Muddying the Water:
The Impact of Corporate Tax Avoidance on Auditor Remuneration

Michael P. Donohoe
and
W. Robert Knechel

University of Florida
Fisher School of Accounting
PO Box 117166
Gainesville, FL 32611-7166
michael.donohoe@cba.ufl.edu

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Abstract

The paper examines whether corporate tax avoidance strategies and the presence of an industry-specialist impact an economic aspect of the auditor-client relationship – audit fees. Using a standard audit fee model augmented with multiple proxies for tax avoidance, the analyses provide strong evidence that sample firms with complex or uncertain tax positions (CUPs) pay substantially higher fees for external audit services (up to 14 percent higher). In addition, the evidence suggests that firms using an industry-specialist for both audit *and* tax services incur an additional economically significant fee premium ranging between 7 and 11 percent. This finding is particularly interesting in light of the fact that when an auditor is an industry specialist, the ability to earn a fee premium only occurs when the auditor also provides tax services to the client. In other words, the benefit of employing an industry specialist to conduct an audit depends on whether the auditor is providing nonaudit services (i.e., tax services). Overall, the evidence implies that the corporate tax avoidance activities of a firm can significantly impact the job of the external auditor. In doing so, the study offers insight into how taxes can affect the public accounting industry and its client-customers, as well as the importance of including tax constructs in auditing research and vice versa.

JEL Classification: H25; H26; M41; M42; M49.

Keywords: audit fees; auditor specialization; auditor-provided tax services; long-run tax avoidance; tax consulting; uncertain tax positions.

Data Availability: Data used in this study are available from public sources identified in the paper.

I. INTRODUCTION

"As if financial accounting rules are not enough to keep up with, you tax people really muddy things up for us auditors…"

–Colleague, former coworker, and Big N auditor

The responsibility of the external auditor is by no means straightforward. Numerous rules and procedures dictate how an audit is to be planned and performed, while financial reporting standards are often cumbersome and subject to a variety of situations and exceptions. The auditor's job, however, becomes even more complex upon considering the notion of corporate tax avoidance. In other words, the interaction of corporate taxes, auditing, and financial reporting creates a muddy mixture of rules, regulations, and procedures affecting both the client and its external auditor.

The current study presents evidence about whether corporate tax avoidance strategies and the presence of an industry specialist impact an economic aspect of the auditor-client relationship – audit fees. The theoretical basis for audit fee modeling (Simunic 1980) suggests an auditor's cost function consists of two components: production costs (e.g. time and resources) and expected future losses (e.g., litigation and reputational costs). Therefore, this paper considers two research questions based on the premise that the uncertainty and ambiguity inherent in tax avoidance has the potential to impact one or both of these components.

Before describing the research questions, it is important to note that the term *tax avoidance* does *not* necessarily imply that firms are conducting improper or illegal activities. By design, the tax code contains numerous provisions that allow and even encourage firms to reduce their taxes (e.g. research and development credits). However, the inherent ambiguity of tax laws, particularly within complex areas of tax practice, can oftentimes lead firms to take positions on their tax returns for which the ultimate outcome is uncertain (Dyreng, Hanlon, and Maydew 2008). Therefore, in this paper, tax avoidance refers to transactions involving the reduction, exclusion, or deferral of taxes

clearly within the congressional intent of the tax laws, *and* those transactions where the legality is uncertain or indeterminable.[1]

Regulators have recently implemented numerous tactics to combat the growing exploitation of uncertainty in the tax code. For example, the Sarbanes-Oxley Act of 2002 (hereafter, SOX) prohibits auditors from selling or promoting transactions lacking no business purpose other than tax avoidance, and also necessitates an examination of a firm's internal controls (Section 404), which includes those within the tax accounting department. As another example, the American Jobs and Creation Act of 2004 (hereafter, AJCA) extends the statute of limitations and increases the penalties for taxpayers failing to disclose certain reportable transactions on the tax return. Similarly, the IRS now requires certain corporate taxpayers to complete the Schedule M-3, which provides for a more complete reconciliation of accounting income to taxable income on the tax return (Boynton and Mills 2004).

Although some of these regulatory tactics mandate specific tax return disclosures and filings, many others address tax avoidance from a financial reporting perspective. For instance, the Financial Accounting Standards Board (FASB) has modified rules for leveraged lease transactions under FASB No. 13, *Accounting for Leases*, to address potential permanent losses of tax benefits due to new IRS restrictions on certain leasing activities.[2] Even more recently, and perhaps most notably, the FASB issued Interpretation No. 48, *Accounting for Uncertainty in Income Taxes* (hereafter, FIN 48) in

[1] The U.S. Treasury (1999) suggests a tax avoidance transaction is any transaction in which the reasonably expected pre-tax profit (determined on a present value basis, after taking into account foreign taxes as expenses and transaction costs) of the transaction is insignificant relative to the reasonably expected net tax benefits (i.e., tax benefits in excess of the tax liability arising from the transactions, determined on a present value basis) of such transaction. In addition, transactions involving improper elimination or significant reduction of tax on economic income is also considered a tax avoidance transaction.

[2] See FASB Staff Position No. FAS 13-2 (July 13, 2006). Restricted leasing transactions include those identified by the Treasury and IRS as "listed transactions." For example, the AJCA restricts the tax benefits associated with sale-in/lease-out (SILO) transactions, and Rev. Rul. 99-14 states that lease-in/lease-out (LILO) transactions lack the potential for significant economic consequences other than the creation of tax benefits, and therefore, lack economic substance.

2006. The Interpretation attempts to clarify the accounting for uncertainty in income tax benefits recognized in a firm's financial statements in accordance with FASB Statement No. 109, *Accounting for Income Taxes*.

Due to the increased regulatory focus on tax avoidance, external auditors must be particularly familiar with a client's tax positions in order to ensure the client complies with all applicable financial reporting regulations. Acquiring such familiarity however, likely requires considerable time and resources especially in the case of complex or gray-area matters. Additionally, by virtue of an evolving regulatory environment seemingly fixated on curbing corporate tax avoidance, auditors are also exposed to additional litigation, reputational, and administrative penalty risks in the event tax authorities challenge a client's tax positions. Taken together, firms with more *complex or uncertain tax positions* (hereafter, CUPs) will not only require more time to audit, but will also expose the auditor to greater risks. As such, the first research question addresses whether firms with CUPs incur higher fees for external audit services.

The impact of auditor specialization on audit fees has received increasing research attention in recent years. Generally, auditor specialization is measured as the percentage of an industry that is audited by a specific auditing firm (Hay, Knechel, and Wong 2006). The basic notion in these studies is that a client-firm hires a specialist because of economies of scale (e.g., Danos and Eichenseher 1982), superior reputation (Hay and Jeter 2008), the receipt of industry-specific consultation, and/or more efficient (and hopefully cheaper) auditing. Recent evidence suggests that industry specialist auditors earn fee premiums for audit services across time and in international markets (e.g., Francis, Reichelt, and Wang 2005; Ferguson and Stokes 2003; DeFond, Francis, and Wong 2003). This evidence, however, is inconclusive given that a number of other studies find little or no evidence of fee premiums (Ferguson and Stokes 2003; Palmrose 1986), or fee premiums in only certain situations or subsets of firms (Hay and Jeter 2008; Craswell, Francis and Taylor 1995).

The importance and practical significance of auditor specialization research raises the question of whether we can expand our understanding of audit fees by examining the relationship between audit fees and those specialist auditors who also provide tax services to their clients. The idea is that the core competencies comprising auditor industry specialization likely carry over to the tax side as well. That is, the auditor's investment in technology, research, and specialized staff training as part of acquiring their industry expertise should also enhance the expertise of the in-house tax staff. As such, the more the specialist auditor provides tax services to clients in the industry of expertise, the more the auditor's tax staff encounters industry-specific tax-related issues.

With this in mind, we question whether the potential for knowledge spillover and production efficiencies associated with the cross-subsidization of audit and tax services lead to discounted audit fees, or whether the auditor charges fee premiums for audit services to earn positive returns on the auditor's investment in expertise. In other words, the second research question examines whether firm utilizing an industry specialist for both audit *and* tax services incur an audit fee premium. This is an empirical question as both the industry specialization and auditor-provided tax services literatures offer conflicting arguments in favor of both fee premiums and discounts.

Existing research uses a variety of measures to capture a firm's ability to avoid taxes. However, a majority of these metrics are based solely on annual data (e.g., effective tax rate) and do not consider variation in tax laws over time, the long-run strategies employed by the firm to reduce taxes, or the payments to (or refunds from) tax authorities upon settling disputes arising in prior years. To overcome these and other limitations, this paper uses two measures of long-run corporate tax avoidance to identify firms likely having CUPs: (1) the cash effective tax rate developed by Dyreng et al. (2008); and (2) the accumulated effective tax rate used by Ayers, Jiang, and Laplante (2008). Each of these two measures is based on a firm's ability to pay a low amount of taxes over an extended period of time. In doing so, firms with extremely low long-run tax rates are the most likely

to be employing tax avoidance strategies (e.g., Blouin and Tuna 2007), which very likely involve one or more CUPs.

A standard approach for examining the determinants of audit fees has developed in the academic literature over time. Empirical models of audit fees generally estimate fees as a function of firm size, control variables known to be significant in prior studies, and the experimental variables under scrutiny. Moreover, these models demonstrate high explanatory power and are robust across different samples, countries, and time periods (Hay et al. 2006). Therefore, to examine the first research question, we augment the standard audit fee model with the two proxies for CUPs (experimental variables) described above. To examine the second research question, we further augment the standard audit fee model with variables capturing the presence of an industry specialist and auditor-provided tax services. The interaction of these two variables serves as a proxy for industry specialists that provide both audit and tax services to the same client. Then, using a sample of 9,364 firm-year observations from 2,199 unique firms for the period 2001-2006, we perform several analyses that reveal the following new insights.

First, corporate tax avoidance is positively related to audit fees and, as a result, sample firms with CUPs pay between 6 and 14 percent more, on average, for external audit services than other firms. This fee premium is economically significant as the annual difference in audit fees for these firms' ranges anywhere from $107,100 to $238,000, on average, per audit engagement. Moreover, the evidence implies that the tax avoidance activities of a firm not only affect the function of the external auditor, but also increase the cost of audit engagements. As such, managers should consider these additional costs when evaluating the benefits of conducting complex or uncertain tax avoidance transactions.

Second, we find compelling evidence that firms using an industry-specialist for both audit *and* tax services incur economically significant fee premiums ranging between 7 and 11 percent. We

also find evidence that when an auditor is an industry specialist, the ability to earn a fee premium only occurs when the auditor also provides tax services to the client. Stated differently, the benefit of employing an industry specialist to conduct an audit depends on whether the auditor is providing other services (i.e., tax). Consequently, absent additional tax services, an industry specialist is unable to earn a fee premium on the audit engagement.

