# 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 risk oversight is negatively associated with both tax uncertainty and overall tax burdens. We find that risk oversight is most strongly associated with positions that yield permanent tax benefits and also with less risky tax-planning activities. Overall, the evidence suggests that board risk oversight is associated with more effective tax-planning practices.

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

## I. INTRODUCTION

We examine the relation between 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 a negative association between risk oversight and tax uncertainty as well as tax burdens.[1]

The effect of risk oversight on tax planning and firms' tax outcomes is of particular 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) because more aggressive tax-planning strategies may also result in 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 have important interplays with broader operational and strategic decisions. Given these important consequences of tax planning, we expect the board to play a vital role in ensuring the firm is pursuing appropriately risk-balanced tax reduction strategies.

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, WorldCom's payment of royalties to its Delaware subsidiary for "management foresight") that can be traced back to weak risk oversight. In response, regulators and other stakeholders, including the Supreme Court, are now pressing boards to strengthen their oversight

[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.

of the firm's risk management approach (SEC 2010; Castellano, Lightle, and Baker 2011; S&P 2012; NYSE 2013; Vlasic 2014; NACD 2017, 2018; Supreme Court of Delaware, 2019).

Concurrent with the rise in stakeholder expectations for improved board involvement in risk oversight, increased public scrutiny of corporate tax-planning practices has also triggered a greater expectation that boards assist in managing tax risk to ensure the firm's tax risk exposure is consistent with its overall risk appetite (Neubig and Sangha 2004; Erle 2008; Wilson 2013; Deloitte 2016; KPMG 2018; EY 2016; 2019; Shulman 2009, 2010; OECD 2009). Thus, tax planning is an area where we expect risk oversight to play a vital role in ensuring the firm is pursuing appropriately risk-balanced tax reduction strategies.

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 and can result in significant firm-wide negative outcomes. We predict that risk oversight is negatively associated with tax uncertainty. Naturally, a firm can achieve low tax uncertainty by not engaging in tax planning and paying tax at the statutory tax rate. However, managing risk does not equate to avoiding all risks, but rather ensuring the firm takes reasonable risks. Since the board's objective is to maximize after-tax shareholder wealth and because prior research finds that firms can achieve lower tax burdens without increased uncertainty (Dyreng, Hanlon, and Maydew 2008; Guenther, Matsunaga, and Williams 2017), we further predict that risk oversight is concurrently negatively associated with the firm's tax burden.

While we expect board risk oversight to influence tax planning, this expectation is not without tension. For example, the board may not always prioritize tax benefits (Deloitte 2016; KPMG 2018; EY 2019). Also, prior literature has struggled to understand why firms pay high amounts of taxes despite the substantial economic benefits of avoiding them (e.g., Mills,

Erickson, and Maydew 1998; Weisbach 2002). Recent studies indicate that this may be because paying excessively low tax rates creates substantial non-tax risks for firms (e.g., Neuman 2014; Cook, Moser, and Omer 2017; Balakrishnan, Blouin, and Guay 2019). Thus, firms that appear 'undersheltered' may have maximized the effectiveness of their tax planning efforts based on the firm's relative set of opportunities.[2] Furthermore, the technical nature of tax planning may also limit the effectiveness of tax risk monitoring provided by the board (Balakrishnan et al. 2019). In either case, board risk oversight may have little effect on firms' 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 board 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 enterprise risk management (referred to as 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 (Armstrong, Blouin, Jagolinzer, and Larcker 2015; Dyreng, Hanlon, and Maydew 2010). Consistent with our predictions, we find that risk oversight is negatively associated with GAAP ETR volatility as well as GAAP ETR. We

[2] 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.

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. These results are robust to numerous alternative proxies for tax uncertainty and levels of the tax burden.

