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Brian Wenzel
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"Board Co-option and Tax Aggressive Behavior"

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Board Co-option and Tax Aggressive Behavior

Jenny Brown
Arizona State University

Melissa Martin
Arizona State University
Rice University, visiting professor

Brian Wenzel
Arizona State University

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Abstract:
We look at a measure of corporate governance, the amount of directors elected to the board after the CEO assumes office, to determine its effect on firm-level tax aggressiveness. Using three measures of tax aggressiveness (tax sheltering, the reserve for unrecognized tax benefits, and the volatility of the cash effective tax rate), we find that firm-level investment in aggressive tax strategies is lower for firms with greater board co-option. These results support a quiet life hypothesis; as CEOs increase control over the board, they reduce their exposure to aggressive tax strategies that would otherwise require substantial time and effort to maintain.

1. Introduction

One of the most common methods of achieving alignment between shareholders' interests and managements' actions is through effective board monitoring. There is a considerable amount of empirical evidence documenting when and how firms monitor as well as the effectiveness of this monitoring (Jensen and Meckling 1979, Fama 1980, Fama and Jensen 1983). However, Hanlon and Heitzman (2010) state that we do not have a complete understanding of the relation between corporate governance and tax avoidance, and that more reliable measures might improve our understanding of the relation between the two. The goal of this paper is to bridge this gap by exploring the relation between firm monitoring and the propensity of a firm to engage in aggressive tax behavior.

The relation between board monitoring and tax aggressiveness is interesting because prior literature is mixed on the effects of the relation between monitoring and firm risk. One stream of research suggests that as monitoring decreases, management invests in riskier projects (Desai and Dharmapala 2006, Coles et al. 2010). However, a separate line of research suggests that firm management is risk averse and, absent effective monitoring or risk incentives, management will prefer to take the least costly and time consuming path (Bertrand and Mullainathan 2003, Rego and Wilson 2012).

Using a new measure of monitoring effectiveness, board co-option, we examine how firm monitoring affects the firm's tax behavior. Specifically, we use three proxies of tax aggressiveness to test our research question. We begin with the prediction model from Wilson (2009) as a proxy for the likelihood that a firm is engaging in a tax shelter. We then utilize the reserve for unrecognized tax benefits (UTB), the mandated disclosure for

firm fiscal years beginning after December 15, 2006. Finally, we employ a new measure of tax aggressiveness from a working paper by Guenther et al. (2012) that measures the volatility of a firm's cash effective tax rate (CETR).

Our results suggest that, rather than ineffective monitoring leading to an increase in aggressive tax behavior, there is a negative relation between board co-option and tax aggressiveness. This is supportive of the quiet life hypothesis; as board oversight diminishes, CEOs prefer to exert less effort and thus reduce their investments in aggressive tax positions. These results may also provide insight into Weisbach's (2002) "undersheltering puzzle." Whether this reduction in tax aggressiveness impacts firm value remains an open question.

These findings may be of interest to several interested parties. Regulators, such as the FASB or the SEC, may find the results useful in determining the quality and the effects of required changes to board structure and CEO participation on the board. Market participants could find benefit from analyzing board structure and determining if the level and character of tax aggressiveness within the firm is sub-optimal. Taxing authorities might use these results as a tool in determining which corporate taxpayers may require additional monitoring. Lastly, future researchers may want to consider board monitoring as an additional determinant of, or deterrent to, aggressive tax behavior.

This paper proceeds as follows. Section 2 reviews the prior literature on corporate board oversight and tax aggressiveness used to formalize our hypothesis. Section 3 lays out our research methodology. Section 4 presents the results of our study. Section 5 discusses robustness tests used to validate our results. Section 6 states our roadmap for further tests aimed at supplementing our findings. Finally, Section 7 concludes our paper.

2. Motivation

2.1 Monitoring

It is well established that, absent effective monitoring, CEOs and firm management may act in a manner that is detrimental to both firm and investor value. One form of monitoring that investors put in place is a board of directors, which oversees the actions of firm management (Jensen and Meckling 1979). One of the functions of the board is to monitor the level of risk that management undertakes. However, CEOs may exert significant influence over the selection of board members (Coles et al. 2010). Even with increased barriers to the CEOs involvement in the nomination process post-SOX, the CEO at the very minimum approves the slate for directors up for election (Hermalin and Weisbach 1998, Coles et al. 2010), and this slate is almost always elected by the shareholders (Cai, Garner, and Walkling 2009). Thus, the CEO still has some power, indirectly or otherwise, over the level of monitoring he is subject to.

Coles et al. (2010) propose a new measure of weakened corporate governance that exploits the CEO's ability to influence the structure of the board. This measure is based on the number of directors who are elected to the board after the CEO assumes office. Coles et al. term this as board co-option and note that, regardless of the director's relation to the board (independent or not), the fact that the CEO has a say in the director being placed on the board may yield benefits to the CEO from said director. That is, the director may feel some allegiance to the CEO if the CEO had a say in him being elected. Coles et al. test the significance of board co-option on, among other things, firm risk, and find that co-option is positively related to the level of firm-specific risk to the board. Thus, under

Coles et al.'s tests, weaker monitoring is correlated with greater levels of firm specific risk. These results are in line with findings in multiple other studies.

Hope and Thomas (2007) find that multinational corporations (MNCs) that opt to stop disclosing earnings by geographic location, due to the implementation of FASB Statement 131, experience greater expansion of foreign sales, relative to MNCs that continue to report earnings by geographic location. Desai and Dharmapala (2006) explain that, left unmonitored, management will divert resources from the firm. Further, Armstrong et al. (2010) show that increased equity compensation reduces managements' propensity to engage in financial statement manipulation. Thus, if equity compensation is not at optimum, managements' incentives are not aligned with shareholders' interests, and agency issues arise. If these views are correct, we would expect to find that CEOs in firms with greater board co-option invest more heavily in tax aggressive activities. However, we make no determination on firm value at this time.