Many recent regulations and their increasing objective to mitigate tax avoidance have motivated numerous academic studies employing a variety of research methods. Surprisingly though, very few of these studies consider the role of the financial statement auditor.[3] As noted by Maydew and Shackelford (2005), when auditors are mentioned in the tax literature, they are almost always employees of the Internal Revenue Service (IRS), rather than accounting firms. Instead, numerous studies examine the economic impact of specific regulatory policies or the interplay between tax planning and financial reporting incentives.[4] Likewise, potentially relevant tax related constructs are routinely absent in the auditing literature. Therefore, this paper contributes to the tax and auditing literature by combining aspects of both disciplines in the same study.

To our knowledge, we are also the first study to consider the interaction between industry specialization and auditor-provided tax services. Consequently, we contribute to both streams of literature by providing evidence that industry specialist auditors are unable to earn a fee premium on audit engagements unless the auditor also provides other services, such as tax compliance or consulting services.

This study is different from, but complementary to, a recent paper by Hanlon and Krishnan (2006) examining whether book-tax differences are associated with higher audit fees, more modified

[3] Recent exceptions include, for example, Bedard and Paquette (2008); Cook, Huston, and Omer (2008); Hanlon and Krishnan (2006); Omer, Bedard, and Falsetta (2006); Kinney, Palmrose, and Scholz (2004); and Maydew and Shackelford (2005).

[4] Recent studies include, for example, Frischmann, Shevlin, and Wilson (2008); Blouin, Gleason, Mills, and Sikes (2008); Chen, Chen, Cheng, and Shevlin (2008); Jimenez-Angueira (2008); and Frank, Lynch, and Rego (2007). See the reviews in Shackelford and Shevlin (2001) and Maydew (2001) for additional references.

audit opinions, and greater auditor turnover. In particular, their study posits that when a firm has large book-tax differences the firm is manipulating one or both income measures (book income or taxable income) opportunistically. Therefore, they infer book-tax differences reflect information about possible earnings management and also argue that auditor's use this information when opining on financial statements. Despite the differences in research questions and focus on tax avoidance (long-run versus short-run), their results and those of this study further demonstrate the importance of including taxes in auditing research, and auditing in tax research.

The remainder of the paper is organized as follows. Section II develops the formal research hypotheses, while the research design and empirical results are discussed in Section III and IV, respectively. Finally, Section V discusses several sensitivity analyses, and Section VI offers concluding remarks.

II. HYPOTHESIS DEVELOPMENT

Corporate Tax Avoidance and Audit Fees

In his seminal work, Simunic (1980) models the fees charged by an external auditor as follows:

$$E(\tilde{C}) = cq + E(\tilde{d} \mid a, q)E(\tilde{\Theta}), \quad [1]$$

where $E(\tilde{C})$ denotes the expected total costs to the auditor and, equivalently the audit fees charged to the client; c represents the per unit factor cost of external audit resources, including all opportunity costs and a markup for normal profit; q denotes the quantity of resources that the auditor utilizes in performing the audit; $\tilde{d}$ represents the present value of possible future losses that may arise from auditing this period's financial statements; a denotes the quantity of resources utilized directly by the auditee (client) in operating the internal accounting system; $E(\cdot)$ is the expectation operator; and $E(\tilde{\Theta})$ denotes the *ex-post* likelihood that the auditor will be held financially responsible for the possible future losses.

Stated differently, the auditor's cost function consists of two components: (1) a production cost component, cq; and (2) an expected future loss component, $E(\tilde{d} \mid a,q)E(\tilde{\Theta})$. Production costs are commonly defined as the costs of carrying out the audit engagement and are related to such factors as the amount of time (effort) spent working on the engagement. Consequently, most empirical studies model production costs as functions of client size, complexity, and risk (Hay, et al. 2006).

Expected future losses typically arise in the form of litigation, either actual or threatened, against the client-firm. Litigation against the auditor, however, occurs when shareholders, creditors, or other third parties attempt to recover losses by attributing them to defects in the audited financial statements, thereby assigning responsibility for the losses to the auditor. Since financial statements can contain undetected material misstatements which may not be revealed until after an audit report has been issued, the expected future loss component includes the costs the auditor might incur *after* completing the engagement (Seetharman et al. 2002). *Ex post* revelations, such as lawsuits by shareholders and penalties imposed by regulators, may lead to accusations of negligence against the auditor resulting in costly litigation and even a loss of auditor reputation. Moreover, because audit fees cannot normally be adjusted *ex post* to cover actual litigation and reputational losses, an auditor has a strong incentive to minimize actual losses and to incorporate any expected losses into the audit fee (Simunic and Stein 1996).[5]

The ambiguity and uncertainty inherent in tax avoidance has the potential to directly affect both components of the auditor's cost function. First, an auditor may find it necessary to spend considerable time and resources evaluating a client's tax positions in order to properly address any financial reporting implications. For example, an auditor must comprehend the tax positions before

[5] Fees could be adjusted both for individual audits and for the public accounting firm's portfolio of audits. See Simunic and Stein (1990, 1996).

evaluating the client's measurement of unrecognized tax benefits (tax reserve) reported in accordance with FIN 48. Consequently, the additional research, consultations with in-house tax staff, and creation of more detailed workpapers will increase the production costs (*cq*) of the audit engagement. The possibility of higher production costs is further enhanced by evidence suggesting a decoupling of the longstanding link between audit and tax services in light of SOX and other recent regulations (Omer et al. 2006; Maydew and Shackelford 2005). That is, some firms are shifting their purchase of tax services (compliance, planning, and consulting) away from their auditor and towards more independent providers (i.e., other accounting firms, tax attorneys). Therefore, as auditors examine a client's tax positions, it is increasingly *less* likely that the tax strategies were developed by the audit firm's tax professionals. This circumstance makes the auditor's job much more difficult because the "creators" of complex tax positions are not likely to be available for assistance. Consequently, developing a complete understanding of a client's tax positions is becoming much more difficult and time consuming, but all the more necessary.

Second, the auditor's assessment of expected future losses ($E(\tilde{d} \mid a,q)E(\tilde{\Theta})$) will be strongly influenced by the current regulatory environment and internal client-specific factors (Seetharman et al. 2002), such as the pervasiveness of tax avoidance transactions. Thus, the complex and dynamic nature of tax-related financial reporting regulations, enhanced enforcement efforts by authorities, and the possibility that certain tax positions may not withstand intense scrutiny can all affect the auditor's evaluation of expected future losses. For instance, clients and other third parties may attempt to hold auditors responsible for tax-related deficiencies in the financial statements (i.e., improper application of FIN 48) and other costs (i.e., legal fees) relating to challenged tax positions. As another example, auditors may be subject to monetary or other administrative penalties levied by regulators for improper reporting or disclosure of tax avoidance transactions. Regardless of the

outcome, the auditor's assessment of expected future losses must consider the costs of defending such claims should they arise, as well as any adverse reputational consequences that may follow.

Taken together, firms with CUPs should incur higher fees for external audit services because these engagements will require more auditor effort and expose the auditor to an increased likelihood of future losses. This premise is consistent with research documenting a positive association between audit fees and the inherent risk of an engagement. That is, certain parts of the audit (in this case, the evaluation of tax avoidance transactions) may have a higher risk of error and require specialized audit procedures ultimately resulting in higher fees (e.g., Stice 1991). Even so, the empirical evidence on this issue is largely inconclusive as the relationship between audit fees and exposure to potential future losses is generally weak in most audit fee studies (Hay et al. 2006).

As an explanation for the weak relationship between audit fees and potential future losses, some research argues that auditors make client-specific risk adjustments through increased auditor effort (O'Keefe, Simunic, and Stein 1994; Simunic and Stein 1996; Menon and Williams 2001; Hay et al. 2006). For example, even though the evaluation of a client's tax positions may require additional time and resources, the amount may not be so large as to induce a significant fee premium for the engagement. This situation is evident in Equation [1] as the auditor's cost is increasing in the level of audit effort, while expected future losses decrease with increasing audit effort, i.e., $E(\tilde{d}) = f(\iota q)$, where f is decreasing in effort (Simunic 1980). In turn, empirically documenting an audit fee premium may be difficult in this case as it is possible a premium does not exist. Nevertheless, regulators recent laser-like focus on mitigating corporate tax avoidance may overshadow the likelihood that increased audit effort will sufficiently reduce the auditor's exposure to future losses. With this mind, the first hypothesis (in alternative form) is as follows:

H_1: *Firms with CUPs pay a fee premium for audit services.*

Auditor-Provided Tax Services and Industry Specialization

The question of whether auditor specialization impacts audit fees has received increasing research attention in recent years. Generally, auditor specialization is measured as the percentage of an industry that is audited by a specific auditing firm (Hay et al. 2006). This literature mostly argues that the demand for a specialist auditor is driven by the specialist's superior reputation (Hay and Jeter 2008). In turn, client-firms attempt to signal the quality of their financial reporting by utilizing a specialist auditor; hopefully leading to benefits such as reduced costs of capital. Other theories of specialist demand include significant economies of scale (e.g., Danos and Eichenseher 1982), the receipt of industry-specific advice and consultation, and more efficient (and hopefully cheaper) audit services.

Recent evidence suggests that industry specialist auditors earn fee premiums for audit services across various time periods and in international markets (e.g., Francis, Reichelt, and Wang 2005; Ferguson, Francis and Stokes 2003; DeFond, Francis, and Wong 2003). The theory frequently offered for this finding is that a fee premium relates to the auditor's superior reputation for providing expertise in a specific industry where the auditor's investment in additional expertise necessitates a positive return thereby resulting in substantial fee premiums. This evidence is mixed, however, as a number of research studies find little or no evidence of specialist fee premiums (Ferguson and Stokes 2003; Palmrose 1986), or fee premiums in only certain situations or subsets of firms (Hay and Jeter 2008; Craswell, Francis and Taylor 1995). In these cases, the literature often argues that production efficiencies resulting from specialization are passed on to the client leading to either no fee premium or a fee discount. Moreover, there is also a great deal of debate in the literature regarding how a specialist measure should be operationalized, and thus measurement error is oftentimes used as an explanation for failing to find evidence of specialist fee premiums.

Another stream of auditing research examines the market for auditor-provided tax services. This topic is often subject to controversy and debate as some commentators allege that the joint production of audit and tax services may compromise audit quality, auditor independence, and ultimately risk shareholder value (e.g., Rankin 2004). Others, however, contend that the joint provision of audit and tax services may benefit shareholders due to efficiencies achieved by having a single professional services firm serve as both auditor and tax consultant (Omer et al. 2006).