We next examine specific tax-planning activities that firms might choose to employ or forego. We find that the negative association between risk oversight and tax burdens is concentrated among permanent tax positions (e.g., R&D credits, tax-efficient foreign operations), which should have the largest impact on firm value since they will not reverse in future periods. We also find that risk oversight is negatively associated with inbound and outbound income shifting, but positively associated with tax-efficient planning activities through foreign operations. In sum, our findings indicate that firms with more robust risk oversight choose permanent tax planning strategies that both (1) significantly reduce GAAP ETRs and (2) do not significantly increase GAAP ETR volatility. Finally, we find no evidence that the board influences the firm's tax practices indirectly through the design of executive compensation schemes. This implies that boards likely turn to more direct mechanisms to influence these activities, such as through conversations and monitoring.

We provide several contributions to the literature. First, we extend the literature examining the role of the board in shaping corporate taxation (e.g., Minnick and Noga 2010; Rego and Wilson 2012; Gaertner 2014; Armstrong et al. 2015). 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) and finds mixed evidence as to whether and to what extent the board influences tax

planning.[3] We provide direct evidence of the board's involvement in tax-planning activities through their disclosed level of board risk oversight.

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 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 risk oversight is negatively associated with tax uncertainty and tax burdens demonstrates a tangible benefit to utilizing ERM best-practices for risk management. Moreover, it provides support for the assertion that implementing ERM can be worth the resource investment (Cohen et al. 2017; Beasley, Branson, and Hancock 2019).

We conduct an association study, which limits our ability to draw causal inferences. While endogeneity is possible, we highlight two important points. First, it is unlikely that reverse causality explains our results (i.e., tax strategies drive boards' risk oversight practices) given that risk oversight encompasses not only tax risk, but all firm-wide risks. Second, we include a plethora of control variables associated with various firm risks and tax planning in all our models to alleviate correlated omitted variable concerns. We also perform several other analyses and robustness tests to substantiate our findings, including a falsification test and entropy balancing.

## II. BACKGROUND AND HYPOTHESES

### Enterprise Risk Management (ERM) and Board Oversight

Many organizations have embraced the business paradigm of enterprise risk management (ERM) in response to pressures from key stakeholders for more robust risk oversight. ERM helps

[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.

boards and executives develop holistic, enterprise-wide approaches to identifying, managing, and monitoring all risks that could potentially affect the achievement of strategic objectives. 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).

While these governance expectations emphasize the board's role in the oversight of *all* types of firm risks, we focus on the association between risk oversight and tax planning, given these practices can impact multiple important 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 they 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. Desai and Dharmpala (2006) propose that tax planning facilitates managerial rent extraction, suggesting that strong board governance may *reduce* corporate tax aggressiveness. Complementary to this theory, Richardson et al. (2013) provide

evidence among Australian firms that a more independent board is associated with reduced tax aggressiveness. 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. However, recent studies provide evidence that tax aggressiveness is unlikely to facilitate managerial diversion in a country with an overall strong regulatory environment (e.g., Blaylock 2016; Atwood and Lewellen 2019), and thus, stronger board governance may not reduce tax aggressiveness 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).

An alternative theory asserts that the board's role is to ensure that the firm maximizes shareholder after-tax wealth by minimizing the firm's tax burden, thereby transferring wealth from the government to shareholders. However, agency conflicts may motivate managers to over or under-invest in tax planning (Armstrong et al. 2015). Thus, boards should oversee the underlying tax planning processes to ensure that the firm's exposure to long-term negative impacts does not exceed stakeholder's appetite for risk, [4] and also that managers are not leaving value-maximizing tax savings on the table. 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.

In addition to the important characteristics of the board members, we argue that the *processes* the board engages in as part of its governance responsibilities will affect important firm tax outcomes. Oversight of management's processes for managing risks of all types is

[4] 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, Schuchard, and Stomberg 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).

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. Moreover, 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; 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. Furthermore, regulatory authorities 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).