Coles et al.'s view of firm risk is one of overall risk. Taxes, as discussed below, are but one of many risk (aggressive) investments a firm can invest in. As discussed later in this paper, the potential for monitoring from the taxing authorities may pose enough of a deterrent for a CEO to choose to not engage in tax aggressive behavior as he co-opts the board. In fact, he may choose to "enjoy the quiet life" (Bertrand and Mullainathan 2003) and reduce his investment in aggressive tax activities.

Under this view, managers will choose to take the least costly avenue to maintain a level of stasis as governance decreases, eschewing investments in time, effort and, potentially, real investments. In their study, Bertrand and Mullainathan (2003) find that, as antitakeover laws were put in place in various jurisdictions, firms tended to reduce

both their level of plant destruction and plant creation. That is, empire building of the firm decreased as the threat of corporate takeover was removed. Giroud and Mueller (2010) show that, when business combination laws weaken the threat of corporate takeover, firms in noncompetitive industries experience a drop in operating performance, whereas those in competitive industries do not realize such a drop, suggesting that management enjoys a quiet life as significant threats to their jobs are removed. Low (2009) finds that, in response to increased protection from takeovers, managers decrease firm risk in an amount that is detrimental to firm value. This reduction is concentrated in those firms with lower managerial equity-based compensation. In firms that stagger their board elections, Zhao and Chen (2008) find that firms are less likely to commit fraud or manage earnings. While this may seem beneficial to the firm, they also show that staggered boards are negatively associated with firm value. That is, the reduction in hostile takeover risk entices management to do less. Finally, Core et al. (2006) find that, for not-for-profit firms (NFPs) with excess endowments, CEO and total director pay are greater than those without excess endowments, growth is reduced, and that these excess endowments are consistent over time, suggesting that agency problems within these NFPs lead to management leading a quiet life.

This line of research suggests that the quiet life hypothesis is not constrained to a particular type of firm or industry, but rather to those firms where corporate governance is weaker. If such a view is correct, CEOs in firms where they have co-opted the board may choose to reduce risky tax investments purely because they require time and effort, may be costly, and might entice a third party (the taxing authority) to increase monitoring over the firm. If this is true, we would expect to see aggressive tax positions to be lower

for firms with higher levels of board co-option, although we make no determination on the level of overall tax avoidance such a firm may undertake.

2.2 Monitoring in Tax Settings

In the general agent-owner framework, firm monitoring aims to align the interests of two parties: firm management (the agents) and firm shareholders (the owners). In the tax realm, however, there is always a third, and in general, very powerful party in the agency framework: the taxing authority (Desai et al. 2007). Assuming that effective monitoring has perfectly aligned agent actions with owner interests such that the firm decreases its overall taxes paid, the taxing authority imposes its separate monitoring, which in general may not be aligned with the optimal firm level. Thus, it is likely that oversight from the taxing authorities will discourage certain aggressive positions. Not unrelated, as governance weakens as the board becomes co-opted, the monitoring from the taxing authority may act as a substitute to effective board monitoring (Desai et al. 2007). Regardless of how the taxing authority interacts with firm monitoring, this third party adds an interesting friction to the tax avoidance game.

2.3 Hypothesis

In short, it is an empirical question as to how weaker corporate governance from a co-opted board affects the level of tax aggressiveness CEOs choose to undertake. On one hand, we might expect greater board co-option to lead to the firm investing in more aggressive tax positions. Alternatively, we might expect greater board co-option to

provide managers the opportunity to "enjoy the quiet life" and engage in less aggressive tax activities. This conflict leads to our explicit, non-directional hypothesis:

Tax aggressiveness will vary with board co-option.

3. Research Design

3.1 Sample Selection

We begin with board of director information from the RiskMetrics (formerly the Investor Responsibility Research Center) director database, covering S&P 1500 firms. RiskMetrics begins covering firms starting with firm annual meetings in 1996. There are two important constraints in the RiskMetrics universe that require assumptions, as discussed below.

First, RiskMetrics' year of measure is the date that the firm's annual meeting took place. As such, this date cannot be used to match with the year in Compustat or CRSP, as those two databases measure year as the firm's year-end. To overcome this limitation, we compare the date of the annual meeting to the fiscal year-end. Per Coles et al. (2010), the majority of the firms in RiskMetrics hold their annual meeting within the first few months of the fiscal year. Thus, if the date of the annual meeting in RiskMetrics is before the fiscal year-end from Compustat, we assume the fiscal year for RiskMetrics is equal to the year in RiskMetrics. If the date of the annual meeting is after the Compustat fiscal year-end, we assume the fiscal year for RiskMetrics is equal to the year + 1 in RiskMetrics.

Second, while RiskMetrics contains CUSIP, ticker symbol and firm names for the company each director works for, these alone do not provide perfect matches with either

Compustat or CRSP. To overcome this limitation, we match RiskMetrics to Compustat on both CUSIP and ticker symbol. While not perfect, this double match helps alleviate the potential for an improper match, as both CUSIP and ticker symbols can a) change over time and b) may be recycled over time. Observations that are unable to be matched are dropped from the sample.

In addition, firm-year observations are dropped from the sample if they are missing required director data (from RiskMetrics), financial data (Compustat), CEO data (Execucomp) or annual return data (CRSP). Further, first year observations in RiskMetrics are excluded from the regressions, as we require a lagged control variable from RiskMetrics in all regressions. This effectively begins our study in the 2007 fiscal year. Lastly, financial institutions (SIC 6000 – 6999) and utilities (4900 – 4999) are excluded from the models. The resulting usable firm-year observations range from 4,694 to 12,816, depending on the dependent measure used; the breakdown of these observations is provided in Panels A and B of Table 1.

3.2 Variable of Interest

Our main variable of interest is the level of board co-option, defined consistently with Coles et al. (2010), as the number of directors who were elected to the board after the CEO assumed office. Specifically, the calculation of co-option for each firm's fiscal year is:

$$Co - Option = \frac{\#New\_Directors}{Board\_Size}$$

where *#New_Directors* are the number of directors in year *t* who were elected to the board of firm *i* after the CEO assumed office (that is, the number of co-opted directors)

and *Board_Size* is equal to the number of directors on the board of firm *i* in year *t*. This variable ranges from 0, where the board is completed un-co-opted, to 1, where the board is completed co-opted). We assume that, where the CEO is on the firm's board, which is most firms, the CEO is himself co-opted, even though in such a case the CEO would likely be considered an un-co-opted board member per our specifications above, as he would have a) already been a member of the board before being promoted to CEO or b) would join the board concurrently as he assumes the office of CEO.

