Do firms manipulate investments in tax planning as a form of real activity earnings management?

Yangmei Wang*

2nd-Year Ph.D. Student

Texas Tech University

Kirsten A. Cook

Assistant Professor

Texas Tech University

October 27, 2016

*Corresponding author: School of Accounting, Rawls College of Business
703 Flint Avenue, P.O. Box 42101
Lubbock, Texas 79409-2101
yangmei.wang@ttu.edu

This paper originated as Wang's 1st-year summer paper. We thank Keith Walker for help with Stata programing and workshop participants at Texas Tech University for helpful comments. Wang appreciates funding provided by the Institute of Management Accountants (IMA) Doctoral Summer Research Scholarship.

Do firms manipulate investments in tax planning as a form of real activity earnings management?

ABSTRACT

In this study, we examine whether suspect firms (who precisely meet or narrowly exceed earnings benchmarks) decrease investments in tax planning to manage earnings; we refer to this strategy as the "direct method" of manipulating discretionary tax fees to increase net income. We analyze investments in tax planning by suspect firms and provide evidence that the majority of suspect firms increase earnings by curtailing investments in tax planning to meet earning benchmarks. Thus, firms appear to prefer this "direct method" to the "indirect method" that prior studies have examined (i.e., firms increase tax-service fees to reduce tax expense and, in turn, increase net income). We next examine the association between investments in tax planning by suspect firms and corporate tax avoidance. Our findings suggest that suspect firms that *increase* investments in tax planning experience reductions in ETRs during the same period. In contrast, suspect firms that *decrease* investments in tax planning do not experience symmetric increases in ETRs.

INTRODUCTION

Prior research provides evidence that firms may reduce tax expense to increase net income, thereby meeting or beating an earnings target. Specifically, Dhaliwal, Gleason, and Mills (2004) demonstrate that firms engage in "last-chance earnings management" by decreasing their annual effective tax rate (ETR) estimate from the third to the fourth quarter when earnings absent such manipulation would miss an earnings target. Cook, Huston, and Omer (2008) extend Dhaliwal at al. (2004) and report that, for firms that would miss their annual earnings target absent a decrease in tax expense, higher tax-service fees paid to auditors are associated with greater reductions in ETRs between the third and fourth quarters. Thus, by *increasing* investments in tax planning, firms may reduce tax expense, thereby increasing net income and potentially reaching or exceeding an earnings target; we refer to this strategy as the "indirect method" of manipulating tax fees to increase income.[1]

The Sarbanes-Oxley Act of 2002 (SOX) heightened auditors' scrutiny of clients' accounting practices and financial statements, resulting in a decline in accrual-based earnings management (Zang 2012), such as the tax-expense manipulation revealed by Dhaliwal et al. (2004). Commensurate with this decline in accrual-based earnings management, research suggests that firms may substitute one method of earnings management for another and are more likely to manipulate real activities (e.g., decreasing discretionary expenses to increase net income) after the passage of SOX (Cohen, Dey, and Lys 2008). In this paper, we study whether firms *decrease* investments in tax planning to manage earnings and meet earnings benchmarks; we refer to this strategy as the "direct method" of manipulating tax fees to increase income.[2]

[1] This method is indirect because firms achieve increases in net income through decreases in tax expense, a consequence of increases in tax planning.

[2] This method is direct because firms achieve increases in net income through decreases in tax planning.

Furthermore, we study whether such reduced investments in tax planning among suspected earnings managers impair those firms' tax-avoidance outcomes.

Real activity earnings management occurs when managers undertake actions that change the timing or structuring of an operation, investment, and/or financing transaction in an effort to influence the output of the accounting system (Gunny 2010). Gunny (2010) examines four types of real activity earnings management: (1) decreasing discretionary research and development (R&D) expense, (2) decreasing discretionary selling, general, and administrative (SG&A) expense, (3) timing the sale of fixed assets to report gains, and (4) overproducing inventory with an intention either to boost sales by discounting prices and/or extending more lenient credit terms or to decrease cost of goods sold (COGS) expense. Similar to decreasing discretionary R&D and SG&A expenses, firms also may decrease investments in tax planning to directly increase net income and achieve earnings targets. The tax fees that firms expend for tax planning have cash flow consequences, a characteristic that distinguishes real activity earnings management from accrual-based earnings management (Roychowdhury 2006).[3] Therefore, manipulating the timing of investments in tax planning is a form of real activity earnings management. To our knowledge, no study has investigated whether firms reduce investments in tax planning to increase earnings or whether such manipulations affect tax avoidance.

