Board Risk Oversight and Corporate Tax-Planning Practices

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Abstract: Risk oversight by the board of directors is a key component of a firm's enterprise risk management framework, and recently, boards have paid more attention to their firm's tax-planning activities. In this study, we use a hand-collected sample of proxy statement disclosures about the board's role in risk oversight and provide evidence that more robust risk oversight is associated with lower tax uncertainty in conjunction with lower overall tax burdens. We also find that the tax activities are concentrated in positions that yield permanent tax benefits, as well as less risky tax-planning activities. Overall, the evidence is consistent with greater board risk oversight influencing the firm to engage in more effective tax-planning practices.

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Keywords: Board Risk Oversight; Tax-Planning Practices; Enterprise Risk Management; Tax-Planning Levels; Tax-Planning Volatility

INTRODUCTION

We examine the relation between more robust risk oversight by the board of directors (hereafter referred to as "risk oversight") and firms' tax-planning practices. Specifically, we test whether more robust risk oversight is associated with more effective tax-planning practices as indicated by lower tax uncertainty in conjunction with lower tax burdens.[1] The effect of risk oversight on tax planning and firms' tax outcomes is particularly of interest for several reasons. Taxes represent one of the largest line item expenses for any firm, inherently incentivizing firms to curtail the tax liability through effective tax-planning activities. However, firms must balance any potential tax benefits against associated non-tax costs. Therefore, lowering the tax liability may not always represent a value-enhancing decision (Scholes, Wolfson, Erickson, Hanlon, Maydew, and Shevlin 2014). For example, more aggressive and risky tax-planning strategies may also result in a number of undesirable long-run non-tax costs, including higher future cash tax outflows, increased reputational costs, higher costs of capital, and decreased financial statement transparency. Moreover, tax-planning decisions often affect broader operational and strategic decisions that are the purview of the board of directors. Given the innate complexity surrounding the implementation of risk-balanced, yet effective tax planning activities, and their potential effects on operational and strategic firm decisions, we expect that the board of directors plays an important role in this process.

In recent years, there has been an abundance of financial failures (i.e., the Great Recession) and corporate missteps (e.g., Volkswagen's gas emissions, Wells Fargo's aggressive sales practices, Apple's tax scandal in Ireland) that can be traced back to weak risk oversight. Key stakeholders now realize that traditional approaches to managing risks may not be effective

[1] Our definition of "effective" tax-planning strategies, following Scholes et al. (2014), reflects business strategies that maximize after-tax returns, considering both the tax costs and non-tax costs of the transaction.

at identifying and responding to the various types of risks that emerge across an enterprise, including tax risks. In response, stakeholders are now pressing boards to strengthen the board's oversight of the firm's approach to managing the constellation of risks impacting the enterprise (Castellano, Lightle, and Baker 2011; Vlasic 2014). For example, the Delaware Supreme Court recently ruled in support of the view that boards must make an effort to oversee risk (Supreme Court of Delaware 2019). Concurrent with the rise in stakeholder expectations of greater board involvement in risk oversight, increased public scrutiny of corporate tax planning practices have triggered a greater concern among boards and executives to identify and address the risks generated by firms' tax practices (EY 2016). A number of practitioner publications assert that boards play an increasingly important role in managing tax risk (Neubig and Sangha 2004; Erle 2008; Wilson 2013; Deloitte 2016; KPMG 2018; EY 2019). Moreover, regulatory authorities in recent years have placed increased pressure on the board of directors to ensure the firm's tax risk exposure is consistent with its overall risk appetite (Shulman 2009, 2010; OECD 2009). In sum, tax planning is an area where we expect board risk oversight to play a vital role in ensuring the firm is pursuing appropriately risk-balanced tax reduction strategies.

Many organizations are embracing the business paradigm of enterprise risk management (ERM) in response to the pressures from key stakeholders for greater risk oversight. ERM helps boards and executives develop holistic, enterprise-wide approaches to identifying, managing, and monitoring all risks that could potentially affect the achievement of strategic objectives. Importantly, ERM's focus is not on indiscriminate risk minimization, but rather on identifying and understanding the firm's portfolio of risks so that management and the board can make sound strategic decisions that balance these risks against the pursuit of firm growth. Importantly, widely-embraced frameworks for ERM place responsibility for the oversight of the entity's risk

management processes on the board and assert that prudent board oversight is a key component of the risk management process (COSO 2004, 2009, 2017; ISO 2009, 2018).

Our first hypothesis examines the association between risk oversight and tax uncertainty. While reducing tax burdens on average can be beneficial to shareholders, there is a limit. Uncertain tax-planning strategies can lead to future tax payments and penalties, resulting in more volatile tax outcomes (Klassen, Lisowsky, and Mescall 2016; Ciconte, Donohoe, Lisowsky, and Mayberry 2016), ultimately creating a greater risk to capital providers (Rego and Wilson 2012; Hasan, Hoi, Wu, and Zhang 2014; Lewellen, Mauler, and Watson 2019). Moreover, aggressive tax strategies can subject the firm to public scrutiny (Chen, Schuchard, and Stomberg 2019; Dhaliwal, Goodman, Hoffman, and Schwab 2019) and reputational damage (Dyreng, Hoopes, and Wilde 2016; Austin and Wilson 2017). We expect that boards with more robust risk oversight constrain overly aggressive tax planning, resulting in lower tax uncertainty. Our second hypothesis tests the association between risk oversight and the overall tax burden. Naturally, a firm can achieve low tax uncertainty by not engaging in tax planning and paying the statutory tax rate. However, managing risk does not equate to avoiding all risks, but rather ensuring the firm takes reasonable risks. Since firms can achieve lower tax burdens without increased uncertainty (Dyreng, Hanlon, and Maydew 2008; Guenther, Matsunaga, and Williams 2017), we propose that strong risk oversight promotes tax-planning decisions that reduce the firm's tax burden without exposing it to undue risk.

While we expect that firms with greater board risk oversight are associated with lower tax uncertainty and lower tax burdens, this expectation is not without tension for two primary reasons. First, the board is ultimately charged with governing the firm, and, as such, its decisions may not always prioritize tax benefits (Deloitte 2016; KPMG 2018; EY 2019). Prior literature

documents that firms pay high amounts of taxes despite the substantial economic benefits of avoiding them (e.g., Mills, Erickson, and Maydew 1998) and questions why firms do not avoid more taxes (Weisbach 2002), which has commonly been referred to as the "undersheltering puzzle." Recent and concurrent studies indicate that this may be because paying excessively low tax rates can create substantial non-tax risk for firms (e.g., Neuman 2014; Cook, Moser, and Omer 2017; Balakrishnan, Blouin, and Guay 2019). Thus, firms that appear 'undersheltered' and choose to forego highly uncertain or tax-minimizing strategies may have maximized the effectiveness of their tax planning efforts based on the firm's relative set of opportunities. For example, the board is not likely to encourage the firm to make a decision that yields a tax benefit but overall has a negative net present value. In addition, it is possible that boards may even choose to forego positive-NPV tax strategies to limit public scrutiny or other non-tax consequences. A second reason we may not observe an association between higher risk oversight and lower tax burdens is that the technical nature of tax planning may limit the effectiveness of tax risk monitoring provided by the board (Balakrishnan et al. 2019). In either case, it is possible that robust board risk oversight has little to no effect on firm tax practices.

Our sample includes non-financial, non-regulated, U.S. corporations belonging to the Russell 1000 index as of June 2014. We develop and validate a measure of risk oversight using a hand-collected sample of required proxy statement disclosures of the boards' involvement in risk management (SEC 2010). The measure encompasses three factors based on best practices for ERM (COSO 2004, 2009, 2010; Rittenberg and Martins 2012) including the 1) board's disclosure of a formal responsibility for risk oversight, 2) whether the board consistently engages in risk monitoring, and 3) whether the board fosters an active risk mindset that incorporates risk management into the firm's strategy and/or corporate culture. We capture our measure of risk

oversight using proxy disclosures in 2014 and examine the association between risk oversight and our tax outcome measures using firm-years from 2014 through 2017.

We follow prior literature and proxy for tax uncertainty using GAAP effective tax rate (ETR) volatility and overall tax burden using GAAP ETRs. We use GAAP ETRs to model both measures of tax planning because GAAP ETRs are commonly used by executives as a salient measure of a firm's overall tax burden and level of tax avoidance (Armstrong, Blouin, Jagolinzer, and Larcker 2015; Dyreng, Hanlon, and Maydew 2010). Consistent with our predictions, we find that more robust risk oversight is associated with lower GAAP ETR volatility and lower GAAP ETRs. We specifically estimate that firms with the highest level of risk oversight experience 31.0% lower GAAP ETR volatility and 13.2% lower GAAP ETRs compared to firms with the lowest level of risk oversight.[2] These results are robust to numerous alternative proxies for tax uncertainty and levels of tax burden.

We next examine specific tax activities that firms with robust risk oversight might employ. We first split our sample by tax activities that yield a permanent benefit versus those that yield a temporary benefit. We find that the negative association between risk oversight and tax burdens is concentrated among permanent tax positions. This finding suggests that robust risk oversight is associated with tax planning that will not reverse in future periods, which should have the largest impact on firm value. We next develop an understanding of the specific tax planning activities firms choose. We first examine firms that locate income in lower tax jurisdictions (i.e., income shifting) and document that firms with high-risk oversight engage in less inbound and outbound income shifting. However, our findings are also significantly

[2] Relative to a firm with a low risk oversight score, firms with a high risk oversight score have a 0.019 lower GAAP ETR Volatility and a 4.14 lower GAAP ETR. Based on their conditional means, these values equate to a 31.0% lower GAAP ETR Volatility and a 13.0% lower GAAP ETR. See Table 5 for the formal tests that yield these inferences.

moderated by firms with a greater foreign presence. Income shifting can be a particularly uncertain tax planning activity (Towery 2017), but having a multinational tax-efficient supply chain can significantly moderate any tax uncertainty generated by foreign operations (Drake, Goldman, and Murphy 2019). As such, we interpret our findings as indicating that firms with a more robust board risk oversight choose permanent tax planning strategies that both (1) significantly lower GAAP ETRs and (2) do not significantly increase GAAP ETR volatility. Additionally, we document that firms with high levels of R&D experience similar levels of GAAP ETR volatility with higher levels of board oversight, and experience significantly more tax savings (GAAP ETRs). Finally, we examine whether the board incentivizes managers to align the firm's tax practices with the firm's risk preferences through the design of executive compensation schemes. We find no evidence that the board incentivizes effective tax practices using compensation. This result implies that boards likely turn to more direct mechanisms to influence these activities, such as through conversations and monitoring.

Our findings provide several contributions to the literature. First, we extend the literature examining the role of the board of directors in shaping corporate taxation (e.g., Minnick and Noga 2010; Rego and Wilson 2012; Gaertner 2014; Armstrong et al. 2015). Tax planning is an important mechanism for generating financial and cash flow benefits; however, aggressive and uncertain tax planning can expose the firm to significant risks (e.g., reputation risk). Given the important positive and negative effects that tax planning can have on the firm, we expect that the board has a strong interest in setting a tone at the top that incentivizes effective tax planning. While prior literature examines board characteristics to infer actions by the board of directors (i.e., Minnick and Noga 2010; Robinson, Xue, and Zhang 2012; Richardson, Taylor, and Lanis 2013; Brown and Drake 2014; Armstrong et al. 2015), the evidence provided by these studies on

whether and to what extent the board influences tax planning is mixed.[3] We extend the literature by providing direct evidence of the board's actions through their disclosed level of board risk oversight. Second, our findings provide additional insights into the undersheltering puzzle (Weisbach 2002). We document that tax risk limits firms' incentives to excessively avoid taxes and that more robust board risk oversight helps the firm better manage tax risk, while also minimizing the tax burden.

Our study also contributes to the emerging ERM literature (e.g., Baxter, Bedard, Hoitash, and Yezegel 2013; Cohen, Krishnamoorthy, and Wright 2017; Braumann 2018). ERM frameworks propose that benefits of ERM include increasing positive outcomes (e.g., lowering overall tax burdens) while reducing negative surprises and reducing performance variability (e.g., reducing tax uncertainty) (COSO 2017). Since we expect the board to be a key contributor to any well-developed ERM system, our finding that greater risk oversight is associated with lower tax uncertainty and tax burdens demonstrates a tangible benefit to utilizing ERM best-practices for risk management. Our study speaks to the potential positive outcomes of robust risk oversight processes in terms of increasing firm value and managing tax risk through effective practices. Moreover, it provides support for the assertion that implementing these practices can be worth the resource investment (Cohen et al. 2017; Beasley, Branson, and Hancock 2019).