Consistent with Coles et al. (2010), we assign the board in place immediately after the annual meeting (and thus, after any new directors are elected) as the board in place for the entire fiscal year.[1] In addition, we also follow Coles et al. (2010) in assigning the board to each CEO in the year of CEO turnover (CEO_CHANGE).[2]

3.3 Dependent Measures

As Hanlon and Heitzman (2010) discuss in their review of the tax literature, tax avoidance is the reduction of explicit taxes. If we were to view tax avoidance on a continuum of potential avoidance strategies, one end would contain riskless investment strategies, such as investment in municipal bonds or accelerated tax depreciation (undeniably legal forms of avoidance), whereas the other end would contain the most egregious forms of avoidance, such as tax fraud and tax evasion (completely illegal forms of avoidance). It is this latter end of the avoidance spectrum that we refer to as the most

[1] We do this because, as previously discussed, the annual meeting is almost always held right after the start of the year. Thus, the board in place immediately after the annual meeting is, in general, the board in place for the entire fiscal year.

[2] Following Coles et al. (2010), we measure co-option contemporaneously in the year of CEO turnover if the date of turnover was after the date of the annual meeting. We use the lagged measure of co-option in the year of CEO turnover if the date of turnover was before the date of the annual meeting.

aggressive tax investments/positions (or, alternatively, the riskiest forms of tax avoidance).

Relevant literature has provided a multitude of ways to measure tax aggressiveness. All of these measures have their own specific benefits and pitfalls; no one measure of tax aggressiveness has been shown to be the "best" proxy for overall aggressiveness. Thus, we relate board co-option with several measures of tax aggressiveness.

Specifically, we use three measures of tax aggressiveness, with varying specifications, to test the relationship between the CEO's tax aggressiveness and the level of board co-option. These three measures are the probability that firm *i* is engaging in a tax shelter in year *t*, the reserve for uncertain tax positions in year *t* for firm *i*, and the volatility of the cash effective tax rate for firm *i* over years *t* to *t+n*. For brevity in the rest of this paper, firm and year subscripts are omitted, except in those circumstances where their inclusion will alleviate confusion.

3.3.1 Reserve for Uncertain Tax Benefits

Our first measure of tax aggressiveness is the firm's reserve for unrecognized tax benefits (UTB). ASC 740-10 (formally FASB Interpretation No. 48) requires firms to reserve a contingency for future tax payments to taxing authorities for tax positions taken that, upon audit, are not more likely than not to be sustained on their merits (FASB 2006). That is, ASC 740-10 requires firms to increase the tax expense in the current period for potential tax payments that may or may not be made to taxing authorities, as a result of an audit, in a future period.

As a measure of tax aggressiveness, the UTB reserve, by definition, only captures those tax positions that are more likely than not to fail recognition under audit by the taxing authorities. As such, the reserve aims to capture only the more aggressive tax planning strategies. As Hanlon and Heitzman (2010) note, higher UTBs represent more uncertainty in the firm's tax positions and thus, are likely indicative of the degree of overall tax avoidance.

We use two measures of the UTB reserve. The first is the balance, at the end of the fiscal year, in the UTB reserve (EOY_UTB). This balance includes all open tax positions a firm has reserved for during the applicable statute of limitations. That is, the total reserve includes not only positions reserved for during the fiscal year, but also all prior fiscal year position reserved for that are open for audit by the taxing authority. As a second measure of the UTB reserve, we use the net current year addition to the UTB reserve for positions taken during the current fiscal year only that met the threshold for UTB recognition (CY_UTB_ADDS).

The benefit of EOY_UTB is that it includes all open positions that are subject to audit, including any changes made during the year for all open positions. The drawback to this measure is that it may be polluted by tax positions taken by a previous CEO. The benefit of CY_UTB_ADDS is that it only includes current year tax positions, that is, only those positions that were taken while the current CEO was in office. The drawback to this measure is that it does not reflect actions by management during the year for any prior year positions taken, such as settlements with taxing authorities or a redetermination of the facts and circumstances surrounding prior year positions. Additionally, the drawback

to either specification is the short timespan during which ASC 740-10 has been in effect for (December 16, 2006 and forward).

3.3.2 Tax Shelter Score

It has been suggested that, for those managers that are aggressive in tax planning, they are also likely to be aggressive for financial statement reporting. If so, it may be unlikely that managers would even record a contingency in the UTB reserve for the most egregious forms of tax aggressive actions (Hanlon and Heitzman 2010). Additionally, as Hanlon and Heitzman discuss, due to the managerial discretion required in recording a UTB reserve, managers may use this reserve to manage earnings. If either of these assumptions are true, it would suggest that the UTB reserve is a noisy proxy for the amount of aggressive tax avoidance the firm engages in. However, as Lisowsky et al. (2013) show, there is a significant correlation between the UTB reserve and tax sheltering.

Thus, our second proxy for tax aggressiveness is the probability that the firm is engaging in a tax shelter. Our measure follows the prediction model from Wilson (2009) and provides a "score" between 0 (little opportunity for the firm to engage in tax sheltering, suggesting that the firm is not engaging in tax sheltering) to 1 (complete opportunity for the firm to engage in tax sheltering, suggesting that the firm is definitely engaging in tax sheltering). This score was derived from analyzing a sample of 215 actual firm-years that were caught engaging in illegal tax shelters. Specifically, the model from Wilson (2009) is as follows:

$$SHELTER\_PROB = \frac{(e^{predicted\ value})}{(1 + e^{predicted\ value})}$$

where the predicted value is computed as follows:

$$Predicted\ Value = (-4.3) + (6.3 * BTDs) - (1.72 * LEV) + (0.66 * SIZE) + (2.26 * ROA) + (1.62 * FOR\_INC) + (1.56 * RD)$$

All variables are provided in Appendix A.

