	0.4988	0.2299	0.4956
PROVIDE +PROVIDE *PoorG = PRETAX ESTIMATE +PRETAX ESTIMATE *PoorG	0.1354	0.2111	0.9623	0.2133
PRETAX DISCLOSE +PRETAX DISCLOSE *PoorG = PRETAX ESTIMATE +PRETAX E	0.017	0.3785	0.2238	0.3834
Test Value of types of tax avoidance in strong governance firms				
PROVIDE +PROVIDE *StrongG = 0				0.1877
PRETAX DISCLOSE +PRETAX DISCLOSE *StrongG = 0				0.5898
PRETAX ESTIMATE + PRETAX ESTIMATE *StrongG = 0				0.3397

This table presents results of firm value and alternative methods of tax avoidance model in an agency context including the expansion of RESIDUAL AVOID3 into the three methods of disclosing residual tax deferral. See Appendix A for variable description. Sample Period: 2000-2010. P-values reflect clustering of standard errors at firm level. Governance measured using G-Index (Gompers et al 2003). Variables reported for each of four governance assignments as described in text of paper. Governance Assignment 1 Mean: Poor G = G-Index > Sample Mean 9.896. Governance Assignment 2 Third Quartile: Poor G = G-Index > Sample Third Quartile 12. Governance Assignment 3 Top Decile: Poor G = G-Index > Top Decile 14. Governance Assignment 4 Extreme Quartiles: Poor G = G-Index > TopQuartile 12 /Strong G = G-Index < Low Quartile 8. STOCK AVOID3: Tax avoidance resulting from stock option tax benefits = Option Tax Benefit/Earnings before tax and special items. DEPR AVOID3: Tax avoidance resulting from accelerated tax depreciation deductions = ΔDTL PPE/Earnings before tax and special items. PROVIDE AVOID3: Tax avoidance related to provision of deferred tax expense on unrepatriated foreign earnings. PRETAX DISCLOSE AVOID3: Tax avoidance related to disclosed unrecognized tax liability on unrepatriated foreign earnings. PRETAX ESTIMATE AVOID3: Tax avoidance related to estimated unrecognized tax liability on unrepatriated foreign earnings. PRETAX – Estimate based on Bauman and Shaw (2008) estimation method. OTHER AVOID3: Tax avoidance unrelated to specific methods of tax avoidance = 35%-adjusted CETR. Tobin's Q: Ratio of market value of firm to book value of firm = ((AT) + ((PRCC_C)*(CSHO))-(CEQ))/(AT). Options: Average annual value realized from the exercise of options for the top five executives of options by the top five executives grossed up by the fraction of options owned by the covered executives in year t-1 (Execucomp). PPE: Property, plant and equipment, gross = (PPEGT/ ATt-1). Foreign Income: Pre-tax income from foreign operations = (PIFO/ATt-1). Size: Total Sales (SALE). Risk: Standard deviation of monthly stock returns over previous 36 months (CRSP). Growth: 3 year average sales growth from t-2 to t = ∑t-2,t (SALEt – SALEt-1)/SALEt-1. Leverage: Long-term Debt = (DLTT+DLC)/(AT). NOL: NOL Carryforward/Total Assets = (TLCF/AT). Intangible: Intangible assets = (INTAN/ATt-1). Firm Age: Ln(1 + number of years listed in Compustat). Cash: Total Cash = (CHE/ ATt-1). Appreciation: cumulative stock price appreciation over prior four years = (Price t-1- Price t-3)/ Price t-3. Industry controls based on Barth, Cram and Nelson (2001) and Rees and Sivaramakrishnan (2007).

Firm Value and Alternative Avoidance Measure Governance Models - E-Index

Expansion of Residual Tax Deferral

Firm Value$_{it}$ = β$_0$ + β$_1$OTHER AVOID3 + β$_2$OTHER AVOID3*PoorG$_{it}$ + β$_3$STOCK AVOID3 + β$_4$STOCK AVOID3*PoorG$_{it}$ + β$_5$DEPR AVOID3$_{it}$ + β$_6$DEPR AVOID3*PoorG$_{it}$ +β$_7$PROVIDEAVOID3 + β$_8$PROVIDEAVOID3*PoorG$_{it}$ + β$_9$PRETAX DISCLOSE AVOID3 + β$_{10}$PRETAX DISCLOSE AVOID3*PoorG$_{it}$ +β$_{11}$PRETAX ESTIMATE AVOID3 + β$_{12}$PRETAX ESTIMATE AVOID3*PoorG$_{it}$ + ∑Control Variables$_{it}$ + ε$_{it}$