While numerous studies in the real activity earnings management literature (e.g., Roychowdhury 2006; Cohen et al. 2008; Gunny 2010; Zang 2012) have examined whether firms decrease discretionary spending on SG&A expense, none of these studies has considered that the

[3] Investments in tax planning include compensation paid to the employees of in-house corporate tax departments and fees paid to external tax-service providers such as lawyers and accountants (Mills, Erickson, and Maydew 1998). These investments involve cash outflows. However, Mills et al. 1998 document (and Cook, Huston, and Omer 2008 subsequently confirm) that a $1 investment in tax planning results in an approximate $4 reduction in explicit tax liabilities. Thus, curtailing current investments in tax planning may impair tax-avoidance outcomes.

various components of SG&A expense are unique in terms of their payoff structures (i.e., the amount of time that passes between the initial cash outflow and the eventual return on that investment). At one extreme, if a firm reduces spending on compensation paid to sales personnel, such a cost-reduction strategy may harm the firm's sales in the same period that the cuts are made, thereby thwarting such cuts as an income-increasing measure. In contrast, at the other extreme, a firm may cancel an insurance policy on its warehouses or office buildings; such a decision would result in cash outflows only if a subsequent casualty occurred.

Similarly, the payoff structure associated with investments in tax planning varies with the particular tax strategy that the firm undertakes. For example, if a tax consultant suggests that a firm initiate operations in a tax-haven country, more than a year may pass between the development of this tax strategy (and associated payment of tax fees) and the commencement of the tax-haven operations (and the associated reduction in tax expense). In this situation, a firm narrowly falling short of an earnings target in the current year may elect to defer this tax strategy, thereby reducing investments in tax planning and accordingly increasing net income (i.e., the "direct method"). However, if a tax consultant recommends that a firm designate foreign subsidiary earnings as "permanently reinvested" under APB 23 (PRE), this tax strategy may offer an immediate (i.e., same period) return on investment. In this situation, a firm within reach of an earnings target may elect to undertake this tax strategy (and pay the associated tax fees), thereby increasing investments in tax planning, reducing tax expense, and increasing net income (i.e., the "indirect method"). Thus, while firms may be willing to curtail spending on certain components of SG&A expense in the current period due to the lengthy payoff structures associated with those components, whether and how firms manipulate investments in tax planning (and, if so, the tax-avoidance outcomes associated with those spending changes) is an empirical question worthy of investigation.[4]

Our sample is limited to firms that use their auditors as their tax service providers; these are the only firms that are required to disclose their tax-service fees.[5] Within this sample, we identify firms with "suspect earnings" (i.e., earnings exactly meeting or narrowly exceeding the earnings target) and examine whether such firms increase (i.e., the "indirect method) or decrease (i.e., the "direct method") investments in tax planning to achieve earnings benchmarks. In contrast to prior research examining tax fees that uses *total* tax fees as the measure of interest (e.g. Mills et al. 1998; Cook et al. 2008; Krishnan and Visvanathan 2011), we develop models to predict the nondiscretionary portion of total tax fees; the residuals from these models represent the discretionary portion. Our rationale for this approach is the recognition that total tax fees include (1) a nondiscretionary component that is related to tax compliance and a normal level of tax planning and (2) a discretionary component that reflects an abnormal level of tax planning. Specifically, following Gunny (2010), we develop prediction models for tax fees based on firm characteristics to segregate these discretionary and nondiscretionary components. Extracting the resulting residuals from estimating these models allows us to measure the *discretionary* component that we argue firms may manipulate as a form of real activity earnings management.

We analyze the associations between discretionary tax fees and suspect firms who precisely meet or narrowly exceed earning benchmarks. Our results provide evidence of a negative and significant association between discretionary tax fees and suspect firms, suggesting

---

[4] Examining firms' willingness to manipulate investments in tax planning as a specific component of SG&A expense is akin to studies (e.g., Marquardt and Wiedman 2004) that address the call from Healy and Wahlen (1999) to investigate whether firms manipulate specific accruals to manage earnings.

[5] SOX requires firms to disclose non-audit-service fees (including a separate tax-fee line item) paid to auditors in their annual proxy statements. No such mandate exists for internal tax-department spending or external tax-service fees paid to providers other than auditors.

that suspect firms, on average, increase earnings by curtailing investments in tax planning to meet earnings benchmarks. Thus, firms appear to prefer the “direct method” to the “indirect method” of manipulating tax fees to meet/beat earnings targets. Our study therefore fills a gap in the literature by investigating this specific and unique component of SG&A expense to manage earnings.

Because we find evidence of such a manipulation, we next examine the association between corporate tax avoidance and discretionary tax-fee management by suspect firms. Our findings suggest that suspect firms that *increase* investments in tax planning experience a decrease in ETRs, indicating that the specific tax strategies funded by these investments have short (i.e., same period) payoff structures. In contrast, among suspect firms that *reduce* investments in tax planning, this form of real activity earnings management does *not* result in a statistically significant change in ETRs, suggesting that the specific tax strategies that these firms forego have longer (i.e., future period) payoff structures that do not drive up tax expense in the current year.[6]

This study resides at the confluence of research streams examining accrual management, real activity earnings management, and tax avoidance. We develop models that extract the discretionary component of total tax fees and contribute to research in real activity earnings management by providing evidence of suspect firms, on average, cutting discretionary tax fees to reach earnings targets. Thus, given the choice between the direct and indirect methods, firms appear to select the direct method with significantly greater frequency. We also contribute to the tax-avoidance literature, specifically research examining the influence of investments in tax

[6] In supplemental analyses, we find that suspect firms cutting discretionary tax fees in the current year do not experience increases in ETRs in the subsequent year either. However, we also find that, on average, these firms significantly increase their investments in tax planning in the subsequent year, which may explain why the anticipated detrimental tax outcomes do not materialize in that year.

planning on tax-avoidance outcomes (e.g., Mills et al. 1998; Cook et al. 2008; Cook and Omer 2016), by demonstrating that *increasing* discretionary tax fees to reach earnings targets does reduce tax expense and ETRs as prior research has demonstrated, but *reducing* discretionary tax fees to reach earnings targets does not result in a symmetric effect on tax expense (i.e., does not result in higher ETRs).