Nevertheless, like the specialization literature, the relationship between audit fees and the existence of nonaudit services (such as tax services) is also mixed. One the one hand, it is argued that the provision of nonaudit services can lead to lower fees because of cross-subsidization of fees or synergies between audit and nonaudit services. On the other hand, nonaudit services could be associated with higher audit fees because such services may lead to extensive changes in an organization that require additional effort, or because clients that buy consulting services may be problematic in general, or because monopoly power and service efficiency in the nonaudit service market allow auditors to charge fee premiums (Hay et al. 2006).

The core competencies comprising auditor industry specialization very likely carry over to tax department as well. Specialist auditors will certainly invest considerable resources in custom technology, research, and enhanced area-specific staff training and support. As such, the investments in expertise should also enhance the skill set and expertise of the auditor's tax staff. In addition, the more the specialist auditor provides tax services to clients in the industry of expertise, the more the auditor's tax staff encounters various industry-specific tax related issues. As a result, a specialist auditor providing tax services to clients in the industry of expertise is very likely to develop some industry specialization as well. Combining this notion with the mixed evidence and conflicting theories in the auditor specialist and nonaudit service literatures raises an interesting question: do client-firms utilizing an industry specialist for both audit *and* tax services incur an audit fee premium?

Prior research seems to suggest that specialists might experience economies of scale when auditing clients that operate in the industry of expertise (Hay and Jeter 2008). It is also often argued that the provision of non-audit services can lead to production efficiencies due to the cross-subsidization and knowledge spillovers between the two types of services (e.g., Hay et al. 2006). For example, specialists may incur substantial production efficiencies including reduced planning costs, less research time involving complex industry-related issues, and more efficient substantive testing (fieldwork). Additionally, both industry expertise and tax-related knowledge spillovers may mitigate an auditor's perception of engagement- or client-related exposures to potential future losses. Relating these circumstances to the auditor's cost function (Equation [1]) suggests that potential economies of scale and production efficiencies can result in lower production costs (cq), while knowledge spillovers and expertise may reduce the auditor's assessment of expected future losses ($E(\tilde{d} \mid a,q)E(\tilde{\Theta})$). Taken together, firms using an industry specialist for both audit *and* tax services may experience a discount in audit fees provided the auditor passes some of the economies and efficiencies on to the client.

Alternatively, firms using an industry specialist for both audit *and* tax services may incur a fee premium for external audit services. For instance, auditor-provided tax services (beyond basic compliance work), even when provided by an industry specialist, may be associated with higher audit fees if certain tax avoidance transactions necessitate additional audit effort and/or require more complex financial reporting. As alluded to earlier, clients purchasing tax services (or other nonaudit services) may be more problematic in general and therefore incur fee premiums for audit services. It is also possible that monopoly power and service efficiency permit the auditor to charge higher fees. Additionally, the acquisition of expertise and specialization in any industry is costly. Once expertise is attained, the specialist will strive to earn a return on their expertise-investment by increasing competitive advantages over non-specialists through superior reputation, substantial cost reductions,

value of assurance provided, or some combination of these (Hay and Jeter 2008). Specialists, therefore, may be reluctant to pass on savings from production efficiencies to their clients in order to realize greater returns on their investment in expertise and specialization.

Although it is reasonable to argue that auditors may realize greater non-financial returns such as client goodwill and reputation-capital by passing on some of the economies of scale and production efficiencies to their client in the form of discounted fees, earning "real" returns on expertise and specialization related investments likely prevails. With this in mind, the second hypothesis (in alternative form) is as follows:

H_2: *Firms using an industry-specialist for both audit and tax services pay a fee premium for audit services.*

III. RESEARCH DESIGN & METHODS

Capturing Corporate Tax Avoidance

Prior to conducting empirical tests of the above hypotheses, it is necessary to first select operational counterparts for the notion of CUPs. In particular, we use two long-run tax rate measures to identify whether a firm has CUPs: (1) the cash effective tax rate developed by Dyreng et al. (2008); and (2) the accumulated effective tax rate employed by Ayers et al. (2008).

Cash Effective Tax Rate

Dyreng et al. (2008) develop a measure of long-run corporate tax avoidance based on a firm's ability to pay a low amount of cash taxes (as opposed to total tax expense) per dollar of pre-tax earnings over extended periods of time.[6] More specifically, the measure attempts to capture a firm's worldwide tax avoidance strategy by combining the effects of income taxes in all jurisdictions in which the firm conducts business. The cash effective tax rate (hereafter, *Cash ETR*) is the ratio of cash taxes paid across all jurisdictions (foreign, domestic, state, and local) to the firm's worldwide

[6] The measure attempts to overcome the numerous limitations of the annual effective tax rate. See Dyreng et al. (2008) for details.

pretax book income. It is summed across multiple periods, ranging from one to *N* years – with the *N*-year measure representing the sum of all cash taxes paid over the *N* years divided by the sum of pretax book income over the same interval.

Many recent studies compute the *Cash ETR* over five years claiming this period is sufficient for tax authorities to review filed tax positions, challenge if necessary, and settle any potential claims (e.g., Ayers et al. 2008; Frischmann et al. 2007). However, in these studies the selection of a five year *N,* although sensible, is somewhat arbitrary. As an alternative, we rely on the federal statute of limitations governing the assessment of federal income taxes to determine an appropriate *N*.[7]

Generally, all income taxes must be assessed within three years after the original tax return is filed. However, in the event a taxpayer omits from gross income an amount greater than 25 percent of the gross income reported on the tax return, a six year limitation period applies. Also, in either case (three-year or six-year), the statute of limitations can be extended by written agreement between the taxpayer and the IRS. Assuming, for the most part, firms do not understate gross income by more than 25%, computing the *Cash ETR* over five years (as in recent studies) is reasonable and should allow for the settlement of most disputes with tax authorities. However, recent corporate scandals involving ultra-aggressive tax avoidance suggest some fraction of firms may in fact understate gross income by 25 percent or more.[8] Therefore, we choose a six year *N* to conduct the primary analyses, but also consider alternative levels of *N* in sensitivity analyses.

As with any financial measure, managerial decisions and choices in accounting methods can have considerable effects on the components of the *Cash ETR*. In addition, tax and financial

[7] See §6501 of the Internal Revenue Code (IRC) of 1986, as amended.

[8] For example, in the largest criminal tax case ever filed, KPMG admitted to engaging in a fraud generating at least $11 billion in phony tax losses costing the U.S. at least $2.5 billion in evaded taxes.[8] In addition, several individuals – including former KPMG partners and the former deputy chairman of the firm – are being criminally prosecuted in relation to the criminal tax fraud conspiracy. As part of an agreement with the Treasury and prosecutors, KPMG agreed to pay $456 million in penalties and restitution for the design, marketing, and implementation of fraudulent tax shelters.

reporting regulations are often developed with specific industry practices in mind. Therefore, the *Cash ETR* is more meaningful when it is used to compare firms within the same industry. Following this logic, we employ a two step procedure to identify firms with CUPs. First, for firm *i* measured over the period *m*=*t*-5 (a six-year *N*), the *Cash ETR* is calculated as follows:

$$Cash\ ETR_i = \frac{\sum_{m=t-5}^{N} Cash\ Tax\ Paid_{im}}{\sum_{m=t-5}^{N} (Pretax\ Income_{im} - Special\ Items_{im})}. \quad [2]$$

Firms exhibiting extremely low ratios (significantly below the average corporate tax rate) are likely employing tax avoidance strategies, which most certainly involve one or more CUPs. Therefore, a dichotomous variable, *CUPS*[$], is then set equal to 1 if the firm is in the lowest quintile of *Cash ETR*s for each year within its two-digit SIC industry membership; and 0 otherwise.[9]

Accumulated Effective Tax Rate

Ayers et al. (2008) examine firm characteristics enhancing (or mitigating) the ability of taxable income to inform investors about the financial performance of the firm. The authors identify "high tax planning firms" by calculating an accumulated effective tax rate (hereafter, *Accum. ETR*). This metric is similar to the *annual* effective tax rate, but with two important distinctions. First, the ratio is accumulated over long periods of time (similar to the *Cash ETR*) in order to compensate for over and understatements of annual tax liabilities. Second, deferred tax expense is deducted from total tax expense since deferred taxes represent future tax effects from current transactions, as opposed to taxes due in the current period.

Following Ayers et al. (2008), we employ another two step procedure to identify firms with CUPs. First, for firm *i* measured over the period *m*=*t*-5 (a six-year *N*), the *Accum. ETR* is calculated as follows:

[9] Other derivations involving the *Cash ETR* are used to identify firms with CUPs in sensitivity analyses with similar results.

$$Accum.\ ETR_i = \frac{\sum_{m=t-5}^{N} Current\ Tax\ Expense_{im}}{\sum_{m=t-5}^{N} (Pretax\ Income_{im} - Minority\ Interests_{im})} \quad [3]$$

where *Current Tax Expense* is equal to total tax expense less deferred tax expense. A dichotomous variable, $CUPS^{A}$, is then set equal to 1 if the firm is in the lowest quintile of *Accum. ETR*s for each year within its two-digit SIC industry membership; and 0 otherwise.[10]

Empirical Specification for H_1

To examine whether firms with CUPs incur higher audit fees (H_1), we augment the standard audit fee model (Simunic 1980; Hay et al 2006) with the operational proxies (experimental variables) for corporate tax avoidance. In particular, we estimate the following model using the two-way fixed effects regression method (a panel data estimator) to explicitly control for unobservable industry-specific characteristics and time-effects:

$$\begin{aligned} LNFEE_{it} = {} & \alpha + \beta_1(LNSIZE_{it}) + \beta_2(LNNAS_{it}) + \beta_3(SQSEGS_{it}) + \beta_4(INVREC_{it}) + \\ & \beta_5(LOSS_{it}) + \beta_6(LEV_{it}) + \beta_7(BIGN_{it}) + \beta_8(TENURE_{it}) + \beta_9(BUSY_{it}) + \\ & \beta_{10}(OPIN_{it}) + \beta_{11}(CUPS_{it}^{\$,A}) + \sum \tau_j(YEAR_j) + \sum \omega_j(IND) + u_{it}. \end{aligned} \quad [4]$$

where the dependent variable, *LNFEE*, is the natural logarithm of audit fees, standardized to June 2001 dollars using the Consumer Price Index. In doing so, because the dependent variable is the natural logarithm of audit fees, the estimated parameters (x100) of the dichotomous variables can be interpreted as percentage changes in external audit fees. Specific details regarding each variable, including calculations and data availability, are provided in Appendix A.[11]

[10] Other derivations involving the *Accum. ETR* are used to identify firms with CUPs in sensitivity analyses with similar results.