Our empirical strategy examines an association between robust board risk oversight and corporate tax practices, which means that we are unable to draw causal inferences. While endogeneity could be a concern, we highlight two important points. First, it is unlikely that tax strategies are driving the robustness of the board's risk oversight practices, given individuals

[3] It may be difficult to infer board of director actions from board characteristics because they often provide indirect evidence on the board's oversight. For example, if a board is comprised of only people who work for the firm and thus has low independence, then one can only speculate that the board does not exercise ideal oversight, rather than examine their actual oversight practices.

who are considering board membership generally have limited access to information about prior and ongoing tax planning tactics and strategies. Thus, the relation being a function of reverse casualty is unlikely to be a concern. Rather, theory from practice suggests that risk oversight should causally drive tax planning, and our analysis provides evidence to support this theory. Second, we design our analyses to alleviate concerns related to correlated omitted variables. We follow prior literature by modeling *GAAPETRVol* and *GAAPETR* and include a plethora of control variables known to be associated with various firm risks and tax planning (Chen, Chen, Cheng, and Shevlin 2010; Kubick, Lynch, Mayberry, and Omer 2015; Cen, Maydew, Zhang, and Zuo 2017, among others). We also perform a variety of additional analyses to substantiate our primary analyses and perform robustness tests, including a falsification test and entropy balancing.

BACKGROUND AND HYPOTHESES

Enterprise Risk Management (ERM) and Board Oversight

Several corporate governance failures over the past two decades, including the financial reporting crisis in 2001-2002 and the financial and economic crisis that began in 2008, have generated significant attention towards the use of ERM practices within firms as well as a specific interest in the board's role in monitoring management's risk-taking activities. The lack of prudent risk oversight by the board has led to a number of regulatory changes over the past decade specifically focused on strengthening the board's role in risk oversight, as well as increasing transparency around risk oversight efforts (NACD 2009; Dodd-Frank 2010; SEC 2010; S&P 2012; NYSE 2013; NACD 2017, 2018).

Widely-recognized principles-based ERM frameworks, including those developed by the Committee of Sponsoring Organizations (COSO) and the International Organization for Standardization (ISO), place significant emphasis on the board's role in overseeing the firm's

enterprise-wide risk management processes (COSO 2004, 2009, 2017; ISO 2009, 2018). COSO frameworks include adequate board risk oversight as one of the core principles necessary for effective systems of internal control and enterprise-wide risk management, and the ISO emphasizes that oversight bodies, which encompass the board of directors, are accountable for overseeing risk management.

While these governance expectations emphasize the board's role in the oversight of *all* types of firm risks (e.g., strategic, environmental, financial reporting, compliance, operational), we focus our study on the association between risk oversight and tax-planning practices, given these practices can impact multiple aspects of the firm. Corporate taxation has become a matter of significant public interest, and governments and regulators are more aggressively scrutinizing corporate tax strategies. Thus, tax risks include significant reputational risks that are of concern to boards who oversee management's risk-taking actions on behalf of key stakeholders (PwC 2013; EY 2016). As a result, tax oversight is an important strategic priority that may impact the overall value, reputation, and brand of the firm. Boards are expected to be well-informed about tax policy developments and trends worldwide (EY 2019), including consideration of how those developments and trends may impact the organization's overall enterprise risk profile.

Tax Practices and Corporate Governance

Two theories dominate the literature examining the strength of corporate governance mechanisms on firms' tax behavior. First, Desai and Dharmapala (2006) propose a complementary association between tax planning and managerial rent extraction. The "D&D" theory proposes that the opacity and complexity of corporate tax planning provide opportunities for rent extraction in weak governance settings. This theoretical perspective asserts that strong board governance should *reduce* corporate tax aggressiveness since it assumes that tax

aggressiveness facilitates managerial diversion or suboptimal performance. Complementary to Desai and Dharmapala (2006), Richardson et al. (2013) use a sample of Australian firms and provide evidence that a more independent board is associated with higher tax burdens and a lower likelihood of being challenged by the tax authority. Similarly, Li, Maydew, Willis, and Xu (2019) and Desai, Dyck, and Zingales (2007) find that country-level reforms to enhance corporate governance regulations lead to decreases in corporate tax avoidance.

Importantly, the D&D theory proposes that the complimentary association between tax avoidance and managerial diversion only exists in weak-governance settings. Recent studies provide evidence that tax aggressiveness is unlikely to facilitate managerial diversion in a country with an overall strong regulatory environment such as the U.S. (e.g., Blaylock 2016; Atwood and Lewellen 2019), and thus the D&D theory may not generalize in such settings. Consistent with this expectation, prior studies of U.S. firms find little on-average association between board characteristics and tax planning (Minnick and Noga 2010; Armstrong et al. 2015).

A second theory suggests that executing a successful tax-planning strategy generally lowers the firm's tax burden, thereby transferring wealth from the government to shareholders. Thus, on average, reducing tax burdens is in the best interest of shareholders because it maximizes shareholder after-tax wealth.[4] However, Armstrong et al. (2015) propose that agency conflicts may motivate managers to engage in tax planning that is not value-maximizing to shareholders. Given the board's charge to ensure that management acts in the best interests of shareholders (Jensen and Meckling 1976), boards should oversee the underlying tax planning processes and reporting outcomes to ensure that the firm's risk exposure to long-term negative

[4] Consistent with this notion, Brown and Drake (2014) document that firms use board interlocks to share information about tax planning activities which they then use to lower tax burden.

impacts does not exceed stakeholder's appetite for risk.[5] Thus, strong risk oversight should help to optimize its tax planning activities. Consistent with this notion, Armstrong et al. (2015) find that board independence and financial expertise motivate firms with high (low) levels of tax planning to decrease (increase) current tax-planning levels.

We argue that the processes the board engages in as part of its governance responsibilities will affect important firm outcomes. Oversight of management's processes for managing risks of all types is considered a key competency of the board by regulators (SEC 2010) and other governance leaders (COSO 2009; 2017; NYSE 2013. COSO's 2017 ERM framework places board risk oversight as the first among twenty core principles that must be in place for an organization to have effective enterprise risk management (COSO 2017, p. 27). Thus, risk monitoring represents an important governance process undertaken by the board. Theoretical and practitioner publications stress that it is crucial for boards to understand and be involved in tax risk management (e.g., Neubig and Sangha 2004; PwC 2013; Deloitte 2015, 2016; EY 2016, KPMG 2018; 2019; Protiviti 2019), particularly given the materiality of tax costs relative to profitability, concerns regarding a changing regulatory environment, and the potential for significant reputational and brand harm for overly aggressive tax practices.

Hypothesis Development

Mills et al. (1998) provide evidence that for every $1 invested in tax planning, firms lower their tax liability by $4. Assuming a strictly linear relation, firms can lower their total tax liability to $0 simply by investing resources in their tax planning activities. However, firms still pay significant tax burdens (Weisbach 2002). Prior research indicates that this may be because

[5] This is particularly important given that tax planning has important implications for non-tax risks impacting the organization, such as the transparency of the firm's financial statements (Balakrishnan et al. 2019), access to liquidity (Law and Mills 2015; Edwards, Schwab, and Shevlin 2016; Campbell, Goldman, and Li 2019), and scrutiny by the media and the general public (Austin and Wilson 2017; Chen et al. 2018; Dhaliwal et al. 2019). Moreover, the firm's tax burden has important implications for the firm's current and future performance (Lev and Nissim 2004; Robinson, Sikes, and Weaver 2010).

paying excessively low tax rates is risky (Gallemore, Maydew, and Thornock 2014; Austin and Wilson 2017). This indicates that firms may weigh the potential benefits of lowering the tax liability against the non-tax costs associated with such actions and choose an optimal level of tax avoidance. Consistent with this optimization strategy perspective, Cook et al. (2017) provide evidence that on average investors reward expected tax avoidance with a lower cost of equity capital, but punish firms by increasing the cost of equity capital when firms pay extreme tax amounts, whether too high or too low. Similarly, Chyz and Gaertner (2017) provide evidence that executives are relieved of duty when the firm's tax burden is in the extreme (too high or too low). Additionally, Drake, Lusch, and Stekelberg (2019) argue that tax avoidance is positively valued by investors, but only when it is not accompanied by high levels of tax uncertainty. What remains unclear from this literature are the mechanisms within a firm that ensure it achieves an optimum tax avoidance strategy.

We expect that governance mechanisms like the board impound these tax-related considerations into their monitoring actions and, in doing so, help the firm optimize tax avoidance.[6] Specifically, we predict that more robust risk oversight positively influences corporate tax-planning practices. Tax experts assert, "Boards should consider the impact that the organization's tax strategies have on its competitive position and be comfortable that the organization's tax policy is sustainable" (Deloitte 2015; EY 2019). However, historically, tax departments have managed the tax function with little involvement from the board, and without an independent assessment of risk, which violated a core principle of risk management (Neubig

[6] We refer to the board of director's monitoring actions rather than a specific committee. While concurrent research suggests that the audit committee often deals with risk management issues (Robinson et al. 2012) and anecdotal evidence suggests that the audit committee, as well as the risk committee, is typically associated with overseeing management's risk management process, those sub-committees of the board do so on behalf of the board and it is the full board of directors that has ultimate responsibility for the oversight and governance of the risk taking of management. As a result, we do not make any conclusions on the actions of a specific committee or board member.

and Sangha 2004). Attention to material weaknesses and issues related to financial reporting of income taxes (e.g., Drake, Goldman, and Lusch 2016; Gleason, Pincus, and Rego 2017) along with public scrutiny over corporate taxes (Dyreng et al. 2016; Chen et al. 2018; Dhaliwal et al. 2019) have elevated tax issues to the board in recent years. Thus, we expect that risk oversight is associated with more effective tax-planning practices. We use the tax outcomes reported in firms' financial statements to infer the level and character of tax-planning activities, and we focus on two observable tax outcomes: (1) tax uncertainty, and (2) the level of the tax burden.

Hypothesis 1 – Risk Oversight and Tax Uncertainty

Theoretical research and practitioner publications stress that it is crucial for boards to be involved in tax risk management. Neubig and Sangha (2004, page 118) propose, "Tax risk should be viewed as an integral part of the corporation's overall enterprise risk management and should be effectively managed and directed by the board." Deloitte (2016) recommends that the board's responsibilities concerning corporate tax practices include: 1) embedding risk culture and awareness, 2) defining the tax policy and strategy, 3) setting and monitoring risk appetite, and 4) and reviewing significant areas of uncertainty and judgment. Furthermore, regulatory authorities in recent years have placed increased pressure on the board to ensure that the firm's tax uncertainty exposure is consistent with its overall risk appetite (Shulman 2009, 2010; OECD 2009). Monitoring the firm to ensure it is not subject to excessive tax uncertainty is important. For example, Klassen et al. (2016) suggest that tax practices are an important consideration that the board needs to evaluate as part of the firm's overall risk strategy and that the board needs to ensure that the firm is choosing tax positions that bring value to shareholders while also remaining compliant with the corresponding tax laws. Other studies provide evidence that overexposure to tax risks and uncertainty can lead to future tax payments and penalties, resulting

in more volatile tax outcomes (Ciconte et al. 2016; Hanlon, Maydew, and Saavedra 2017). Moreover, overly aggressive tax strategies can subject the firm to public scrutiny and reputational damage (Austin and Wilson 2017; Chen et al. 2018).

Evidence from prior research on the impact of the board and risk management on tax uncertainty is limited. Richardson et al. (2013) find evidence that management's certification that the firm's "system of internal controls and risk management is effective" is associated with a lower likelihood of a tax dispute with the tax authority and higher tax burdens in a sample of Australian firms. However, the authors do not examine the board's role in the risk management process. Principles-based ERM frameworks note that effective risk oversight should help reduce uncertainty by helping organizations "*reduce performance variability*" and "*anticipate risks that would affect performance and enable them to take action to minimize disruption*" (COSO 2017, p. 7). Therefore, we expect that boards with more robust risk oversight would be more likely to constrain highly uncertain tax practices. We formally state our first hypothesis:

H1: Risk oversight is negatively associated with tax uncertainty.

Hypothesis 2 –Risk Oversight and Tax-Planning Levels

One mechanism an organization could employ to reduce tax uncertainty would be to forego all corporate tax planning and pay taxes strictly in accordance with the statutory tax rate. However, in the normal course of business, firms can generate significant tax savings by investing time in tax-efficient business decisions (e.g., locating a new plant in a lower tax state rather than a high tax state) (Mills et al. 1998). Furthermore, there are many activities that the firm may not have chosen to implement without a tax benefit, but with a tax benefit became a positive net present value proposition (e.g., capital expenditures, R&D, and acquisitions).

Achieving low tax uncertainty by simply foregoing all available tax avoidance opportunities represents a wealth transfer from shareholders to the government, which is likely inconsistent with shareholder preferences. The board's mandate is to ensure that all firm-wide decisions remain consistent with the firm's overall appetite for risk-taking, including its tax planning choices, not that it avoids or mitigates all risks (COSO 2009).[7]

Effective tax planning involves maximizing a firm's after-tax return by considering the magnitude of the tax burden along with other non-tax costs that may accompany various tax-planning strategies, including the risk of avoiding taxes (Scholes et al. 2014). More risk oversight, such as considering firm-wide risks within the context of the entity's business model and strategic initiatives, help the board ensure that the risks facing the organization are within acceptable levels of risk, consistent with shareholder preferences. Thus, more robust risk oversight should help the board ensure the firm is "threading the needle" between preferable tax planning decisions that lead to overall lower tax burdens, and undesirable tax planning decisions that require harmful and excessive risk-taking.[8] In sum, we posit that risk oversight is associated with tax planning that leads to lower overall tax burdens in the financial statements. We formally state our second hypothesis:

H2: Risk oversight is negatively associated with the level of the tax burden.