In addition to using the SHELTER_PROB measure, we also use an indicator measure that assigns 0 or 1 to a firm, consistent with Rego and Wilson (2012). This indicator, SHELTER_TOP20, is equal to 1 if the firm is in the upper quintile of the sample of SHELTER_PROB scores, and 0 otherwise. While both of these measures provide a likelihood measure of the firm aggressively avoiding taxes, they also indicate the tax risk appetite of the firms (that is, CEOs). Since the legality of engaging in any tax shelter is questionable, a higher probability score equates to tax positions that are the most aggressive. The benefit of both sheltering measures is that it eliminates managerial discretion in disclosing tax aggressiveness, a potential drawback to the UTB reserve disclosure. However, a potential drawback to any tax shelter measure is that it is a predictive model based on variables that have been shown to be determinants of tax aggressiveness in general (that is, it uses measures that are generally used as control variables in any tax aggressive model).

3.3.3 Effective Tax Rates

Our final proxy for tax aggressiveness is a derivation of the effective tax rate. In general, the simplest measure of tax avoidance is the GAAP effective tax rate (ETR), which is the tax expense per the income statement divided by pretax income. However, this measure only captures permanent book-tax differences, and thus does not give us a

complete picture of either tax avoidance or tax aggressiveness (Hanlon and Heitzman 2010). An alternative measure is the cash ETR, which is total cash taxes paid over pretax income. While this measure captures both permanent and temporary book-tax differences and thus is a more accurate picture of tax avoidance in the current period, it likely does not align taxes paid with total income in the same period (Hanlon and Heitzman 2010). To overcome this limitation, Dyreng et al. (2008) propose using a long-run measure of the cash ETR, over a period of three to ten years.

To be sure, there are benefits and drawbacks to using a short- versus long-term window to measure cash ETR, namely precision over the long-term, but greater sample size in the short-term. Regardless, the measure of cash ETR provides some insight into the level of tax avoidance a firm undertakes. However, as Guenther et al. (2012) point out, the cash ETR does not truly give us a measure of tax aggressiveness, at least not as viewed from a finance-risk perspective.

As an alternative, Guenther et al. (2012) propose using the volatility of the cash ETR (VOL_CASH_ETR), over the same measurement window, as a proxy for tax aggressiveness that is more aligned with the finance literature's understanding of risk. Specifically, the VOL_CASH_ETR is the one-year standard deviation of cash ETR. Whereas cash ETR is an indicator for the level of tax avoidance, VOL_CASH_ETR is an indicator of tax aggressiveness.

As an example, take two firms, Corp A and Corp B. Each has $10 million of book income each year for three years. Corp A is heavily invested in municipal bonds, whereas Corp B is invested in a complex tax-sheltering scheme. Corp A pays tax of only $2 million each year, whereas Corp B is completely able to avoid taxes due to its sheltering

scheme. In year three, however, the taxing authority "catches" Corp B and Corp B subsequently has to pay $6 million of taxes in year three. Thus, both firms have the same three-year cash ETR of 20%, however, Corp A's volatility in its cash ETR measure is zero, whereas Corp B's volatility of cash ETR is approximately 28%.[3] In this simple example, it is easy to see how tax avoidance and tax aggressiveness are two very separate constructs.

Consistent with Guenther et al. (2012), we compute CASH_ETR [4] and VOL_CASH_ETR as follows:

$$CASH\_ETR\_\#YR = \frac{\sum_{t=1}^{n} TXPD_t}{\sum_{t=1}^{n} (PI_t - SPI_t)}$$

where all variables are defined in Appendix A. In words, CASH_ETR is the sum of taxes paid in the period of interest over the sum of pretax income before special items in the same period of interest. We measure CASH_ETR over two periods, three years (year *t* to year *t+2*) and five years (year *t* to year *t+4*). Throughout the rest of this paper, we will denote each as CASH_ETR_3YR and CASH_ETR_5YR, respectively, to avoid year subscripts.

Further:

[3] The sum of cash taxes over the three-year period for both firms is $6 million, which divided by the sum of net income over the same period for both firms of $30 million yields the 20% cash ETR. The standard deviations follow by definition.

[4] Prior literature provides several ways of computing pretax income used in computing cash ETR, the most common of which is simply PI (Dyreng et al. 2008, Hanlon and Heitzman 2010, Armstrong et al. 2012). However, Guenther et al. (2012) and Guenter et al. (2013) remove special items from PI. While either measure would provide consistent results if computed properly, removing special items intuitively makes sense to us, as special items are reported net of taxes in the financial statements.

$$VOL\_CASH\_ETR = \sqrt{\frac{1}{n} * \sum_{t=1}^{n} \left(CASH\_ETR_t - CETR_\mu\right)^2}$$

where $CETR_\mu$ is either CASH_ETR_3YR or CASH_ETR_5YR. In words, VOL_CASH_ETR is the standard deviation of CASH_ETR over the period of measurement (Guenther et al. 2012). As with CASH_ETR, we use VOL_CASH_ETR_3YR and VOL_CASH_ETR_5YR to avoid year subscripts.

We require our measure of CASH_ETR to have positive pretax income. In addition, we bound CASH_ETR between 0 and 1. That is, any resulting CASH_ETR below 0 will be assigned a CASH_ETR of 0, and any resulting CASH_ETR in excess of 1 will be assigned a CASH_ETR of 1. By design, a firm must have the requisite number of consecutive firm-year observations to be included in any measure of CASH_ETR, and thus VOL_CASH_ETR.

3.4 Summary Statistics

Table 2 provides summary statistics and Appendix A provides detailed explanations of the key variables used in this paper. All key variables that are not already bounded from 0 to 1 are winsorized at the 1st and 99th percentiles. Our mean CASH_ETR measures of 24% and 30% are consistent with those presented in prior studies (Dyreng et al. 2008, Guenther et al. 2012), as is our mean VOL_CASH_ETR_5YR of 12% (Guenther et al. 2012). Our mean SHELTER_PROB measure of 76% is lower than the mean presented in Armstrong et al. (2012), however, our sample covers a much longer time period and includes over four times the amount of unique firms and over ten times as many firm-years, mainly due to our inclusion of all S&P 1500 firms, compared to only

the S&P 500 firms. Thus, it is not surprising that our results are lower, as we are including many smaller firms than those reported by Armstrong et al (2012).