[11] It is necessary to account for macroeconomic factors before making inferences about the prices charged for audit services. However, the use of firm microdata precludes the inclusion of a macro variable (i.e., GDP growth) in a model with time fixed-effects because such economic factors do not vary across firms. Instead, the dependent variable *LNFEE*, and independent variables *LNSIZE* and *LNNAS* are standardized to June 2001 dollars using the Consumer Price Index. Only these three variables are standardized since all remaining variables are either dichotomous or a ratio where both the numerator and denominator would require the same adjustment.

The most important determinant of audit fees across virtually all published studies is the size of the client-firm (Simunic 1980; Hay et al. 2006). Thus, the variable *LNSIZE* controls for the size of the auditee and is expected to have a positive relationship with external audit fees. The relationship between audit and nonaudit services is complex. In particular, other (nonaudit) services offered by a firm's auditor can lead to lower audit fees (negative relationship) because of cross-subsidization and knowledge spillovers between the two types of services (e.g., Hay et al. 2006). Prior research, however, generally finds a positive relationship between the two services. This finding seems to suggest that more problematic firms require a greater quantity of both services (Simunic 1984), or nonaudit services lead to extensive changes in the organization (via consulting) that ultimately require additional audit effort (Palmrose 1986a). Consistent with this research, a positive relationship between nonaudit services (*LNNAS*) and audit fees is expected.[12]

The number of business segments (*SQSEGS*) and the ratio of inventories plus receivables to total assets (*INVREC*) reflect the complexity and inherent risk of the client, respectively. Complex clients are more difficult to audit and therefore more time consuming. Similarly, certain elements of an audit (i.e., receivables and inventory) are inherently subject to greater error and require additional specialized audit procedures. Hence, both variables typically have a positive relationship with audit fees. Client profitability and leverage also capture the extent to which an auditor may be exposed to future losses in the event a client is not financially viable. Accordingly, the variables *LOSS* and *LEV* should generate a positive association with audit fees.

Characteristics of the auditor may also affect the fees charged for external audit services. For example, higher audit fees might be expected when an auditor is recognized to be of superior quality or reputation. Thus, the variable *BIGN* is included in Equation [4] to control for this possibility, and should have a positive relationship with audit fees. A common marketing practice in public

[12] Prior research suggests audit fees and nonaudit service fees may be jointly determined leading to model misspecification. As a result, this possibility is evaluated in Section VI.

accounting involves offering services to potential clients at a significant discount. The idea behind this "low-balling" approach is to win new business and hopefully recoup any discounts by conducting efficient audits and retaining the client over a long horizon. As a result, a firm recently switching auditors may experience a significant decline (negative relationship) in audit fees. The variable *TENURE* considers this circumstance.

Finally, attributes of the specific audit engagement may impact the fees. For instance, an audit performed during the auditor's "busy season" may be more costly if the audit staff are working overtime or performing less efficiently. Likewise, in an effort to utilize otherwise idle resources, audit firms may offer discounted fees for work performed outside of the busy season. The variable *BUSY* is included in the model to capture the potential positive relationship of busy season on the audit fee. Significant unexpected problems arising during an audit engagement may also increase the amount of effort necessary to complete the engagement and enhance the risk of expected future losses. The audit opinion is often a clear indication of whether such problems exist and likely affect the auditor's cost function. Thus, the variable *OPIN* reflects anything other than a "clean" (unqualified) audit opinion and is expected to have a positive relationship with audit fees.

Empirical Specification for H_2

In order test H_2, the audit fee model described by Equation [4] is slightly altered. Specifically, two additional independent variables are considered. First, a dummy variable, *APTS*, is added to represent auditor-provided tax services. This variable identifies audit engagements where the auditor also provides the client-firm with some form of tax services (e.g., compliance, consulting, etc.) during the fiscal year. As discussed earlier, a positive association with audit fees may result if these services lead to extensive changes in the organization that require greater audit effort, or because clients purchasing these services are more problematic in general, or because monopoly power and service efficiency in the non-audit service market allow auditors to charge fee premiums. A negative

relation may result because of cross-subsidization of fees or synergies between audit and non-audit services. Prior research finds support for both situations (e.g., Hay et al. 2006).

Second, a dummy variable, *SPEC*, is added to capture audit engagements where the auditor is an industry-specialist. Following prior research (Hay et al. 2006), we define a specialist as an auditor who audits at least 25 percent of a particular industry, based on two-digit SIC codes (see Appendix A for additional details).[13] A negative association between specialization and audit fees implies auditors pass on production efficiencies and economies of scale to the client leading to lower fees. On the other hand, a positive association suggests specialists are reluctant to pass on economies to their clients and instead attempt to earn higher returns on their expertise and specialization related investments. Again, prior research provides support for both cases (e.g. Hay and Jeter 2008).

To investigate whether firms utilizing an industry-specialist for both audit *and* tax services incur audit fee premiums (H_2), these two additional independent variables are interacted with one another. Thus, it follows that the coefficient on the variable *APTS* x *SPEC* serves as a proxy for an industry specialist providing both audit and tax services to the same client and is therefore a direct test of H_2. Consequently, a positive association with audit fees is expected. It is also informative to examine the marginal effects of the interaction terms (e.g., $\partial LNFEE / \partial APTS$) in order provide economically meaningful interpretations of the results. In sum, we estimate the following model using fixed-effects estimation to control for unobservable industry-specific characteristics:

$$\begin{aligned} LNFEE_{it} = {} & \alpha + \beta_1(LNSIZE_{it}) + \beta_2(LNNAS_{it}) + \beta_3(SQSEGS_{it}) + \beta_4(INVREC_{it}) + \\ & \beta_5(LOSS_{it}) + \beta_6(LEV_{it}) + \beta_7(BIGN_{it}) + \beta_8(TENURE_{it}) + \beta_9(BUSY_{it}) + \\ & \beta_{10}(OPIN_{it}) + \beta_{11}(CUPS_{it}^{\$,A}) + \beta_{12}(APTS_{it}) + \beta_{13}(SPEC_{it}) + \\ & \beta_{14}(APTS \times SPEC_{it}) + \sum \tau_j(YEAR) + \sum \omega_j(IND) + u_{it}. \end{aligned}$$

[13] In sensitivity tests, we consider alternative definitions whereby a specialist is defined as an auditor who audits at least 30 or 40 percent of a particular industry, based on two-digit SIC codes. We also consider these alternative definitions on a sample comprised of *only* Big N auditors and their clients. The results are qualitatively similar using these alternative definitions.

Data and Sample Selection

The data for this study are obtained from the intersection of the Compustat Annual Industrial File, Compustat Business Segments File, and the Audit Analytics database for the years 2001-2006 meeting the following criteria: (1) domestically incorporated; (2) publicly traded; (3) non-regulated industry; and (4) non-missing data necessary to calculate the *Cash ETR* and *Accum. ETR*. The final test sample consists of an unbalanced panel of 9,364 firm-year observations from 2,199 unique firms for the period 2001-2006. Descriptive statistics for variables included in Equations [4]-[5] are provided in Table 1. In particular, Table 1 presents mean (Panel A) and median (Panel B) values by year for continuous variables, and the frequency of occurrence for dichotomous variables (Panel C).

<<INSERT TABLE 1 ABOUT HERE>>

Correlation matrices for the variables included in the audit fee models are presented in Table 2. Specifically, Panel A contains the univariate correlations for variables included in Equations [4] and [5]. The correlations between audit fees (*LNFEE*) and the independent variables are highly significant and generally in the expected direction. Although many of the correlations are significant at the 1% level, the panel does not suggest a problem with multicollinearity as most of the correlations are less than 0.40. The exceptions, of course, include the well-documented relationship between audit fees (*LNFEE*) and firm size (*LNSIZE*) and the provision for nonaudit services (*LNNAS*) (Hay et al. 2006).[14] Nevertheless, in all analyses that follow, Variance Inflation Factors (VIFs) are examined to mitigate concerns about biased coefficients due to multicollinearity.[15]

<<INSERT TABLE 2 ABOUT HERE>>

Panel B of Table 2 presents the pairwise correlations between the *Cash ETR* and *Accum. ETR*, which are used to construct the corporate tax avoidance dichotomous variables $CUPS^{\$}$ and $CUPS^{A}$.

[14] The high correlation (0.54) between the two proxies for CUPs is of no concern as the variables are not included in any regression model simultaneously.

[15] Although unreported, VIFs and other diagnostics including eigenvalues suggest that multicollinearity is not an issue in any of the empirical tests that follow.

The correlation between both the *Cash ETR* and *Accum. ETR* is significant, and the moderate correlation (0.38) suggests the two variables have some commonality and disagreement in identifying firms with CUPs. Likewise, the correlation between the dichotomous variables is even higher, but still indicates some disagreement between the two measures. Thus, both measures are used in the primary analyses since it appears they capture different aspects of corporate tax avoidance.

IV. EMPIRICAL RESULTS

Baseline Model of Audit Fees

In order to establish a set of baseline results and assess the significance of the parameters over time, the audit fee model (Equation [4]), excluding the proxies for CUPs, is estimated using ordinary least squares (OLS) for each of the sample years (2001-2006). The resulting coefficient estimates and significance levels based on robust standard errors are reported in Table 3.[16] In general, each of the six models is highly significant (*p*-values <0.01) and explains approximately 70% (2002) to 77% (2004) of the total variation in audit fees.

<<INSERT TABLE 3 ABOUT HERE>>

As expected, firm size (*LNSIZE*), the provision for nonaudit services (*LNNAS*), complexity (*INVREC* and *SQSEGS*), and profitability (*LOSS*) are positively related with audit fees in each sample year. In addition, firms receiving anything other than an unqualified (clean) audit opinion (*OPIN*) pay higher fees for audit services in five of the six sample years. After 2003, the coefficient on *BIGN* is positive and significant suggesting firms using *Big N* auditors pay higher audit fees relative to firms using non-*Big N* auditors. Surprisingly, the variable *TENURE* is positive and significant in only one year (2005), which is contrary to the notion of "low-balling" a potential client to win their audit business. The coefficient on the leverage variable (*LEV*) is negative and significant in three of the six sample years suggesting more highly levered firms incur higher audit

[16] See Appendix A for additional details regarding each variable, including calculations and data availability.

fees. Finally, firms with audits conducted during the auditor's busy season (January – March) pay significantly higher fees than other firms (prior to 2005). Overall, the results presented in Table 3 are largely consistent with prior empirical studies (Hay et al. 2006) and explain a high degree of the total variation in audit fees over the entire sample period.