**Hypothesis Development**

Despite the clear benefits of tax planning, paying excessively low tax rates can create significant non-tax risks (Gallemore, Maydew, and Thornock 2014; Austin and Wilson 2017). 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. Firms must weigh the potential benefits of tax savings against the non-tax costs associated with such actions and choose an optimal level of tax avoidance. We expect the board to serve as a key mechanism that ensures the firm pursues an optimized tax avoidance strategy that balances tax savings against

tax-related risks.[5]

Neubig and Sangha (2004, page 118) propose that "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.[6] Klassen, Lisowsky, and Mescall (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.

Evidence from prior research on the impact of the board and risk management on tax uncertainty is limited. Richardson et al. (2013) find evidence among Australian firms 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 dispute with the tax authority and higher tax burdens. 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,

[5] While concurrent research suggests that the audit committee often deals with risk management issues (Robinson et al. 2012) and anecdotal evidence suggests that audit committees and risk committees are typically involved in overseeing management's risk management process, it is the full board of directors that has ultimate responsibility for the oversight and governance of the firm's risk profile. As a result, we do not make any conclusions on the actions of a specific committee or board member.

[6] 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 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, Hoopes, Wilde 2016) have elevated tax issues to the board in recent years.

p. 7). Therefore, we expect board risk oversight to constrain highly uncertain tax practices. We formally state our first hypothesis:

**H1:** Risk oversight is negatively associated with tax uncertainty.

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 in tax-efficient business decisions (e.g., locating a new plant in a lower-tax state rather than a high-tax state). Furthermore, there are many activities that firms may forego without a tax benefit that makes the project 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 an unnecessary wealth transfer from shareholders to the government, which is 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 (Scholes et al. 2014). Risk oversight processes (e.g. 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 remain acceptable and consistent with shareholder preferences. Thus, successful risk oversight ensures the firm is "threading the needle" between

[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.

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 negatively associated with 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 robust risk oversight is associated with corporate tax planning, there are reasons that the association may not materialize in practice. First, tax planning decisions are 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, Goldman, and Murphy (2019) 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 often make strategic business decisions that balance tax benefits against operational efficiencies. To the extent that the board prioritizes other priorities over tax savings, we may find little relationship board risk oversight and tax practices. While tax decisions may not be a first-order effect, we argue that 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 comprised of technical tax experts, a lack of technical expertise may limit the effectiveness of the board's tax risk monitoring.

[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.

## III. RESEARCH DESIGN

### Data and Sample Selection

Our sample is comprised of non-financial, non-regulated U.S.-domiciled firms belonging to the Russell 1000 in 2014. 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 and we drop firms without proxy statements. This sample comprises 665 firms. We merge the sample with available *Compustat* observations for the period 2014 through 2017. We retrieve 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 is comprised of 501 firms with 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.[9] More sample selection details, as well as a table detailing the process, can be found in the Online Appendix.

### 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 mandate does not specify what risk oversight-related information firms must disclose, nor does it mandate a specific format for the disclosure. Thus, firms have flexibility in how the board structures and discloses its risk oversight information. While it is possible that the 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

[9] 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 our models.

of proxy filings by the SEC. Errors, omissions, and falsifications of information would be subject to SEC enforcement. Furthermore, the discovery of any false or misleading information in the disclosure would inform investors' decisions 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 its risk oversight processes based on its proxy statement closest to the 2014 year-end. We rely on the SEC's 2010 Proxy Disclosure Enhancement rule as well as 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).[10]

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; ISO 2018). 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 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

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

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*) captures disclosure 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 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). *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 with regards to risk (0 otherwise).[11]

We review each disclosure and hand-code whether the firm addressed each of the three

[11] 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. 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).

best-practice components of risk oversight using a series of dichotomous variables.[12] We aggregate the 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*).[13] 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 estimate the following OLS model:

$$\begin{aligned} Risk\ Oversight_i = {} & \beta_0 + \Sigma\beta_k\, Risk\ management + \Sigma\beta_j\, Governance + \Sigma\beta_h\, Risk \\ & + \Sigma\beta_n\, Fundamentals\ and\ disclosure + Industry\ FE + \varepsilon_{it} \end{aligned} \quad (1)$$

We include two indicator variables to capture overall risk management practices, *ERM*, which is equal to 1 if the firm mentions "enterprise risk management" in its proxy statement risk oversight disclosure (0 otherwise) and *CRO*, which is 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.