While we expect that more risk oversight is associated with corporate tax planning, there are reasons that the association may not materialize in practice. First, tax planning decisions are

[7] Principles-based frameworks for enterprise risk management also note that a benefit of ERM is the "increase of positive outcomes and advantage while reducing negative surprises" and "improve resource deployment" (COSO 2017, pp. 6-7). These frameworks also emphasize that effective enterprise-wide risk management is not solely focused on the mitigation of all risks, but rather is focused on balancing risk-taking with the organization's overall risk appetite.

[8] We expect that the board should have an interest in tax-planning decisions that that can have important non-tax impacts (e.g., reputational effects) and those that interact with important non-tax-related decisions (e.g., tax-efficient business structuring). For example, if the board is deciding which innovation projects warrant investment, they may choose to focus on projects that qualify for R&E credits because the net present value of these projects after considering tax credits is higher.

typically a component or a result of the firm's operational and structural decisions, rather than a primary driver of them. For example, Williams (2018) and Drake et al. (2019a) document that U.S. multinational firms commonly locate employees in countries that provide excellent operating efficiencies (e.g., India, China, and Mexico). While these jurisdictions are known for having lower statutory tax rates than the U.S., the tax benefits for locating in these jurisdictions pale in comparison to tax havens, indicating that firms make strategic business decisions that balance tax benefits against operational efficiencies. To the extent that the board prioritizes overall profitability over strict tax savings, we may only document a small or no effect of board risk oversight on tax practices. However, following Drake et al. (2019a), we anticipate that tax decisions are made simultaneously with operating decisions, but with different weights. We argue that while tax decisions may not be a first-order effect, their consideration is significant enough to warrant board oversight.

Furthermore, tax planning often increases a firm's financial complexity (Balakrishnan et al. 2019), indicating that tax planning requires significant technical expertise. Since boards are not generally predominately comprised of technical tax experts, a lack of technical expertise may limit the effectiveness of the board's tax risk monitoring. This possibility would be consistent with past corporate governance work that finds the level of audit committee industry expertise and financial expertise affect firms' financial reporting quality (Cohen, Hoitash, Krishnamoorthy, and Wright 2014; Krishnan and Lee 2009).

RESEARCH DESIGN

Data and Sample Selection

Table 1 presents our sample selection procedure. We comprise our sample of firms belonging to the Russell 1000 in 2014. We make this choice because these firms represent a large portion of the market capitalization in the U.S., and to limit the sample to a reasonable size

to facilitate hand collection, reading, and hand-coding of proxy statement data. We begin with 1,021 Russell 1000 firms that can be found in *Compustat*.[9] We use the most recent proxy disclosure statement available for each observation as of June 2014 to code the risk oversight measure for each firm. We exclude 26 firms where the proxy disclosure was not available. Because we are interested in firms' tax-planning activities, and because firms domiciled in non-U.S. jurisdictions inherently face different tax-planning incentives, we remove non-U.S. domiciled firms (n=49). For similar reasons, we also remove financial services firms (n=222) and utility firms (n=59). Following these steps, our potential sample comprises 665 firms.

From this initial sample, we merge the sample with *Compustat*, resulting in 656 firms and 2,434 firm-years for the period 2014 through 2017. We retrieve financial variables from *Compustat* and board composition data from *ISS* (formerly *RiskMetrics*). Following the majority of tax research (e.g., Brown and Drake 2014; Dyreng et al. 2010, we remove firm-year observations with losses. We also remove observations without data to calculate our test variables. Following these cuts, our final sample used for testing is 501 firms comprising 1,595 firm-year observations from 2014 through 2017. We use the measure coded for the 2014 proxy statement as a proxy for risk oversight over the period 2014-2017 to test our hypotheses.[10]

Risk Oversight Measure

The SEC enhanced its proxy disclosure rules in 2010 to require firms to include information in their annual proxy statements regarding the board's role in risk oversight. The

[9] The Russell 1000 is a market capitalization-weighted index of the largest 1,000 companies in the United States equity markets, and our sample is based on members of the index as of June 2014. The index is reconstituted on an annual basis and stocks deleted between reconstitution dates are not replaced. However, spin-offs and IPOs are added on a quarterly basis. This can cause the number of companies listed on the index to exceed 1,000.

[10] We read and compared a random sample of proxy statement disclosures between 2014 and 2017 and find that most firms do not substantially change their risk oversight practices (or do not change them at all) over this time period. Thus, it appears that risk oversight practices are sticky over a finite period. For this reason, we use the coding from 2014 as a proxy for risk oversight for the period 2014 through 2017. Our inferences are unchanged if we use only the year closest to 2014 to estimate the regression models.

mandate does not specify what risk oversight-related information firms must disclose, nor does it mandate a specific format for the disclosure or specific risk oversight processes. Thus, firms have flexibility in how the board structures and discloses its risk oversight information. While it is possible that the provided disclosures about the board's risk oversight activities may not reflect what the board is actually doing, the likelihood of this is low given the regulated nature of this disclosure and the associated oversight of proxy filings by the SEC. Errors, omissions, and falsifications of information would be subject to SEC enforcement and prosecution. Furthermore, any subsequent determination that the board risk oversight information provided is false or misleading would inform investors as they appoint or remove individuals from service on the board.

Using hand-collected information, we develop a firm's score of the strength of the risk oversight processes based on their proxy statement closest to the 2014 year-end. We rely on the SEC's 2010 Proxy Disclosure Enhancements rule and thought papers and best practices issued by COSO to identify the three (responsibility, consistency, and risk mindset) best-practice components (COSO 2009, 2010, 2017; Rittenberg and Martens 2012).[11]

The first component (*Responsibility*) captures whether the proxy statement directly and verbally articulates the board's responsibility for overseeing the firm's risk management system (SEC 2010). Thought leadership papers and empirical research stress the importance of formal articulation of board risk monitoring responsibilities (COSO 2010; Rittenberg and Martens 2012; Ittner and Keusch 2014; ISOS2018). Although the board *should* ultimately be responsible for the oversight of risk at all firms (COSO 2009), survey evidence indicates that many boards delegate this responsibility to a subcommittee or do not acknowledge any formal responsibility to oversee

[11] We include an online appendix detailing the process of developing this measure and detailed information about each component.

risk (COSO 2010; Ittner and Keusch 2014). *Responsibility* is equal to 1 if the proxy statement disclosure directly states that the board is responsible for risk oversight. Companies coded as a 0 for this item either did not directly state where the responsibility for risk oversight resides, stated that management or a subcommittee is primarily responsible for risk oversight, or used opaque language when addressing this point.

The second component of risk oversight (*Consistency*) captures whether the firm discloses that the board regularly engages in risk monitoring activities. An important component of the SEC's 2010 Proxy Disclosure Enhancements requires firms to provide information on whether and how the board monitors risk (SEC 2010). Thought leadership papers on risk oversight stress the importance of continuous updating and regular and systematic risk oversight by the board because risks are constantly evolving (COSO 2009, 2010; Rittenberg and Martens 2012). Survey evidence indicates that boards do not consistently monitor risk in many companies (COSO 2010; Ittner and Keusch 2014). *Consistency* is equal to 1 if the proxy statement disclosure indicates that the board reviews the firm's risk management policies and procedures or reviews important firm risks at regular time intervals on at least an annual basis (0 otherwise).

The third component (*Risk Mindset*) addresses whether the firm discloses that the board engages in monitoring related to ensuring that the firm maintains an appropriate risk mindset or "tone at the top" that emphasizes the importance of risk management and risk-related corporate culture, such as the importance of considering the company's portfolio of risks and whether it is in alignment with the firm's strategic objectives and its overall appetite for risk-taking (COSO 2009). Thought leadership papers stress the importance of the overall culture and tone at the top that leads to a mindset focused on the integration of the firm's appetite and tolerance for risk into the decision-making processes at all levels of the firm (COSO 2009, 2017; Rittenberg and

Martens 2012).[12] *Risk Mindset* is equal to 1 if the firm discloses that the board is involved in monitoring the firm's risk appetite, risk-strategy alignment, or corporate culture about risk (0 otherwise).[13]

We review each disclosure and hand-code whether the firm addressed each of the three best-practice components of risk oversight using a series of dichotomous variables.[14] We aggregate these three dichotomous variables for each of these three components into a single risk oversight score that takes a value of 0, 1, 2, or 3 (*Risk Oversight*). We expect that boards with high *Risk Oversight* (i.e., a 3) have a greater adherence to risk management best practices for risk oversight, and thus have more robust processes for monitoring the firm's risk management system, relative to firms with low *Risk Oversight* (i.e., a 0 or 1).

Validation and Determinants of Risk Oversight

We assert that *Risk Oversight* captures board monitoring activities and engagement related to important firm risks. To help validate our construct and provide insights into factors associated with *Risk Oversight*, we use multivariate regression to examine factors associated with variation in *Risk Oversight*. We estimate the following OLS model:

$$\begin{aligned} \textit{Risk Oversight}_i = {} & \beta_0 + \Sigma\beta_k \textit{Risk management variables} + \Sigma\beta_j \textit{Governance variables} \\ & + \Sigma\beta_h \textit{Risk Variables} + \Sigma\beta_n \textit{Firm fundamentals and voluntary disclosure} \\ & + \textit{Industry FE} + \varepsilon_{it} \end{aligned} \quad (1)$$

We include two variables to capture overall risk management practices. We include *ERM*, which is an indicator variable equal to 1 if the firm mentions "enterprise risk management" in its

[12] Board monitoring and support of an appropriate risk mindset helps ensure that all important risks faced by the firm are identified and understood, and that firm risk-taking is in line with organizational goals (Rittenberg and Martens 2012).
[13] Thought leadership papers (e.g., (COSO 2009, 2017; Rittenberg and Martens 2012) indicate that any of these three items indicate board involvement in activities promoting an adequate risk mindset at the firm.
[14] To ensure a high degree of reliability within our coding protocol, two coauthors independently coded each disclosure. Coding agreement between the co-authors was greater than 90 percent. Once coding was complete, all differences between coders were reconciled. In addition, a graduate research assistant with no prior experience with the project coded a random sample of 10 percent of the proxy statements disclosures with greater than 90 percent agreement with the reconciled coding. We also used Cohen's Kappa to calculate inter-rater reliability because some level of agreement can be random. Cohen's Kappa for each item coded was greater than 0.80, indicating a substantial level of agreement (Landis and Koch 1977; Hallgren 2012).

proxy statement risk oversight disclosure (0 otherwise). We also include *CRO*, which is an indicator variable equal to 1 if the firm mentions the presence of a Chief Risk Officer in its proxy statement risk oversight disclosure (0 otherwise). Overall, we expect firms that are employing ERM will have greater adherence to ERM risk oversight best practices, but it is unclear how the presence of a CRO would relate to the board's engagement in risk oversight robustness.

We include several governance variables. *Board Inputs* is a comprehensive measure of board quality, defined as the factor score from the number of financial experts on the board, the size of the audit committee and board, the percentage of independent board members, and the mean tenure for the board members.[15] We expect that boards with favorable member inputs (i.e., more independent, greater expertise) are more likely to view their governance role as one of objective monitoring, and thus, we expect *Board Inputs* to be positively associated with *Risk Oversight*. We also include two measures of manager entrenchment, using the E-index from Bebchuk, Cohen, and Ferrell (2009) (*E-index*) and an indicator variable equal to 1 if the proxy statement disclosure notes that the CEO is the chairman of the board (*CEO is Chair*). We do not predict the signs of the coefficients on the manager entrenchment variables.

We next include measures for various types of risks such as litigation risk (*Litrisk*), the risk of financial distress (*DistressRisk*), and operating volatility (*PTROAVol*). While we expect that firms with more inherent risk would demand greater risk oversight, we have no specific prediction on which risk variables would be most closely related. Lastly, we include variables for several firm fundamentals, including firm size (*Size*), operating performance (*ROA*), and complexity (*RD, Capint, Intang, Foreign,* and *Geoseg*). We expect that larger firms likely have

[15] We include a factor score of board variables, rather than board variables individually, because these variables are highly correlated and therefore may not pick up distinct constructs. Consistent with our expectations, all variables load on one factor with an Eigenvalue greater than 1.

greater resources to invest in ERM practices. Similar to our prediction on inherent risk, we also conjecture that firms with greater complexity may also demand greater risk oversight. Finally, to ensure that our measure is not simply capturing variation in voluntary disclosure practices across firms, we include a measure of overall disclosure propensity (*Calls),* which is the number of conference calls with analysts calls held during the year (Brown, Hillegeist, and Lo 2004; Frankel, Johnson, and Skinner 1999).[16] The coefficient on *Calls* will be significantly positive if disclosure propensity drives *Risk Oversight* (inconsistent with our expectations). We also include industry fixed effects in the model (Fama French 12 specification).