Corporate Tax Avoidance and Audit Fees (H_1)

Before conducting multivariate tests of H_1, a useful starting point is to contrast the audit fees paid by firms with CUPs to the audit fees paid by all other sample firms. Figure 1 depicts the percentage of audit fees to total firm assets over time for firms identified as having CUPs using the two proxies described earlier (*CUPS*[$] and *CUPS*[4]). By computing the ratio of audit fees to total firm assets, the analysis captures the well-documented impact of client size on external audit fees providing for a more useful comparison. For firms identified as having CUPs using the *Cash ETR* and *Accum. ETR*, the mean audit fee to total asset ratio is depicted in Panels A and B, respectively. In each case, firms with CUPs (the long dashed lines) incur substantially higher audit fees in each year compared to other firms.[17]

<<INSERT FIGURE 1 ABOUT HERE>>

To more fully examine whether corporate tax avoidance is positively related to audit fees (H_1), the audit fee model (Equation [4]) is estimated for the pooled sample of data using the fixed-effects regression method.[18] More specifically, the analysis of H_1 consists of three steps encompassing five separate regressions. First, for comparison purposes, a baseline model excluding the tax avoidance proxies is estimated using one-way fixed effects to control for unobservable industry-specific

[17] Graphs using the median fees to total assets ratio are similar for both tax avoidance measures.

[18] For each regression specification, the Hausman test is used to examine whether the extra orthogonality conditions imposed by a random effects estimator is more appropriate. In doing so, the null hypothesis that the random effects estimator is consistent is rejected in all cases suggesting the fixed effects estimator is preferred.

characteristics.[19] Next, to formally test H_1, both proxies for CUPs (*CUPS*$^{\$}$ and *CUPS*^{A}) are included in the model (one at a time). Finally, a two-way fixed effects model controlling for both unobservable industry-specific characteristics and time-effects estimates the relationship between the proxies for CUPs and audit fees. The results of these analyses are presented in Table 4.[20]

<<INSERT TABLE 4 ABOUT HERE>>

Panel A of Table 4 reports the coefficient estimates and robust standard errors for the baseline audit fee model which excludes the proxies for tax avoidance. Each of the independent variables, other than leverage (*LEV*) and the presence of a *Big N* auditor (*BIGN*), is significant and in the predicted direction. The results are also consistent with those reported in Table 3. Furthermore, the model explains approximately 68% of the total variation in audit fees, which is consistent with prior audit fee studies (Hay et al. 2006). The *F*-test following the regression results considers whether all industry-level effects are individually zero. That is, the rejection of the null hypothesis (*p*-value <0.01) of no industry-level effects (all $u_i = 0$) implies that significant unobservable industry-level effects exist suggesting fixed effects estimation is preferred to pooled OLS (Baum 2006).

Panel B of Table 4 reports the results of estimating Equation [4] using both proxies for tax avoidance. In particular, the first column includes the variable *CUPS*$^{\$}$ which uses the *Cash ETR* to classify firms as having CUPs. The coefficient (0.093) for this variable is positive and highly significant (*p*-value <0.01) suggesting that firms with CUPs incur a fee premium for external audit services. That is, firms with CUPs pay approximately 9 percent more fees than other firms. The second column includes the variable *CUPS*^{A} which uses the *Accum. ETR* to classify firms as having CUPs. The coefficient for this variable (0.136) is also positive and highly significant (*p*-value <0.01) leading to the same conclusion as in the previous case (14 percent fee premium). Additionally, in

[19] This baseline test is similar to those in Table 3, but with the use of pooled (panel) data and fixed-effects estimation rather than OLS by each sample year.

[20] The reported significance levels in Table 4 are based on robust standard errors calculated using the Huber-White variance-covariance estimator and adjusting for clustering at the industry level.

both circumstances the other explanatory variables are in the predicted directions and consistent with the baseline model in Panel A.

Panel C of Table 4 reports the results of estimating Equation [4] using two-way fixed-effects to control for unobservable industry-specific characteristics and time-effects. Similar to Panel B, the coefficients for $CUPS^{\$}$ and $CUPS^{A}$ are positive and significant (0.063 and 0.101, respectively), while the coefficients of the other independent variables are generally consistent with the baseline model. Moreover, the coefficients on the sample year dummy variables are also positive and significant. A joint test that the coefficients on the year indicators are equal to zero is a test of the overall significance of time fixed-effects. This (untabulated) test provides an *F*-statistic of 1,004 and associated *p*-value <0.01 indicating that inclusion of time fixed-effects is appropriate.[21]

In summary, the results reported in Table 4 offer strong evidence in support of H_1. That is, in each of the four cases, the proxies for CUPs exhibit positive and highly significant coefficients. Furthermore, these results are not sensitive to unobservable industry-specific characteristics or time-effects. Thus, the evidence suggests corporate tax avoidance is positively related to audit fees and firms with CUPs pay between 6 and 14 percent more for external audit services than firms without CUPs. That is, an average annual fee premium ranging from $107,100 to $238,000.[22]

Tests of Auditor-Provided Tax Services and Industry Specialization (H_2)

To investigate whether firms utilizing an industry-specialist for both audit *and* tax services incur audit fee premiums (H_2), the augmented audit fee model described by Equation [5] is estimated for the pooled sample of data using the fixed-effects regression method.

<<INSERT TABLE 5 ABOUT HERE>>

[21] The results of this test are quantitatively similar to the $CUPS^{A}$ case.

[22] The average annual fee premium is calculated using the mean value of audit fees (*AFEE*) from Table 1 transformed back into 2006 dollars using the Consumer Price Index.

Panel A of Table 5 reports the fixed-effects regressions of the augmented audit fee model, which includes both proxies for CUPs, as well as the dummy variables capturing the incidence of auditor provided tax services (*APTS*) and engagements where the auditor is an industry specialist (*SPEC*).[23] Using either proxy for CUPs, the coefficients on both *APTS* and *SPEC* are positive and highly significant suggesting auditor-provided tax services and auditor-specialists are associated with higher audit fees. Additionally, in both circumstances, the other independent variables are generally in the predicted directions and consistent with the other audit fee results described earlier.

Panel B of Table 5 reports the fixed-effects regressions of the augmented audit fee model, but also includes the interaction of the dummy variables capturing auditor-provided tax services and industry specialists. As mentioned in Section III, the coefficient on the variable *APTS* x *SPEC* is a direct test of H_2. Similar to the previous panel, the model is estimated twice in order to incorporate both proxies for CUPs.

Consistent with H_2, the coefficient for *APTS* x *SPEC* is positive and significant in both regressions (0.11 in both cases), suggesting that firms utilizing an industry-specialist for both audit *and* tax services incur fee premiums for audit services. In addition, the coefficient for *APTS* is significant in both specifications (0.166 and 0.165), and the sum of the coefficients for *APTS* and *APTS* x *SPEC* are also positive in both cases. More specifically, the marginal effects for these variables ($\partial LNFEE / \partial APTS$) imply an increase in audit fees of approximately 22 percent (both cases) when firms purchase tax services from their auditor. Auditors also earn fee premiums between 7 and 11 percent when the auditor provides the client with tax services *and* is also an industry specialist. Perhaps even more interesting, however, is that the coefficient for *SPEC* is insignificant in both specifications. This finding implies that an auditor who is an industry specialist only earns a fee premium when also providing tax services to a client. In other words, the benefit of

[23] The reported significance levels in Table 5 are based on robust standard errors calculated using the Huber-White variance-covariance estimator and adjusting for clustering at the industry level.

employing an industry specialist to conduct an audit depends on whether an auditor is providing other services to the client (i.e., tax). Consequently, absent additional tax services, an industry specialist is unable to earn a fee premium on the audit.

Panel C of Table 5 reports the result of estimating Equation [5] using two-way fixed effects to control for unobservable industry-specific characteristics and time-effects. Similar to Panel B, the coefficient for *APTS* x *SPEC* is positive and significant in both regressions (0.07 in both cases), while the other variables are generally consistent with the baseline model. Although the coefficient for *APTS* is negative for both regressions, the sum of the coefficients for *APTS* and *APTS* x *SPEC* indicate an overall positive association between auditor-provided tax services and audit fees. Once again, the coefficient for *SPEC* is insignificant in both specifications and is consistent with the earlier interpretation. Moreover, the coefficients on the sample year dummy variables are also positive and significant. A joint test that the coefficients on the year indicators are equal to zero is a test of the overall significance of time fixed-effects. This untabulated test provides evidence that inclusion of time-fixed effects is appropriate in both specifications.

V. SENSITIVITY ANALYSES

Additional Proxies for Corporate Tax Avoidance

To explore the robustness of the tax avoidance measures, Equations [4]-[5] are estimated using eight additional proxies. Specifically, the following variables are used to identify firms with CUPs:

- **Continuous variables.** The *Cash ETR* and *Accum. ETR* are both included as variables in the models. As such, the industry-level comparison used in the primary analysis is no longer present. However, the use of continuous variables may relieve potential problems with mapping continuous effective tax rates into the dichotomous variables $CUPS^{\$}$ and $CUPS^{A}$.
- **Threshold variables.** Indicator variables are set equal to 1 for firms with *Cash ETRs* and *Accum. ETRs* less than 25% and 20% (0 otherwise).[24] The 25% threshold identifies firms with tax rates equal to or less than the mean effective tax rate for all firms (see Table 1). The

[24] This procedure produces a total of four additional proxies for complex or uncertain tax positions.

20% threshold also identifies firms likely to have CUPs since this threshold is significantly less than the average effective tax rate.

- **Industry terciles.** Similar to the primary analyses, dichotomous variables are set equal to 1 if the firm is in the lowest tercile of *Cash ETR* and *Accum. ETR* for each year and two-digit SIC industry membership (0 otherwise).[25]

In supplemental tests of H_1, the eight additional proxies for CUPs provide evidence consistent with the results reported in Table 4. Specifically, six of the eight proxies are positive and significant with coefficients ranging from 0.042 to 0.133 (and associated *p*-values of <0.01 to 0.07). In the other two cases, the continuous variables representing the *Cash ETR* and *Accum. ETR* are negative and significant. These negative signs are expected as a higher effective tax rate implies a firm pays a higher share of taxes on pre-tax book income. Additionally, H_2 are re-examined using the eight proxies described above. The results of these analyses are qualitatively similar to those in Table 5.