In the next section, we review the related literature and propose our hypotheses. Then, we describe our sample-section procedure and empirical methods. Next, we present our results, followed by concluding comments.

Literature Review and Hypothesis Development

Managers have incentives to meet or beat various earnings benchmarks (e.g., Burgstahler and Dichev 1997; Burgstahler and Eames 2006). These benchmarks include current-year zero profit (Roychowdhury 2006), last year's earnings, and analysts' forecasts (Zang 2012). Firms may manage earnings to "build credibility with the capital market, maintain or increase stock price, improve the external reputation of the management team and convey future growth prospects" (Graham, Harvey, and Rajgopal 2005, pp. 66-67). Managers have multiple tools available to them to accomplish these financial-reporting objectives, including both accruals-based and real activities-based approaches. The choice to manipulate spending on investments in tax planning (either downward to *directly* increase net income or upward to reduce tax expense and *indirectly* increase net income) is an example of real activity earnings management.

From accrual-based earnings management to real activity earnings management

The history of research on earnings management can be traced back to the 1970s (Watts and Zimmerman 1978) and the 1980s (Healy 1985; Healy, Kang, and Palepu 1987; McNichols and Wilson 1988; Dye 1988; Trueman and Titman 1988). Healy and Wahlen (1999, p. 368) define earnings management as "when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers." Much of the research on earnings management before 2000 focuses on accruals-based approaches, which generally have no direct cash-flow consequences. As examples, prior research provides evidence that managers use income-increasing accruals (Gaver, Gaver, and Austin 1995), income shifting (DeFond and Park 1997), and under-provisioning for bad-debt expenses (DeAngelo 1988) to accomplish their financial-reporting objectives.

Since 2002, SOX has heightened auditors' scrutiny of clients' accounting practices and financial statements, resulting in a decline in accrual-based earnings management (Zang 2012). Commensurate with this decline in accrual-based earnings management, firms have tended to substitute one method of earnings management another, shifting to real activity earnings management after the passage of the SOX (Cohen et al. 2008). As firms have shifted from managing accruals to manipulating real activities, scholars have begun to study this phenomenon. For example, Dechow and Sloan (1991) and Bens, Nagar, and Wong (2002) find that firms report higher earnings per share (EPS) by reducing R&D expenditures. Thomas and Zhang (2002) provide evidence that firms engage in overproduction to shift manufacturing overhead from cost of goods sold (COGS) to inventory accounts, thereby reducing COGS and increasing net income. Graham et al. (2005) survey more than 400 executives to determine the factors that drive reported earnings and disclosure decisions. The authors report that 80 percent of managers stated that, in order to deliver earnings, they would decrease R&D, advertising, and maintenance expenditures, and 55 percent said that they would postpone new projects; however, the authors did not inquire whether managers manipulate investments in tax planning to manage earnings. They conclude that real activity earnings management could have more negative long-term consequences than accrual-based earnings management.

To conduct empirical research on real activity earnings management, the first challenge is to measure it. Roychowdhury (2006) defines real activities manipulation as departures from normal operational practices. He develops empirical models based on Dechow, Kothari and Watts (1998) to calculate abnormal real activities and finds evidence that firms use multiple real activity earnings management methods in order to meet certain financial reporting benchmarks (specifically, to avoid reporting annual losses). His findings are consistent with firms engaging in overproduction and reducing discretionary expenditures. His models have been widely adopted by subsequent real activity earnings management studies.

Using Roychowdhury's (2006) models, Gunny (2010) examines four types of real activity earnings management: (1) decreasing discretionary R&D expense, (2) decreasing discretionary SG&A expense, (3) timing the sale of fixed assets to report gains, and (4) overproducing inventory. Gunny (2010) finds evidence that real activity earnings management is positively associated with firms just meeting earnings benchmarks, and using real activity earnings management is positively associated with future performance. In addition, firms engaging in real activity earnings management have significantly higher subsequent earnings benchmarks. Hence, the author claims that real activity earnings management is consistent with managers attaining benefits that allow better future performance or signaling.

In contrast, Cohen and Zarowin (2010) find evidence that real activity earnings management has more negative consequences than accrual-based earnings management. The authors find that firms engage in real activity earnings management in the year of seasoned equity offerings (SEOs), but SEO firms tend to both outperform their industry peers in the period preceding the SEO and underperform their peers following the SEO, as evidenced by their return on assets (ROA). The authors state that real activity earnings management is less likely to be scrutinized by auditors and regulators and thus potentially has a greater probability of not being detected.