We present results from this analysis in Table 2. Column (1) presents our risk management variables. Consistent with our expectation that firms using ERM should have greater adherence to ERM best practices for risk oversight, we find that *ERM* is positively associated with *Risk Oversight* (Coef. = 0.1993 $p < 0.01$). We do not find that the presence of a CRO is associated with *Risk Oversight.* Column (2) presents our governance variables. Our evidence that *Board Inputs* is positively associated with *Risk Oversight* (Coef. = 0.1273, $p < 0.01$) suggests more objective and experienced board members will likely engage in more robust risk oversight. We do not find that manager entrenchment (i.e., *E-index* and *CEO is Chair*) is significantly associated with *Risk Oversight.*

Column (3) presents our risk variables. Also consistent with expectations, we find evidence of greater demand for risk oversight in firms with greater inherent risk. Specifically, *Risk Oversight* is positively associated with both *Litrisk* (Coef. = 0.0236, $p <0.10$) and *DistressRisk* (Coef. = 0.0244 $p <0.01$), but not operating volatility (*PTROAVol*). Column (4) presents our firm fundamentals and voluntary disclosure variables. We find *Risk Oversight* is

[16] Conference call data is from Seekingalpha.com. We thank Robbie Moon for sharing this data with us. We set conference call frequency equal to 0 if there is no data for the firm-year (approximately 1 percent of firm-years).

positively associated with *Size* (Coef. 0.0460, p <0.05) and negatively associated with *ROA* (Coef. = -1.6412, p <0.01). We also find that that complexity, in terms of intangible intensity (*Intang,* Coef. = 0.2609, p < 0.10) and multinational operations (*Geoseg,* Coef. = 0.0915, p < 0.10), is positively associated with *Risk Oversight.* Finally, we do not find that our measure of voluntary disclosure quantity (*Calls*) is positively associated with *Risk Oversight*, consistent with the view that the firm's overall disclosure propensity does not drive disclosures about the board's role in risk oversight. Inferences from column (5) with all variables included are similar to those in columns (1) through (4). In sum, our determinants test helps validate our measure by providing evidence that it is associated with constructs we believe should be associated with (ERM, board quality, and risk) and that it is not associated with voluntary disclosure propensity.

Primary Regression Models

To test our hypotheses, which focus on the association between risk oversight and corporate tax-planning, we estimate the following equation:

$$\begin{aligned} GAAPETRVol_{i,t}\ (GAAPETR_{i,t}) = {} & \alpha_0 + \beta_1 Risk\ Oversight_{i,t} + \beta_2 Size_{i,t} + \beta_3 ROA_{i,t} \\ & + \beta_4 PTROAVol_{i,t} + \beta_5 RD_{i,t} + \beta_6 CapInt_{i,t} + \beta_7 Leverage_{i,t} + \beta_8 NOL_{i,t} + \\ & \beta_9 ChangeNOL_{i,t} + \beta_{10} Intang_{i,t} + \beta_{11} Inv_{i,t} + \beta_{12} Adv_{i,t} + \beta_{13} Foreign_{i,t} + \beta_{14} Geoseg_{i,t} \\ & + \beta_{15} Board\ Inputs_i + \beta_{16} LitRisk_{i,t} + \beta_{17} DistressRisk_{i,t\ ,t} + \text{Industry F.E.} + \\ & \text{Year F.E.} + \varepsilon_{i,t} \end{aligned} \quad (2)$$

The dependent variable in equation 2 is either the firm-year observation's three-year GAAP ETR volatility measured as the standard deviation of GAAP ETR measured across year t-2, year t-1, and year t (*GAAPETRVol*),[17] or the firm-year observation's current year GAAP ETR, calculated as the total tax expense scaled by pre-tax book income (*GAAPETR*). *GAAPETR* captures the firm's total tax burden (current and future) accrued in the financial statements. Thus,

[17] *GAAPETRVol* is a three-year measure measured from year t-2 to t, whereas our control variables are each measured in year t. To mitigate concerns regarding timing differences for these variables, in untabulated analysis, we re-examine our *GAAPETRVol* regression with each of our control variables measured as an average over the same three years. Our inferences remain unchanged.

this measure picks up tax-planning strategies that result in permanent tax savings rather than deferral strategies (Hanlon and Heitzman 2010). *GAAPETR*, versus other measures of tax burdens, is appropriate for use in our study because top management and board of directors consider the GAAP ETR a fundamental and important measure (Graham, Hanlon, Shevlin, and Shroff 2014). *GAAPETRVol* captures uncertainty in tax burdens. A negative coefficient on *GAAPETRVol* is consistent with risk oversight being associated with lower tax uncertainty, and thus would be consistent with our H1 hypothesis. A negative coefficient on *GAAPETR* is consistent with risk oversight being associated with lower tax burdens, and thus would be consistent with our H2 hypothesis.

We follow the prior literature and include a plethora of common control variables (Chen, Chen, Cheng, and Shevlin 2010; Kubick, Lynch, Mayberry, and Omer 2015; Cen, Maydew, Zhang, and Zuo 2017, among others). We control for a firm's size (*Size*), profitability (*ROA*), R&D investment (*RD*), capital intensity (*CapInt*), long-term debt (*Leverage*), net operating losses (*NOL* and *ChangeNOL*), intangible intensity (*Intang*), and inventory intensity (*Inv*). We control for the extent of foreign operations (*Foreign* and *Geoseg*). We also include the volatility of pretax earnings (*PTROAVol*) to control for fundamental differences in profitability that may influence the rate at which firms pay taxes (Guenther et al. 2017). Lastly, we include a measure of board quality (*Board Inputs*), litigation risk *(LitRisk*), and distress risk *(DistressRisk*), as they each are shown to be determinants of *Risk Oversight* in Table 2.[18] We also include industry (Fama-French 12 industry) and year fixed effects. We winsorize all continuous variables included in equation 1 at the 1 and 99% levels, and we cluster standard errors by firm. See the Appendix for a more detailed discussion of how we calculate the variables in equation 2.

[18] In untabulated analysis, we also include *ERM* as a control variable and our inferences remain unchanged. We do not include *ERM* in our primary analysis to mitigate multicollinearity because *Risk Oversight* is a component of firms' ERM.

RESULTS

Descriptive Statistics

Table 3, Panel A, presents descriptive statistics for our variables used in testing across all firms. The mean (median) statistic for *GAAPETRVol* and *GAAPETR* are 0.061 (0.027) and 0.318 (0.312), respectively. These values are in line with prior literature (Dyreng et al. 2017; Guenther et al. 2017). The mean (median) value for our independent variable of interest, *Risk Oversight,* is 1.254 (1.000). This statistic suggests that firms have approximately one of the risk oversight components. We also document that 36.1 percent of our sample firms have a *Risk Oversight* score of 2 or 3 (*High Risk Oversight* =1). The statistics for our control variables are reasonable and in line with prior literature. Panel B presents comparative descriptive statistics for firms with a high (2 or 3) versus low (0 or 1) *Risk Oversight* score. Consistent with our H1 (H2), we document that high *Risk Oversight* firms have a significantly lower mean *GAAPETRVol* (mean *GAAPETR*) than low *Risk Oversight* firms ($p < 0.05$).

Table 4 presents our spearman correlation matrix. Consistent with our H1 and H2, we document a negative and significant correlation with *Risk Oversight* and *GAAPETRVol* (-0.034) and *GAAPETR* (-0.064). While we caution interpretation of our findings using only univariate statistics, these correlations provide evidence consistent with our expectations. Furthermore, we document a positive and significant correlation between our two independent variables of interest, *GAAPETRVol* and *GAAPETR* (0.507, $p < 0.01$). This finding is consistent with prior literature that also examines both the levels and volatility of effective tax rates (Dyreng et al. 2008; Guenther et al. 2017; Drake et al. 2019b) and suggests that lower tax burdens are more persistent. Our remaining correlations are consistent with the prior literature.

Primary Multivariate Results

Table 5 presents our primary analysis. Column (1) presents the estimation of equation 2 testing H1. Consistent with our H1, we document a negative and significant coefficient on *Risk Oversight* (β_1 = -0.0063, t-stat = -2.09). This evidence suggests that for a one-unit increase in *Risk Oversight*, firms have a 0.0063 lower volatility of *GAAPETR*, and thus a firm with a *Risk Oversight* score of 3 has 0.0189 lower *GAAPETRVol* than a firm with a *Risk Oversight* of 0. Given a mean of *GAAPETRVol* of 0.061 (per Table 3), this lower volatility for the highest *Risk Oversight* versus the lowest *Risk Oversight* translates to a 31.0% lower *GAAPETRVol*.

Column (2) presents the estimation of equation 2 testing H2. Consistent with our H2, we document a negative and significant coefficient on *Risk Oversight* (β_1 = -0.0138, t-stat = -2.90). Results suggest that firms with a *Risk Oversight* score of 3 have a 4.14 percentage point lower *GAAPETR* than firms with a 0 score. Given the mean *GAAPETR* in our sample of 31.8% (per Table 3), our findings suggest that a firm with a *Risk Oversight* score of 3 has 13.2% lower *GAAPETR* than firms with a 0 score, which we interpret as evidence that high *Risk Oversight* is associated with 13.2% lower levels of tax burdens.[19]

Our evidence in columns (1) and (2) is consistent with stronger risk oversight being associated with lower tax burdens that are also less uncertain. The results suggest that more robust risk oversight may lead to firm-level decisions that involve structuring tax practices in a more efficient manner (i.e., greater amounts of tax planning in a less uncertain fashion).

[19] A potential correlated omitted variable when examining *GAAPETR* is *GAAPETRVol.* To mitigate concerns regarding this issue, in untabulated analysis, we re-examine our model by including *GAAPETRVol* in the *GAAPETR* regression. Our inferences remain unchanged.

Additional Analyses – Tax Planning

Permanent versus Temporary Tax-Planning Activities

We examine permanent versus temporary book-tax differences to draw conclusions on the nature of firms' tax-planning activities. Permanent positions are inherently different from temporary positions because the tax benefits associated with the positions do not reverse over time. The reversal of temporary position creates future tax liabilities, and therefore they, on average, create less value from a net present value (NPV) perspective.[20] Furthermore, several studies note that top management cares more about GAAP ETR (affected by permanent positions only) than cash taxes (affected by both temporary and permanent positions) because the GAAP ETR directly influences after-tax reported earnings (Robinson et al. 2010; Armstrong, Blouin, and Larcker 2012; Graham et al. 2014). Moreover, the GAAP ETR is a highly visible measure that the board can use to monitor and evaluate tax planning efficiency (Armstrong et al. 2012). For these reasons, we also expect the board to prefer permanent tax positions to those that yield temporary benefits.

Following Hanlon and Heitzman (2010), we calculate the temporary book-tax differences (*TempBTD*) as deferred tax expense grossed up by the statutory tax rate. Following Frank, Lynch, and Rego (2009), we calculate the permanent book-tax difference (*PermBTD*) as the difference between the total book-tax difference (book income less current tax expense grossed up by the statutory rate) and *TempBTD*. We re-estimate equation 2 by replacing *GAAPETR* with *PermBTD* and *TempBTD* and present results in Table 6 Panel A.[21] In column (1), we find a

[20] For example, firms receive an R&E tax credit for spending funds on qualified research and development activities and this tax credit lowers firms' tax liabilities permanently. But, if the firm were to spend those funds on more capital expenditures, the firm would have more depreciation deductions this year due to accelerated depreciation. However, the total deductions allowed for depreciation eventually decline and the book deductions become greater than the tax deductions, in which firms would pay more in tax liability at that time.

[21] Because there are clear directional expectations for our findings related to the tests in Table 6, we interpret our evidence using one-tailed p-values.

positive and significant coefficient on *Risk Oversight* when our dependent variable of interest is *PermBTD* (β_1 = 0.0019, t-stat = 1.86). However, in column (2), we fail to provide a significant relation when *TempBTD* is our dependent variable of interest. These findings suggest that firms with strong risk oversight appear to be achieving higher levels of tax planning via permanent rather than temporary tax positions.

Income Shifting Activities

While we are not able to examine the specific permanent tax strategies used by firms, we use publicly available data to provide insights into the nature of the permanent tax-planning activities firms are choosing or avoiding. Some tax-permanent planning strategies may create greater tax and non-tax risks compared to other permanent strategies. Aggressive income shifting of income abroad is a permanent tax-planning strategy that may increase tax uncertainty because the IRS may not uphold the position (De Simone, Mills, and Stomberg 2019; Towery 2017) and also create non-tax risks by drawing public scrutiny (e.g., Dyreng et al. 2016). Thus, we propose that firms with higher *Risk Oversight* may prefer to engage in less multinational income shifting.

