Do External Auditors Price Tax Risk?

Abstract:

Both practitioners and academics are increasingly focusing their attention on the riskiness of firms' tax planning activities. In this study, we examine the association between tax risk—measured using the volatility of firms' annual cash and GAAP effective tax rates—and external audit fees. Consistent with the notion that tax risk represents a source of engagement risk that is priced by external auditors, we first document a positive association between audit fees and tax risk incremental to fee premiums arising from tax aggressiveness shown in prior research. We also find that knowledge spillover benefits associated with the provision of tax nonaudit services moderate this positive association. Broadly, our findings add to the growing literature at the intersection of corporate taxation and auditing, and to the literature distinguishing between the level and riskiness of firms' tax avoidance strategies.

Keywords: audit fees; tax risk; auditor-provided tax services; nonaudit services

I. INTRODUCTION

Firms operating in the modern-day economy are experiencing unprecedented focus on their tax management activities (Ernst & Young 2014). Moreover, managing the risks associated with tax planning strategies has become a primary focus of corporate tax departments, in contrast to their historical roles as cost centers or profit centers (Donohoe, McGill, and Outslay 2014). Consistent with these developments in tax practice, recent academic literature has begun to examine the consequences of tax *risk* (commonly proxied as the volatility of firms' annual ETRs) separate from the notion of tax *avoidance* (commonly proxied as the level of firms' ETRs), as discussed more fully below. Motivated by this literature and the fact that auditors must make risk assessments of their clients as part of the audit planning process in accordance with

auditing standards (Auditing Standard Nos. 8, 12, and 13), the purpose of this study is to examine how firms' external auditors respond to tax risk by investigating whether and how tax risk is associated with audit pricing.

Prior research has examined the association between audit fees and book-tax differences (Hanlon, Krishnan, and Mills 2012), as well as audit fees and tax aggressiveness (Donohoe and Knechel 2014). However, a number of recent studies suggest that tax avoidance (or aggressiveness) and tax risk are distinct constructs. For instance, Guenther, Matsunaga, and Williams (2016) document that on average, firms with low cash ETRs do not exhibit high tax risk as proxied by the volatility of annual cash ETRs. Indeed, the authors state that their findings "do not support the contention that tax avoidance activities that lower a firm's tax rate are associated with a greater degree of risk." Similarly, Neuman, Omer, and Schmidt (2015) argue that "two firms may report similar tax avoidance outcomes, but have substantially different tax risk associated with those outcomes." Finally, Drake, Lusch, and Stekelberg (2016) find that tax risk moderates equity investors' positive valuation of tax avoidance, suggesting that the market perceives tax avoidance and tax risk as different dimensions of firms' tax outcomes. In this study, we add to this growing literature on tax risk as well as the broader literature at the intersection of corporate taxation and external auditing by examining the association between tax risk and audit fees.

Recent research suggests that tax risk is a distinct dimension of firms' tax outcomes, as discussed above. Similarly, if auditors consider tax risk a component of engagement risk incremental to tax avoidance (or aggressiveness), then we expect tax risk to be associated with audit fees. Based on the production view of audit fees (e.g., Simunic 1980; Pratt and Stice 1994), auditors respond to higher potential engagement risk by exerting more effort to increase

likelihood that material misstatements will be detected and/or charging a fee premium to compensate for the higher engagement risk. Accordingly, we expect that tax risk will lead to increased audit fees for at least two reasons. First, tax risk may be indicative of complex tax strategies. Such strategies may require auditors to expend greater effort during the engagement when examining the financial reporting of clients' tax positions, which would lead to higher audit fees. Second, tax risk may be associated with large settlements with tax authorities (Bauer and Klassen 2014), which in turn may trigger financial restatements (Chasan 2012) that can damage auditor reputation (Irani, Tate, and Xu 2015) and/or trigger litigation against the auditors.

To examine our research questions, we utilize a broad sample of firms over the period 2003–2014, and we follow recent and concurrent studies (e.g., Gallemore and Labro 2015; Hutchens and Rego 2015; Drake et al. 2016; Guenther et al. 2016; Hamilton and Stekelberg 2016), by measuring tax risk using the volatility of firms' annual cash and GAAP ETRs over the period $t-4$ to t. Controlling for tax aggressiveness using the measure developed by Donohoe and Knechel (2014) along with a battery of external audit fee determinants informed by prior research, the results of our multivariate regressions consistently indicate that tax risk is positively associated with audit fees. In particular, the magnitude of the coefficients in our primary empirical tests reported in Table 4 suggest that a one standard deviation increase in tax risk measured using the volatility of annual cash (GAAP) ETRs is associated with a 3.42 percent (3.54 percent) increase in external audit fees. This percentage increase would translate to a $83,092 ($85,815) increase in audit fees for our mean firm. Thus, we conclude that tax risk not only has a statistically significant effect on audit fees, but an economically significant effect as well.

Having documented a positive association between tax risk and audit fees, we next perform cross-sectional tests examining the effect that the provision of tax nonaudit services (tax NAS) has on our results. While the provision of NAS has been a concern for regulators and researchers for many years, recent research that specifically focuses on *tax* NAS generally concludes that "knowledge spillover" between the audit and tax teams is associated with greater financial reporting and audit quality (e.g., Kinney, Palmrose, and Scholz 2004; Krishnan and Visvanathan 2011; Paterson and Valencia 2011; Krishnan, Visvanathan, and Yu 2013; De Simone, Ege, and Stomberg 2015). Based on this prior literature, we expect that knowledge spillover will moderate the overall positive effect of tax risk on audit pricing. Specifically, tax NAS could reduce audit effort because the auditor has an in-house resource to verify tax-related accounting (Francis 2006; Donohoe and Knechel 2014). Furthermore, Gleason and Mills (2011) provide evidence that tax NAS improves the accuracy of clients' tax reserves, which may reduce engagement risk associated with contingent liabilities related to undertaking risky tax positions. Thus, tax NAS could decrease audit effort and engagement risk, thereby moderating the effect of tax risk on audit fees.

The results of our empirical tests are consistent with this prediction. In particular, we find that the positive association between tax risk and external audit fees is reduced among clients purchasing an economically-meaningful level of tax NAS, which we define consistent with prior literature as tax fees in excess of 10 percent of external audit fees (Finley and Stekelberg 2016). Indeed, our results indicate that among clients *not* purchasing tax NAS, a one standard deviation increase in tax risk is associated with a 4.36 percent increase in audit fees. In contrast, among clients purchasing tax NAS, tax risk is only associated with a 2.25 percent increase in audit fees. Thus, we conclude that decreased audit effort and engagement risk due to the knowledge

spillover benefits of tax NAS reduces the audit fee premium associated with tax risk by approximately 52 (2.25 / 4.36) percent.

The findings reported in this study contribute to at least three distinct streams of literature. First, we contribute to the developing literature distinguishing between the level and volatility, or riskiness, of firms' tax planning activities. Whereas extant research in this area primarily focuses on investors' perceptions of tax risk, we examine how an important counterparty to the firm—the firm's external auditor—responds to tax risk. Consistent with Drake et al. (2016) who show that tax avoidance and tax risk interact to influence firm value, our evidence suggests that auditors differentiate between the level and riskiness of firms' tax strategies. Importantly, we believe that our results also provide validity for the use of the volatility of cash and GAAP ETRs as proxies for tax risk.

This study also adds to the literature examining the pricing of audit services. While the positive effect of engagement risk on audit fees is well established in prior literature (Hay, Knechel, and Wong 2006), we are the first to investigate the relation between audit fees and tax risk, which can affect audit engagement risk in several ways. We extend the findings of prior research by showing that auditors consider a firm's tax risk in determining engagement risk. We also extend Donohoe and Knechel (2014) by showing that the audit fee premium for tax risk is incremental to premiums arising from tax aggressiveness.

Finally, we contribute to the literature on the consequences and benefits of tax NAS. Prior research provides evidence of knowledge spillover between the audit and tax teams associated with tax NAS. We provide consistent evidence on the economic benefits of tax NAS by documenting that tax NAS significantly moderates the audit fee premium associated with tax

risk. This finding may be of interest to managers and boards of directors who must balance the costs (e.g., threats to auditor independence) and benefits of purchasing tax NAS.

The remainder of this paper proceeds as follows. The second section discusses prior literature related to audit fees and tax risk and then develops our hypotheses. The third section describes our research design, while the fourth section discusses the results of our primary tests and additional analyses. The final section concludes the paper.

II. PRIOR LITERATURE AND HYPOTHESES DEVELOPMENT

Prior Research on the Audit Pricing of Firms' Tax Outcomes

In his seminal study, Simunic (1980) proposes that audit fees reflect the cost of resources invested in the audit (an "effort" component of audit fees) and potential losses that may arise as a result of an audit (an "expected loss" component of audit fees). This expected loss component, which includes exposure to loss from future litigation, adverse publicity, and impaired reputation, is often referred to as engagement risk (Colbert, Luehlfing, and Alderman 1996; DeFond and Zhang 2014).[1] Simunic (1980) suggests that when confronted with higher potential engagement risk, auditors might exert more effort to reduce audit risk to an appropriate level and charge higher audit fees to compensate for greater audit effort. In addition, auditors may choose to bear high potential audit risk and charge a risk premium to compensate for the high risk (e.g., Pratt and Stice 1994; Simunic and Stein 1996; Morgan and Stocken 1998; Bell, Landsman, and Shackelford 2001; Lyon and Maher 2005; Bell, Doogar, and Solomon 2008). In support of this notion, a positive relationship between engagement risk and audit fees is well established in the

[1]The AICPA suggests that engagement risk is comprised of the client's business risk, the auditor's audit risk, and the auditor's business risk (Colbert et al. 1996). DeFond and Zhang (2014) suggest that engagement risk arises from litigation risk, reputation risk, and regulation risk. The authors note that litigation risk originates from client business risk while reputation and regulation risk arise from audit risk.

literature (see Hay et al. 2006 for a review). Similarly, a growing stream of research examines the intersection of corporate taxation and external auditing, and in particular how firms' tax outcomes affect audit pricing.