Manipulating investments in tax planning as real activity earnings management

The payment of tax fees to the firm's tax consultant has cash-flow consequences, a characteristic distinguishing real activity earnings management from accrual-based earnings management (Roychowdhury 2006); therefore, the manipulation of the timing of investments in tax planning (by either increasing or decreasing tax fees) is a form of real activity earnings management. Prior research (e.g., Cook et al. 2008) finds that firms wishing to decrease tax expense and, in turn, increase net income to meet or beat earnings targets may do so by increasing investments in tax planning, which we refer to as the "indirect method." However, similar to decreasing discretionary R&D expenditures or other components of SG&A expense such as advertising, firms also may *decrease* investments in tax planning to boost earnings and achieve earnings targets, which we refer to as the "direct method." While past studies have examined firms' use of various tax accounts to manage earnings, including deferred tax assets and liabilities (Phillips, Pincus, Rego, and Wan 2004; Burgstahler, Elliot, and Hanlon 2006), deferred tax expense (Phillips, Pincus, and Rego 2003; Mills and Newberry 2001), the valuation allowance (Frank and Rego 2006; Schrand and Wong 2003; Bauman, Bauman, and Halsey 2001; Visvanathan 1998), permanently reinvested earnings (Krull 2004), and unrecognized tax benefits (Cazier, Rego, Tian, and Wilson 2015; De Simone, Robinson, and Stomberg 2014), no research has investigated whether firms *decrease* investments in tax planning in order to meet earnings benchmarks. Given that firms have both the direct and indirect methods of tax-fee manipulation at their disposal, we propose the following non-directional hypothesis:

H1: Firms manipulate investments in tax planning to meet earnings benchmarks.

Finding that meeting or narrowly beating earnings benchmarks is associated with *increases* in tax-planning investments (i.e., *positive* discretionary tax fees) would provide additional evidence of the indirect method, whereas finding that reaching or narrowing exceeding these targets is associated with *decreases* in tax-planning investments (i.e., *negative* discretionary tax fees) would demonstrate that, on average, firms select the direct method to boost income.

Manipulating investments in tax planning and tax avoidance

Prior research has explored the association between tax fees and tax avoidance. Mills et al. (1998) find a negative relation between "investments in tax planning" and firms' ETRs, indicating that such investments result in lower tax expense. However, Mills et al. (1998, p.3) "adopt a broad definition of tax planning, including all expenditures related to the tax function;" their "investments in tax planning" include total tax fees (both tax-compliance and tax-planning fees) paid to external tax-service providers as well compensation paid to in-house tax staff. In this paper, we propose to separate the nondiscretionary and discretionary components of firms' total tax fees and evaluate the discretionary portion as a measure of real activities earnings management. Cook et al. (2008) find that higher tax-service fees paid to auditors are associated with reductions in ETRs between the third and fourth quarters that allow firms to reach their earnings benchmarks (i.e., the indirect method). Thus, firms may realize returns to investments in tax planning over a short time horizon by investing in tax strategies with short-term payoff structures (such as PRE designations).[7,8] Among suspect firms that meet or narrowly beat their earnings targets, we predict that increased investments in tax planning result in decreased tax expense and propose the following hypothesis:

H2a: *Among suspect firms, positive discretionary tax fees are associated with (1) lower ETR levels and (2) ETR decreases relative to the prior year.*

In contrast, some firms may curtail spending on tax planning to increase net income (i.e., the direct method). For this earnings-management strategy to be effective, the decrease in tax fees must exceed any increase in tax expense associated with the foregone investments in tax planning. Accordingly, these firms must selectively sacrifice tax strategies with long-term payoff structures (such as establishing operations in tax-haven countries) to avoid a current-period increase in tax expense that offsets the decrease in investment in tax planning. Accordingly, among suspect firms, we predict that decreased investments in tax planning do *not* result in increased tax expense and propose the following hypothesis:

H2b: *Among suspect firms, negative discretionary tax fees are not associated with (1) higher ETR levels or (2) ETR increases relative to the prior year.*

Research Design

Sample selection

Our sample is limited to firms that use their auditors as their tax service providers because SOX mandates that only such firms disclose their tax-service fees (i.e., their total tax

[7] While designating foreign earnings as "permanently reinvested" is fairly straightforward, the decision of which earnings and what amount of earnings to designate in order to reach an earnings target is a service that firms may purchase from their tax-service providers.

[8] Cook et al. (2008) identify other tax strategies with short-term payoff structures that tax-service providers may implement to allow client firms to reach earnings targets, including transfer pricing between countries with high and low tax rates, foreign tax-credit planning, and the purchase of federal and state tax credits that are transferable between taxpayers.

fees paid to auditors). Following Gunny (2010), we identify suspect firms that meet or narrowly beat earning targets, including either avoiding a loss or avoiding an earnings decline. We do not use the measure of meeting/beating analysts' forecasts to identify suspect firms because "real management must take place before the end of the year and managers are unlikely to know what the analysts' forecast of earnings will be prior to earnings announcement" (Gunny 2010, p. 863).