For this test, we follow the research design of Dyreng and Markle (2016).[22] Table 6, Panel B presents the results of estimating the Dyreng and Markle (2016) equations. Consistent with prior literature, we document statistically significant coefficients on both inbound (γ_0) and outbound (θ_0) income shifting.[23] The interaction between these terms and *High Risk Oversight* captures the incremental difference for high-risk oversight on income shifting activities. We

[22] Their design uses a system of equations to consider separately inbound and outbound income shifting by regressing changes in domestic and foreign income on changes in domestic and foreign sales. The joint estimation process enables us to separate parameters for return on sales (foreign, ρf, or domestic, ρd) from shifting parameters (outbound, θ, and inbound, γ). The intuition behind the shifting parameters is that a dollar of income shifted out of domestic earnings shifts into foreign earnings. Thus, we jointly estimate their two equations while also including interaction terms with our High Risk Oversight variable.

[23] We also document that the main effects for the return on foreign and domestic sales (0.090 and 0.111, respectively) are statistically significant ($p < 0.01$), and in line with Dyreng and Markle (2016), which mitigates self-selection concerns. See Table 6, Panel B for details regarding the subsample for this analysis and greater explanation of the Dyreng and Markle (2016) equations. To help improve interpretation and generalizability of the findings, we interact the independent variables of interest with *High Risk Oversight*, rather than the continuous term.

document that both inbound (γ_2) and outbound (θ_2) income shifting is significantly attenuated for firms with high risk oversight (γ_2 = -0.301, t-stat = -1.58; θ_2 = -0.183, t-stat = -1.78, for inbound and outbound income shifting, respectively). These results suggest that firms with higher risk oversight are associated with significantly less inbound and outbound income shifting, a series of activities often associated with being high risk and more uncertain.

Usage of a Tax-Efficient Supply Chain

Throughout our sample period, the U.S. had among the world's highest statutory tax rate. Prior literature suggests that firms can employ a tax-efficient supply chain as a lower risk strategy to lower their tax burden (Dyreng, Lindsey, Markle, and Shackelford 2015). While beneficial, this strategy involves shifting real operations rather than more uncertain income shifting (Drake et al. 2019a). Boards more engaged in risk oversight may promote tax planning to structure the firm's global operations in a tax-efficient manner.[24] Thus, we examine whether the associations between risk oversight and our tax outcome variables are different for firms with more extensive foreign operations based on the number of geographic segments (*High Geoseg*) and the number of non-tax haven subsidiaries (*Nonhaven sub %*), which likely have greater opportunities to increase firm value through tax-efficient planning.

We present the results from this analysis in Table 6, Panel C. We find in columns (1) and (2) that the negative association between *Risk Oversight* and *GAAPETRVol* is not significantly different for firms with more extensive foreign operations. Moreover, in columns (3) and (4), we find that the negative association between *Risk Oversight* and *GAAPETR* is stronger for firms with more extensive foreign operations as measured by *Geogseg* (Coef. = -0.014, t-stat = -1.78)

[24] For example, if a firm is contemplating building a plant outside the U.S. to supply its foreign operations and management presents the board with a few opportunities, a board with greater engagement in risk oversight may provide input that pushes management to expand the firm in a manner that generates the greatest long-run value without creating excessive risk (e.g., the firm builds a plant in a country with more favorable tax laws).

and *Nonhaven sub %* (Coef. = -0.072, t-stat = -1.77). This analysis suggests that risk oversight is even more strongly associated with lower tax burdens, without increasing tax uncertainty, in firms with greater opportunities for structuring foreign operations in a tax-efficient manner.

We posit that the results from Panels B and C are due to firms more carefully structuring their foreign operations via tangible investment and within a tax-efficient supply chain rather than face the uncertainty surrounding lowering their tax liability via income shifting activities. Because during our sample period, the U.S. had among the highest corporate statutory tax rate in the world, a greater tax-efficient supply chain allows firms to source income in their non-U.S. subsidiaries effectively. We see this outcome reflected in our results showing that firms with robust risk oversight are associated with lower effective tax rates without higher volatilities.

Research and Development Activities

Firms might also exploit the research and experimentation (R&E) tax credit to generate permanent book-tax differences (Hanlon et al. 2017). We assume that firms with R&D expenses likely receive some R&E tax credits while firms with no R&D expenses do not. We then examine cross-sectionally whether the relation between board risk oversight and tax planning varies across R&D firms and non-R&D firms (*R&DFirm*). We present the results in Panel D of Table 6. Consistent with Panel C, the interaction term is not significant when examining *GAAPETRVol*. However, it is negative and significant when examining *GAAPETR* (column (2), Coef. = -0.0145, t-stat = -1.67). Because these tax credits can yield tax uncertainty (Towery 2017), we interpret our results as evidence that risk oversight is associated with more efficient tax planning activities, as indicated by similar levels of tax uncertainty but overall lower tax burdens.

Board Oversight Influence via Compensation Structure

Prior research provides evidence that greater equity risk incentives motivate CEOs to engage in more risky tax planning (e.g., Rego and Wilson 2012). This suggests that the design of executive compensation policies may moderate the relation between board risk oversight and tax risk. We examine whether greater CEO risk-based compensation mitigates the negative association found in our primary analyses between board risk oversight and tax risk.

To examine the moderating role of equity-based compensation, we focus on the CEO's Vega, which measures the extent to which the CEO receives compensation from the volatility of earnings. Following Rego and Wilson (2012), we measure Vega in the prior year to avoid a simultaneity bias. We re-estimate equation (2), adding *CEO Vega*$_{t-1}$ and the interaction of *Risk Oversight* and *CEO Vega*$_{t-1}$. We present the results of this analysis in Table 7. While our primary focus in this analysis is tax risk (*GAAPETRVOL*), for completeness, we also present results with *GAAPETR* as the dependent variable.[25]

We begin in Column 1 of Table 7 by adding *CEO Vega*$_{t-1}$ to equation 2 without the interaction term to provide evidence of an overall association between CEO equity risk incentives and tax risk in our sample period.[26] Next, column 2 presents the interaction of *Risk Oversight* and *CEO Vega*$_{t-1}$. Consistent with our primary analyses, we find that *Risk Oversight* is negatively associated with *GAAPETRVol* (Coef. = -0.007, t-stat = -2.29). However, we do not find that higher equity risk incentives significantly change the relation between *Risk Oversight*

[25] In untabulated analysis, we replace *Vega* with *CEO Delta* and our inferences remain unchanged.
[26] In contrast to Rego and Wilson, we do not find a significant association between *CEO Vega*$_{t-1}$ and *GAAPETRVOL.* This may be because of significant compensation-related regulations that were implemented in response to the most recent financial crisis (see SEC Regulation S-K 17 CFR 229 effective 2/28/2010). These regulatory changes implemented by the U.S. Securities and Exchange Commission in 2010 may deter the use of risk-based compensation to incentivize risky tax planning in a more recent time period. To ensure that our lack of significant association between Vega and risky tax planning is not the result of differences in our model or sample composition compared to Rego and Wilson (2012), we replicate the results from Rego and Wilson (2012) using data from their sample period using two measures of tax planning from our paper (*GAAPETR* and *TotalBTD*) and find similar inferences. However, when we run their model on a broad sample in the 2010-2017 time period, we do not find significant associations between equity risk incentives and either *GAAPETR* or *TotalBTD*.

and *GAAPETRVol*. The analyses in Columns 3 and 4 using *GAAPETR* as the dependent variable yield similar inferences. Collectively these analyses suggest that boards are likely influencing tax managers' tax risk decisions directly (e.g., through conversations or guidance) rather than indirectly through compensation structure.

Components of Board Risk Oversight and Corporate Tax Practices

As described in Section 3 and the Online Appendix, we comprise *Risk Oversight* as an aggregate of three components: *Responsibility*, *Consistency*, and *Mindset*. While we believe that an aggregation of the three components best reflects the robustness of the board's collective risk oversight, it is possible that some of the components may be more important aspects of risk oversight for different aspects of tax practices than others. To examine this possibility, we re-estimate equation 2, replacing *Board Risk Oversight* with its three components included separately.[27] This analysis provides evidence on which components of risk oversight are most strongly associated with variation in tax risk and the level of the firm's tax burden.

We present our results in Table 8 with Column (1) presenting the analysis with *GAAPETRVol* as our dependent variable of interest and Column (2) presenting the analysis with *GAAPETR* as our dependent variable of interest. We find in Column (1) that *GAAPETRVol* is negatively associated with both *Consistency* (Coef = -0.0110, t-stat = -2.19) and *Mindset* (Coef = -0.0120, t-stat = -2.45), suggesting that the board's overall risk mindset along with its regular and systematic engagement in risk monitoring activities are most useful in helping the board ensure that the firm is choosing tax positions that bring value to stakeholders with less uncertainty and greater consistency. In Column (2) we find that *GAAPETR* is negatively associated with both *Responsibility* (Coef = -0.0210, t-stat = -2.31) and *Mindset* (Coef = -0.0155, t-stat = -1.58),

[27] Given our findings in Table 5, we expect *Responsibility, Consistency,* and *Mindset* to be negatively associated with *GAAPETR* and *GAAPETRVol*. As a result, we interpret our analysis using one-tailed p-values.

suggesting that the "tone at the top" through the board's acknowledgment of its responsibility for risk oversight along with the board's overall risk mindset are most helpful in helping the board exert influence on the level of the firm's tax burden.

Alternative measures of tax risk and tax planning

Many different measures can proxy for tax-planning activities and tax uncertainty. In Table 9, we employ other measures to ensure the robustness of our findings.[28] Columns (1) and (2) re-estimate equation 2 using two alternative tax uncertainty proxies: current year additions to unrecognized tax benefits (*CYUTBINC*) and current year penalties and interest disclosed in the UTB disclosures (*CYUTBPEN*). A benefit of these alternative tax uncertainty proxies is that they are measured ex-ante, whereas the volatility of the ETR measures volatility in tax outcomes. Additionally, we provide evidence on whether the likelihood and outcomes of IRS investigations differ for firms with stronger board risk oversight. We find that Board risk oversight is negatively associated with both *CYUTBINC* and *CYUTBPEN*, suggesting that stronger board risk oversight may be associated with a lower likelihood and more preferential outcomes of tax disputes. Column (3) and (4) re-estimate equation 2 using two alternative measures of tax burdens: a *GAAPETR* compiled using the methodology from Henry and Sansing (2018) (*HS_GAAP*), and the ETR using current tax expense (CETR). The results in Columns (3) and (4) are consistent with our primary analyses.

Robustness Tests

Falsification Test

We perform a falsification test to demonstrate that the *qualitative* information disclosed regarding risk oversight, rather than the *quantity* of information, best captures risk oversight. We

[28] Given our findings in Table 5, we expect the alternative measures of tax uncertainty and tax burden to be negatively associated with *Risk Oversight*. As a result, we interpret our findings using one-tailed p-values.

replace *Risk Oversight* with the log of the number of words in the board risk oversight disclosure (*NWords*) and re-estimate our primary analyses in Table 10. We find no evidence that *NWords* is significantly associated with either *GAAPETRVol* or *GAAPETR*. This analysis provides evidence that the substance of the content of disclosed board oversight activities, rather than the quantity of information disclosed, explains variation in tax-planning outcomes.

Entropy Balancing

In addition, we perform an analysis to address functional form misspecification. As documented in Table 3 Panel B, there are substantial differences between our low and high *Risk Oversight* firms. While we mitigate concerns about differences in the two groups of firms by including control variables, non-linearity between the high and low *Risk Oversight* firms can potentially bias our inferences (Hainmuller 2012; Shipman, Swanquist, and Whited 2017). To mitigate this concern, we entropy balance the first two moments of the control variables of our high *Risk Oversight* firms (i.e., those with a 2 or 3 as their score) with the low *Risk Oversight* firms (i.e., those with a 0 or 1 as their score).[29] Using this balanced sample, we then re-estimate equation 2 using *High Risk Oversight* as the variable of interest. In untabulated tests, our inferences remain unchanged and thus do not appear to be driven by non-linearity.

CONCLUSION

We examine whether stronger risk oversight by the board of directors is associated with the effectiveness of corporate tax planning. Specifically, we use hand-collected data from proxy statement disclosures regarding board risk oversight to examine whether more robust risk oversight is associated with differences in tax uncertainty and the levels of tax burdens. Corporations face increasing tax risks as governments deal with fiscal deficits, and the demand

[29] In untabulated analysis, we document no differences in the mean and variance across all control variables between the two groups following this procedure.

for tax transparency increases. This reality has triggered greater concern for boards and senior management to manage tax risk and the related reputational risks proactively. Boards are focused on monitoring tax risks given the enterprise-wide effect tax planning can have on a number of operational and strategic decisions for the organization. Our study extends the ERM, corporate governance, and tax literature by demonstrating the importance of stronger risk oversight in the context of corporate tax-planning practices. Our findings indicate that boards engaged in more robust risk oversight, a key pillar of an ERM system, are associated with less volatility in tax outcomes in conjunction with lower tax burdens. Jointly, these results suggest that risk oversight is an important corporate governance mechanism that helps to promote more effective tax planning activities. Moreover, our results further demonstrate that firms avoid excessively low tax burdens due to risk concerns and highlight a mechanism within firms that helps the firm optimize their tax avoidance strategy. In sum, we provide initial evidence that boards are playing an increasingly important role in managing all types of risk across the enterprise, including risks associated with tax planning and compliance. Additionally, our study is among the first to provide evidence that connects directly (rather than indirectly) board actions to important firm outcomes.