Our mean and median board size, level of board co-option and amount of CEO turnover are consistent with the amounts reported by Coles et al. (2010). Our mean CEO tenure of 7.01 year is lower, but not notably, compared to the 8.17 reported by Coles et al. (2010). In short, our measures appear to be consistent with those reported in prior literature.

4. Results

4.1 Estimate Equations

We wish to measure the effect of board co-option on how tax aggressive a CEO is. Specifically, we estimate the following equation:

$$TAX\_AGGRESS = \beta_0 + \beta_1 CO\_OPTION\_1 + y_1(BOARD) + y_2(CEO) + y_3(TAX)$$

where TAX_AGGRESS takes on the specifications previously discussed for the UTB reserve (either EOY_UTB or CY_UTB_ADDS), tax sheltering (SHELTER_PROB or SHELTER_TOP20), and volatility of cash ETR (VOL_CASH_ETR_3YR or VOL_CASH_ETR_5YR). We use simple linear regressions for each specification, except for SHELTER_TOP20. We use logit regressions here, as this is a discrete dependent measure (an indicator variable).

BOARD is a control for the size of the board. Following Coles et al. (2010), CEO is a vector of controls for CEO ability/motivation, including whether the CEO is the chairman of the board (CEO_CHAIR), an indicator variable equal to 1 in the year of a change in CEO (CEO_CHANGE), the percent of cash compensation the CEO receives

(CASH_COMP), and the CEO's wealth sensitivity to a 0.01 change in stock return volatility (VEGA)[5]. In our VOL_CASH_ETR equations, we also include a control for length of service from the CEO (CEO_TENURE).

TAX is a vector of controls from prior literature that have been shown to determine our measures of tax avoidance (Gupta and Newberry 1997, Rego 2003, Chen et al. 2010). ROA is the firm's return on assets. We use the natural logarithm of total assets as our proxy for SIZE. MTB is the firm's market-to-book value. NOL_IND is an indicator variable equal to 1 if the firm has a net operating loss carryforward at the beginning of the fiscal year, 0 otherwise. NOL_CHANGE is the change in the firm's net operating loss carryforward during the year, scaled by total assets. For firms without a net operating loss at both the beginning and end of the fiscal year, this measure will be zero. LEV is the firm's leverage, computed as total debt scaled by total assets. FOR_INC is the level of foreign net income earned during the year, scaled by total assets. PPE is the gross amount of fixed assets for the firm, scaled by total assets. RD is the amount of research and development expense during the year, scaled by total assets. EQINC is the amount of income from subsidiaries for the firm, scaled by total assets. Finally, OP_CF is the amount of cash flows from operations, scaled by total assets. For our VOL_CASH_ETR equations, we also include a measure of the capital expenditures during the year (CAPEX), scaled by total assets.

4.1.1 Unrecognized Tax Benefits

[5] See Core and Guay (2002) for a detailed discussion of CEO delta and vega.

Table 3 presents the results of estimating our UTB regressions, where the dependent measures are the balance in the UTB reserve at year-end (EOY_UTB) and the current year additions to the UTB reserve for tax positions taken during the year (CY_UTB_ADDS). When using EOY_UTB, the results indicate that higher board co-option leads to lower UTB reserves. This would suggest that, as the CEO co-opts the board, he reduces his investment in aggressive tax positions. The results with our second measure, CY_UTB_ADDS, are inconclusive, as there is no statistical significance for co-option in this model. However, as a whole, our UTB regressions provide some support for the notion that CEOs tend to "enjoy the quiet life".

4.1.2 Tax Sheltering

Table 4 presents the results of estimating our tax shelter regressions, where the dependent measures are the probability of engaging in a tax shelter and the 0, 1 indicators for the firms with a tax shelter score in the top 20% of all firms in the sample. Consistent with Rego and Wilson (2012), we exclude the control variables that are inputs into the tax shelter score in our first equations (columns I and III). Intuitively, this makes sense, since by definition, these variables are correlated with the tax shelter score due to the fact that they are pat of the model in creating the score itself.[6] However, as an additional test, we include these variables as controls in our second equations (columns II and IV), consistent with other research (Wilson 2009, Guenther et al. 2013).

The results in Table 4 indicate that, for firms with greater board co-option, investments in tax shelters are lower. For our continuous measure of tax sheltering

[6] That is, by including these variables as controls, they are explicitly on the right-hand side and implicitly on the left-hand side as well.

(SHELTER_PROB), co-option is significant and in the opposite direction of our dependent measure. However, co-option is not a significant predictor of tax sheltering when we include the subset of control variables that are inputs into the tax sheltering model. In this equation, some of the other control variables are weakened or their predictive sign flips. Thus, the insignificance of co-option in the latter equation could be due to the subset control variables subsuming the power of co-option.

For our indicator dependent measure of tax sheltering (SHELTER_TOP20), the results indicate that firms with greater board co-option invest in tax shelters less. This holds even after we add the subset of control variables that are inputs into the tax shelter model. The results are statistically significant in both equations. Overall, the results provide support for Bertrand and Mullainathan's (2003) notion that CEOs tend to "enjoy the quiet life" as control over the CEO is weakened. That is, as the CEO co-opts the board of directors, he prefers to reduce his aggressive tax positions.

4.1.3 Volatility of Cash ETR

Table 5 presents the results from our volatility of cash ETR regressions, where our dependent measures are the volatility of cash ETR, over three- and five-year periods. When using VOL_CASH_ETR as our dependent measure, the results indicate that, when using a three-year measure, as co-option increases, the volatility of the firm's cash ETR decreases. In addition, the results hold when using a five-year measure, albeit these results are slightly less significant. These results provide further support for the notion that CEOs tend to "enjoy the quiet life" as oversight decreases, at least when it comes to tax aggressiveness.

5. Sensitivity Analysis

To ensure that our measure of co-option is computed consistently with Coles et al. (2010), we replicate their regressions of firm-risk. We obtain similar results when doing this replication (not provided), with coefficients in the same direction and statistical significance relatively the same. That is, Coles et al. (2010) find that, as board co-option increases, human capital intensity and firm-specific risk both increase as well. Their levels of significance, however, are consistently low.