For example, in one study, Hanlon et al. (2012) document a positive association between audit fees and book-tax differences. The authors also find that this relation is stronger among firms in the highest decile of total accruals. Based on this evidence, Hanlon et al. (2012) conclude that auditors perceive book-tax differences to be a signal of the firm's earnings quality, and adjust their effort and risk assessments accordingly. Heltzer and Shelton (2015) provide additional support for the proposition that book-tax differences affect auditors' risk assessments. In particular, the authors survey auditors and find that, on average, auditors perceive large book-tax differences to be related to an increase in audit risk. Furthermore, Heltzer and Shelton (2015) document that almost one-third of the auditors surveyed report that they use book-tax differences to assess audit risk.

In other research, Donohoe and Knechel (2014) complement Hanlon et al. (2012) by documenting a positive association between external audit fees and tax aggressiveness, which the authors measure using a composite indicator variable based on the level of the firm's cash and GAAP ETRs. The authors interpret this result as evidence that auditors expend significant effort to understand a firm's aggressive tax positions and/or demand additional fees when auditing tax aggressive firms due to potential litigation, regulatory, and reputational costs related to the engagement. Donohoe and Knechel (2014) also identify a positive association between external audit fees and UTBs reported pursuant to FIN 48, and that UTBs and tax aggressiveness interact to positively influence audit fees. Accordingly, the authors conclude that uncertain tax positions represent a source of engagement risk that is priced by external auditors, particularly when those

uncertain tax positions are related to aggressive, rather than benign, tax avoidance strategies. In other work, Erickson, Goldman, and Stekelberg (2016) extend Donohoe and Knechel (2014) by documenting that the positive audit pricing of UTBs spiked immediately following the implementation of FIN 48, but has since returned to pre-FIN 48 levels.

Prior Research on Tax Risk

To summarize the above discussion, Donohoe and Knechel (2014) provide evidence that external auditors demand higher fees from tax aggressive clients—measured using an indicator variable constructed using the *level* of the client's cash and GAAP ETRs—due to an increase in assessed levels of audit effort and/or risk related to the engagement. However, firms may lower their tax rates using a broad spectrum of tax planning strategies (Hanlon and Heitzman 2010; Dyreng, Hanlon, and Maydew 2014), and as Neuman et al. (2015) note, "two firms may report similar tax avoidance outcomes, but have substantially different tax risk associated with those outcomes." Moreover, firms have recently begun to experience unprecedented focus on their tax management activities (Ernst & Young 2014), and managing the risks associated with tax planning strategies has become a primary focus of corporate tax departments, in contrast to their historical roles as cost centers or profit centers (Donohoe, McGill, and Outslay 2014). As such, recent research has begun to differentiate between the level of a firm's ETRs and the *riskiness* of a firm's tax avoidance strategies.

While the measurement of tax risk remains unsettled in the literature (Neuman et al. 2015), a number of recent and concurrent studies employ the volatility of firms' annual ETRs as a proxy for tax risk. This proxy for tax risk is based on evidence in Dyreng, Hanlon, and Maydew (2008) that many firms are able to sustain low tax rates over multiyear windows, suggesting that low ETRs are not necessarily "risky." Moreover, this definition of tax risk is

consistent with the traditional definition of risk in the finance literature as the dispersion of potential outcomes associated with a particular investment (Brealey, Myers, and Allen 2013). This tax risk definition is also consistent with the notions that in practice, tax positions claimed in one period may reverse in subsequent periods following tax authority examination and that the benefits from a particular tax position may or may not be persistent. Consistent with the proposition that tax avoidance (or aggressiveness) and tax risk are distinct constructs, Guenther et al. (2016) document that on average, firms with low cash ETRs do not have high volatility of ETRs. Indeed, the authors state that their findings "do not support the contention that tax avoidance activities that lower a firm's tax rate are associated with a greater degree of risk."

Similar to Guenther et al. (2016), Hutchens and Rego (2015) examine the association between measures of firm risk and multiple potential proxies for tax risk. Among other findings, the authors show that volatility of cash ETRs is positively associated with stock return volatility and analyst forecast dispersion. In contrast, the authors find that the level of firms' cash ETRs is not associated with stock return volatility or analyst forecast dispersion, while UTBs reported pursuant to FIN 48 are actually negatively associated with these measures of firm risk. Based on this evidence, the authors conclude that volatility of cash ETRs increases investors' perceptions of firm risk, whereas the level of cash ETRs or UTBs do not. Also consistent with the notion that UTBs may not be indicative of tax risk, Robinson, Stomberg, and Towery (2016) show that on average, firms ultimately only pay out to tax authorities just 24 cents of every dollar of UTBs reported in their financial statements.

In other work, Drake et al. (2016) examine investor valuation of tax avoidance and tax risk.[2] The authors find that investors positively value tax avoidance (measured using the level of firms' cash and GAAP ETRs), negatively value tax risk (measured using the standard deviation of firms' annual cash and GAAP ETRs), and that tax risk moderates the positive valuation of tax avoidance. Moreover, the authors find that tax avoidance and tax risk are negatively correlated in their sample. These findings suggest that investors perceive the level and volatility of ETRs as distinct constructs.

Hypotheses Development

In summary, Donohoe and Knechel (2014) document a positive association between external audit fees and both tax aggressiveness (measured using the level of firms' cash and GAAP ETRs) and UTBs reported pursuant to FIN 48. However, Guenther et al. (2016) and Hutches and Rego (2015) provide evidence that these variables are not associated with firm risk, while Drake et al. (2016) suggest that investors perceive the level and volatility of firms' cash and GAAP ETRs as distinct dimensions of firms' tax outcomes. As such, we believe that examining whether tax risk—as proxied by the *volatility* of firms' cash and GAAP ETRs—influences external audit fees incremental to the *level* of firms' cash and GAAP ETRs makes a contribution to the literature.

Saavedra (2015) examines firms making large one-time payments to tax authorities (what he terms "tax spike" firms) and finds that these firms face higher loan spreads in the syndicated debt market yet have higher, not lower, ETRs relative to other firms. These results suggest that lenders perceive tax rate volatility—but not low ETRs— to indicate risk. Moreover, as noted

[2] Other studies, including Gallemore and Labro (2015) and Hamilton and Stekelberg (2016), also distinguish between the level and the volatility of firms' tax outcomes as dependent variables in their empirical tests, based on the notion that these constructs capture different dimensions of firms' tax outcomes.

above, Drake et al. (2016) provide evidence that equity investors perceive the level and volatility of firms' ETRs as distinct dimensions of firms' outcomes, and that tax risk moderates the positive valuation of tax avoidance. Finally, evidence suggests that tax practitioners not only seek to achieve low tax rates, but also avoid surprises, reduce variability of tax rates, and sustain performance (Deloitte LLP 2011; Brown, Drake, and Wellman 2015). To the extent that external auditors also view tax avoidance and tax risk as different dimensions of firms' tax outcomes, we expect them to demand higher fees from clients with relatively more volatile tax rates.

We believe there are at least two reasons why tax risk may affect audit pricing, incremental to the level of tax avoidance or aggressiveness. First, tax risk may be indicative of complex tax strategies, which can affect the effort that auditors commit to the audit engagement as well as the engagement risk that auditors face. For example, many strategies that lead to lower ETRs, such as bonus depreciation deductions and investments in municipal bonds, are straightforward and likely will not materially increase the effort auditors must expend to examine how firms' tax positions are reported in the financial statements. Furthermore, there is little risk inherent in these relatively benign transactions that lower firms' tax expense. In contrast, many riskier tax strategies may require complex legal structures, thereby increasing audit complexity and the effort auditors expend on those items, which in turn will affect audit fees. Moreover, these riskier tax strategies may be disallowed by tax authorities or be subject to regulatory scrutiny that may impact the auditor's reputation (Brown, Shu, Soo, and Trompeter 2013; Rapoport 2014; Finley and Stekelberg 2016). According to the production view of audit fees, the auditor will respond to this increased risk by charging higher audit fees.

Second, volatile tax rates may be indicative of large settlements with tax authorities (Bauer and Klassen 2014; Finley 2015), and practitioner evidence indicates concerns that tax

authority audits may trigger financial restatements (Chasan 2012). Thus, we expect that volatile tax rates may be associated with increased audit engagement risk. To the extent that external auditors share these concerns, an increase in the likelihood of large settlements with tax authorities should therefore lead to an increase in audit fees.

Based on the above discussion, our first hypothesis is as follows:

H1: There is a positive association between tax risk and external audit fees.