	DV = Tobin's Q							
	Panel A: PoorG @ mean		Panel B: Poor G @ Q3		Panel C: Poor G @ Top Decile		Panel D: Strong G @ Q2/Poor G @ Q3	
	N=2612		N=2612		N=2612		N=2612	
Variables	Coeff.	Significance	Coeff.	Significance	Coeff.	Significance	Coeff.	Significance
β$_0$	1.8902	<.0001	1.8584	<.0001	1.8202	<.0001	1.8995	<.0001
OTHER AVOID3	0.6082	0.0099	0.3423	0.0519	0.3811	0.0128	0.2282	0.2150
OTHER AVOID3*PoorG	-0.4119	0.1338	0.0986	0.7183	-0.4193	0.1635	0.2062	0.4656
OTHER AVOID3*StrongG							0.2886	0.4637
STOCK AVOID3	2.3302	0.0194	2.1397	0.0204	1.9208	0.0167	1.2485	0.1328
STOCK AVOID3*PoorG	-0.9583	0.4985	-1.1082	0.5913	-7.4866	0.0014	-0.1335	0.9478
STOCK AVOID3*StrongG							3.8827	0.0085
DEPR AVOID3	0.3256	0.1287	0.1685	0.3398	0.1705	0.2510	0.1352	0.4719
DEPR AVOID3*PoorG	-0.2916	0.2659	-0.0194	0.9446	-0.4273	0.1936	0.0198	0.9444
DEPR AVOID3*StrongG							-0.0263	0.9424
PROVIDE AVOID3	-2.2381	0.1767	-1.3082	0.2160	-1.5509	0.1100	-0.7923	0.4594
PROVIDE AVOID3*PoorG	-1.2521	0.5817	-3.7092	0.1020	-6.2504	0.0467	-4.2380	0.0628
PROVIDE AVOID3*StrongG							-0.8812	0.7576
PRETAX DISCLOSE AVOID3	-1.2039	0.3648	-0.8485	0.5504	-1.4054	0.1509	-0.9847	0.5112
PRETAX DISCLOSE AVOID3*PoorG	-0.5443	0.7277	-1.2026	0.5008	-2.2938	0.2266	-1.1361	0.5331
PRETAX DISCLOSE AVOID3*StrongG							-1.1152	0.8672
PRETAX ESTIMATE AVOID3	-0.5007	0.2746	-0.4351	0.2327	-0.3321	0.3012	-0.2651	0.4780
PRETAX ESTIMATE AVOID3*PoorG	0.2424	0.6509	0.1977	0.6418	0.0576	0.9274	0.0316	0.9427
PRETAX ESTIMATE AVOID3*StrongG							-0.7795	0.2680
PoorG	-0.0801	0.3176	-0.0937	0.3352	0.0914	0.3108	-0.1297	0.1864
StrongG							-0.0619	0.5571
Options	0.7688	<.0001	0.7910	<.0001	0.8189	<.0001	0.7615	<.0001
PPE	0.1122	0.4694	0.0839	0.5926	0.1089	0.4833	0.1042	0.5097
Foreign Income	9.1940	<.0001	9.3198	<.0001	9.3678	<.0001	9.2767	<.0001
Size	0.0000	0.1153	0.0000	0.1396	0.0000	0.1601	0.0000	0.1555
Risk	-2.3162	<.0001	-2.2601	<.0001	-2.1771	<.0001	-2.2645	<.0001
Growth	0.3763	0.0126	0.3836	0.0126	0.3684	0.0175	0.3506	0.0203
Leverage	-0.3639	0.1498	-0.3506	0.1665	-0.3413	0.1781	-0.3399	0.1625
NOL	-0.1184	0.0499	-0.1266	0.0351	-0.1236	0.0494	-0.1190	0.0481
Intang	-0.4406	0.0006	-0.4426	0.0005	-0.4461	0.0005	-0.4232	0.0007
Firm Age	-0.0561	0.1658	-0.0556	0.1709	-0.0574	0.1557	-0.0572	0.1606
Cash	2.0912	0.0002	2.0744	<.0001	2.2068	<.0001	1.9029	<.0001
Cash*PoorG	0.0730	0.9166	0.3469	0.7100	-0.8987	0.1512	0.5167	0.5801
Cash*StrongG							0.0279	0.9735
Appreciation	-0.0011	0.0326	-0.0010	0.0464	-0.0010	0.0458	-0.0010	0.0753
Industry Dummies	Yes		Yes		Yes		Yes	
Year Dummies	Yes		Yes		Yes		Yes	
R	49.07%		49.06%		49.04%		49.80%	
R Adj	48.13%		48.12%		48.11%		48.72%	

	Table 13B			
	Firm Value and Alternative Avoidance Measure Governance Models - E-Index			
	Expansion of Residual Tax Deferral			