Further, when we use the same control variables as Coles et al., but substitute the regressions with our measure of risk, we obtain results (not provided) consistent with those reported in this paper. That is, we show that as board co-option increases, aggressive tax investments decrease. Our levels of statistical significance are consistently greater than those reported by Coles et al. (2010). Thus, it may be that CEOs prefer to move out of aggressive tax investments when they have the option to move to other riskier investments, and that this option may not occur until board oversight decreases. This is not unreasonable, as while savings from any tax planning may be less risky at face than other risky investments, the firm is also opening the door to third-party scrutiny (the taxing authority) as the level of tax aggressiveness increases.

While we exclude financial institutions and utilities, when we include them in all of our specifications, we obtain similar returns to those reported in this paper. For brevity, we do not provide the additional results with these two industry subsets.

6. Further Work

It may be interesting to see how tax aggressiveness stemming from a co-opted board affects firm value. We show that tax aggressiveness is negatively related with board co-option, indicating that this may not be the optimal type of tax avoidance for the firm, consistent with Low (2009).

Finally, SOX may have had a mechanical effect on the level of board co-option. Additional work immediately around the pre- and post-SOX boards, and the types of directors (that is, independent to the firm or not) may provide insight into whether SOX was value increasing to firms and investors.

7. Conclusion

In this paper we look at a measure of corporate governance, a co-opted board, which is the amount of directors who are elected to the board after the CEO is hired. This measure is a proxy for the amount of influence a CEO has over the board. Thus, as board co-option increases, the implicit assumption is that firm monitoring decreases. We compare this measure to the amount of aggressive tax positions firms take over varying levels of board co-option. Our results suggest that, as the CEO co-opts the board, he simultaneously prefers to reduce firm investments in aggressive tax activities. Overall, our results lend support to a quiet life hypothesis; CEOs tend to decrease their effort in maintaining aggressive tax strategies as corporate governance decreases.

Further extensions of this paper will look at compensatory determinants of the change in tax aggressiveness, how this shift in aggressiveness affects firm value, and whether our measure moderates the effects of board independence on the firm post-SOX.

Our paper adds to the growing literature on the effects of corporate governance and tax avoidance strategies.

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APPENDIX A
Variable Definitions

DEPENDENT MEASURES:

GAAP_ETR_#YR	Effective tax rate, as computed under GAAP, where # is the three, four or five-year measure (t to t+#). Computed as the # of years sum of total tax expense (TXT) divided by the # of years sum of pretax book income (PI) less special items (SPI). Result is winsorized at 0 and 1.
CASH_ETR_#YR	Cash effective tax rate [Cash ETR], where # is the three, four or five-year measure (t to t+#). Computed as the # of years sum of cash taxes paid (TXPD) divided by the # of years sum of pretax book income (PI) less special items (SPI). Result is winsorized at 0 and 1.
VOL_CASH_ETR_#YR	Volatility of the yearly Cash ETR, where # is the three, four or five-year measure (t to t+#). Computed as the standard deviation of one-year Cash ETR over the time period t to t+#. One-year Cash ETR is cash taxes paid (TXPD) divided by pretax book income (PI) less special items (SPI). One-year Cash ETR is winsorized at 0 and 1.
EOY_UTB	The end of year actual balance in the unrecognized tax benefits [UTB] reserve (TXTUBEND), scaled by total assets (AT). Note that this measure is only available from 2007 forward.
CY_UTB_ADDS	The current year net actual additions to the UTB reserve for new tax positions taken during the year (TXTUBPOSINC – TXTUBPOSDEC), scaled by total assets (AT). Note that this measure is only available from 2007 forward.
SHELTER_PROB	The predicted probability of tax sheltering, per Wilson (2009), during year t. Computed as follows: P(Sheltering) = [e^(predict value) / (1 + e^(predict value))]. Predicted value is computed as follows: = -4.3 + 6.63*(BTDs) – 1.72* (LEV) + .66*(SIZE) + 2.26*(ROA) + 1.62*(FOR_INC) + 1.56*(RD). **Input variables defined later in this appendix*
SHELTER_TOP20	An indicator equal to 1 if SHELTER_PROB is in the top 20% of all predicted probabilities, 0 otherwise.

BOARD & CEO MEASURES:

NEW_DIRECTOR	Director who joins the board after the CEO assumes office.
BOARD_SIZE	Total number of directors serving on the board.
CO_OPTION	Total number of directors who join the board after the CEO assumes office (NEW_DIRECTOR) divided by total number of directors serving on the board (BOARD_SIZE).
CEO_CHAIR	An indicator equal to 1 if the CEO also serves as Chairman of the Board, 0 otherwise.
CEO_CHANGE	An indicator equal to 1 if a new CEO assumed office during year t, 0 otherwise.
CEO_TENURE	Number of years since CEO has assumed office, measured as fiscal year-end data minus date CEO assumed office (BECAMECEO).
CASH_COMP	Total cash compensation (BONUS + NONEQ_INCENT + SALARY) during year t divided by total compensation (TDC1) in year t.
VEGA	Expected dollar change in CEO wealth for a .01 change in stock return volatility (using entire portfolio of options), per Core and Guay (2002).
DELTA	Expected dollar change in CEO wealth for a 1% change in stock price (using entire portfolio of stocks and options), per Core and Guay (2002).

FIRM-LEVEL MEASURES:

ROA	Earnings before interest and taxes (EBIT) divided by total assets (AT).
SIZE	The logarithm of the market value of equity [MVE], where MVE is defined as price per share (PRCC_F) * common shares outstanding (CSHO).
LOG_SALES	The logarithm of net sales (SALE).
SALES_GROW	The change in net sales (SALE), computed as net sales (SALE) in year t divided by net sales (SALE) in year t-1.