Our next hypothesis considers the effect that tax nonaudit services (tax NAS) may have on the association between tax risk and external audit fees. The provision of NAS has been a concern for regulators and researchers for many years. There are conflicting views regarding the impact of NAS on auditor independence (Tepalagul and Lin 2015). On the one hand, NAS is viewed as beneficial for both auditors and clients because it generates a knowledge spillover effect that, in turn, increases audit effectiveness and efficiency (Knechel and Sharma 2012). On the other hand, NAS is viewed as detrimental because it creates an economic bond between auditor and client, which may impair the auditor's objectivity and potentially puts the auditor in a position of both preparer and reviewer of audited information (Frankel, Johnson, and Nelson 2002). In response to these concerns, the Sarbanes-Oxley Act of 2002 (SOX) limited the types of NAS the external auditor could provide and required companies to separately disclose fees for audit services, audit-related services, tax services, and all other types of NAS.

While prior research on the impact of NAS in general on audit quality is mixed, extant literature consistently suggests that tax NAS in particular actually improves audit quality (Francis 2004; Tepalagul and Lin 2015). For instance, Kinney et al. (2004) show that tax-related nonaudit fees are negatively associated with the likelihood of restatement. In other work, Krishnan and Visvanathan (2011) find that clients who purchased tax NAS are less likely to

manage earnings, as measured by loss avoidance, while Krishnan et al. (2013) document that tax NAS enhances the value relevance of earnings, suggesting that investors believe tax NAS increases the firm's earnings quality. Finally, De Simone et al. (2015) show that relative to other firms, firms purchasing tax NAS have stronger internal control quality, as proxied by likelihood of disclosing a material weakness of internal controls.

Perhaps most relevant to our study, Gleason and Mills (2011) provide evidence on the knowledge spillover benefits of tax NAS by documenting that tax NAS improves the accuracy of clients' tax reserves. This result suggests that engagement risk associated with contingent liabilities necessitated by undertaking risky tax positions should decrease in the presence of tax NAS. Thus, to the extent that firms purchasing tax NAS are more likely to be properly reserved for risky tax positions compared to other firms, engagement risk for these firms should be lower, thereby leading to a decrease in the audit fee premium associated with tax risk.

The above studies suggest that tax NAS reduces engagement risk. Furthermore, tax NAS could also reduce the effort component of audit fees. Researchers and regulators have suggested that tax NAS is likely to generate cost savings through improved audit efficiency (Francis 2004; Knechel and Sharma 2012). Consistent with this notion, Francis (2006) argues that tax NAS may be "helpful to the audit in verifying tax-related accounts in financial statements.'' If tax NAS reduces audit effort necessary to examine the reporting of clients' tax accounts, we expect it to lead to a corresponding decrease in the audit fee premium associated with tax risk.

Based on this discussion, our second hypothesis is as follows:

H2: Tax nonaudit services moderate the positive association between tax risk and external audit fees.

III. RESEARCH DESIGN

Regression Model and Variable Definitions

To test our first hypothesis that there is a positive association between tax risk and external audit fees, we estimate the following OLS regression model (Model 1):

$$\begin{aligned} LNFEES = {} & \beta_0 + \beta_1 * TAXRISK + \beta_2 * APTS + \gamma_1 * TA + \gamma_2 * LNASSETS + \gamma_3 * INVREC + \\ & \gamma_4 * AUDITLAG + \gamma_5 * SEPARATE + \gamma_6 * FOREIGN + \gamma_7 * MERGER + \gamma_8 * ROA + \gamma_9 * LOSS \\ & + \gamma_{10} * LEVERAGE + \gamma_{11} * ZSCORE + \gamma_{12} * LITIGATE + \gamma_{13} * ROAVOL + \gamma_{14} * BTM + \\ & \gamma_{15} * BIG4 + \gamma_{16} * INITIAL + \gamma_{17} * TENURE + \gamma_{18} * YEAREND + \gamma_{19} * NONAUDIT + \\ & \gamma_{20} * EXPERT + \gamma_{21} * RESTATEMENT + \delta * FIXED\ EFFECTS + \varepsilon \end{aligned} \quad (1)$$

We omit firm and year subscripts for expositional conciseness. All variables are defined in the Appendix and discussed below. Note that in all regressions, we include industry (two-digit SIC) and year fixed effects and cluster standard errors by firm.

Our dependent variable *LNFEES* is equal to the natural logarithm of external audit fees. Following recent and concurrent research examining tax risk (Hutchens and Rego 2015; Drake et al. 2016; Guenther et al. 2016), our independent variable of primary interest, *TAXRISK*, is the standard deviation of the firm's annual cash or GAAP effective tax rates over the period $t-4$ to t.[3] We calculate annual cash (GAAP) ETRs as annual cash taxes paid (total tax expense) scaled by annual pretax book income less special items. Our first hypothesis predicts a positive coefficient estimate on *TAXRISK* (i.e., $\beta_1 > 0$).

We first control for the effect that tax NAS may have on the association between tax risk and audit fees. We expect that the knowledge spillover benefits of tax NAS will only be evident

[3] To avoid effects of outliers, observations with *TAXRISK* values greater than 1 (i.e., volatility of annual ETRs greater than 100%) are excluded from the sample. However, the interpretations of our hypothesis tests are similar without this research design restriction. That is, our regression model estimation results are similar to those presented in the tables when the 2,227 observations with *TAXRISK* > 1 are included in the analysis.

when the auditor performs an economically-significant amount of tax work for the client. As such, we control for auditor-provided tax services with *APTS*, which is an indicator variable equal to 1 if ratio of tax fees to audit fees paid to the auditor is higher than 10 percent (Finley and Stekelberg 2016), and equal to 0 otherwise.[4] We expect a positive coefficient estimate for this variable.

Regarding other control variables, because our primary interest is in examining the effect of tax risk on audit pricing incremental to the level of firms' ETRs, we next include a control for tax aggressiveness. In particular, to distinguish our findings from prior related research, we follow Donohoe and Knechel (2014) and set an indicator variable, defined as *TA*, equal to 1 when either the firm's five-year cash ETR or GAAP ETR is in the lowest quintile for the firm's industry (two-digit SIC)-year, and 0 otherwise. We calculate the five-year cash (GAAP) ETR as cumulative cash taxes paid (cumulative tax expense) scaled by cumulative pretax income less special items over the period $t-4$ to t. We note that our conclusions are similar when we simply control for the level of the firm's five-year cash or GAAP ETR rather than the Donohoe and Knechel (2014) *TA* indicator variable. Consistent with Donohoe and Knechel (2014), we expect a positive coefficient estimate for this variable.

We next control for a number of other determinants of audit pricing informed by prior audit fee research (e.g., Hay et al. 2006); we briefly discuss these variables and their predicted associations with audit fees below and provide detailed variable definitions in the Appendix. First, we include several measures of client size and complexity. In particular, we control for the natural logarithm of total assets (*LNASSETS*), the ratio of inventory and receivables to total assets (*INVREC*), the number of days from fiscal year end to issuance of the audit opinion

[4] We obtain similar results if we alternatively set cutoffs at 15 percent or 25 percent of audit fees.

(*AUDITLAG*) and indicator variables set equal to 1 if the firm has separately reported either extraordinary items or discontinued operations (*SEPARATE*), foreign operations (*FOREIGN*), or merger and acquisition activity (*MERGER*) during the fiscal year. Because audit fees are increasing in client size and complexity, we expect positive coefficients on all of these variables.

We next include controls that should be associated with client business risk. In particular, we control for firm performance using pretax return on assets (*ROA*) and an indicator variable set equal to 1 if the firm reported negative net income during the fiscal year (*LOSS*). We also include measures of firm leverage (*LEVERAGE*), bankruptcy risk (*ZSCORE*), litigation risk (*LITIGATE*), and the volatility of firm performance (*ROAVOL*). Because audit fees are increasing in client business risk, we expect positive coefficients on all of these variables except *ROA* and *ZSCORE* which should be negatively associated with audit fees. We also include a control for client growth opportunities with the ratio of the book value of equity to the market value of equity (*BTM*); we expect a negative coefficient estimate for this variable.

Finally, we control for a number of auditor-related variables that may impact audit fees. In particular, we control for whether the auditor is a member of the Big 4 (*BIG4*), whether the current year is the first year of the auditor-client relationship (*INITIAL*), years of auditor tenure (*TENURE*), and whether the auditor faces resource constraints due to the client having a calendar-year end (*YEAREND*). We also control for the ratio of nonaudit fees to audit fees purchased by the client (*NONAUDIT*) and an indicator variables set equal to 1 if the auditor is an industry expert (*EXPERT*) or their prior financial statement were restated during the current year (*RESTATEMENT*). Based on prior research, we expect positive coefficients on *BIG4*, *TENURE*, *YEAREND*, and *EXPERT*, and negative coefficients on *INITIAL* and *NONAUDIT*.

To test our second hypothesis that tax NAS moderates the positive association between tax risk and external audit fees, we augment Model 1 with an interaction term as follows:

$$LNFEES = \beta_0 + \beta_1*TAXRISK + \beta_2*APTS + \beta_3*TAXRISK*APTS + \gamma_1*TA + \gamma_2*LNASSETS + \gamma_3*INVREC + \gamma_4*AUDITLAG + \gamma_5*SEPARATE + \gamma_6*FOREIGN + \gamma_7*MERGER + \gamma_8*ROA + \gamma_9*LOSS + \gamma_{10}*LEVERAGE + \gamma_{11}*ZSCORE + \gamma_{12}*LITIGATE + \gamma_{13}*ROAVOL + \gamma_{14}*BTM + \gamma_{15}*BIG4 + \gamma_{16}*INITIAL + \gamma_{17}*TENURE + \gamma_{18}*YEAREND + \gamma_{19}*NONAUDIT + \gamma_{20}*EXPERT + \gamma_{21}*RESTATEMENT + \delta*FIXED\ EFFECTS + \varepsilon \quad (2)$$

All variables are as defined above and in the Appendix. A negative coefficient estimate on the interaction term *TAXRISK*APTS* would provide support for H2 (i.e., $\beta_3 < 0$).