SOX requires firms to report non-audit service fees paid to auditors in the current and prior years beginning in 2003. Because Audit Analytics did not backfill 2002 data when firms reported these data in 2003, our sample includes annual observations from 2003 to 2015. We use Compustat data to identify suspect firms (see below) and Audit Analytics data to measure tax fees paid to auditors.[9] After merging data from Audit Analytics and Compustat for years 2003-2015 (107,397 observations), we eliminate firms in the financial-services industry (SIC codes 6000-6999) and utility industry (SIC codes 4400-4999) because these firms are subject to unique accounting and/or tax rules (Gunny 2010). Next, in order to estimate our first-stage models specified below, we eliminate industry-year groups with fewer than 15 observations. These two procedures reduce the sample by 37,851, and 1,189 observations, respectively. The sample contains 68,357 observations before regressions. Further sample-size reductions occur due to the additional data-availability constraints when calculating the dependent, independent, and control variables in particular regression models. Please refer to Appendix A for details.

Identification of suspect firms

Following Gunny (2010), we identify "suspect" firms (i.e., *SUSPECT*=1) with the following criteria: (1) firms *just* beating/meeting the zero earnings benchmark, meaning net

[9] In the rare instance where a firm switches its auditor during the year and pays tax fees to both the outgoing and incoming auditors, we use the sum of tax-service fees (Audit Analytics TAX_FEES) of each firm-year as the total tax fees.

income divided by total assets is between 0 and 0.01 (i.e., 0 ≤ net income/total assets ≤ 0.01), or (2) firms *just* beating/meeting prior year earnings, meaning the change in net income divided by total assets between *t-1* and *t* is between 0 and 0.01 (i.e., 0 ≤ Δnet income/total assets ≤ 0.01).

Models of discretionary tax fees

We draw on prior literature to develop models to predict the nondiscretionary portion of total tax fees, the residual of which represents the discretionary portion. Our rationale for this approach is the recognition that total tax fees include (1) a nondiscretionary component that is related to tax compliance and a normal level of tax planning and (2) a discretionary component that reflects an abnormal level of tax planning. More specifically, following Gunny (2010), we develop two prediction models for tax fees based on firm characteristics to identify nondiscretionary tax fees.[10] Extracting the resulting residuals from estimating these models allows us to measure the *discretionary* component that I argue is related to manipulating investments in tax planning to manage earnings.

Roychowdhury (2006) develops empirical measures to reflect real activity earnings management of discretionary expenses. He investigates the discretionary components of advertising expense, R&D expense, SG&A expense, and production cost. We use the same two-stage regression approach to investigate whether firms manipulate discretionary tax fees as a form of real activity earnings management to meet earnings benchmarks. In the first stage, we follow Gunny (2010) and propose the following two regression models to estimate the nondiscretionary level of tax fees:

$$\frac{TaxFees_t}{A_{t-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{t-1}} + \beta_1 MV_t + \beta_2 Q_t + \beta_3 \frac{INT_t}{A_{t-1}} + \beta_4 \frac{TaxFees_{t-1}}{A_{t-1}} + \varepsilon_t^{TaxFees} \qquad (1)$$

[10] We use two models rather than just one to verify that our results are consistent between the two and thus are not attributable to the specific first-stage model that we use to capture our residuals.

where all variables are defined in Appendix B.

Model (1) is an expectations model based on prior research (Berger 1993; Roychowdhury 2006; Gunny 2010). We replace R&D expense with tax fees and estimate this model for each year (2003-2015) and industry (two-digit SIC code) combination. The control variables are designed to capture factors that influence the level of tax fees. Specifically, we use the natural logarithm of the market value of equity (*MV*) to control for size. Tobin's *Q* is a proxy for the marginal benefit to marginal cost of installing an additional unit of a new investment. Internal funds (*INT*) are a proxy for reduced funds available for investment. The prior year's tax fees ($TaxFees_{t-1}$) serves as a proxy for the firm's expected investment in tax planning.

Gunny (2010) also develops a model to estimate the normal level of SG&A expense. Because tax fees are a component of SG&A, we develop Model (2) to estimate the normal level of tax fees. Similar to Model (1), we estimate Model (2) for each year and industry combination. In addition to market value, Tobin's *Q*, and internal funds, we incorporate controls for the change in sales and the interaction of the change in sales with "sticky" cost behavior (Anderson, Banker, and Janakiraman 2003; Gunny 2010) in Model (2).

$$\frac{TaxFees_t}{A_{t-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{t-1}} + \beta_1 MV_t + \beta_2 Q_t + \beta_3 \frac{INT_t}{A_{t-1}} + \beta_4 \frac{\Delta S_t}{A_{t-1}} + \beta_5 \frac{\Delta S_t}{A_{t-1}} \times DD + \varepsilon_t^{TaxFees} \qquad (2)$$

where all variables are defined in Appendix B.

We use the residuals from Models (1) and (2) to proxy for discretionary tax fees (named *DiscTaxFees_1* and *DiscTaxFees_2*, respectively) and model this variable in our second-stage regression analyses. Specifically, to examine the association between firms just meeting/narrowly beating their earnings benchmarks and discretionary tax fees (Hypothesis 1), we propose the following second-stage regression model:

$$DiscTaxFees_t = \gamma_0 + \gamma_1 SUSPECT_t + \gamma_2 SIZE_t + \gamma_3 MTB_t + \gamma_4 ROA_t + \varepsilon_t \qquad (3)$$

where all variables are defined in Appendix B.