Alternative Accumulations of Effective Tax Rates (*N*)

Many recent studies choose a six year period (*N*) in which to accumulate the numerator and denominator of the effective tax rates somewhat arbitrarily. Therefore, to provide some consistency with prior research, the analyses of H_1 and H_2 are repeated using a five-year *Cash ETR* and *Accum. ETR*. As mentioned in Section III, the statute of limitations for the assessment of income taxes can be extended by written agreement between the taxpayer and the IRS. Therefore, seven and nine-year *Cash ETRs* and *Accum. ETRs* are also considered. Additionally, the supplemental proxies for corporate tax avoidance are also evaluated to examine the robustness of these alternative accumulation periods.[26] The regression results using a five-year and seven-year *Cash ETR* and *Accum. ETR* are qualitatively similar to those discussed in the prior section. In addition, the eight additional proxies for CUPs are not sensitive to these alternative accumulation periods. This is not the case, however, when supplemental tests of H_1 and H_2 are performed using a nine-year accumulation

[25] The primary analyses utilize industry *quintiles* to identify firms with CUPs.

[26] In doing so, some sample firms are lost due to the availability of data necessary to calculate effective tax rates over such long periods of time.

period. In particular, the variable $CUPS^{A}$ is insignificant in both circumstances (p-values <0.12), while the other proxies are consistent with the previous analyses. Nevertheless, the remaining tests continue to provide evidence consistent with the primary analyses.

Alternative Dependent Variable

As an additional level of sensitivity for H_1 and H_2, the dependent variable *LNFEE* is replaced with an alternative measure of remuneration paid to external auditors. Specifically, Equations [4] and [5] are estimated using *total fees* paid to a firm's external auditor as the dependent variable. The total fees include monies paid for audit, consulting, tax, and any other professional services provided by the firm's external auditor. In doing so, the provision for nonaudit services (*LNNAS*) is dropped from the right-hand side of these equations since it is contained within the total fees paid to the auditor. The results of these analyses are qualitatively similar to those presented in Tables 4 and 5. Moreover, the results are also robust to using the additional proxies for CUPs described earlier.

Joint Determination of Audit Fees and Nonaudit Services

Prior research finds that in some circumstances audit fees and nonaudit fees may be simultaneously determined. For example, Whisenant, Sankaraguruswamy, and Raghunandan (2003) and Hay, Knechel and Li (2006) find a positive relationship between audit fees and nonaudit fees using OLS, but no relationship when they use a simultaneous specification of the fee model applying two-stage least squares (2SLS). On the other hand, Antle, Gordon, Narayanamoorthy, and Zhou (2002) find a positive relationship in both OLS and jointly determined models using data from the US and United Kingdom implying the two components may not be jointly determined. Nevertheless, to explore the possibility that audit fees and nonaudit fees may be jointly determined in our sample, we estimate the following models using a 2SLS approach:

$$\widehat{LNNAS_{it}} = \alpha + \beta_1(LNSIZE_{it}) + \beta_2(SQSEGS_{it}) + \beta_3(INVREC_{it}) + \beta_4(LOSS_{it}) + \beta_5(LEV_{it}) + \beta_6(BIGN_{it}) + \beta_7(TENURE_{it}) + \beta_8(BUSY_{it}) + \beta_9(OPIN_{it}) + \beta_{10}(CUPS_{it}^{\$,A}) + \sum \tau_j(YEAR_j) + \sum \omega_j(IND) + u_{it} \quad [5]$$

$$LNFEE_{it} = \alpha + \beta_1(\widehat{LNNAS_{it}}) + \beta_2(LNSIZE_{it}) + \beta_3(SQSEGS_{it}) + \beta_4(INVREC_{it}) + \beta_5(LOSS_{it}) + \beta_6(LEV_{it}) + \beta_7(TENURE_{it}) + \beta_8(BUSY_{it}) + \beta_9(OPIN_{it}) + \beta_{10}(CUPS_{it}^{\$,A}) + \sum \tau_j(YEAR_j) + \sum \omega_j(IND) + u_{it}. \quad [6]$$

Equation [6] is provides an estimate of nonaudit fees (*LNNAS*) that is not influenced by audit fees, and therefore is later substituted for *LNNAS* in Equation [7]. In order to prevent exact multicollinearity in Equation [7], it is necessary that at least one variable in Equation [6] is not in Equation [7]. Following prior research (e.g., Hay, Knechel and Li 2006), we delete *BIGN* from Equation [7] as it appears to be more closely related to nonaudit fees than audit fees. Similar to Antle et al. (2002), the results of the 2SLS procedure reveal a positive and significant coefficient on *LNNAS* (1.20, *p*-value <0.01) suggesting audit fees and nonaudit fees are *not* jointly determined in this study. Therefore, the positive association between audit fees and nonaudit fees presented in Tables 4 and 5 is presumably not the result of model misspecification.

Auditor Specialization

In order to examine the robustness of the analyses regarding H_2, we consider two alternative definitions of industry-specialists. That is, we also define an industry specialist to be an auditor who audits at least 30 or 40 percent (as opposed to 25 percent) of a particular industry, based on two-digit SIC codes. In addition, we also consider a sample comprised of only *Big N* auditors and their clients to mitigate the potential for smaller auditors to confound the specialist definitions. The results of using these definitions in tests of H_2 are qualitatively similar to the primary analyses, even in conjunction with the supplemental proxies for CUPs and alternative dependent variable.

Internal Control Deficiencies

The audit process should be sensitive to differences in the control environment of an organization (Knechel 2001). Therefore, firms with internal control deficiencies may require more extensive audit testing (effort) leading to higher audit fees (positive relationship). It is also possible that the presence of internal control deficiencies is an alternative explanation for the documented fee premium for firms with CUPs. In an attempt to rule out this explanation, we add a control (indicator) variable to Equations [4] and [5] that captures an unfavorable SOX Section 404 internal control report. Data for these reports is only available for years beginning *after* 2003. Thus, we do not include this control variable in the primary analyses.

Descriptive statistics reveal that 8, 12, and 7 percent of the sample firms receive unfavorable internal control reports during 2004, 2005, and 2006, respectively. The primary analyses also indicate that these firms incur significant fee premiums for audit services. Nevertheless, the results of H_1 and H_2 are qualitatively similar to the primary analyses. Thus, the notion of poor internal controls does not appear to be an alternative explanation for our primary results.

Alternative Control Variables

In order to examine the robustness of the primary analyses to alternative control variables, other variables commonly used in the audit fee literature are evaluated in place of those in Equations [4] and [5]. For example, total sales are included in both equations to capture the size of the client-firm, replacing the natural logarithm of total assets (*LNSIZE*). The return on assets (net income divided by total assets) is used to capture client profitability rather than the dichotomous variable *LOSS*. As a substitute for leverage (*LEV*), the current ratio (current assets divided by current liabilities) is also included in both models. Finally, various cutoffs are used to define the variable *TENURE* (i.e., one and three years). Nevertheless, estimation of Equations [4] and [5] with the above refinements continue to provide evidence in support of H_1 and H_2.

VI. CONCLUSION

The recent popularity of regulations focusing on tax avoidance and the increased attentiveness of tax authorities suggests external auditors must be especially familiar with their client's tax positions. However, most tax studies ignore the role of the financial statement auditor. As a consequence, this study contributes to both the tax and auditing literature by investigating how corporate tax avoidance affects one economic aspect of the auditor-client relationship – audit fees.

The evidence suggests corporate tax avoidance is positively related to external audit fees and firms with CUPs pay between 6 and 14 percent more for external audit services than firms without CUPs. More specifically, firms with CUPs incur an average annual fee premium ranging anywhere from $107,100 to $238,000 per year (2006 dollars). Additional tests also reveal that client-firms incur audit fee premiums of approximately 21 percent when purchasing tax services from their auditor, and premiums between 7 and 11 percent when the auditor provides tax services *and* is also an industry specialist. The analyses also reveal that an auditor who is an industry specialist only earns a fee premium when also providing tax services to a client. In other words, the benefit of employing an industry specialist to conduct an audit depends on whether an auditor is providing other services to the client (i.e., tax). Consequently, absent additional tax services, an industry specialist is unable to earn a fee premium on the audit.

Although these findings are robust to a variety of sensitivity analyses, this study is not without limitations. For example, problems may arise with the measurement and calibration of important control and experiment variables even when the data are readily available. Moreover, all empirical models suffer from an omitted variables problem to some extent. Thus, it was with these notions in mind that the selection of independent variables was largely based on prior research. In doing so, the hope is that the empirical models capture some of the most crucial theoretical constructs. However, this is not to say that all relevant constructs were appropriately captured.

Additionally, the current theoretical underpinnings of the basic audit fee model employed in this study do not explicitly consider the issues of endogenous demand (Hay et al. 2006), nor does it capture the impact the presence of an auditor may have on the behavior of the auditee (Arya and Glover 1996). In particular, the demand for auditing and how such demand impacts other control mechanisms in the organization may create problems of endogeneity between audit fees and the various independent variables. As such, theoretical refinements in this area will certainly enhance the validity of the results.

In closing, this study provides strong evidence that both the tax avoidance activities of a firm and regulatory policies relating to these activities can significantly affect the task of the external auditor. Although external auditors face new risks when the client has complicated tax positions, the client-customer appears to bear a large extent of the cost. Accordingly, the results of this study should motivate other tax researchers to consider the role of the financial statement auditor, and auditing researchers to consider to the role of taxes, especially when assessing corporate tax avoidance and the impact of regulatory policies.

APPENDIX A

Variable Definitions & Calculations

Variable	Description	Calculation
Cash ETR	Cash effective tax rate.	Cash Tax Paid(317) / [Pretax Income(170) - Spec. Items(49)]
Accum. ETR	Accumulated effective tax rate.	Curr. Tax Exp.(16) / [Pretax Income(170) - Minority Int.(49)]
LNFEE	Natural logarithm of audit fees.	Log [Audit_Fees] ‡
LNSIZE	Natural logarithm of total assets.	Log [Total Assets(6)] ‡
LNNAS	Natural logarithm of nonaudit service fees.	Log [NAS_Fees] ‡
SQSEGS	Square root number of business segments.	Sqrt [Number Business Segments (SID)]
INVREC	Inventory and receivables to assets ratio.	[Inventory(3) + Receivables(2)] / Total Assets(6)
LOSS	Indicator of net operating loss.	Indicator = 1 if Income Before Extraord. Items(18) < 0.
LEV	Leverage ratio.	[LT Debt(9) + Debt in Curr. Liab.(34)] / Total Assets(6)
BIGN	Indicator of Big N auditor.	Indicator = 1 if auditor(149) is Big 4/5 depending on the year.
TENURE	Indicator auditor tenure < 2 years.	Indicator = 1 if auditor(149) tenure < 2.
BUSY	Indicator audit during busy season.	Indicator = 1 if fiscal year-end (FYR) = 12.
OPIN	Indicator of other than unqualified opinion.	Indicator = 1 if audit opinion (149) ≠ 1.
CUPS$^{\$}$	Indicator of complex or uncertain tax positions.	Indicator = 1if *Cash ETR* in lowest quintile for year and 2-digit industry membership.
CUPS^{A}	Indicator of complex or uncertain tax positions.	Indicator = 1if *Accum. ETR* in lowest quintile for year and 2-digit industry membership.
APTS	Indicator of auditor provided tax services.	Indicator = 1 if auditor provided tax fees > 0.
SPEC	Indicator of auditor industry specialist.	Indicator = 1 if auditor has 25% or more of total industry marketshare, based on 2-digit SIC code.