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

[12] 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).

[13] This data is available upon request to the corresponding author.

size of the audit committee and board, the percentage of independent board members, and the mean tenure for the board members.[14] 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 more robust 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 greater resources to invest in ERM practices. Similar to our prediction on inherent risk, we conjecture that firms with greater complexity may also demand more robust 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).[15] The coefficient on *Calls* will be significantly positive if disclosure propensity drives *Risk Oversight* (inconsistent with our expectations). We

[14] 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.

[15] 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).

also include industry fixed effects in the model (Fama French 12 specification).

We present results from this analysis in Table 1. Columns (1) and (2) present our risk management and governance variables, respectively. 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.* 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 associated with *Risk Oversight.*

Column (3) presents our risk variables. We find that *Risk Oversight* is positively associated with both *Litrisk* (Coef. = 0.0236, $p <0.10$) and *DistressRisk* (Coef. = 0.0244 $p <0.01$), consistent with our expectations of an increased demand for risk oversight in firms with greater inherent risk. Column (4) presents our firm fundamentals and voluntary disclosure variables. We find *Risk Oversight* is 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 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, this analysis 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, we estimate the following OLS regression model:

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

*GAAPETRVol* captures uncertainty in tax burdens and is measured as the three-year standard deviation of GAAP ETR across year *t-2,* year *t-1*, and year *t*.[16] *GAAPETR* is the firm's current year GAAP ETR, calculated as the total tax expense scaled by pre-tax book income. *GAAPETR* captures the firm's total tax burden (current and future) accrued in the financial statements. Thus, 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 boards of directors consider the GAAP ETR a fundamental and important measure (Graham, Hanlon, Shevlin, and Shroff 2014). H1 predicts a negative coefficient on *Risk Oversight* when *GAAPETRVol* is the dependent variable (i.e., a negative association between risk oversight and tax uncertainty). H2 predicts a negative coefficient on *Risk Oversight* when *GAAPETR* is the dependent variable (i.e., a negative association between risk oversight and tax burdens).[17]

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) including firm size (*Size*), profitability (*ROA*), R&D investment (*RD*), capital intensity (*CapInt*), long-term debt (*Leverage*), net operating losses

[16] *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.

[17] Because there are clear directional expectations for the coefficient on *Risk Oversight*, we interpret our evidence in all analyses using one-tailed p-values.

(*NOL* and *ChangeNOL*), intangible intensity (*Intang*), inventory intensity (*Inv*), and the extent of foreign operations (*Foreign* and *Geoseg*). We also include pretax earnings volatility (*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 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 at the 1 and 99% levels, and we cluster standard errors by firm. See the Appendix for a more detailed discussion of variable calculations.

## IV. RESULTS

### Descriptive Statistics

Table 2, Panel A presents descriptive statistics for our variables across all firms. The mean (median) value for *Risk Oversight* is 1.254 (1.000) and 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). 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 3 presents our spearman correlation matrix. Correlations are consistent with the prior literature and our expectations.[19]

### Primary Multivariate Results

[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.

[19] 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, Hanlon, Maydew, and Thornock 2017; Guenther et al. 2017). We document a positive and significant correlation between *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.

Table 4 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* ($\beta_1$ = -0.0063, t-stat = -2.09). This evidence suggests that for a one-unit increase in *Risk Oversight*, firms have a 0.0063 lower *GAAPETRVol*, and thus a firm with a *Risk Oversight* score of 3 has 0.0189 lower *GAAPETRVol* than a firm with a *Risk Oversight* score of 0. Given a mean of *GAAPETRVol* of 0.061 (per Table 2), 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* ($\beta_1$ = -0.0138, t-stat = -2.90). This result suggests 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 2), 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.[20]

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 risk oversight is positively associated with 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).