Sample Selection

Table 1 documents our sample selection procedure. We begin with all observations in Compustat with non-missing total assets and sales greater than zero for the years 2003–2014, representing 86,101 firm-years. Consistent with extensive prior tax research, we delete 22,430 observations representing firms in the utility (SIC codes 4900–4999) and financial (SIC codes 6000–6999) industries from the initial sample, 33,066 observations that lack the data necessary to calculate the dependent variable and independent variables of interest in Models 1 and 2, as well as 5,455 observations that lack data necessary to calculate all control variables. Next, we eliminate 7,634 observations with a negative numerator or denominator in the five-year cash or GAAP ETR calculations. After these various data restrictions, we conduct our primary empirical tests using a sample of 17,516 observations representing 3,013 distinct firms.

< INSERT TABLE 1 HERE >

Descriptive Statistics and Correlations

Descriptive statistics for our sample are presented in Table 2. All continuous variable are winsorized at the 1 and 99 percentile. The mean (median) value of *LNFEES* is 13.91 (13.95), which relates to mean (median) unlogged audit fees of $2,427,000 ($1,139,000). We also find that approximately 45 percent of our sample firms purchase an economically-meaningful amount of tax services from their auditor. Moreover, approximately 26 percent of firms employ an industry expert auditor, while approximately 80 percent of our sample firms employ a Big 4 auditor.[5] Descriptive statistics for other control variables are similar to those reported in prior studies.

< INSERT TABLE 2 HERE >

Table 3 reports Pearson correlations among our regression variables. We find that *LNFEES* is negatively correlated with measures of tax risk constructed using cash and GAAP ETRs. However, given the known determinants of audit fees, examining the effect of tax risk on audit fees should be done employing multivariate regression analysis for hypothesis testing. We also find that *LNFEES* is correlated with all control variables, highlighting the appropriateness of our audit fee model.[6] It is also interesting to note that our measure of tax risk constructed using cash ETRs is not correlated with tax aggressiveness (*TA*), which supports the notion that tax avoidance and tax risk are separate constructs.

< INSERT TABLE 3 HERE >

IV. RESULTS

[5] As an additional robustness test, we also limit the main analysis to include only firms audited by the Big 4 accounting firms and continue to find a positive relation between audit fees and both measures of tax risk.
[6] Given the large set of control variables we employ in our audit fee regression, we calculate variance inflation factor scores to provide assurance that multicollinearity is not a significant concern in our tests. We find that the mean (maximum) VIF is 1.50 (2.77), which is within acceptable ranges (Kennedy 1992).

Primary Results

Audit Fees and Tax Risk (H1)

Table 4 presents the results of estimating Model 1 above to examine the association between audit fees and tax risk; we report results using a measure of tax risk constructed using the volatility of cash (GAAP) ETRs in the first (second) set of columns. Consistent with our first hypothesis, we find that the coefficient estimate for *TAXRISK* is positive and statistically significant in both columns (coefficient of 0.212, $p < 0.01$, and coefficient of 0.194, $p < 0.01$, in the cash ETR and GAAP ETR columns, respectively), indicating that our measure of tax risk is associated with higher audit fees. Thus, our results suggest that auditors consider tax risk when negotiating audit fees; specifically, higher tax risk elevates engagement risk, to which auditors respond by charging fee premiums.

To assess the economic magnitude of the findings reported in Table 4, we multiply the coefficient estimate of *TAXRISK* in each column by our sample standard deviation of *TAXRISK*. This analysis suggests that a one standard deviation increase in tax risk measured using cash (GAAP) ETRs is associated with a 3.42 percent (3.54 percent) increase in audit fees, or $83,092 ($85,815) relative to our sample mean of audit fees. Thus, we conclude that tax risk not only has a statistically significant effect on audit fees, but an economically significant effect as well.

< INSERT TABLE 4 HERE >

Regarding control variables in Table 4, the coefficient estimate of *APTS* is positive and statistically significant at the five percent level for both model specifications (coefficients of 0.044 and 0.043 in columns 1 and 2, respectively), which is consistent with prior research (Halperin and Lai 2015; Erickson et al. 2016). Moreover, consistent with Donohoe and Knechel (2014), we find that the coefficient estimate for *TA* is positive and statistically significant in both

columns one and two (coefficients of 0.051, $p < 0.01$, and 0.031, $p = 0.03$, respectively). This suggests that the audit fee premium associated with tax risk is incremental to that of tax aggressiveness.

The negative coefficient estimate of *NONAUDIT* in columns one and two of −0.349 and −0.348, respectively, indicates that the provision of a nonaudit services is associated with a fee discount. This result is consistent with synergies between audit and nonaudit services leading to lower fees. Furthermore, the positive coefficient estimates for *EXPERT* (0.088 and 0.087) indicates that audit-related industry experts charge about 8 percent more for audit services. All other control variables are generally significant and in the expected directions. The models explain a high degree of variation in audit fees (approximately 88 percent for both models).

Audit Fees, Tax Risk, and Tax Nonaudit Services (H2)

Table 5 presents the results of our regression analysis using Model 2 to examine how tax NAS moderates the association between tax risk and audit fees; as before, we report *TAXRISK* measured using cash (GAAP) ETRs in the first (second) set of columns. First, we note that the coefficient estimate for the main effect of *TAXRISK* remains positive and statistically significant in both columns (coefficients of 0.269, $p < 0.01$, and 0.294, $p < 0.01$ in the cash and GAAP ETR columns, respectively). Then, consistent with our second hypothesis, we find that the coefficient estimate for the interaction term *TAXRISK*APTS* is negative and statistically significant in both columns (coefficients of −0.130, $p = 0.05$, and −0.221, $p < 0.01$ in the cash and GAAP ETR columns, respectively). Considered together, these results suggest that knowledge spillover from the provision of tax services to the audit engagement mitigates the higher engagement risk associated with tax risk and in turn, the fee premium auditors charge to compensate for tax risk.

< INSERT TABLE 5 HERE >

To gauge the economic significance of the results reported in Table 5, as before we first multiply the coefficient estimate for *TAXRISK* by our sample standard deviation of *TAXRISK*. Doing so suggests that among firms not purchasing tax NAS, a one standard deviation increase in cash ETR (GAAP ETR) tax risk is associated with a 4.36 (5.36) percent increase in audit fees. On the other hand, when we multiply the sum of the coefficients on *TAXRISK* + *TAXRISK***APTS* by our sample standard deviation of *TAXRISK*, we find that a one standard deviation increase is only associated with a 2.25 (1.33) percent increase in audit fees. Thus, we conclude that knowledge spillover from tax NAS reduces the audit fee premium associated with tax risk by approximately 52 (2.25 / 4.36) percent.

Additional Analyses and Robustness

The Effect of FIN 48

In 2006, the Financial Accounting Standards Board (FASB) passed FASB Interpretation No. 48, Accounting for Uncertainty in Income Taxes (FIN 48). One of the objectives of FIN 48 was to increase relevance and comparability in measuring income taxes (FASB 2006; Blouin and Robinson 2014). Researchers and practitioners have suggested that FIN 48 served to highlight the importance of taxes to the auditor (Donohoe and Knechel 2014).

To examine the effect of FIN 48 on the relation between tax risk and audit fees, we re-estimate Model 1 and add an indicator variable (*POST*) that is equal to 1 for all firm year observations subsequent to the adoption of FIN 48. We interact *TAXRISK* with *POST* to capture the combined effect of tax risk post-FIN 48. The results of this analysis are presented in Table 6. The coefficient estimate of the interaction term is not statistically significant, which suggests that our results are similar both pre- and post-FIN 48.

< INSERT TABLE 6 HERE >

Controlling for Book-Tax Differences

Hanlon et al. (2012) document a positive association between book-tax differences and audit fees, leading the authors to conclude that auditors perceive book-tax differences as a signal of the firm's earnings quality. In untabulated tests, we include the Hanlon et al. (2012) *ABSBTD* measure (calculated as the natural logarithm of the absolute value of the difference between pretax book income and estimated taxable income) as an additional control variable in our audit fee regression and find that our measure of tax risk remains positively associated with audit fees (Cash ETR: coef = 0.211; t-stat=5.29; GAAP ETR: coef=0.189; t-stat=5.09).

Controlling for UTBs

Prior literature documents a positive association between audit fees and UTBs reported pursuant to FIN 48 (Donohoe and Knechel 2014; Erickson et al. 2016). Although other studies suggest that UTBs are unlikely to be a good proxy for tax risk (Hutchens and Rego 2015; Drake et al. 2016; Robinson et al. 2016), to ensure that our findings are incremental to prior research on the audit pricing of UTBs we re-estimate our audit fee regression including a control for year-end UTBs as a percentage of total assets (defined as *UTB*), employing 9,018 observations from the post-FIN 48 period. In untabulated results, we find that our measure of tax risk continues to be positively associated with audit fees in this alternative specification (Cash ETR: coef=0.197; t-stat=4.01; GAAP ETR: coef.=0.171; t-stat=3.69).