Model (3) is based on Roychowdhury (2006) and Gunny (2010). *SUSPECT* is the independent variable of interest. A negative coefficient γ_1 would indicate that, on average, suspect firms utilize the direct method to increase earnings by reducing investments in tax planning relative to normal levels. In contrast, a positive coefficient γ_1 would suggest that, on average, suspect firms employ the indirect method to boost income by increasing investments in tax planning relative to expected levels, thereby reducing tax expense. An insignificant coefficient γ_1 would reflect that firms do not manipulate investments in tax planning as a form of real activities management. *SIZE* controls for size effects, and *MTB* controls for growth opportunities. We also include *ROA* to address concerns that real activity earnings management is correlated with performance. Following Gunny (2010), we estimate pooled regressions and compute *p*-values using Roger's robust standard errors, correcting for firm clusters (Petersen 2009).

To examine Hypotheses 2a and 2b, we develop Model (4).[11]

$$
\begin{aligned}
TaxAvoid_t = {} & \gamma_1 BEAT_t + \gamma_2 JUSTMISS_t + \gamma_3 NegDiscTaxFees_t + \gamma_4 SUSPECT_t \times NegDiscTaxFees_t \\
& + \gamma_5 PosDiscTaxFees_t + \gamma_6 SUSPECT_t \times PosDiscTaxFees_t + \gamma_7 TaxAvoid_{t-1} + \gamma_8 ROA_t + \gamma_9 LEV_t \\
& + \gamma_{10} NOL_t + \gamma_{11} \Delta NOL_t + \gamma_{12} FORIN_t + \gamma_{13} CAPINTt + \gamma_{14} RNA_t + \gamma_{15} MTB_t + \gamma_{16} SIZE_t \\
& + \gamma_{17} LOSSINT_t + \gamma_k INDUSTRY + \gamma_j YEAR + \varepsilon_t
\end{aligned}
\qquad (4)
$$

where all variables are defined in Appendix B. Again, *SUSPECT* is an indicator variable for firms that meet or narrowly beat their earnings targets. The interaction of *SUSPECT* with *PosDiscTaxFees* captures the average effect on ETRs for suspect firms that *increase* investments

[11] Note that Model (4) lacks an intercept and a *SUSPECT* main effect. The reason is that all observations are coded 1 for either *NegDiscTaxFees* or *PosDiscTaxFees*. Thus, the sum of these two variables is a perfect linear combination of the intercept. Similarly, the sum of *SUSPECT*×*NegDiscTaxFees* and *SUSPECT*×*PosDiscTaxFees* is a perfect linear combination of *SUSPECT*. Thus, to ease the interpretation of our results, we include both *NegDiscTaxFees* and *PosDiscTaxFees* (as well as their interactions with *SUSPECT*) in our model and omit the intercept and *SUSPECT* main effect.

in tax planning (using the indirect method) relative to normal levels. A negative coefficient on γ_6 would provide support for H2a by demonstrating that ETRs decrease for this subsample of firms. In contrast, the interaction of *SUSPECT* with *NegDiscTaxFees* captures the average effect on ETRs for suspect firms that *reduce* investments in tax planning (using the direct method). A nonsignificant coefficient on γ_4 would corroborate H2b and suggest that this subsample of firms foregoes tax strategies that do *not* affect ETR in the same period. *BEAT* is an indicator variable for firms that exceed their earnings targets by wider margins than *SUSPECT* firms. *JUSTMISS* captures firms that narrowly miss these targets. The control variables are the same as those in McGuire, Wang, and Wilson (2014).

Model (5) is the same as Model (4) except the response variable is the change in GAAP ETR from year t-1 to year t (*ΔTax Avoid*), and we remove the lagged GAAP ETR level ($TavAvoid_{t-1}$) as a control variable.

Measure of tax avoidance

To proxy firms' tax-avoidance activities, we estimate GAAP ETR. GAAP ETR is a commonly used measure of a firm's tax burden (e.g. Rego 2003; Dyreng, Hanlon, and Maydew 2010; Robinson, Sikes, and Weaver 2010) and reflects tax avoidance activities that directly affect net income, but not those activities that defer cash taxes paid to a later period (Hanlon and Heitzman 2010). Dyreng et al. (2010) advocate using GAAP ETR for studies focusing on financial-reporting consequence relating to tax expenses. Armstrong, Blouin, and Larcker (2012) confirm that GAAP ETR is the consistent tax-avoidance measure that managers employ to boost accounting numbers in the financial statements. Graham et al. (2014) corroborate this intuition in their survey of nearly 600 corporate tax executives, the majority of whom "confess" that GAAP ETR (and not cash ETR) "metric is more important to the top management" for financial accounting and reporting. Similar to Badertscher, Phillips, Pincus, and Rego (2009), our study considers how income tax accounts disclosed in firms' financial reports can be used to manage their earnings. Therefore, we examine GAAP ETR in our tax-avoidance analyses.