We recognize that the study is subject to limitations. First, we assume that there is no purposeful bias in firms' proxy statement disclosures; however, we assert that any incomplete or inaccurate disclosure of the information would simply create noise in our measure of risk oversight, which would bias against finding results. And, proxy filings are subject to SEC oversight with any errors, omissions, and falsifications of information subject to SEC enforcement and prosecution. Second, our study is an association study; thus, we are limited in our ability to demonstrate causal relationships between risk oversight and tax planning.

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APPENDIX: Variable Definitions

Risk oversight and risk management variables

Risk Oversight	A comprehensive measure of risk oversight by the board of directors. The variable ranges from 0-3. See the online appendix for details regarding the components of this measure.
High Risk Oversight	An indicator variable equal to 1 if *Risk Oversight* is greater than the median of 1, 0 otherwise.
NWords	The natural log of the number of words in the proxy statement board risk oversight disclosure
ERM	An indicator variable equal to 1 if the firm mentions the phrase "enterprise risk management" in the board risk oversight disclosure, 0 otherwise.
CRO	A measure of ERM sophistication, measured as an indicator variable equal to 1 if the firm mentions that they have a chief risk officer (CRO) in the board risk oversight disclosure, 0 otherwise.

Tax variables

GAAPETR	The GAAP effective tax rate (TXT/PI), winsorized at 0 and 1. Firms with pretax book losses (PI <0) are excluded.
GAAPERVol	The standard deviation of GAAP ETR from year t-2 to year t.
TempBTD	The temporary book-tax difference, calculated as deferred tax expense (TXDI) divided by the statutory tax rate of 0.35, scaled by total assets (AT)
PermBTD	Total book-tax difference minus Temporary book-tax difference as calculated above.
TotalBTD	The total book-tax difference, calculated as pre-tax book income (PI) minus the sum of current deferral tax expense and current foreign tax expense (both scaled by the statutory tax rate).
CETR	The current effective tax rate (TXC/PI), winsorized at 0 and 1. Firms with pretax book losses (PI <0) are excluded.
CYUTBINC	Current increases to the UTB (TXTUBPOSINC) scaled by the beginning of year UTB level (TXUTBBEG).
CYUTBPEN	Current year UTB penalties and interest recorded on the income statement (TXTUBXINTIS) scaled by the beginning of year UTB level (TXUTBBEG).
HS_GAAP	A measure of tax avoidance based on the measure developed by Henry and Sansing (2016), calculated as total tax expense (TXT) scaled by total assets (AT).

Control variables and other variables

Size	The natural log of the market value of equity (PRCC_F*CSHO)
ROA	Earnings before extraordinary items (IB) divided by total assets (AT).
PTROAVol	The standard deviation of pretax ROA (PI/AT) from year t-2 to year t.

RD	Research and development expense (XRD) divided by sales (SALE).
CapInt	Gross property, plant, and equipment (PPEGT) divided by total assets (AT).
Leverage	Total long-term debt (DLC+DLTT) divided by total assets (AT).
NOL	An indicator variable equal to 1 if the beginning tax loss carryforward (TLCF) is greater than zero, 0 otherwise.
ChangeNOL	The change in the tax loss carryforward (TLCF) from year t-1 to year t scaled by total assets (AT).
Intang	Recorded intangibles (INTAN) divided by total assets (AT).
Inv	Inventory (INVT) divided by total assets (AT).
Adv	Advertising expense (XAD) divided by total assets (AT).
Foreign and *High Foreign*	*Foreign* is the sum of non-U.S. sales (retrieved from the Compustat geographic segments file) divided by total sales (SALE). *High Foreign* is an indicator variable equal to 1 if Foreign is above the sample median, 0 otherwise.
CEO Vega	The sensitivity of the change in the option value for a 1% change in stock return volatility, multiplied by the number of options in the CEO's portfolio (measured in millions of dollars).
CEO Delta	The sensitivity of the change in a CEO's wealth for a given change in stock price (measured in millions of dollars).
GeoSeg and *High GeoSeg*	*Geoseg* is the log of the number of geographic segments (set equal to 1 if missing). *High Geoseg* is an indicator variable equal to 1 if the number of geographic segments is above the sample median.
LitRisk	Litigation risk, calculated using the coefficients from Rogers and Stoecken (2005).
DistressRisk	The risk of financial distress measured as 1 minus the Altman's Z score using Begley et al.'s (1996) updated coefficients. Higher values indicate a higher likelihood of financial distress.
Nonhaven sub %	The average ratio of subsidiaries in non-tax haven countries to total subsidiaries for the five-year period ending in 2014. Subsidiary data was retrieved from Scott Dyreng's website at https://sites.google.com/site/scottdyreng/Home/data-and-code/EX21-Dataset.
Log subs	The log of the average number of subsidiaries for the five-year period ending in 2014. Subsidiary data was retrieved from Scott Dyreng's website at https://sites.google.com/site/scottdyreng/Home/data-and-code/EX21-Dataset.
Calls	The number of conference calls with analysts held during the year.
R&DFirm	Indicator variable equal to 1 if the firm-year observation has a positive and non-zero *RD*, and 0 otherwise

Governance variables

Board Inputs	A comprehensive measure of board quality, defined as the factor score from a factor analysis of *AC FIN, AC SIZE, BD FIN, BD IND, BD SIZE, AND BD TENURE*.
AC FIN	The number of financial experts on the audit committee in year *t*.*
AC SIZE	The number of audit committee members in year *t.**
BD FIN	The number of financial experts on the board in year *t*. *
BD IND	The average percentage of independent board members for year *t.* *
BD SIZE	The number of board members in year *t.* *
BD TENURE	The mean tenure for board members (the mean number of years the directors have been associated with the firm). *
CEO is Chair	An indicator variable equal to 1 if the CEO is the chairman of the board, 0 otherwise.*
E-index	The E-index from Bebchuk, Cohen, and Ferrell (2009). Higher scores indicate higher managerial entrenchment. Values are set equal to 0 if missing.

Dyreng and Markle (2016) Variables

ΔPIFO	Following Dyreng and Markle (2016), (foreign earnings in year t (PIFO) less foreign earnings in year t-1), scaled by total assets in year t-1 (AT).
ΔPIDOM	Following Dyreng and Markle (2016), (domestic earnings in year t (PIDOM) less domestic earnings in year t-1), scaled by total assets in year t-1 (AT).
ΔSALEFO	Following Dyreng and Markle (2016), (foreign sales in year t less foreign sales in year t-1), scaled by total assets in year t-1 (AT). We compute foreign sales by summing the revenues of non-domestic segments from the Compustat Segments database.
ΔSALEDOM	Following Dyreng and Markle (2016), (domestic sales in year t less domestic sales in year t-1), scaled by total assets in year t-1 (AT). We compute domestic sales by subtracting foreign sales from total global revenues.

Notes: This table presents variable definitions for the variables used in our study. * indicates data retrieved from ISS. All continuous variables are winsorized at 1% and 99%.

TABLE 1: Sample Selection and Composition

	Firms	Firm-years
Firms from the Russell 1000 index as of June 2014	1,021	
Less:		
Foreign firms (FIC not USA)	(49)	
Financial firms (SIC 6000-6999)	(222)	
Utilities	(59)	
Firms without proxy disclosures available	(26)	
Total potential sample firms	665	
Less:		
Firms without *Compustat* data 2014-2017	(9)	2,434
Firms with current losses (PI ≤ 0)	(25)	(344)
Firms without data to calculate regression variables	(130)	(495)
Final sample	501	1,595

TABLE 2: Determinants of Risk Oversight

	Risk management	Governance	Innate Risk	Firm fundamentals and disclosure	All variables
	(1)	(2)	(3)	(4)	(5)
Variables			*Risk Oversight*		
Intercept	1.1679***	1.2469***	1.3405***	0.8377***	0.9022***
	[15.66]	[12.98]	[16.75]	[3.63]	[3.41]
ERM	0.1993***	0.000	0.000	0.000	0.1609***
	[3.81]				[3.03]
CRO	-0.1199				-0.1013
	[-1.12]				[-0.95]
Board Inputs		0.1273***			0.0942***
		[3.75]			-0.0014
E-index		-0.0061			[-0.08]
		[-0.36]			0.0942***
CEO is Chair		-0.0084			-0.0156
		[-0.18]			[-0.33]
LitRisk			0.0236*		0.0459***
			[1.71]		[3.05]
DistressRisk			0.0244***		0.0149**
			[4.59]		[2.22]
PTROAVol			0.1558		-0.1499
			[0.10]		[-0.16]
Size			0.0236*	0.0460**	0.0389*
			[1.71]	[2.34]	[1.75]
ROA			0.088	-1.6412***	-0.6638
			0.0244***	[-3.58]	[-1.25]
RD			[4.59]	0.2002	0.4406
			0.000	[0.47]	[1.01]
CapInt			0.1558	-0.0789	-0.1452*
			[0.17]	[-0.91]	[-1.65]
Intang			0.867	0.2609*	0.2481*
				[1.91]	[1.73]
Foreign				-0.1132	-0.1166
				[-1.29]	[-1.34]
Geoseg				0.0915*	0.0950*
				[1.71]	[1.78]
Calls				-0.0154	-0.0150
				[01.37]	[-1.33]
Observations	1,595	1,595	1,595	1,595	1,595
Adjusted R-	0.0308	0.0298	0.0352	0.0399	0.0551

Notes: This table presents results from Model (1) estimating the determinants of *Risk Oversight*. All models include industry fixed effects (Fama French 12). All continuous variables are winsorized at the 1st and 99th percentiles unless noted in the Appendix. *, **, and *** indicate a 10%, 5%, and 1% significance level, respectively, using two-tailed tests.

TABLE 3: Descriptive Statistics

Panel A - All firms

Variable	N	Mean	Median	St Dev	Percentiles: 25th	50th	75th
Risk Oversight	1,595	1.254	1.000	0.879	1.000	1.000	2.000
High Risk Oversight	1,595	0.361	0.000	0.480	0.000	0.000	1.000
GAAPETR	1,595	0.318	0.312	0.152	0.238	0.312	0.365
GAAPETRVol	1,595	0.061	0.027	0.091	0.011	0.027	0.069
Size	1,595	9.524	9.326	1.194	8.607	9.326	10.230
ROA	1,595	0.078	0.070	0.050	0.044	0.070	0.106
PTROAVol	1,595	0.024	0.017	0.024	0.009	0.017	0.030
RD	1,595	0.040	0.008	0.070	0.000	0.008	0.050
CapInt	1,595	0.453	0.344	0.334	0.194	0.344	0.659
Leverage	1,595	0.293	0.275	0.184	0.169	0.275	0.389
NOL	1,595	0.898	1.000	0.302	1.000	1.000	1.000
ChangeNOL	1,595	0.001	0.000	0.038	-0.002	0.000	0.002
Intang	1,595	0.298	0.278	0.212	0.119	0.278	0.443
Inv	1,595	0.103	0.079	0.106	0.016	0.079	0.150
Adv	1,595	0.015	0.001	0.029	0.000	0.001	0.019
Foreign	1,595	0.395	0.355	0.339	0.060	0.355	0.620
Geoseg	1,595	1.441	1.386	0.537	1.099	1.386	1.792
Board Inputs	1,595	-0.010	-0.038	0.661	-0.487	-0.038	0.381
LitRisk	1,595	-0.520	-0.949	1.651	-1.563	-0.949	0.078
DistressRisk	1,595	-4.264	-3.259	4.280	-5.299	-3.259	-1.876

Panel B - Univariate Comparisons of High versus Low Risk Oversight firms

	High Risk Oversight			*Low Risk Oversight*				
Variable	N	Mean	St Dev	N	Mean	St Dev	Mean Diff	t-stat
GAAPETR	576	0.305	0.139	1,019	0.325	0.158	-0.020**	-2.52
GAAPETRVol	576	0.054	0.080	1,019	0.065	0.097	-0.010**	-2.21
Size	576	9.479	1.094	1,019	9.549	1.247	-0.070	-1.12
ROA	576	0.074	0.043	1,019	0.081	0.054	-0.007***	-2.72
PTROAVol	576	0.024	0.025	1,019	0.025	0.024	-0.000	-0.08
RD	576	0.033	0.057	1,019	0.045	0.076	-0.012***	-3.33
CapInt	576	0.440	0.321	1,019	0.460	0.341	-0.020	-1.15
Leverage	576	0.310	0.187	1,019	0.284	0.181	0.026***	2.74
NOL	576	0.932	0.251	1,019	0.879	0.326	0.053***	3.38
ChangeNOL	576	0.002	0.025	1,019	0.001	0.044	0.002	0.82
Intang	576	0.311	0.210	1,019	0.291	0.212	0.020*	1.77
Inv	576	0.109	0.105	1,019	0.100	0.106	0.009*	1.69
Adv	576	0.016	0.028	1,019	0.015	0.030	0.001	0.45
Foreign	576	0.380	0.331	1,019	0.403	0.344	-0.023	-1.32
Geoseg	576	1.461	0.548	1,019	1.429	0.530	0.031	1.11
Board Inputs	576	0.073	0.681	1,019	-0.056	0.645	0.130***	3.78
LitRisk	576	-0.431	1.679	1,019	-0.571	1.633	0.140	1.63
DistressRisk	576	-3.661	3.052	1,019	-4.605	4.806	0.944***	4.25

Notes: Panel A presents the descriptive statistics of our sample, and Panel B compares high versus low *Risk Oversight* firms. All variables are defined in the appendix. All continuous variables are winsorized at the 1st and 99th percentiles unless noted in the Appendix. *, **, and *** indicate a 10%, 5%, and 1% significance level, respectively, using two-tailed tests.