Industry/Year Adjusted Tax Risk

Because the set of tax planning opportunities available to firms likely varies across industries and across time, it is plausible that the tax risk facing firms similarly varies in these ways. While we include industry and year fixed effects in our regressions to control for these effects, to provide additional evidence regarding the robustness of our results we re-estimate our

audit fee regression using an industry (two-digit SIC)-year median-adjusted measure of *TAXRISK*. In untabulated results, we find that this measure of tax risk is also positively associated with audit fees (Cash ETR: coef = 0.2117; t-stat=5.42; GAAP ETR: coef.=0.193; t-stat=5.30).

V. CONCLUSION

In this study, we examine the association between external audit fees and tax risk—as measured by the standard deviation of firms' annual cash and GAAP effective tax rates—incremental to the association between tax aggressiveness and audit fees (Donohoe and Knechel 2014). Consistent with our hypotheses, we find a positive and statistically significant association between audit fees and tax risk; in particular, our results suggest that a one standard deviation of tax risk measured using the volatility of cash (GAAP) ETRs is associated with a 3.42 percent (3.54 percent) increase in audit fees. We also find that the provision of tax NAS, which may generate knowledge spillovers between the audit and tax teams, significantly mitigates the audit fee premium associated with our measures of tax risk. Broadly, our findings suggest that tax risk represents a source of engagement risk that is priced by external auditors incremental to the level of firms' effective tax rates.

Our findings contribute to the growing literature at the intersection of corporate taxation and auditing, and in particular studies examining how clients' tax outcomes influence audit pricing (Hanlon et al. 2012; Donohoe and Knechel 2014), by providing evidence on how auditors price tax risk. We believe this represents an important contribution to the literature because of practitioners' increasing focus on firms' tax management activities in general (Ernst & Young 2014), and tax risk in particular (Donohoe et al. 2014). We also contribute to the broader

literature on tax risk, which to this point has primarily examined how investors perceive tax risk (Hutchens and Rego 2015; Drake et al. 2016; Guenther et al. 2016), by providing evidence on how an important counterparty to the firm—the external auditor—responds to tax risk. Moreover, we contribute to the literature on tax NAS (e.g., Kinney et al. 2004; Gleason and Mills 2011; Krishnan and Visvanathan 2011; Krishnan et al. 2013; De Simone et al. 2015) by providing additional evidence on the benefits of tax NAS, which may be of interest to managers and boards of directors who must balance the costs and benefits of purchasing tax NAS.

Finally, we acknowledge that our study should be interpreted with an important caveat in mind. Specifically, we acknowledge that the tax risk literature is still relatively new, and the measurement of tax risk remains unsettled in this line of research. We focus on a particular definition of tax risk—the volatility of cash and GAAP ETRs—that has been used in a number of recent and concurrent studies and that is consistent with the traditional definition of risk in the finance literature as the dispersion of potential outcomes associated with a particular investment. However, we recognize that our definition of tax risk may only capture one dimension of this multi-faceted construct.

REFERENCES

Altman, E. I. 1969. Corporate bankruptcy potential, stockholder returns and share valuation. *Journal of Finance* 24 (5): 887–900.

Bauer, A., and K. J. Klassen. 2014. Tax risk as the likelihood of an unfavorable settlement with tax authorities. Working Paper, University of Illinois and University of Waterloo.

Bell, T. B., W. R. Landsman, and D. A. Shackelford 2001. Auditors' perceived business risk and audit fees: Analysis and evidence. *Journal of Accounting Research* 39 (1): 35–43.

Bell, T. B., R. Doogar, and I. Solomon. 2008 Audit labor usage and fees under business risk auditing. *Journal of Accounting Research* 46 (4): 729–760.

Blouin, J. L., and L. A. Robinson. 2014. Insights from academic participation in the FAF's initial PIR: The PIR of FIN 48. *Accounting Horizons* 28 (3): 479–500.

Brealey, R. A., S. C. Myers, and F. Allen. 2013. *Principles of Corporate Finance* 11th edition. New York, NY: McGraw-Hill.

Brown, D. L., S. Z. Shu, B. S. Soo, and G. M. Trompeter. 2013. The insurance hypothesis: An examination of KPMG's audit clients around the investigation and settlement of the tax shelter case. *AUDITING: A Journal of Practice & Theory* 32 (4) 1–24.

Brown, J., K. Drake, and L. Wellman 2015. The benefits of a relational approach to corporate political activity: evidence from political contributions to tax policymakers. *Journal of the American Taxation Association* 37 (1): 69–102.

Chasan, E. 2012 CFO Journal: Revenue recognition leading cause of restatements. *The Wall Street Journal*. September 11, 2012.

Colbert, J. L, M. S. Luehlfing, and C. W. Alderman. 1996 Engagement risk. *The CPA Journal* 66 (3), 54–56.

Deloitte, LLP. 2011. Tax risk intelligence: A strategic opportunity in turbulent times.

De Simone, L., M. S. Ege, and B. Stomberg. 2015. Internal control quality: The role of auditor-provided tax services. *The Accounting Review* 90 (4): 1469–1496.

DeFond M., and J. Zhang. 2014. A review of archival auditing research. *Journal of Accounting and Economics* 58 (2–3): 275–326.

Donohoe, M. and R. Knechel. 2014. Does corporate tax aggressiveness influence audit pricing? *Contemporary Accounting Research* 31 (1): 284–308.

Donohoe, M. P., G. A. McGill, and E. Outslay 2014. Risky business: The prosopography of corporate tax planning. *National Tax Journal* 67 (4): 851–874.

Drake, K., S. Lusch, and J. Stekelberg. 2016. Investor valuation of tax avoidance and tax risk. Working paper, University of Arizona and University of Kansas.

Dyreng, S., M. Hanlon, and E. Maydew. 2008. Long-run corporate tax avoidance. *The Accounting Review* 83 (1): 61–82.

Dyreng, S., M. Hanlon, and E. Maydew. 2014. Rolling the dice: When does tax avoidance result in tax uncertainty? Working paper, Duke University, MIT, and University of North Carolina.

Erickson, M., N. Goldman, and J. Stekelberg. 2016. The cost of compliance: FIN 48 and audit fees. *Journal of the American Taxation Association*, forthcoming.

Ernst & Young 2014. Bridging the divide: Highlights from the 2014 tax risk and controversy survey. Ernst & Young LLP, Washington, DC.

Financial Accounting Standards Board (FASB). 2006. *Accounting for Uncertainty in Income Taxes*. FASB Interpretation No. 48. Norwalk, CT: FASB.

Finley, A. 2015. The impact of large tax settlements on firms' subsequent tax avoidance. Working paper, Claremont McKenna College.

Finley, A. and J. Stekelberg. 2016. The economic consequences of tax service provider sanctions: evidence from KPMG's deferred prosecution agreement. *Journal of the American Taxation Association* 38 (1): 57–78.

Francis. J. R. 2004. What do we know about audit quality? *The British Accounting Review* 36 (4): 345–368.

Francis, J. R. 2006. Are auditors compromised by nonaudit services? Assessing the evidence. *Contemporary Accounting Research* 23 (3): 747–760.

Francis, J. R., K. Reichelt, and D. Wang. 2005. The pricing of national and city-specific reputations for industry expertise in the US audit market. *The Accounting Review* 80 (1): 113–136.

Francis J. R., and P. N. Michas. 2013. The contagion effect of low-quality audits. *The Accounting Review* 88 (2): 521–552.

Frankel, R. M., M. F. Johnson, and K. K. Nelson. 2002 The relation between auditors' fees for nonaudit services and earnings management. *The Accounting Review* 77 (s-1): 71–105.

Gallemore, J., and E. Labro. 2015. The importance of the internal information environment for tax avoidance. *Journal of Accounting and Economics* 60 (1): 149–167.

Gleason C. A., and L. F. Mills. 2011. Do auditor-provided tax services improve the estimate of tax reserves? *Contemporary Accounting Research* 28 (5): 1484–1509.

Guenther, D., S. Matsunaga, and B. Williams. 2016. Is tax avoidance related to firm risk? *The Accounting Review*, forthcoming.

Halperin, R., and K.-W. Lai. 2015. The relation between auditor-provided tax service fees and audit fees after the Sarbanes-Oxley Act: From the perspective of cross-selling of services. *Journal of Accounting, Auditing & Finance* 30 (3) 341–372.

Hamilton, R. and J. Stekelberg. 2016. The effect of high quality information technology on corporate tax avoidance and tax risk. *Journal of Information Systems*, forthcoming.

Hanlon, M. and S. Heitzman. 2010. A review of tax research. *Journal of Accounting and Economics* 50 (2–3): 127–178.

Hanlon, M., G. Krishnan, and L. Mills. 2012. Audit fees and book-tax differences. *Journal of the American Taxation Association* 34 (1): 55–86.

Hay, D. C., W. R. Knechel, and N. Wong. 2006. Audit fees: A meta-analysis of the effect of supply and demand attributes. *Contemporary Accounting Research* 23 (1): 141–191.

Heckman, J. J. 1979. Sample selection bias as a specification error. *Econometrica* 47 (1): 153–161.