This appendix presents descriptions and calculations for each variable in the audit fee models (Equations [4] and [5]). Compustat data items are in parentheses; other items are as titled from the Audit Analytics database. Variables standardized to June 2001 dollars using the Consumer Price Index are denoted by ‡. All other variables are either dichotomous are calculated using a ratio that would require the same adjustment to both the numerator and denominator.

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TABLE 1

Descriptive Statistics

Variable	2001	2002	2003	2004	2005	2006	Pooled
Panel A: Mean Values of Continuous Variables							
SIZE	4,075.88	5,350.70	5,615.40	6,477.04	6,015.50	7,658.20	5,865.50
AFEES	0.66	0.83	1.08	1.88	2.10	2.32	1.49
NAS	1.40	1.08	0.77	0.70	0.53	0.55	0.83
SEGS	1.27	1.28	1.28	1.28	1.27	1.27	1.27
LEV	0.22	0.21	0.20	0.18	0.19	0.20	0.20
INVREC	0.30	0.29	0.28	0.29	0.29	0.28	0.29
Cash ETR	0.28	0.27	0.26	0.24	0.24	0.23	0.25
Accum. ETR	0.34	0.31	0.30	0.29	0.29	0.28	0.30
Panel B: Median Values of Continuous Variables							
SIZE	484.74	496.45	521.98	567.01	612.26	786.86	569.32
AFEES	0.28	0.31	0.40	0.74	1.02	1.11	0.57
NAS	0.29	0.24	0.22	0.20	0.16	0.14	0.21
SEGS	1.00	1.00	1.00	1.00	1.00	1.00	1.00
LEV	0.20	0.17	0.17	0.15	0.15	0.16	0.16
INVREC	0.19	0.17	0.16	0.14	0.15	0.16	0.16
Cash ETR	0.28	0.27	0.25	0.24	0.24	0.23	0.25
Accum. ETR	0.34	0.33	0.31	0.31	0.30	0.30	0.32
Panel C: Frequency of Dichotomous Variables							
TENURE	0.78	0.52	0.23	0.12	0.10	0.10	0.34
LOSS	0.29	0.25	0.21	0.17	0.17	0.15	0.21
OPIN	0.20	0.57	0.59	0.31	0.20	0.75	0.43
BIGN	0.92	0.91	0.89	0.86	0.83	0.83	0.88
BUSY	0.60	0.61	0.61	0.61	0.62	0.68	0.62
APTS	0.29	0.49	0.84	0.89	0.86	0.82	0.70
SPEC	0.38	0.47	0.50	0.50	0.48	0.49	0.47
Observations	1,488	1,525	1,602	1,638	1,662	1,449	9,364

This table presents mean (Panel A) and median (Panel B) values by year for continuous variables, and the percentage equal to 1 for dichotomous variables (Panel C). *SIZE*, *AFEES*, *NAS*, and *SEGS* are not transformed (e.g., natural logarithm) in this table in order to be more descriptive. *SIZE, AFEES,* and *NAS* are reported in millions, standardized to 2001 dollars using the Consumer Price Index. See Appendix A for additional details, including calculations and data availability. No frequencies are reported for tax avoidance proxies $CUPS^{\$}$ and $CUPS^{A}$, where CUPs refers to complex or uncertain tax positions, as these variables are calculated as industry quintiles (approximately 20% in each case).

TABLE 2

Univariate Correlations

Panel A: Correlation Matrix for Variables in Audit Fee Model (Equations [4] and [5])

	LNFEE	*LNSIZE*	*LNNAS*	*INVREC*	*SQSEGS*	*TENURE*	*OPIN*	*CUPS*$^{\$}$	*CUPS*^{A}	*LOSS*	*BIGN*	*LEV*	*BUSY*	*APTS*
LNSIZE	0.78**													
LNNAS	0.60**	0.66**												
INVREC	-0.10**	-0.18**	-0.08**											
SQSEGS	0.23**	0.22**	0.20**	-0.01										
TENURE	-0.31**	-0.13**	-0.01	0.05**	-0.03**									
OPIN	0.22**	0.21**	0.15**	-0.07**	0.06**	-0.12**								
CUPS$^{\$}$	-0.06**	-0.12**	-0.07**	-0.07**	-0.03**	0.01	0.01							
CUPS^{A}	-0.05**	-0.13**	-0.08**	-0.05**	-0.03**	0.01	0.02*	0.54**						
LOSS	-0.08**	-0.17**	-0.04**	-0.05**	-0.03**	0.10**	0.03**	0.25**	0.30**					
BIGN	0.33**	0.39**	0.33**	-0.10**	0.04**	-0.08**	0.14**	-0.06**	-0.06**	-0.06**				
LEV	0.17**	0.25**	0.16**	-0.03*	0.08**	0.02*	0.12**	0.11**	0.12**	0.09**	0.08**			
BUSY	0.17**	0.14**	0.03**	-0.17**	0.07**	-0.14**	0.11**	0.02	0.04**	0.01	0.05**	0.13**		
APTS	0.29**	0.15**	0.19**	-0.04**	0.03**	-0.42**	0.09**	-0.02	-0.02**	-0.06**	0.05**	0.01	0.11**	
SPEC	0.25**	0.24**	0.20**	0.01	0.05**	-0.11**	0.09**	-0.06**	-0.05**	-0.04**	0.35**	0.03**	0.01	0.10**

Panel B: Correlation Matrix for Corporate Tax Avoidance Variables (Continuous and Dichotmous)

	CUPS$^{\$}$	*CUPS*^{A}	*Cash ETR*
CUPS^{A}	0.54**		
Cash ETR	-0.52**	-0.23**	
Accum. ETR	-0.37**	-0.57**	0.38**

This table presents the correlations between variables included in the audit fee model (Panel A) and the pairwise correlations between the *Cash ETR* and *Accum.. ETR* (Panel B), which are used to construct the dichotomous variables *CUPS*$^{\$}$ and *CUPS*^{A} that proxy for the presence of complex or uncertain tax positions (CUPs). *LNFEE, LNSIZE,* and *LNNAS* are standardized to 2001 dollars using the Consumer Price Index. See Appendix A for additional details regarding each variable, including calculations and data availability. * and ** denote significance at 0.05 and 0.01 levels, respectively (two-tailed) using the pooled cross-sectional sample of 9,364 firm-year observations.

TABLE 3

OLS Regressions of Base Audit Fee Models (2001-2006)

Year	Constant	*LNSIZE*	*LNNAS*	*INVREC*	*SQSEGS*	*TENURE*	*OPIN*	*LOSS*	*BIGN*	*LEV*	*BUSY*	N	Adj. R^2
2001	6.15***	0.31***	0.26***	0.55***	0.16***	0.78	-0.03	0.13***	-0.01	0.11	0.10***	1,488	0.76
2002	6.70***	0.33***	0.27***	0.40***	0.23***	0.04	0.13***	0.22***	0.01	-0.11	0.24***	1,525	0.70
2003	6.96***	0.36***	0.26***	0.37***	0.15***	-0.02	0.15***	0.26***	0.07	-0.07	0.15***	1,602	0.77
2004	7.29***	0.41***	0.22***	0.32***	0.16***	-0.02	0.11***	0.32***	0.29***	-0.27***	0.64***	1,638	0.77
2005	8.14***	0.42***	0.18***	0.19**	0.17***	0.24***	0.07*	0.29***	0.51***	-0.24***	0.03	1,662	0.73
2006	8.39***	0.41***	0.17***	0.32***	0.17***	0.04	0.18***	0.24***	0.41***	-0.30***	0.01	1,449	0.75

This table presents results of estimating basic audit fee models for each sample year (2001-2006) using ordinary least squares, where *LNFEE* is the dependent variable. The proxies for complex or uncertain tax positions (CUPs) (*CUPS*$^{\$}$ and *CUPS*^{A}) are excluded in order to establish a base model for comparison purposes. A base model using the pooled sample is presented in Table 4 along with the formal hypotheses tests. *LNFEE, LNSIZE*, and *LNNAS* are standardized to 2001 dollars using the Consumer Price Index. See Appendix A for additional details regarding each variable, including calculations and data availability. *,**, and *** denote significance at 0.10, 0.05, and 0.01 levels, respectively (two-tailed test). Unreported *t*-statistics and associated significance levels are calculated using robust standard errors adjusted for clustering at the industry level.

TABLE 4

Fixed-Effects Regressions of Audit Fee Model (Equation [4])
Hypothesis 1

		Panel A		Panel B		Panel C	
Variable	*Exp.*	*Coefficient*	*Rob. SE*	*CUPS*$^{\$}$	*CUPS*^{A}	*CUPS*$^{\$}$	*CUPS*^{A}
Constant	?	8.640 ***	0.099	8.610 ***	8.596 ***	7.041 ***	7.032 ***
LNSIZE	+	0.518 ***	0.014	0.521 ***	0.522 ***	0.445 ***	0.446 ***
LNNAS	+	0.082 ***	0.013	0.081 ***	0.082 ***	0.162 ***	0.162 ***
SQSEGS	+	0.140 ***	0.031	0.140 ***	0.139 ***	0.142 ***	0.141 ***
INVREC	+	0.546 ***	0.146	0.577 ***	0.578 ***	0.553 ***	0.556 ***
LOSS	+	0.164 ***	0.026	0.145 ***	0.128 ***	0.195 ***	0.181 ***
LEV	+	0.031	0.076	0.002	-0.011	0.047	0.036
BIGN	+	0.015	0.034	0.017	0.017	0.236 ***	0.235 ***
TENURE	-	-0.568 ***	0.016	-0.565 ***	-0.565 ***	0.007	0.006
BUSY	+	0.137 ***	0.033	0.137 ***	0.133 ***	0.184 ***	0.180 ***
OPIN	+	0.060 ***	0.016	0.059 ***	0.058 ***	0.098 ***	0.097 ***
YR02	+/-	-	-	-	-	0.115 ***	0.114 ***
YR03	+/-	-	-	-	-	0.386 ***	0.384 ***
YR04	+/-	-	-	-	-	0.892 ***	0.889 ***
YR05	+/-	-	-	-	-	1.183 ***	1.180 ***
YR06	+/-	-	-	-	-	1.176 ***	1.175 ***
CUPS$^{\$,A}$ [H_1]	+	-	-	0.093 ***	0.136 ***	0.063 ***	0.101 ***
Observations			9,364	9,364	9,364	9,364	9,364
Adj. R^2			0.68	0.67	0.67	0.77	0.77
Overall F			1,146	1,027	1,004	1,297	1,264
Prob > F			0.00	0.00	0.00	0.00	0.00
Appropriateness of Fixed Effects - *Ho: all* $u_i = 0$							
F-Test			17.08	17.24	17.25	18.09	18.37
Prob > F			0.00	0.00	0.00	0.00	0.00

This table presents results of estimating three audit fee models (dependent variable *LNFEE*) using a sample of 9,364 firm-years in the period 2001-2006.. Panel A presents coefficient estimates and robust standard errors, but does not include the proxies for complex or uncertain tax positions (CUPs) in order to present a base model for comparison purposes. Panel B presents results of incorporating both proxies for CUPs. Panel C presents results for a two-way fixed effects model incorporating both CUPs proxies and control variables for sample year. *LNFEE, LNSIZE,* and *LNNAS* are standardized to 2001 dollars using the Consumer Price Index. See Appendix A for additional details regarding each variable, including calculations and data availability. *,**, and *** denote significance at 0.10, 0.05, and 0.01 levels, respectively (two-tailed) using robust standard errors adjusted for clustering at the industry level.