Table 4: Correlations

	Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	*Risk Oversight*	1																		
2	*GAAPETR*	**-0.064**	1																	
3	*GAAPETRVol*	**-0.034**	**0.507**	1																
4	*Size*	0.001	**-0.095**	0.015	1															
5	*ROA*	**-0.099**	**-0.296**	**-0.399**	**0.175**	1														
6	*PTROAVol*	-0.009	**0.042**	**0.165**	-0.021	**0.055**	1													
7	*RD*	**-0.064**	**-0.119**	**0.119**	**0.256**	**0.081**	**0.083**	1												
8	*CapInt*	-0.017	**0.116**	**-0.068**	**-0.092**	0.024	**0.037**	**-0.306**	1											
9	*Leverage*	**0.073**	0.010	0.028	0.029	**-0.125**	-0.030	**-0.184**	**0.056**	1										
10	*NOL*	**0.081**	-0.027	**0.120**	0.022	**-0.162**	**0.046**	**0.100**	**-0.166**	**0.084**	1									
11	*ChangeNOL*	-0.002	**0.061**	0.012	**-0.060**	**-0.091**	0.017	**-0.056**	0.005	**0.048**	-0.020	1								
12	*Intang*	**0.050**	**-0.120**	**0.055**	**0.048**	**-0.227**	**-0.054**	0.028	**-0.526**	**0.184**	**0.184**	**0.039**	1							
13	*Inv*	-0.005	**0.073**	**-0.106**	**-0.139**	**0.115**	**-0.078**	**-0.227**	**0.145**	**-0.116**	**-0.154**	-0.016	**-0.349**	1						
14	*Adv*	**-0.043**	0.005	**-0.062**	**0.041**	**0.188**	-0.006	**-0.136**	**0.066**	0.026	-0.004	0.022	**-0.077**	**0.162**	1					
15	*Foreign*	-0.030	**-0.087**	**0.152**	**0.052**	**-0.033**	0.028	**0.295**	**-0.225**	**-0.090**	**0.199**	0.008	**-0.046**	**-0.087**	-0.020	1				
16	*Geoseg*	0.006	**-0.101**	**0.151**	**0.044**	**-0.063**	**0.041**	**0.278**	**-0.201**	**-0.099**	**0.213**	0.012	0.015	**-0.076**	**-0.188**	**0.629**	1			
17	*Board Inputs*	**0.107**	-0.020	-0.014	**0.252**	**-0.039**	-0.008	**-0.133**	**0.078**	**0.118**	**0.036**	**-0.060**	-0.025	**0.040**	**-0.039**	-0.018	0.029	1		
18	*LitRisk*	**0.045**	**0.041**	**0.059**	**-0.316**	**-0.117**	**0.193**	**-0.050**	**0.181**	**-0.052**	-0.010	0.031	**-0.248**	**0.142**	**0.220**	**-0.062**	**-0.103**	**-0.137**	1	
19	*DistressRisk*	**0.132**	**0.044**	**0.095**	**-0.063**	**-0.516**	**-0.107**	**-0.342**	**0.145**	**0.417**	**0.077**	**0.042**	**0.240**	**-0.052**	**-0.068**	**-0.125**	**-0.086**	**0.193**	**-0.047**	1

Notes: This table presents our Pearson correlations. Statistics highlighted in bold represent statistical significant at $p < 0.10$. All continuous variables are winsorized at the 1st and 99th percentiles unless noted in the Appendix.

TABLE 5: Primary Analysis

	(1) *GAAPETRVol*		(2) *GAAPETR*	
Variables	Coef.	t-stat	Coef.	t-stat
Intercept	0.0367	1.44	0.4811***	8.89
Risk Oversight	**-0.0063****	**-2.09**	**-0.0138*****	**-2.90**
Size	0.0042*	1.75	-0.0038	-0.86
ROA	-0.8408***	-10.35	-1.3899***	-8.53
PTROAVol	0.6575***	4.39	0.4911**	2.48
RD	0.0514	1.08	-0.1782**	-2.06
CapInt	-0.0045	-0.43	0.0032	0.17
Leverage	0.0164	1.07	0.0346	1.28
NOL	0.0034	0.56	-0.0048	-0.38
ChangeNOL	-0.0715	-0.82	0.0866	0.50
Intang	-0.0239	-1.27	-0.1248***	-3.82
Inv	-0.0133	-0.46	0.0157	0.32
Adv	0.1545**	2.01	0.2469	1.38
Foreign	0.0102	1.02	-0.0289*	-1.68
Geoseg	0.0092	1.35	-0.0180*	-1.79
Board Inputs	-0.0022	-0.56	-0.0041	-0.65
LitRisk	-0.0007	-0.39	-0.0111***	-3.39
DistressRisk	-0.0015**	-2.54	-0.0069***	-3.92
Observations	1,595		1,595	
Adjusted R-squared	0.3039		0.2157	

Notes: This table presents results for our tests examining the association predicted in H1 and H2 between risk oversight (*Risk Oversight*) and tax uncertainty (*GAAPETRVol*) and levels of tax burdens (*GAAPETR*), respectively. All variables are defined in the Appendix. All continuous variables are winsorized at the 1st and 99th percentiles unless noted in the Appendix. *, **, and *** indicate a 10%, 5%, and 1% significance level, respectively. T-statistics are based on robust standard errors clustered by firm. P-values are based on one-tailed t-tests for the variable of interest. The model includes industry (Fama French 12) and year fixed effects.

TABLE 6: Tax Planning Additional Analyses

Panel A: Permanent versus Temporary Tax Planning

	(1) *PermBTD*		(2) *TempBTD*	
Variables	Coef.	t-stat	Coef.	t-stat
Intercept	-0.0396***	-2.89	0.0379***	3.78
Risk Oversight	**0.0019****	**1.86**	**-0.0008**	**-0.79**
Size	0.0013	1.32	-0.0020**	-2.33
ROA	0.4178***	11.01	-0.0475	-1.22
PTROAVol	-0.0655*	-1.86	-0.0032	-0.08
RD	0.0263	1.11	-0.0337	-1.63
CapInt	-0.0034	-0.80	0.0059	1.48
Leverage	-0.0003	-0.05	0.0063	0.86
NOL	0.0013	0.38	0.0015	0.53
ChangeNOL	0.0017	0.05	-0.0012	-0.05
Intang	0.0196***	2.76	-0.0308***	-4.06
Inv	-0.0104	-0.85	-0.0120	-1.01
Adv	-0.0955*	-1.92	-0.0710**	-2.35
Foreign	0.0113***	2.99	-0.0020	-0.60
Geoseg	0.0065***	3.08	-0.0039*	-1.68
Board Inputs	-0.0010	-0.64	0.0006	0.38
LitRisk	0.0034***	4.69	-0.0009	-1.48
DistressRisk	0.0015***	2.99	0.0000	0.13
Observations	1,584		1,584	
Adj. R-squared	0.3117		0.0860	

Notes: This table presents results for our tests examining the association between *Risk Oversight* and permanent versus temporary tax planning for firms with data to calculate the variables. All variables are defined in the Appendix. All continuous variables are winsorized at the 1st and 99th percentiles unless noted in the Appendix. *, **, and *** indicate a 10%, 5%, and 1% significance level, respectively. T-statistics are based on robust standard errors clustered by firm. P-values are based on one-tailed t-tests for the variable of interest. The model includes industry (Fama French 12 specification) and year fixed effects.

TABLE 6 (continued)

Panel B: Income Shifting

D.V. = *Δ PIDOM* and *Δ PIFO*	Coef.	z-stat
Intercept FOR (α)	0.0012	1.060
Intercept DOM (β)	0.0035***	5.450
OutboundTransfers (θ_1)	0.3719***	6.080
InboundTransfers (γ_1)	0.4862***	6.810
RoForeignSales (ρ_{fo1})	0.0881***	6.760
RoDomesticSales (ρ_{do1})	0.1061***	6.980
***OutboundTransfers*High Risk Oversight*(θ_2)	**-0.1834****	**-1.780**
***InboundTransfers*High Risk Oversight*(γ_2)	**-0.3015***	**-1.580**
RoForeignSales*High Risk Oversight	**0.0227**	**0.720**
RoDomesticSales*High Risk Oversight	**0.0280**	**0.920**
N		1,090
Adj. R^2 - *Δ PIDOM* Eqn.		0.05
Adj. R^2 - *Δ PIFO* Eqn.		0.09

Notes: This table presents results examining whether income shifting differs for firms with high risk oversight (*High Risk Oversight*=1). We specifically follow Dyreng and Markle's (2016) equation 4a and 4b. See Page 1609 of their study for additional details as well as page 1626 for their provided code of estimating their system of equations. We estimate the following system of equations, following Dyreng and Markle (2016):

$$\Delta PIFO_{i,t} = \alpha + (1-\gamma)\rho f \Delta SALEFO_{i,t} + \theta \rho d \Delta SALEDOM_{i,t} + \varepsilon \quad (3a)$$

$$\Delta PIDOM_{i,t} = \beta + \gamma \rho f \Delta SALEFO_{i,t} + (1-\theta)\rho d \Delta SALEDOM_{i,t} + \mu \quad (3b)$$

We interact each of the terms above with *High Risk Oversight.*

This test uses a subsample of the primary sample with the following additional data cuts. First, we limit this sample to only multinational firms (TXFO or PIFO >0), which reduces our original sample by 168 observations. Second, following Dyreng and Markle (2016), we also drop observations where the sum of sales in the *Compustat* geographic segments file is greater than 1% different from total sales in *Compustat*, dropping 341 obs. Third, we require firms to have data to estimate Models (3a) and (3b), resulting in a final sample of 1,090 firm-years. All continuous variables are winsorized at the 1st and 99th percentiles unless noted in the Appendix. *, **, and *** indicate a 10%, 5%, and 1% significance level, respectively. P-values are based on one-tailed t-tests for the variables of interest (*OutboundTransfers*High Risk Oversight* and *InboundTransfers*High Risk Oversight*).

TABLE 6 (continued)

Panel C: Foreign Operations

	(1)		(2)		(3)		(4)	
	GAAPETRVOL				*GAAPETR*			
Variables	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat
Intercept	0.027	1.01	0.031	1.18	0.448***	7.86	0.458***	8.17
Risk Oversight	**-0.007****	**-2.21**	**-0.006****	**-1.81**	**-0.014*****	**-2.72**	**-0.014*****	**-2.43**
Geoseg	**0.000**	**0.04**			**-0.002**	**-0.14**		
Risk Oversight*Geogseg	**0.003**	**0.59**			**-0.014****	**-1.78**		
Nonhaven sub %			**0.063****	**1.66**			**0.167*****	**2.77**
Risk Oversight*Nonhaven sub %			**-0.018**	**-0.69**			**-0.072****	**-1.77**
Log subs	0.008***	3.22	0.007***	2.62	0.005*	1.49	0.003	0.71
Size	0.006***	2.51	0.007***	2.52	-0.000	-0.10	0.000	0.09
ROA	-0.916***	-9.80	-0.945***	-9.73	-1.490***	-8.43	-1.525***	-8.48
PTROAVol	0.658***	4.21	0.656***	4.15	0.472**	2.28	0.483***	2.34
RD	0.057	1.18	0.054	1.03	-0.177**	-1.95	-0.242***	-2.67
CapInt	0.003	0.27	-0.001	-0.10	0.007	0.33	-0.001	-0.06
Leverage	0.023*	1.44	0.025*	1.49	0.039*	1.40	0.050**	1.70
NOL	-0.003	-0.49	-0.001	-0.11	-0.020*	-1.36	-0.022*	-1.40
ChangeNOL	-0.021	-0.19	-0.022	-0.20	0.136	0.76	0.134	0.77
Intang	-0.028*	-1.38	-0.036**	-1.68	-0.131***	-3.74	-0.140***	-3.84
Inv	-0.000	0.00	-0.008	-0.23	0.015	0.27	-0.004	-0.08
Adv	0.158**	2.02	0.172***	2.11	0.284*	1.49	0.370**	1.95
Foreign	0.005	0.43	0.009	0.91	-0.034**	-1.84	-0.042***	-2.49
Board Inputs	-0.002	-0.44	-0.001	-0.29	-0.005	-0.79	-0.005	-0.70
LitRisk	-0.000	-0.11	0.000	0.08	-0.010***	-2.94	-0.009***	-2.65
DistressRisk	-0.002***	-3.34	-0.002***	-3.37	-0.008***	-3.72	-0.008***	-3.79
Observations	1,472		1,447		1,472		1,447	
Adjusted R-squared	0.244		0.248		0.185		0.188	

Notes: This table presents results for our additional analyses examining whether the association between *Risk Oversight* and efficient tax planning is stronger in settings with greater opportunities for tax-efficient supply chain management. All variables are defined in the Appendix. All continuous variables are winsorized at the 1st and 99th percentiles unless noted in the Appendix. *, **, and *** indicate a 10%, 5%, and 1% significance level, respectively. T-statistics are based on robust standard errors clustered by firm. P-values are based on one-tailed t-tests for the variable of interest. The model includes industry (Fama French 12 specification) and year fixed effects.