Heltzer, W., and S. W. Shelton. 2015. Book-tax differences and audit risk: Evidence from the United States *Journal of Accounting, Ethics and Public Policy* 16 (4) 692–733.

Hutchens, M. and S. O. Rego. 2015. Does greater tax risk lead to increased firm risk? Working paper, Indiana University.

Irani, A. J., S. L. Tate, and L. Xu. 2015 Restatements: Do they affect auditor reputation for quality?. *Accounting Horizons* 29 (4): 829–851.

Kennedy, P. (1992). A Guide to Econometrics. Oxford: Blackwell.

Kinney, W. R., Z-V. Palmrose, and S. Scholz. 2004. Auditor independence, non-audit services, and restatements: Was the U.S. government right? *Journal of Accounting Research* 42 (3): 561–588.

Knechel W. R., and D. S. Sharma. 2012. Auditor-provided nonaudit services and audit effectiveness and efficiency: Evidence from pre-and post-SOX audit report lags. *AUDITING: A Journal of Practice & Theory* 31 (4): 85–114.

Krishnan G. V., and G. Visvanathan. 2011. Is there an association between earnings management and auditor-provided tax services?. *Journal of the American Taxation Association* 33 (2): 111–135.

Krishnan, G. V., G. Visvanathan, and W. Yu. 2013. Do auditor-provided tax services enhance or impair the value relevance of earnings? *Journal of the American Taxation Association* 35 (1): 1–19.

Lassila, D., T. Omer, M. Shelley, and L. Smith. 2010. Do complexity, governance, and auditor independence influence whether firms retain their auditors for tax services? *Journal of the American Taxation Association* 32 (1): 1–23.

Lyon, J. D., and M. W. Maher. 2005 The importance of business risk in setting audit fees: Evidence from cases of client misconduct. *Journal of Accounting Research* 43 (1): 133–151.

McGuire, S. T., T.C. Omer, and D.D. Wang. 2012. Tax avoidance: does tax-specific industry expertise make a difference? *The Accounting Review* 87 (3): 875–1003.

Morgan J., and P. Stocken. 1998. The effects of business risk on audit pricing. *Review of Accounting Studies* 3 (4): 365–385.

Neuman, S., T. Omer, and A. Schmidt. 2015. Assessing tax risk: practitioner perspectives. Working paper, University of Missouri, University of Nebraska, and North Carolina State University.

Paterson J. S., and A. Valencia. 2011. The effects of recurring and nonrecurring tax, audit-related, and other nonaudit services on auditor independence. *Contemporary Accounting Research* 28 (5): 1510–1536.

Pratt J., and J. D. Stice. 1994 The effects of client characteristics on auditor litigation risk judgments, required audit evidence, and recommended audit fees. *The Accounting Review* 69 (4): 639–656.

Rapoport, M. 2014. U.S. Audit Regulator Scrutinizing PwC over Caterpillar Tax Advice. *Wall Street Journal*. November 18.

Robinson, L. A., B. Stomberg, E. M. Towery. 2016. One size does not fit all: How the uniform rules of FIN 48 affect the relevance of income tax accounting. *The Accounting Review* 91 (4): 1195–1217.

Saavedra, D. 2015. Tax spike firms. Working paper, UCLA.

Simunic, D. A. 1980. The pricing of audit services: Theory and evidence. *Journal of Accounting Research* 18 (1): 161–190.

Simunic D. A., and M. T. Stein. 1996. Impact of litigation risk on audit pricing: A review of the economics and the evidence. *AUDITING: A Journal of Practice & Theory* 15 (2): 119–134.

Tepalagul N., and L. Lin. 2015. Auditor independence and audit quality. *Journal of Accounting, Auditing & Finance* 30 (1) 101–121.

APPENDIX
VARIABLE DEFINITIONS

Variable	Definition (with Compustat and AuditAnalytics data codes in parentheses)
LNFEES	Natural logarithm of external audit fees, which AuditAnalytics reports in dollars. (AUDIT_FEES)
TAXRISK	Standard deviation of annual effective tax rates (annual tax expense or tax paid scaled by annual pretax income less special items) over the period *t*−4 to *t*. In alternative specifications, we use both cash and GAAP ETR-based measures of tax risk. To avoid effects of outliers, observations with *TAXRISK* values more than 1 are excluded from the sample. (TXPD, TXT, PI, and SPI)
APTS	Indicator variable equal to 1 if the ratio of tax fees to audit fees paid to the external auditor is more than 10 percent, 0 otherwise. (TAX_FEES and AUDIT_FEES)
TA	Indicator variable equal to 1 if the firm is tax aggressive, 0 otherwise. Tax aggressiveness is defined as a firm with either five-year CASH ETR or GAAP ETR in lowest 2-digit SIC code industry-year quintile. (Donohoe and Knechel 2014)
LNASSETS	Natural logarithm of total assets, which Compustat reports in millions. (AT)
INVREC	Sum of inventory and receivables scaled by total assets. (INVT, RECT, and AT)
AUDITLAG	Number of days from fiscal year end to issuance of the audit opinion. Observations were excluded from analysis when this calculation was negative, which is likely due to incorrect coding within AuditAnalytics. (SIG_DATE_OF_OP_S and FISCAL_YEAR_END_OP)
SEPARATE	Indicator variable equal to 1 if the firm has separately reported items (either extraordinary items or discontinued operations), 0 otherwise. (XIDOC)
FOREIGN	Indicator variable equal to 1 if foreign income is not equal to 0, 0 otherwise. (PIFO)
MERGER	Indicator variable equal to 1 if the firm reports merger and acquisition activity, 0 otherwise. (AQC)
ROA	Pre-tax income scaled by total assets. (PI and AT)
LOSS	Indicator variable equal to 1 if firm has negative net income, 0 otherwise. (NI)
LEVERAGE	Total debt divided total assets. (LT and AT)
ZSCORE	Altman (1968) bankruptcy prediction score. (NI, AT, SALE, RE, WCAP, PRCC_F, CSHO, and LT)
LITIGATE	Indicator variable equal to 1 if the firm's SIC code indicates the firm operations within a litigious industry, 0 otherwise. (Francis and Michas 2013)
ROAVOL	Standard deviation of pre-tax income scaled by assets over the current and prior four years. (PI and AT)
BTM	Book value of equity divided by the market value of equity. (CEQ, PRCC_F, and CSHO)
BIG4	Indicator variable equal to 1 if the firm is audited by a Big Four accounting firm, 0 otherwise. (AU)
INITIAL	Indicator variable equal to 1 if the firm changed auditors in the current year, 0 otherwise.
TENURE	Number of consecutive years the firm has been audited by the same auditor.
YEAREND	Indicator variable equal to 1 if the firm has a calendar year end, 0 otherwise. (FYR)
NONAUDIT	Nonaudit feed paid to the external auditor scaled by audit fees. (NON_AUDIT_FEES and AUDIT_FEES)

EXPERT	Indicator variable equal to 1 if the firm is audited by a national expert auditor, defined following Francis, Reichelt, and Wang (2005) as an auditor with at least 30 percent of market share of audit fees within the firm's industry, 0 otherwise.
RESTATEMENT	Indicator variable equal to 1 if the firm restated its financial statements in the current year, 0 otherwise. (RES_ADVERSE)
POST	Indicator variable equal to 1 for years subsequent to 2007, 0 otherwise.
UTB	Year-end uncertain tax benefits scaled by total assets. (TXTUBEND and AT)

TABLE 1
SAMPLE SELECTION

Selection Criteria	Observations
All Compustat firms (reporting total assets and sales more than zero) with data availability from 2003 to 2014	86,101
Less: observations representing financial and utility firms	(22,430)
Less: observations missing data necessary to calculate dependent variable and variables of interest	(33,066)
Less: observations missing data necessary to calculate control variables	(5,455)
Less: observations with negative numerator or denominator in five-year cash or GAAP effective tax rate calculation	(7,634)
Final sample for primary tests	17,516

Note: this table summarizes the sample selection procedure followed in this study.

TABLE 2
DESCRIPTIVE STATISTICS

Variable	N	Mean	50th Pctl	Std Dev	25th Pctl	75th Pctl
LNFEES	17,516	13.9168	13.9457	1.2939	13.1003	14.7768
Audit fees ($ thousands)	17,516	2,427	1,139	3,758	489	2,615
TAXRISK(Cash ETR)	17,516	0.1612	0.1053	0.1619	0.0596	0.1972
TAXRISK(GAAP ETR)	17,516	0.1431	0.0673	0.1821	0.0284	0.1794
APTS	17,516	0.4582	0.0000	0.4983	0.0000	1.0000
TA	17,516	0.2861	0.0000	0.4520	0.0000	1.0000
LNASSETS	17,516	6.7280	6.7211	1.9278	5.4517	8.0117
Total assets ($ thousands)	17,516	4,550,000	830,000	11,642,000	233,000	3,016,000
INVREC	17,516	0.2822	0.2601	0.1748	0.1440	0.3868
AUDITLAG	17,516	65.1262	59.0000	33.4612	54.0000	72.0000
SEPARATE	17,516	0.1777	0.0000	0.3823	0.0000	0.0000
FOREIGN	17,516	0.5574	1.0000	0.4967	0.0000	1.0000
MERGER	17,516	0.5241	1.0000	0.4994	0.0000	1.0000
ROA	17,516	0.0923	0.0875	0.0985	0.0455	0.1411
LOSS	17,516	0.1134	0.0000	0.3171	0.0000	0.0000
LEVERAGE	17,516	0.4662	0.4635	0.2129	0.3061	0.6038
ZSCORE	17,516	5.0341	3.8416	4.3289	2.5382	5.9708
LITIGATE	17,516	0.2445	0.0000	0.4298	0.0000	0.0000
ROAVOL	17,516	0.0581	0.0397	0.0573	0.0228	0.0706
BTM	17,516	0.5529	0.4507	0.4359	0.2788	0.7026
BIG4	17,516	0.8022	1.0000	0.3984	1.0000	1.0000
INITIAL	17,516	0.0468	0.0000	0.2112	0.0000	0.0000
TENURE	17,516	12.0756	9.0000	9.2879	5.0000	16.0000
YEAREND	17,516	0.6245	1.0000	0.4843	0.0000	1.0000
NONAUDIT	17,516	0.2726	0.1702	0.3242	0.0564	0.3619
EXPERT	17,516	0.2639	0.0000	0.4408	0.0000	1.0000
RESTATEMENT	17,516	0.0788	0.0000	0.2695	0.0000	0.0000
POST	17,516	0.5702	1.0000	0.4951	0.0000	1.0000
UTB	9,018	0.0103	0.0057	0.0135	0.0017	0.0134