TABLE 5

Fixed Effects Regressions of Auditor Provided Tax Services and Tax Industry Specialists
Hypothesis 2

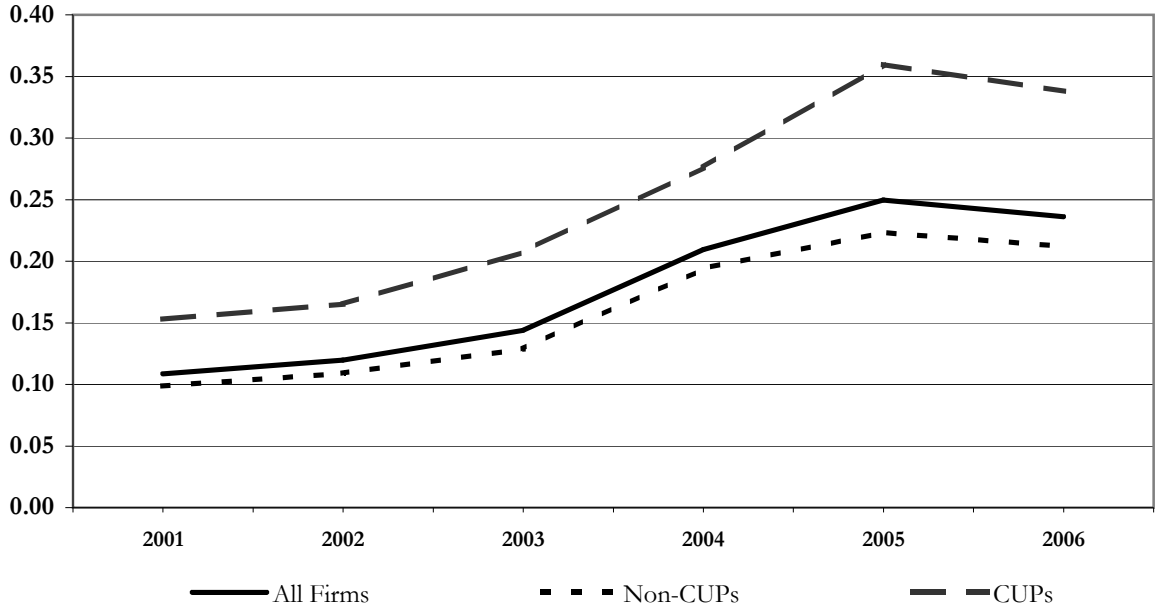
		Panel A		Panel B		Panel C	
Variable	*Exp.*	$CUPS^{\$}$	$CUPS^{A}$	$CUPS^{\$}$	$CUPS^{A}$	$CUPS^{\$}$	$CUPS^{A}$
Constant	?	8.592 ***	8.579 ***	8.622 ***	8.609 ***	7.081 ***	7.072 ***
LNSIZE	+	0.519 ***	0.519 ***	0.518 ***	0.519 ***	0.440 ***	0.441 ***
LNNAS	+	0.067 ***	0.068 ***	0.067 ***	0.068 ***	0.164 ***	0.164 ***
SQSEGS	+	0.144 ***	0.143 ***	0.144 ***	0.143 ***	0.140 ***	0.139 ***
INVREC	+	0.578 ***	0.578 ***	0.578 ***	0.578 ***	0.545 ***	0.548 ***
LOSS	+	0.067 ***	0.134 ***	0.150 ***	0.134 ***	0.192 ***	0.179 ***
LEV	+	0.018	0.006	0.017	0.005	0.051	0.040
BIGN	+	-0.015	-0.014	-0.013	-0.013	0.194 ***	0.195 ***
TENURE	-	-0.471 ***	-0.471 ***	-0.470 ***	-0.471 ***	0.006	0.005
BUSY	+	0.127 ***	0.123 ***	0.127 ***	0.123 ***	0.188 ***	0.185 ***
OPIN	+	0.055 ***	0.054 ***	0.055 ***	0.054 ***	0.097 ***	0.096 ***
$CUPS^{\$,A}$	+	0.095 ***	0.136 ***	0.096 ***	0.136 ***	0.065 ***	0.102 ***
APTS	+	0.214 ***	0.213 ***	0.166 ***	0.165 ***	-0.063 ***	-0.063 ***
SPEC	+	0.115 ***	0.115 ***	0.035	0.034	0.045	0.045
YR02	+/-	-	-	-	-	0.115 ***	0.114 ***
YR03	+/-	-	-	-	-	0.391 ***	0.390 ***
YR04	+/-	-	-	-	-	0.899 ***	0.896 ***
YR05	+/-	-	-	-	-	1.190 ***	1.187 ***
YR06	+/-	-	-	-	-	1.182 ***	1.180 ***
APTS x *SPEC*	H2	-		0.112 ***	0.113 ***	0.070 **	0.070 **
Observations		9,364	9,364	9,364	9,364	9,364	9,364
Adj. R^2		0.68	0.68	0.68	0.68	0.77	0.77
Overall F		993	977	954	915	1,394	1,335
Prob > F		0.00	0.00	0.00	0.00	0.00	0.00
Appropriateness of Fixed Effects - *Ho: all* $u_i = 0$							
F-Test		17.58	17.57	17.54	17.53	18.36	18.37
Prob > F		0.00	0.00	0.00	0.00	0.00	0.00

This table presents results of estimating the audit fee model specified in Equation [5] using a sample of 9,364 firm-years in the period 2001-2006, where the dependent variable is *LNFEE*. Panel A presents results of incorporating both proxies for CUPs, and variables identifying the presence of auditor-provided tax services (*APTS*) and an industry specialist (*SPEC*). Panel B presents results for the interaction effect of auditor-provided tax services (*APTS*) and an industry specialist (*SPEC*), a test of Hypothesis 2. Panel C presents results for a two-way fixed effects model incorporating both proxies for CUPs, the interaction effect (*APTS* x *SPEC*), and control variables for sample year. *LNFEE, LNSIZE,* and *LNNAS* are standardized to 2001 dollars using the Consumer Price Index. See Appendix A for additional details regarding each variable, including calculations and data availability. *,**, and *** denote significance at 0.10, 0.05, and 0.01 levels, respectively (two-tailed) using robust standard errors adjusted for clustering at the industry level.

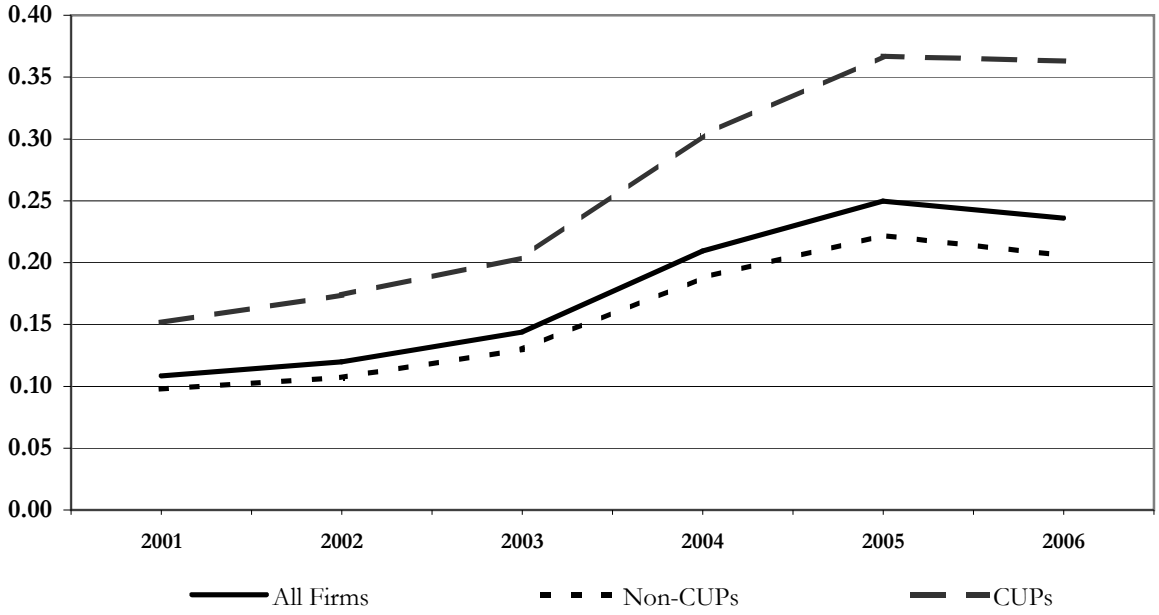
FIGURE 1

Audit Fees to Total Assets (%)

Panel A: Mean Fees to Total Assets Ratio -Complex or Uncertain Tax Positions defined by Cash ETR ($CUPS^{\$}$)



Panel C: Mean Fees to Total Assets Ratio - Complex or Uncertain Tax Positions defined by Accum. ETR ($CUPS^{A}$)



This figure plots the mean values of audit fees divided by total assets for each sample year (2001-2006) and compares the ratio for firms identified as having complex or uncertain tax positions (CUPs) to all other sample firms. Firms are identified as having CUPs using the *Cash ETR* (Panel A) and the *Accum.. ETR* (Panel B). See Appendix B for additional details regarding each variable, including calculations and data availability. Results are qualitatively similar using the median fees to total assets ratio for both tax avoidance proxies.