Results

Models (1) and (2)

Table 1, Panel A (B) provides descriptive statistics for the 50,479 (47,456) firm-year observations used to estimate our prediction Model 1 (2). In Panel A (B), firms' mean investment in tax planning in dollars (*TaxFees*) is $207,810 ($222,802); as a percentage of beginning total assets, these investments constitute 0.0629 (0.0559) percent. Given the small magnitude of these tax-planning investments, manipulation of such expenditures may not suffice to achieve earnings targets as a stand-alone earnings-management mechanism. That said, firms willing to manipulate investments in tax planning also may manipulate other real activities and/or accruals, such that the change in discretionary tax spending needed to meet/beat these benchmarks is relatively small.[12]

Table 2 reports the estimation results for Models (1) and (2). For each industry-year with more than 15 observations, we estimate these models cross-sectionally for the period 2003-2015. The reported coefficients are the mean values of these coefficients across the industry-year regressions, and we calculate *p*-values using the standard errors of the mean coefficients across industry-years (Fama and MacBeth 1973). Across both Models (1) and (2), larger firms (i.e., higher *MV*) appear to expend a lower percentage of total assets on tax planning. In Model (1), the

[12] To test this conjecture, in a supplemental analysis, we estimate discretionary R&D expense and discretionary SG&A expense (after subtracting tax fees from total SG&A expense) and correlate these measures with discretionary tax fees among suspect firms. Given the relatively small magnitude of tax fees, if suspect firms cut discretionary spending to manage earnings, we expect (and find) that firms cutting tax fees also cut other expenditures, thereby enabling them to reach or narrowly exceed their earnings targets.

β_4 coefficient of 0.75 on lagged *TaxFees/A* indicates that these investments are highly persistent from one year to the next. Models (1) and (2) have average adjusted R^2s of 0.62, and 0.26, respectively, across industry-years. The models have reasonable explanatory power, and the adjusted R^2s are consistent with prior literature.

[Insert Tables 1 and 2 here.]

Model (3)

Table 3, Panel A (B) presents descriptive statistics for the residuals, *DiscTaxFees*, from the first-stage models, using the 44,362 (42,628) observations with complete data to estimate Model (3). In both panels, the mean of *SUSPECT* is approximately 0.13, indicating that approximately 13 percent of our sample reports suspect earnings that precisely meet or narrowly beat earnings targets. In Table 3, Panel C, we examine this subsample of suspect firms and find that both the mean and median values of *DiscTaxFees* are significantly negative, indicating that these firms (1) do appear to manipulate investments in tax planning to manage earnings and (2) appear to prefer the direct method of reducing tax fees below expected levels to commensurately increase net income. We also conduct proportion tests to verify that the percentage of suspect observations with negative discretionary tax fees (65 percent for *DiscTaxFees_1* and 62 percent for *DiscTaxFees_2*) are significantly greater than 50 percent, the percentage we would expect if firms equally utilize the direct and indirect methods; these proportion tests yield highly significant results. Taken together, these descriptive statistics provide initial support for H1, but we rely on regression models that include the control variables from Roychowdhury (2006) and Gunny (2010) to test this hypothesis.

[Insert Table 3 here.]

Table 4 reports the regression results from estimating Model (3). The adjusted R^2 statistics of the two models are 0.0032 and 0.0045, respectively, which are consistent with Gunny (2010). The model F-tests are highly significant, suggesting that, despite these low adjusted R^2 statistics, the models provide a better fit than intercept-only models. In both estimations, the *SUSPECT* indicator variable for firms that just meet zero or last year's earnings is negatively associated with the residuals from the first-stage prediction model (i.e., *DiscTaxFees_1* and *DiscTaxFees_2*), providing evidence that suspect firms manipulate discretionary tax fees to meet earnings benchmarks, which supports Hypothesis 1. The results suggest that suspect firms have discretionary tax fees that are lower on average by 0.0028 percent of total assets (or $165,900) compared to the rest of the sample. In untabulated analysis, the mean of total tax fees for suspect firms is $357,292. Thus, the mean reduction in discretionary tax fees of suspect firms, $165,900, is an economically significant 46.43 percent of mean total tax fees.

[Insert Table 4 here.]

Models (4) and (5)

Table 5 provides descriptive statistics of GAAP ETRs and related variables for the 11,010 observations with complete data used to estimate Models (4) and (5). We find that the mean and median of our measure of tax avoidance are consistent with prior research (e.g., Dyreng et al. 2010 and McGuire et al. 2012). Specifically, the mean (median) of GAAP ETR is 0.301 (0.321). Armstrong et al. (2012) explain that many firms report GAAP ETRs that are lower than the US statutory tax rate (35 percent) because they have items included in book income that will never be recorded in taxable income (e.g., municipal bond interest and permanently reinvested earnings.)

[Insert Table 5 here.]