Notes: This table presents the descriptive statistics for the sample. All tax variables are winsorized at 1. All other continuous variables are winsorized at the 1 and 99 percent levels. See Appendix for variable definitions.

TABLE 3
PEARSON CORRELATIONS

	LNFEES	*TAXRISK(Cash ETR)*	*TAXRISK(GAAP ETR)*	*APTS*	*TA*	*LNASSETS*	*INVREC*	*AUDITLAG*	*SEPARATE*	*FOREIGN*	*MERGER*	*ROA*	*LOSS*	*LEVERAGE*	*ZSCORE*	*LITIGATE*	*ROAVOL*	*BTM*	*BIG4*	*INITIAL*	*TENURE*	*YEAREND*	*NONAUDIT*	*EXPERT*	*RESTATEMENT*	*POST*
TAXRISK(Cash ETR)	**-0.13**																									
TAXRISK(GAAP ETR)	**-0.07**	**0.42**																								
APTS	**0.02**	**-0.02**	-0.01																							
TA	**0.03**	-0.01	**0.25**	0.01																						
LNASSETS	**0.88**	**-0.20**	**-0.16**	**0.04**	0.01																					
INVREC	**-0.19**	**0.09**	**0.02**	**0.02**	**-0.08**	**-0.29**																				
AUDITLAG	**-0.13**	**0.08**	**0.10**	**-0.06**	**0.02**	**-0.21**	**0.06**																			
SEPARATE	**0.18**	**0.04**	**0.04**	-0.01	**0.03**	**0.16**	**-0.06**	**-0.02**																		
FOREIGN	**0.50**	**-0.05**	0.00	**0.10**	**0.02**	**0.37**	-0.01	**-0.08**	**0.04**																	
MERGER	**0.38**	**-0.11**	**-0.06**	**0.04**	**-0.01**	**0.33**	**-0.08**	**-0.07**	**0.09**	**0.24**																
ROA	**-0.03**	**-0.25**	**-0.30**	**0.03**	**-0.18**	**0.02**	-0.01	**-0.10**	**-0.10**	**-0.02**	**-0.04**															
LOSS	**-0.05**	**0.21**	**0.28**	**-0.04**	**0.08**	**-0.12**	**0.01**	**0.11**	**0.05**	**-0.03**	**-0.07**	**-0.61**														
LEVERAGE	**0.39**	-0.01	**0.05**	0.01	**0.06**	**0.40**	**-0.01**	**-0.03**	**0.15**	**0.07**	**0.14**	**-0.18**	**0.06**													
ZSCORE	**-0.26**	**-0.10**	**-0.13**	0.01	**-0.09**	**-0.26**	**0.04**	**-0.03**	**-0.15**	**-0.06**	**-0.14**	**0.48**	**-0.17**	**-0.60**												
LITIGATE	**-0.02**	**-0.03**	0.00	0.00	**0.04**	0.01	-0.01	**0.02**	**-0.04**	**-0.04**	**-0.09**	**0.05**	0.00	**-0.12**	**0.17**											
ROAVOL	**-0.18**	**0.21**	**0.32**	**-0.03**	**0.09**	**-0.27**	-0.01	**0.11**	**-0.04**	**-0.08**	**-0.15**	**-0.13**	**0.30**	**-0.09**	**0.06**	**0.04**										
BTM	**-0.22**	**0.20**	**0.16**	**-0.08**	**0.06**	**-0.21**	**0.15**	**0.11**	**0.02**	**-0.13**	**-0.12**	**-0.43**	**0.30**	**-0.18**	**-0.26**	**-0.02**	**0.08**									
BIG4	**0.54**	**-0.12**	**-0.09**	**0.08**	**-0.03**	**0.55**	**-0.18**	**-0.14**	**0.09**	**0.26**	**0.22**	**0.02**	**-0.08**	**0.23**	**-0.11**	**0.02**	**-0.16**	**-0.23**								
INITIAL	**-0.12**	**0.04**	**0.04**	**-0.06**	0.00	**-0.12**	**0.04**	**0.05**	**-0.03**	**-0.05**	**-0.05**	**-0.02**	**0.02**	**-0.03**	**0.01**	**0.01**	**0.04**	0.04	**-0.19**							
TENURE	**0.31**	**-0.09**	**-0.10**	**0.09**	**-0.03**	**0.32**	**-0.04**	**-0.09**	**0.07**	**0.17**	**0.09**	**0.04**	**-0.07**	**0.11**	**-0.07**	**-0.01**	**-0.13**	**-0.09**	**0.26**	**-0.26**						
YEAREND	**0.12**	0.00	**0.04**	**-0.04**	**0.04**	**0.11**	**-0.13**	**0.04**	**0.05**	**0.03**	**0.05**	**-0.02**	0.01	**0.12**	-0.07	**-0.15**	**0.03**	**-0.04**	**0.06**	**-0.02**	**-0.02**					
NONAUDIT	**-0.03**	**-0.02**	**-0.03**	**0.54**	0.00	**0.08**	**-0.03**	**-0.07**	0.01	**0.04**	**0.09**	**0.02**	**-0.04**	**0.04**	**-0.01**	**-0.01**	**-0.04**	-0.09	**0.10**	**-0.03**	**0.03**	-0.05				
EXPERT	**0.24**	**-0.05**	**-0.05**	**0.06**	**-0.02**	**0.24**	**-0.01**	**-0.05**	**0.05**	**0.08**	**0.06**	0.00	**-0.02**	**0.12**	**-0.06**	**-0.02**	**-0.10**	**-0.06**	**0.29**	**-0.06**	**0.11**	**0.01**	**0.04**			
RESTATEMENT	**0.03**	**0.04**	**0.04**	**-0.02**	**0.03**	-0.01	-0.01	**0.14**	**0.02**	-0.01	0.00	**-0.08**	**0.06**	**0.04**	**-0.05**	**0.03**	**0.02**	**0.02**	0.02	0.05	**-0.02**	**-0.01**	-0.01	0.03		
POST	**0.15**	**-0.02**	**0.01**	**-0.09**	-0.01	**0.13**	**-0.07**	**-0.04**	0.00	**0.13**	0.01	**-0.08**	**0.06**	**0.05**	**-0.10**	**0.00**	**0.03**	0.12	**-0.05**	**-0.05**	**0.14**	0.03	**-0.18**	-0.02	**-0.02**	
UTB	**0.25**	-0.01	**0.07**	**0.05**	**0.10**	**0.15**	**-0.10**	**-0.05**	**0.02**	**0.22**	**0.05**	**0.03**	**0.03**	**0.05**	0.00	**0.11**	**0.11**	**-0.14**	**0.10**	**-0.02**	**0.07**	**-0.05**	**0.02**	**0.00**	**-0.01**	**-0.04**

Notes: this table presents Pearson correlations among the variables employed in this study. All variables are as defined in the Appendix. All tax variables are winsorized at 1. All other continuous variables are winsorized at the 1 and 99 percent levels. Correlations in **bold** are statistically significant at the 10 percent level or less.