Panel E: Tests of coefficient equality on AVOID variables

	Panel A: PoorG @ mean	Panel B: Poor G @ Q3	Panel C: Poor G @ Top Decile	Panel D: Strong G @ Q2/Poor G @ Q3
	Significance	Significance	Significance	Significance
Test Value of types of tax avoidance in poorly governed firms				
PROVIDE +PROVIDE *PoorG = 0	0.04128	0.0086	0.007	0.0079
PRETAX DISCLOSE +PRETAX DISCLOSE *PoorG = 0	0.0774	0.0612	0.016	0.0504
PRETAX ESTIMATE + PRETAX ESTIMATE *PoorG = 0	0.4541	0.4605	0.6421	0.4628
Test Difference in value among types of avoidance in well governed firms				
PROVIDE = PRETAX DISCLOSE	0.651	0.8155	0.9178	0.8295
PROVIDE = PRETAX ESTIMATE	0.2827	0.422	0.2239	0.8243
PRETAX DISCLOSE = PRETAX ESTIMATE	0.6114	0.7671	0.2544	0.8651
Test Difference in value among types of avoidance in poorly governed firms				
PROVIDE +PROVIDE *PoorG = PRETAX DISCLOSE +PRETAX DISCLOSE *PoorG	0.6348	0.1575	0.1824	0.1598
PROVIDE +PROVIDE *PoorG = PRETAX ESTIMATE +PRETAX ESTIMATE *PoorG	0.5821	0.0165	0.0082	0.0154
PRETAX DISCLOSE +PRETAX DISCLOSE *PoorG = PRETAX ESTIMATE +PRETAX E!	0.1096	0.0928	0.0162	0.0777
Test Value of types of tax avoidance in strong governance firms				
PROVIDE +PROVIDE *StrongG = 0				0.5375
PRETAX DISCLOSE +PRETAX DISCLOSE *StrongG = 0				0.738
PRETAX ESTIMATE + PRETAX ESTIMATE *StrongG = 0				0.0941

This table presents results of firm value and alternative methods of tax avoidance model in an agency context including the expansion of RESIDUAL AVOID3 into the three methods of disclosing residual tax deferral. See Appendix A for variable description. Sample Period: 2000-2010. P-values reflect clustering of standard errors at firm level. Governance measured using E-Index (Bebchuk et al 2005). Variables reported for each of four governance assignments as described in text of paper. Governance Assignment 1 Mean: Poor G = E-Index > Sample Mean 2.735. Governance Assignment 2 Third Quartile: Poor G = E-Index > Sample Third Quartile 4. Governance Assignment 3 Top Decile: Poor G = E-Index > Top Decile 5. Governance Assignment 4 Extreme Quartiles: Poor G = E-Index > TopQuartile 4 /Strong G = G-Index < Low Quartile 2. STOCK AVOID3: Tax avoidance resulting from stock option tax benefits = Option Tax Benefit/Earnings before tax and special items. DEPR AVOID3: Tax avoidance resulting from accelerated tax depreciation deductions = ΔDTL PPE/Earnings before tax and special items. PROVIDE AVOID3: Tax avoidance related to provision of deferred tax expense on unrepatriated foreign earnings. PRETAX DISCLOSE AVOID3: Tax avoidance related to disclosed unrecognized tax liability on unrepatriated foreign earnings. PRETAX ESTIMATE AVOID3: Tax avoidance related to estimated unrecognized tax liability on unrepatriated foreign earnings. PRETAX – Estimate based on Bauman and Shaw (2008) estimation method. OTHER AVOID3: Tax avoidance unrelated to specific methods of tax avoidance = 35%-adjusted CETR. Tobin's Q: Ratio of market value of firm to book value of firm = ((AT) + ((PRCC_C)*(CSHO))-(CEQ))/(AT). Options: Average annual value realized from the exercise of options for the top five executives of options by the top five executives grossed up by the fraction of options owned by the covered executives in year t-1 (Execucomp). PPE: Property, plant and equipment, gross = (PPEGT/ ATt-1). Foreign Income: Pre-tax income from foreign operations = (PIFO/ATt-1). Size: Total Sales (SALE). Risk: Standard deviation of monthly stock returns over previous 36 months (CRSP). Growth: 3 year average sales growth from t-2 to t = $\sum$t-2,t (SALEt – SALEt-1)/SALEt-1. Leverage: Long-term Debt = (DLTT+DLC)/(AT). NOL: NOL Carryforward/Total Assets = (TLCF/AT). Intangible: Intangible assets = (INTAN/ATt-1). Firm Age: Ln(1 + number of years listed in Compustat). Cash: Total Cash = (CHE/ ATt-1). Appreciation: cumulative stock price appreciation over prior four years = (Price t-1- Price t-3)/ Price t-3. Industry controls based on Barth, Cram and Nelson (2001) and Rees and Sivaramakrishnan (2007).