MTB	Market-to-book value, defined as market value of equity (defined above) divided by the book value of equity, where book value of equity is defined as total assets (AT) less total liabilities (LT).
NOL_IND	An indicator equal to 1 if firm i has a net operating loss carryforward (TLCF) at the beginning of the year (t-1), 0 otherwise.
NOL_CHANGE	The change in the net operating loss [NOL] carryforward, computed as ending NOL (TLCF) in year t less ending NOL in year t-1, scaled by total assets (AT).
LEV	Leverage, computed as long-term debt (DLTT) scaled by total assets (AT).
FOR_INC	The level of foreign earnings (PFIO), scaled by total assets (AT).
PPE	The balance of gross property, plant and equipment (PPEGT), scaled by total assets (AT).
CAPEX	Capital expenditures (CAPX), scaled by total assets (AT).
RD	Research and development expense (XRD), scaled by total assets (AT).
INTANG	The balance of intangible assets (INTAN), scaled by total assets (AT).
EQINC	Equity in subsidiary earnings (ESUB), scaled by total assets (AT).
OP_CF	Cash flows from operations (OANCF), scaled by total assets (AT).

TABLE 1
Sample Selection and Distribution

Panel A: Sample Selection

	SHELTER (1997 – 2012)	UTB (2007 – 2012)
Total firm-years from RiskMetrics director databases	26,868	7,318
Firm-years from RiskMetrics unable to be matched with Compustat	4,135	427
Firm-years missing required director data (RiskMetrics)	2,050	105
Firm-years missing required CEO data (Execucomp)	680	89
Firm-years missing required financial data (Compustat)	18	8
Firm-years missing required annual return data (for delta and vega computation)	1,603	385
Remove first firm-year observation (for lagged requirement)	2,199	192
Firm-years in financial (SIC 6000 – 6999) and utilities (4900 – 4999)	3,367	1,408
Firm-years with Requisite Data	**12,816**	**4,694**
Unique Firms	**1,726**	**1,146**

Panel B: Distribution of Firm Observations, by Year

Year	SHELTER	3YR_ETRs	5YR_ETRs	UTBs
1997	446	363	215	-
1998	728	561	380	-
1999	813	632	436	-
2000	823	647	488	-
2001	896	690	518	-
2002	898	718	524	-
2003	894	717	502	-
2004	881	704	452	-
2005	865	676	422	-
2006	878	701	543	-
2007	869	727	577	869
2008	917	791	67	917
2009	912	786	-	912
2010	954	97	-	954
2011	929	-	-	929
2012	113	-	-	113
Total Obs	**12,816**	**8,810**	**5,124**	**4,694**

TABLE 2
Descriptive Statistics

	Mean	STD	25th Pctl	Median	75th Pctl
Dependent Measures:					
CASH_ETR_3YR	0.24	0.17	0.14	0.24	0.33
CASH_ETR_5YR	0.30	0.16	0.20	0.30	0.39
VOL_CASH_ETR_3YR	0.12	0.12	0.04	0.07	0.14
VOL_CASH_ETR_5YR	0.12	0.10	0.05	0.09	0.15
EOY_UTB	0.0095	0.0119	0.0003	0.0053	0.0137
CY_UTB_ADDS	0.0012	0.0019	0.0000	0.0004	0.0015
SHELTER_PROB	0.76	0.24	0.63	0.85	0.94
Board & CEO Controls:					
BOARD_SIZE	9.26	2.51	8.00	9.00	11.00
CO_OPTION	0.47	0.30	0.18	0.43	0.71
CEO_CHAIR	0.41	0.49	0.00	0.00	1.00
CEO_CHANGE	0.12	0.33	0.00	0.00	0.00
CEO_TENURE	7.01	7.19	2.00	5.00	10.00
CASH_COMP	0.47	0.26	0.28	0.42	0.62
DELTA	686.8	1,419.3	95.12	245.94	641.15
VEGA	167.2	257.83	24.39	72.25	190.63
Firm Controls:					
ROA	0.10	0.09	0.06	0.10	0.14
SIZE	7.61	1.59	6.48	7.48	8.62
LOG_SALES	7.50	1.49	6.48	7.39	8.47
MTB	3.05	2.86	1.45	2.23	3.59
NOL_IND	0.40	0.49	0.00	0.00	1.00
NOL_CHANGE	0.008	0.046	0.000	0.000	0.000
LEV	0.19	0.16	0.04	0.17	0.29
FOR_INC	0.020	0.035	0.000	0.004	0.032
PPE	0.54	0.36	0.25	0.45	0.75
CAPEX	0.05	0.05	0.02	0.04	0.07
RD	0.032	0.050	0.000	0.006	0.044
INTANG	0.18	0.18	0.02	0.12	0.28
EQINC	0.001	0.004	0.000	0.000	0.000
OP_CF	0.108	0.08	0.06	0.11	0.15

This table provides summary statistics for the main variables used in this paper. All variables are defined in Appendix A. Reported statistics are based on data winsorized at the 1st and 99th percentiles.

TABLE 3
Unrecognized Tax Benefits Models

	Predicted Sign	EOY_UTB I	CY_UTB_ADDS II
CO_OPTION_LAG1	?	-0.00250***	-0.00014
		(-2.83)	(-1.13)
BOARD_SIZE	+	-0.00004	-0.00001
		(-0.35)	(-0.74)
CEO_CHAIR	?	0.00138***	0.00017**
		(2.58)	(2.18)
CEO_CHANGE	?	0.00138**	0.00003
		(2.26)	(0.31)
CASH_COMP	-	-0.00028	-0.00007
		(-0.30)	(-0.53)
VEGA x 10^6	+	1.01000	0.158
		(0.73)	(0.73)
ROA	?	-0.01493***	-0.00040
		(-3.50)	(-0.63)
SIZE	+	0.00113***	0.00016***
		(4.24)	(4.06)
MTB	-	-0.00007	-0.00000
		(-0.45)	(-0.17)
NOL_IND	+	0.00037	0.00009
		(0.69)	(1.19)
NOL_CHANGE	-	0.00800*	0.00077
		(1.56)	(0.98)
LEV	-	-0.00102	-0.00018
		(-0.52)	(-0.63)
FOR_INC	+	0.05397***	0.00813***
		(5.53)	(5.43)
PPE	-	-0.00122*	-0.00017*
		(-1.41)	(-1.38)
RD	+	0.06017***	0.00669***
		(5.91)	(5.04)
EQINC	+	0.06581	0.00908
		(0.81)	(0.8)
OP_CF	+	0.00972***	0.00198***
		(2.43)	(3.22)
Observations		4,694	4,694
R-squared		0.20	0.16
Fixed Effects?		Industry, Year	Industry, Year

The dependent measure is the unrecognized tax benefit reserve [UTB] of firm i in year t, where UTB is defined as either the ending balance in the reserve (END_UTB; regression I) or the additions to the reserve in year t for tax positions taken in year t (CY_UTB_ADDS; regression II). All variables are defined in Appendix A. T-statistics reported in parentheses are based on standard errors corrected for heteroskedasticity and firm-level clustering. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Significance levels are for one-tailed t-tests where a predicted direction is provided, two-tailed otherwise.