TABLE 6 (Continued)

Panel D: Research and Development

	(1)		(2)	
	GAAPETRVOL		*GAAPETR*	
Variables	Coef.	t-stat	Coef.	t-stat
Intercept	0.0350	1.41	0.4842***	9.21
Risk Oversight	**-0.0085****	**-2.02**	**-0.0063**	**-1.14**
Risk Oversight*R&Dfirm	**0.0040**	**0.69**	**-0.0145***	**-1.67**
R&Dfirm	**-0.0075**	**-0.70**	**-0.0014**	**-0.09**
Size	0.0050**	2.14	-0.0053	-1.21
ROA	-0.8468***	-10.47	-1.3642***	-8.36
PTROAVol	0.6613***	4.45	0.4935**	2.49
CapInt	-0.0074	-0.73	0.0105	0.55
Leverage	0.0163	1.04	0.0342	1.29
NOL	0.0037	0.61	-0.0047	-0.37
ChangeNOL	-0.0730	-0.86	0.0892	0.50
Intang	-0.0297*	-1.68	-0.1085***	-3.40
Inv	-0.0170	-0.57	0.0323	0.67
Adv	0.1560**	2.04	0.2454	1.33
Geoseg	0.0136**	2.44	-0.0260***	-3.01
Board Input	-0.0027	-0.71	-0.0025	-0.40
LitRisk	-0.0006	-0.30	-0.0121***	-3.65
DistressRisk	-0.0016***	-2.66	-0.0064***	-3.79
Observations	1,595		1,595	
Adj. R-squared	0.3027		0.2131	

Notes: This table presents results for our additional analyses examining whether the association between *Risk Oversight* and efficient tax planning is stronger in settings with R&D activities. All variables are defined in the Appendix. All continuous variables are winsorized at the 1st and 99th percentiles unless noted in the Appendix. *, **, and *** indicate a 10%, 5%, and 1% significance level, respectively. T-statistics are based on robust standard errors clustered by firm. P-values are based on one-tailed t-tests for the variable of interest. The model includes industry (Fama French 12 specification) and year fixed effects.

TABLE 7: Executive Compensation Analysis

	(1)		(2)		(3)		(4)	
	GAAPETRVOL				*GAAPETR*			
Variables	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat
Intercept	0.031	1.09	0.033	1.14	0.439***	8.12	0.439***	8.06
Risk Oversight	**-0.007****	**-2.27**	**-0.007****	**-2.29**	**-0.015*****	**-3.08**	**-0.015*****	**-3.07**
CEO Vega$_{t-1}$	**0.005**	**0.66**	**-0.007**	**-0.62**	**0.009**	**0.61**	**0.009**	**0.38**
Risk Oversight*CEO Vega$_{t-1}$			**0.008**	**1.41**			**0.000**	**0.01**
Size	0.006**	2.10	0.006**	2.02	0.002	0.38	0.002	0.37
ROA	-0.893***	-9.03	-0.895***	-9.02	-1.526***	-8.31	-1.526***	-8.30
PTROAVol	0.711***	4.49	0.710***	4.48	0.546**	2.58	0.546**	2.58
RD	0.038	0.76	0.044	0.88	-0.201**	-2.19	-0.201**	-2.17
CapInt	-0.007	-0.59	-0.007	-0.64	0.007	0.33	0.007	0.33
Leverage	0.034**	1.99	0.034**	2.04	0.070**	2.43	0.070***	2.43
NOL	0.004	0.56	0.003	0.54	-0.010	-0.76	-0.010	-0.76
ChangeNOL	-0.056	-0.55	-0.056	-0.54	0.097	0.54	0.097	0.54
Intang	-0.025	-1.21	-0.025	-1.22	-0.116***	-3.42	-0.116***	-3.42
Inv	0.003	0.09	0.004	0.11	0.029	0.54	0.029	0.54
Adv	0.159**	2.01	0.166**	2.07	0.171	0.94	0.171	0.93
Foreign	0.014	1.33	0.013	1.29	-0.026	-1.42	-0.026	-1.42
Geoseg	0.008	1.10	0.008	1.14	-0.022**	-1.97	-0.022**	-1.96
Board Input	-0.003	-0.82	-0.003	-0.79	-0.006	-1.01	-0.006	-1.00
LitRisk	-0.002	-0.89	-0.002	-0.92	-0.012***	-3.74	-0.012***	-3.75
DistressRisk	-0.002**	-2.34	-0.002**	-2.31	-0.011***	-5.25	-0.011***	-5.24
Observations	1,489		1,489		1,489		1,489	
Adjusted R-squared	0.238		0.239		0.189		0.188	

Notes: This table presents results for our additional analyses examining whether the association between *Risk Oversight* and efficient tax varies with compensation incentives. All variables are defined in the Appendix. All continuous variables are winsorized at the 1st and 99th percentiles unless noted in the Appendix. *, **, and *** indicate a 10%, 5%, and 1% significance level, respectively. T-statistics are based on robust standard errors clustered by firm. P-values are based on two-tailed t-tests for the variable of interest. The model includes industry (Fama French 12 specification) and year fixed effects.

TABLE 8: Component Analysis of Board Risk Oversight

	(1)		(2)	
	GAAPETRVOL		*GAAPETR*	
Variables	Coef.	t-stat	Coef.	t-stat
Intercept	0.0319	1.23	0.4841***	8.88
Responsibility	**0.0035**	**0.69**	**-0.0210****	**-2.31**
Consistency	**-0.0110****	**-2.19**	**-0.0042**	**-0.48**
Mindset	**-0.0120*****	**-2.45**	**-0.0155***	**-1.58**
Size	0.0040*	1.71	-0.0037	-0.83
ROA	-0.8367***	-10.35	-1.3969***	-8.60
PTROAVol	0.6644***	4.45	0.4867**	2.46
RD	0.0420	0.88	-0.1685*	-1.94
CapInt	-0.0050	-0.48	0.0031	0.16
Leverage	0.0187	1.21	0.0323	1.20
NOL	0.0044	0.73	-0.0054	-0.42
ChangeNOL	-0.0751	-0.89	0.0923	0.53
Intang	-0.0221	-1.19	-0.1291***	-3.95
Inv	-0.0090	-0.31	0.0113	0.23
Adv	0.1478*	1.95	0.2521	1.40
Foreign	0.0084	0.85	-0.0274	-1.62
Geoseg	0.0098	1.46	-0.0182*	-1.80
Board Input	-0.0014	-0.36	-0.0050	-0.80
LitRisk	-0.0007	-0.37	-0.0113***	-3.42
DistressRisk	-0.0015**	-2.54	-0.0070***	-3.96
Observations	1,595		1,595	
Adj. R-squared	0.3069		0.2162	

Notes: This table presents results for our additional analyses examining the association between *Responsibility, Consistency,* and *Mindset,* and efficient tax varies with compensation incentives. All variables are defined in the Appendix. All continuous variables are winsorized at the 1st and 99th percentiles unless noted in the Appendix. *, **, and *** indicate a 10%, 5%, and 1% significance level, respectively. T-statistics are based on robust standard errors clustered by firm. P-values are based on one-tailed t-tests for the variable of interest. The model includes industry (Fama French 12 specification) and year fixed effects.

TABLE 9: Robustness Tests: Alternative Tax Variable Proxies

	Tax Uncertainty				Tax Burdens			
	(1)		(2)		(3)		(4)	
	CYUTBINC		*CYUTBPEN*		*HS_GAAP*		*CETR*	
Variables	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat
Intercept	0.0025	0.03	-0.0016	-0.09	0.0252***	2.93	0.3798***	6.04
Risk Oversight	**-0.0129****	**-1.69**	**-0.0029***	**-1.41**	**-0.0014****	**-2.01**	**-0.0131****	**-2.22**
Size	0.0160**	2.11	0.0012	0.86	-0.0007	-1.16	0.0015	0.30
ROA	0.3783*	1.84	-0.0223	-0.65	0.2583***	7.68	-1.3370***	-7.85
PTROAVol	0.2511	0.91	0.0509	0.88	0.0344	1.51	1.0115***	4.24
RD	0.6066**	2.34	-0.0106	-0.53	-0.0152	-1.03	-0.1059	-0.80
CapInt	-0.0123	-0.46	-0.0063	-0.94	0.0016	0.55	-0.0348	-1.63
Leverage	0.0507	1.18	0.0119	1.18	0.0039	0.88	0.0207	0.63
NOL	-0.0252	-0.80	0.0016	0.28	-0.0011	-0.56	-0.0249*	-1.89
ChangeNOL	0.2823	0.95	0.0609**	2.19	0.0315	0.91	0.1928	1.00
Intang	0.0034	0.08	-0.0206**	-2.02	-0.0143***	-2.93	-0.0110	-0.26
Inv	0.0920	1.10	0.0045	0.19	0.0078	1.05	0.0933	1.46
Adv	0.1959	0.77	0.1180	1.33	0.0634**	2.14	0.5395***	2.85
Foreign	-0.0360	-1.29	0.0068	1.07	-0.0054**	-2.26	0.0043	0.20
Geoseg	0.0012	0.07	0.0021	0.54	-0.0037***	-2.89	-0.0156	-1.21
Board Input	-0.0254**	-2.40	0.0046*	1.68	0.0006	0.66	-0.0117	-1.38
LitRisk	0.0048	0.90	-0.0009	-0.68	-0.0020***	-4.04	-0.0110**	-2.41
DistressRisk	-0.0012	-0.47	0.0001	0.37	-0.0010***	-3.13	-0.0073***	-3.89
Observations	1,498		1,595		1,595		1,485	
Adjusted R-squared	0.0521		0.0170		0.5033		0.1607	

Notes: This table presents results for our tests examining the association between *Risk Oversight* and alternative proxies for tax uncertainty (columns 1 and 2) and tax burdens (columns 3 and 4). All variables are defined in the Appendix. All continuous variables are winsorized at the 1st and 99th percentiles unless noted in the Appendix. *, **, and *** indicate a 10%, 5%, and 1% significance level, respectively. T-statistics are based on robust standard errors clustered by firm. P-values are based on one-tailed t-tests for the variable of interest. The model includes industry (Fama French 12 specification) and year fixed effects

TABLE 10: Falsification Test:
Alternative Risk Oversight Proxies

	(1)		(2)	
	GAAPETRVol		*GAAPETR*	
Variables	Coef.	t-stat	Coef.	t-stat
Intercept	0.009	0.25	0.479***	7.56
Nwords	0.003	0.50	-0.004	-0.53
Size	0.006**	2.54	-0.001	-0.27
ROA	-0.881***	-10.07	-1.438***	-8.40
PTROAVol	0.665***	4.34	0.500**	2.47
RD	0.046	0.96	-0.193**	-2.12
CapInt	-0.003	-0.31	0.006	0.29
Leverage	0.026*	1.65	0.044	1.53
NOL	0.001	0.16	-0.008	-0.61
ChangeNOL	-0.057	-0.60	0.105	0.61
Intang	-0.022	-1.18	-0.124***	-3.67
Inv	0.006	0.21	0.042	0.85
Adv	0.176**	2.21	0.283*	1.55
Foreign	0.012	1.16	-0.027	-1.55
Geoseg	0.009	1.25	-0.019*	-1.80
Board Input	-0.004	-1.14	-0.007	-1.04
LitRisk	-0.001	-0.45	-0.012***	-3.46
DistressRisk	-0.002***	-3.26	-0.008***	-3.84
Intercept	0.009	0.25	0.479***	7.56
Observations	1,595		1,595	
Adjusted R-squared	0.231		0.175	

Notes: This table presents results for our falsification tests examining the association between *Risk Oversight* and tax uncertainty (*GAAPETRVol*) and tax burdens (*GAAPETR*) after replacing *Risk Oversight* with the log of the number of words in the proxy statement (*NWords*). All variables are defined in the Appendix. All continuous variables are winsorized at the 1st and 99th percentiles unless noted in the Appendix. *, **, and *** indicate a 10%, 5%, and 1% significance level, respectively. T-statistics are based on robust standard errors clustered by firm. P-values are based on two-tailed t-tests for the variable of interest. The model includes industry (Fama French 12 specification) and year fixed effects.