TABLE 4
AUDIT FEE AND TAX RISK REGRESSION ANALYSIS

		***TAXRISK*= Std(Cash ETR)**		***TAXRISK*= Std(GAAP ETR**	
Variable	**Prediction**	**Estimate**	**t-statistic**	**Estimate**	**t-statistic**
Intercept	+	9.5678***	40.71	9.5755***	40.79
TAXRISK	+	0.2115***	5.45	0.1942***	5.35
APTS	+	0.0435***	3.00	0.0427***	2.93
TA	+	0.0509***	3.75	0.0309**	2.24
LNASSETS	+	0.5425***	77.28	0.5422***	77.50
INVREC	+	0.5785***	8.94	0.5831***	9.01
AUDITLAG	+	0.0017***	8.65	0.0016***	8.62
SEPARATE	+	0.1252***	7.95	0.1267***	8.04
FOREIGN	+	0.3242***	15.28	0.3233***	15.19
MERGER	+	0.1059***	8.20	0.1034***	8.01
ROA	−	−0.3300***	−3.42	−0.3422***	−3.56
LOSS	+	0.0808***	4.17	0.0732***	3.76
LEVERAGE	+	0.1240**	2.33	0.1192**	2.24
ZSCORE	−	−0.0036	−1.33	−0.0035	−1.31
LITIGATE	+	−0.0195	−0.61	−0.0176	−0.55
ROAVOL	+	0.8559***	7.04	0.7938***	6.40
BTM	−	−0.1293***	−6.84	−0.1257***	−6.64
BIG4	+	0.2688***	10.41	0.2671***	10.35
INITIAL	−	−0.0591***	−2.86	−0.0597***	−2.89
TENURE	+	0.0009	0.90	0.0009	0.95
YEAREND	+	0.0346*	1.88	0.0339*	1.84
NONAUDIT	−	−0.3490***	−15.39	−0.3482***	−15.34
EXPERT	+	0.0876***	5.58	0.0873***	5.56
RESTATEMENT	+	0.1039***	6.42	0.1055***	6.54
Industry and Year Fixed Effects		Yes		Yes	
Standard Errors Clustered by Firm		Yes		Yes	
Observations		17,516		17,516	
Adjusted R^2		0.8753		0.8753	

Notes: this table present the coefficient estimates and statistical significance levels from estimating the following OLS regression:

$$LNFEES = \beta_0 + \beta_1*TAXRISK + \beta_2*APTS + \gamma_1*TA + \gamma_2*LNASSETS + \gamma_3*INVREC + \gamma_4*AUDITLAG + \gamma_5*SEPARATE + \gamma_6*FOREIGN + \gamma_7*MERGER + \gamma_8*ROA + \gamma_9*LOSS + \gamma_{10}*LEVERAGE + \gamma_{11}*ZSCORE + \gamma_{12}*LITIGATE + \gamma_{13}*ROAVOL + \gamma_{14}*BTM + \gamma_{15}*BIG4 + \gamma_{16}*INITIAL + \gamma_{17}*TENURE + \gamma_{18}*YEAREND + \gamma_{19}*NONAUDIT + \gamma_{20}*EXPERT + \gamma_{21}*RESTATEMENT + \delta*FIXED\ EFFECTS + \varepsilon \quad (1)$$

Reported t-statistics are shown to the right of the coefficient estimates. See Appendix for variable definitions. *, **, and *** denote (two-sided) statistical significance at 10%, 5%, and 1%, respectively.

TABLE 5
TAX NONAUDIT SERVICES INTERACTION REGRESSION ANALYSIS

		***TAXRISK*= Std(Cash ETR)**		***TAXRISK*= Std(GAAP ETR**	
Variable	**Prediction**	**Estimate**	**t-statistic**	**Estimate**	**t-statistic**
Intercept	+	9.5607***	40.68	9.5630***	40.71
TAXRISK	+	0.2691***	5.47	0.2941***	6.53
APTS	+	0.0642***	3.44	0.0744***	4.26
TAXRISK*APTS	–	−0.1299**	−2.01	−0.2210***	−3.97
TA	+	0.0513***	3.79	0.0313**	2.27
LNASSETS	+	0.5422***	77.23	0.5419***	77.63
INVREC	+	0.5775***	8.92	0.5850***	9.06
AUDITLAG	+	0.0017***	8.63	0.0016***	8.62
SEPARATE	+	0.1254***	7.96	0.1267***	8.04
FOREIGN	+	0.3244***	15.31	0.3228***	15.23
MERGER	+	0.1058***	8.19	0.1028***	7.98
ROA	–	−0.3287***	−3.41	−0.3380***	−3.51
LOSS	+	0.0804***	4.14	0.0723***	3.72
LEVERAGE	+	0.1237**	2.33	0.1189**	2.23
ZSCORE	–	−0.0036	−1.34	−0.0036	−1.32
LITIGATE	+	−0.0192	−0.61	−0.0165	−0.52
ROAVOL	+	0.8607***	7.08	0.7969***	6.45
BTM	–	−0.1297***	−6.85	−0.1258***	−6.65
BIG4	+	0.2692***	10.43	0.2681***	10.41
INITIAL	–	−0.0595***	−2.88	−0.0604***	−2.93
TENURE	+	0.0009	0.87	0.0009	0.93
YEAREND	+	0.0345*	1.87	0.0348*	1.89
NONAUDIT	–	−0.3485***	−15.39	−0.3481***	−15.36
EXPERT	+	0.0878***	5.59	0.0869***	5.54
RESTATEMENT	+	0.1032***	6.38	0.1048***	6.51
Industry and Year Fixed Effects		Yes		Yes	
Standard Errors Clustered by Firm		Yes		Yes	
Observations		17,516		17,516	
Adjusted R^2		0.8754		0.8755	

Notes: this table present the coefficient estimates and statistical significance levels from estimating the following OLS regression:

$$LNFEES = \beta_0 + \beta_1*TAXRISK + \beta_2*APTS + \beta_3*TAXRISK*APTS + \gamma_1*TA + \gamma_2*LNASSETS + \gamma_3*INVREC + \gamma_4*AUDITLAG + \gamma_5*SEPARATE + \gamma_6*FOREIGN + \gamma_7*MERGER + \gamma_8*ROA + \gamma_9*LOSS + \gamma_{10}*LEVERAGE + \gamma_{11}*ZSCORE + \gamma_{12}*LITIGATE + \gamma_{13}*ROAVOL + \gamma_{14}*BTM + \gamma_{15}*BIG4 + \gamma_{16}*INITIAL + \gamma_{17}*TENURE + \gamma_{18}*YEAREND + \gamma_{19}*NONAUDIT + \gamma_{20}*EXPERT + \gamma_{21}*RESTATEMENT + \delta*FIXED\ EFFECTS + \varepsilon \quad (2)$$

Reported t-statistics are shown to the right of the coefficient estimates. See Appendix for variable definitions. *, **, and *** denote (two-sided) statistical significance at 10%, 5%, and 1%, respectively.

TABLE 6
POST FIN48 INTERACTION REGRESSION ANALYSIS

		***TAXRISK*= Std(Cash ETR)**		***TAXRISK*= Std(GAAP ETR**	
Variable	**Prediction**	**Estimate**	**t-statistic**	**Estimate**	**t-statistic**
Intercept	+	9.6584***	41.33	9.6634***	41.24
TAXRISK	+	0.1615***	2.94	0.1750***	3.61
APTS	+	0.0437***	3.02	0.0427***	2.94
POST	?	−0.0969***	−5.65	−0.0896***	−5.67
TAXRISK*POST	?	0.0908	1.42	0.0332	0.58
TA	+	0.0514***	3.79	0.0311**	2.25
LNASSETS	+	0.5424***	77.25	0.5422***	77.52
INVREC	+	0.5789***	8.94	0.5833***	9.02
AUDITLAG	+	0.0017***	8.64	0.0017***	8.62
SEPARATE	+	0.1255***	7.97	0.1267***	8.03
FOREIGN	+	0.3244***	15.29	0.3233***	15.20
MERGER	+	0.1060***	8.21	0.1033***	8.01
ROA	−	−0.3286***	−3.41	−0.3417***	−3.55
LOSS	+	0.0803***	4.14	0.0730***	3.75
LEVERAGE	+	0.1236**	2.33	0.1188**	2.23
ZSCORE	−	−0.0036	−1.34	−0.0035	−1.31
LITIGATE	+	−0.0187	−0.59	−0.0172	−0.54
ROAVOL	+	0.8527***	7.01	0.7920***	6.40
BTM	−	−0.1299***	−6.87	−0.1260***	−6.66
BIG4	+	0.2690***	10.42	0.2672***	10.35
INITIAL	−	−0.0583***	−2.82	−0.0598***	−2.89
TENURE	+	0.0009	0.91	0.0009	0.95
YEAREND	+	0.0347*	1.88	0.0340*	1.85
NONAUDIT	−	−0.3491***	−15.41	−0.3484***	−15.36
EXPERT	+	0.0876***	5.58	0.0873***	5.56
RESTATEMENT	+	0.1036***	6.40	0.1055***	6.54
Industry and Year Fixed Effects		Yes		Yes	
Standard Errors Clustered by Firm		Yes		Yes	
Observations		17,516		17,516	
Adjusted R^2		0.8754		0.8753	

Notes: this table presents the coefficient estimates and statistical significance levels from estimating the following OLS regression:

$$LNFEES = \beta_0 + \beta_1 * TAXRISK + \beta_2 * APTS + \beta_3 * POST + \beta_4 * TAXRISK * POST + \gamma_1 * TA + \gamma_2 * LNASSETS + \gamma_3 * INVREC + \gamma_4 * AUDITLAG + \gamma_5 * SEPARATE + \gamma_6 * FOREIGN + \gamma_7 * MERGER + \gamma_8 * ROA + \gamma_9 * LOSS + \gamma_{10} * LEVERAGE + \gamma_{11} * ZSCORE + \gamma_{12} * LITIGATE + \gamma_{13} * ROAVOL + \gamma_{14} * BTM + \gamma_{15} * BIG4 + \gamma_{16} * INITIAL + \gamma_{17} * TENURE + \gamma_{18} * YEAREND + \gamma_{19} * NONAUDIT + \gamma_{20} * EXPERT + \gamma_{21} * RESTATEMENT + \delta * FIXED\ EFFECTS + \varepsilon$$

Reported t-statistics are shown to the right of the coefficient estimates. See Appendix for variable definitions. *, **, and *** denote (two-sided) statistical significance at 10%, 5%, and 1%, respectively.