**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

[20] 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.

temporary positions because they do not reverse over time or create future tax liabilities. Therefore, permanent positions, on average, create greater net present value (NPV).[21] Permanent tax savings also directly increase after-tax reported earnings (Robinson et al. 2010). 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 5 Panel A. In column (1), we find a positive and significant coefficient on *Risk Oversight* when our dependent variable is *PermBTD* ($\beta_1 = 0.0019$, t-stat = 1.86). However, in column (2), we fail to provide a significant relation when *TempBTD* is our dependent variable. These findings suggest that risk oversight is positively associated with permanent rather than temporary tax positions.

***Income Shifting Activities***

While we are not able to examine the specific permanent tax strategies used by firms given data availability constraints, we use publicly available data to provide insights into the nature of the permanent tax-planning activities firms are choosing or avoiding. Some permanent tax-planning strategies may create greater tax and non-tax risks compared to other permanent strategies. Aggressive shifting of income abroad is a permanent tax-planning strategy that may

[21] 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.

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 *Risk Oversight* is negatively associated with multinational income shifting.

For this test, we follow the research design of Dyreng and Markle (2016). Table 5, Panel B presents the results of estimating the Dyreng and Markle (2016) equations.[22] Consistent with prior literature, we document statistically significant coefficients on both inbound ($\gamma_0$) and outbound ($\theta_0$) 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 document that both inbound ($\gamma_2$) and outbound ($\theta_2$) income shifting is significantly attenuated for firms with high risk oversight ($\gamma_2$ = -0.301, t-stat = -1.58; $\theta_2$ = -0.183, t-stat = -1.78, for inbound and outbound income shifting, respectively). These results suggest that firms with more robust risk oversight are associated with significantly less inbound and outbound income shifting, a series of activities often associated with increased risk and uncertainty.

***Usage of a Tax-Efficient Supply Chain***

Throughout our sample period, the U.S. was among the world's highest statutory tax rates. 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 "paper" income shifting

[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 5, 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.

(Drake et al. 2019a). Boards more engaged in risk oversight may promote structuring 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 (*Geoseg*) and the number of non-tax haven subsidiaries (*Nonhaven sub %*), which likely have greater opportunities to increase firm value through multinational tax-efficient planning.

We present the results of this analysis in Table 5, 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 the interaction term on *Risk Oversight*Geoseg* (Coef. = -0.014, t-stat = -1.78) and *Risk Oversight*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.

Since the U.S. had among the highest corporate statutory tax rate in the world during our sample period, a greater tax-efficient supply chain allows firms to source income in their non-U.S. subsidiaries effectively. We posit that the results from Panels B and C are due to firms more carefully structuring their foreign operations rather than facing the uncertainty surrounding lowering their tax liability via income shifting activities.

***Research and Development Activities***

[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).

Firms might also exploit the research and experimentation (R&E) tax credit to generate permanent tax savings (Hanlon, Maydew, and Saavedra 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 5. 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 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 uncertainty. We examine whether greater CEO risk-based compensation mitigates the negative association found in our primary analyses between board risk oversight and tax uncertainty.

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 6. While our primary focus in this analysis is tax uncertainty (*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 uncertainty 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* 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 III 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 *Risk Oversight* with its three components included separately. This analysis provides evidence on which components of risk oversight are most strongly associated

[25] In untabulated analysis, we replace *Vega* with *CEO Delta* and our inferences remain unchanged.

[26] In contrast to Rego and Wilson (2012), 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*.

with variation in tax risk and the level of the firm's tax burden.