TABLE 4
SHELTER Score Models

	Predicted Sign	SHELTER_PROB		SHELTER_TOP20	
		I	II	III	IV
CO_OPTION_LAG1	?	-0.036***	-0.012	-0.684***	-0.229*
		(-3.58)	(-1.45)	(-7.45)	(-1.87)
BOARD_SIZE	+	0.021***	0.006***	0.285***	0.116***
		(15.12)	(4.99)	(11.79)	(5.92)
CEO_CHAIR	?	0.025***	0.007	0.376***	0.214***
		(4.04)	(1.54)	(7.48)	(2.60)
CEO_CHANGE	?	0.002	-0.004	0.358***	0.027
		(0.33)	(-0.84)	(4.08)	(0.19)
CASH_COMP	-	-0.071***	-0.018***	-1.110***	-.309*
		(-7.05)	(-2.47)	(-12.10)	(-1.75)
VEGA x 10^6	+	195.6***	-34.80***	3,912***	756.0***
		(14.89)	(-3.20)	(18.59)	(5.24)
ROA	+		0.541***		2.728**
			(10.60)		(2.32)
SIZE	+		0.081***		1.918***
			(32.04)		(23.15)
MTB	+	0.002**	-0.011***	0.036***	-0.217***
		(1.28)	(-9.40)	(3.63)	(-12.73)
NOL_IND	+	0.028***	0.034***	0.160***	0.352***
		(4.44)	(6.43)	(3.60)	(5.31)
NOL_CHANGE	-	-1.663***	-1.414***	-16.70***	-28.71***
		(-33.55)	(-32.73)	(-15.07)	(-13.93)
LEV	-		-0.118***		-2.989***
			(-5.85)		(-8.32)
FOR_INC	+		1.071***		17.22***
			(12.94)		(12.70)
PPE	-	-0.065***	-0.005	-0.581**	-.286***
		(-5.07)	(-0.55)	(-4.59)	(-3.05)
RD	+		-0.250***		-.275
			(-3.12)		(-0.24)
EQINC	+	2.376***	0.504	39.07***	22.43***
		(2.72)	(0.66)	(6.21)	(3.14)
OP_CF	+	0.542***	-0.216***	3.94***	-3.30***
		(10.34)	(-5.02)	(6.81)	(-2.93)
Observations		12,816	12,816	12,816	12,816
R-sq / Pseudo R-sq		0.42	0.63	0.35	0.60
Fixed Effects?		Industry, Year	Industry, Year	Industry, Year	Industry, Year

The dependent measure is the probability of firm i engaging in a tax shelter in year t, where probability is defined as either SHELTER_PROB (columns I and II) or SHELTER_TOP20 (columns III and IV). Columns I and III include control variables that are components of the tax shelter score. Columns II and IV include the previously omitted control. All variables are defined in Appendix A. T-statistics (z-statistics) reported in parentheses are based on standard errors corrected for heteroskedasticity and firm-level clustering on SHELTER_PROB (SHELTER_TOP20). *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Significance levels are for one-tailed t-tests where a predicted direction is provided, two-tailed otherwise.

TABLE 5
Cash ETR Models

	Predicted Sign	VOL_CASH_ETR_#YR	
		I (3YR)	II (5YR)
CO_OPTION_LAG1	?	-0.028***	-0.017**
		(-3.24)	(-1.98)
BOARD_SIZE	+	0.001	0.001
		(0.92)	(0.77)
CEO_CHAIR	?	0.007*	0.003
		(1.66)	(0.61)
CEO_CHANGE	?	0.014***	0.013***
		(3.23)	(3.10)
CEO_TENURE	?	0.001**	0.001**
		(2.51)	(1.98)
CASH_COMP	-	-0.026***	-0.022*
		(-2.34)	(-1.47)
VEGA x 10^6	+	6.260	0.186
		(0.68)	(0.02)
ROA	?	-0.414***	-0.668***
		(-7.01)	(-8.48)
SIZE	+	-0.011***	-0.011***
		(-4.87)	(-4.21)
MTB	?	-0.001	0.003***
		(-0.90)	(2.81)
NOL_IND	+	0.001	0.007*
		(0.28)	(1.46)
NOL_CHANGE	-	0.000	0.000
		(0.82)	(0.27)
LEV	-	-0.039**	-0.049**
		(-2.18)	(-2.27)
FOR_INC	?	-0.017	-0.102
		(-0.29)	(-1.44)
PPE	?	0.025***	0.024**
		(2.41)	(2.03)
CAPEX	-	-0.241***	-0.233**
		(-3.11)	(-2.37)
RD	-	-0.147**	-0.030
		(-2.22)	(-0.39)
EQINC	+	0.250	0.577
		(-0.48)	(0.98)
OP_CF	+	0.004	0.042
		(0.06)	(0.45)
Observations		8,810	5,124
R-squared		0.13	0.21
Fixed Effects?		Industry, Year	Industry, Year

The dependent measure is the volatility of the cash effective tax rate (VOL_CASH_ETR) of firm i in years t to t+2

(column I) or year t to t+4 (column II). All variables are defined in Appendix A. T-statistics reported in parentheses are based on standard errors corrected for heteroskedasticity and firm-level clustering. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Significance levels are for one-tailed t-tests where a predicted direction is provided, two-tailed otherwise.