We present our results in Table 7 with Column (1) presenting the analysis with *GAAPETRVol* as our dependent variable and Column (2) presenting the analysis with *GAAPETR* as our dependent variable. 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), 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 8, we employ other measures to ensure the robustness of our findings. 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, this analysis provides evidence on whether the likelihood and outcomes of IRS investigations differ for firms with more robust risk oversight. We find that risk oversight is negatively associated with both *CYUTBINC* and *CYUTBPEN*, suggesting that more robust 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**

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 replace *Risk Oversight* with the log of the number of words in the risk oversight disclosure (*NWords*) and re-estimate our primary analyses in Table 9. 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.

In addition, we perform an analysis to address functional form misspecification. As documented in Table 2 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 (Hainmueller 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). 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.

## V. CONCLUSION

We examine whether board risk oversight 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 risk oversight is simultaneously negatively associated with tax uncertainty and tax burdens. Corporations face increasing tax risks as governments deal with fiscal deficits and the demand 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 that tax planning can have on a number of operational and strategic decisions for the organization. Our study extends the ERM, corporate governance, and tax literatures by demonstrating the importance of stronger risk oversight in the context of corporate tax-planning practices. Our findings indicate that board risk oversight, a key pillar of an ERM system, is 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 important role in managing all types of risks 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. Moreover, 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 (2018), calculated as total tax expense (TXT) scaled by total assets (AT). |

## APPENDIX (continued)

**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* | *Foreign* is the sum of non-U.S. sales (retrieved from the Compustat geographic segments file) divided by total sales (SALE). |
| *Geoseg* | *Geoseg* is the log of the number of geographic segments (set equal to 1 if missing). |
| *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, Ming, and Watts (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. |
| *R&DFirm* | Indicator variable equal to 1 if the firm-year observation has a positive and non-zero *RD*, and 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). |
| *Calls* | The number of conference calls with analysts held during the year. |

**APPENDIX (continued)**

| | |
|---|---|
| **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: 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 |
| | | | [0.17] | | [-0.16] |
| *Size* | | | | 0.0460** | 0.0389* |
| | | | | [2.34] | [1.75] |
| *ROA* | | | | -1.6412*** | -0.6638 |
| | | | | [-3.58] | [-1.25] |
| *RD* | | | | 0.2002 | 0.4406 |
| | | | | [0.47] | [1.01] |
| *CapInt* | | | | -0.0789 | -0.1452* |
| | | | | [-0.91] | [-1.65] |
| *Intang* | | | | 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 2: 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**

| Variable | *High Risk Oversight* N | Mean | St Dev | *Low Risk Oversight* 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 3: 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 significance at $p < 0.10$. All continuous variables are winsorized at the 1st and 99th percentiles unless noted in the Appendix.

## TABLE 4: 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 5: 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 5 (continued)**

**Panel B: Income Shifting**

| D.V. = *Δ PIDOM* and *Δ PIFO* | Coef. | z-stat |
|---|---|---|
| *Intercept FOR* ($\alpha$) | 0.0012 | 1.060 |
| *Intercept DOM* ($\beta$) | 0.0035*** | 5.450 |
| *OutboundTransfers* ($\theta_1$) | 0.3719*** | 6.080 |
| *InboundTransfers* ($\gamma_1$) | 0.4862*** | 6.810 |
| *RoForeignSales* ($\rho_{fo1}$) | 0.0881*** | 6.760 |
| *RoDomesticSales* ($\rho_{do1}$) | 0.1061*** | 6.980 |
| ***OutboundTransfers*High Risk Oversight*** ($\theta_2$) | **-0.1834**** | **-1.780** |
| ***InboundTransfers*High Risk Oversight*** ($\gamma_2$) | **-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) equations 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 5 (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*Geoseg*** | **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 5 (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 6: 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 7: 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 8: 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 9: Falsification Test:**
**Alternative Risk Oversight Proxies**

| | (1) *GAAPETRVol* | | (2) *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 | 1,588 | | 1,588 | |
| 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.