Table 6 presents the regression coefficient estimates for Model (4). The coefficient γ_1 on *BEAT* is significant and negative, indicating that firms that beat the earnings benchmark by more than 0.01 have lower GAAP ETRs than firms that miss the earnings benchmark by more than 0.01. In contrast, the coefficient γ_2 on *JUSTMISS* is positive but nonsignificant. Using the residuals from Model (1) as our measure of discretionary tax fees in column 1, the coefficient γ_6 on *SUSPECT×PosDiscTaxFees* (-0.0113) is significant and negative, consistent with the results of Dhaliwal et al. (2004) that suspect firms lower their ETRs to achieve earning targets and Cook et al. (2008) that higher tax-service fees are associated with greater reductions in ETRs. Thus, we find support for H2a that, among suspect firms with positive discretionary tax fees, such increased investments in tax planning are associated with reductions in tax expense during the same period, thereby increasing net income. In contrast, the coefficient γ_4 on *SUSPECT×NegDiscTaxFees* (0.0007) is positive but nonsignificant. Thus, we also find support for H2b that, among suspect firms with negative discretionary tax fees, such decreased investments in tax planning are *not* associated with changes in tax expense during the same period. We find consistent results in column 2 when we use the residuals from Model (2) as our measure of discretionary tax fees. All the control variables match predicted signs in McGuire et al. (2014) except *MTB*.

[Insert Table 6 here.]

In Table 7, we re-estimate Model (4), replacing our previous response variable (GAAP ETR levels) with GAAP ETR changes from year t-1 to year t. Consistent with the results in Table 6, in column 1, we find a negative and significant γ_6 coefficient on *SUSPECT×PosDiscTaxFees* (-0.0127) and a negative but nonsignificant γ_4 coefficient on

SUSPECT×NegDiscTaxFees (-0.0002). In column 2, we find a negative and marginally significant γ_6 coefficient on *SUSPECT×PosDiscTaxFees* (-0.0100) and a negative but nonsignificant γ_4 coefficient on *SUSPECT×NegDiscTaxFees* (-0.0014). Thus, our results in Table 7 provide additional evidence in support for H2a and H2b.

[Insert Table 7 here.]

Supplemental Analyses

Firms' manipulation of other discretionary expenditures in concert with discretionary tax fees

To reiterate, in Table 1, Panel A (B), firms' mean investment in tax planning in dollars (*TaxFees*) is $207,810 ($222,802); as a percentage of beginning total assets, these investments constitute 0.0629 (0.0559) percent. Given the small magnitude of these tax-planning investments, manipulation of such expenditures may not suffice to achieve earnings targets as a stand-alone earnings-management mechanism. That said, firms willing to manipulate investments in tax planning also may manipulate other real activities and/or accruals, such that the change in discretionary tax spending needed to meet/beat these benchmarks is relatively small.

To test this conjecture, we replicate the models from Gunny (2010) to estimate our sample observations' (1) discretionary R&D expenditures (*DiscR&D*) and (2) discretionary SG&A expenditures after subtracting total tax fees from total SG&A (*DiscSG&A*). Then, in Table 8, we correlate our two measures of discretionary tax fees with *DiscR&D* and *DiscSG&A*, respectively. We find positive and significant correlations ranging from 0.0631 to 0.2023, indicating that, on average, firms cutting investments in tax planning are also reducing R&D spending and spending on other components of SG&A, such as advertising. Thus, curtailing investments in tax spending may be part of a concerted effort by firms to reduce discretionary spending across multiple departments to achieve earnings benchmarks.

[Insert Table 8 here.]

Consequences in year t+1 of cutting investments in tax planning in year t

Consistent with H2b, in Tables 6 and 7, we provide evidence that suspect firms with negative discretionary tax fees do not experience concurrent increases in GAAP ETR. We conjecture that, when making the decision to reduce investments in tax planning, suspect firms selectively forego strategies with long-term payoff structures while retaining those with short-term (i.e., same year) payoff structures in order to reduce SG&A expense *without* increasing tax expense in the current year. If so, these suspect firms may experience increases in GAAP ETR in the subsequent year. We test this possibility in Table 9; however, we find that, as in Table 6, the coefficient on *SUSPECT×NegDiscTaxFees* is nonsignificant, indicating that suspect firms with negative discretionary tax fees in year t do not experience significant increases in GAAP ETR in either year t or year t+1.

[Insert Table 9 here.]

One potential explanation for why suspect firms with negative discretionary tax fees in year t do not suffer adverse consequences in the form of higher GAAP ETRs in year t+1 is that these firms increase their investments in tax planning in year t+1. In Table 10, we test this possibility and find that suspect firms with negative discretionary tax fees in year t significantly increase their discretionary tax fees in year t+1. Accordingly, these increased investments in tax planning in year t+1 may stave off the negative outcomes associated with curtailing these investments in year t.

[Insert Table 10 here.]

Self-selection bias in the decision to use auditors as tax-service providers

Numerous studies (e.g., Lassila, Omer, Shelley, and Smith 2010; McGuire, Omer, and Wang 2012; Krishnan, Visvanathan, and Yu 2013) recognize that the decision to use auditors as tax-service providers is subject to self-selection bias. To address this bias, we use the Heckman two-stage procedure. In the first stage, we follow Lassila et al. 2010 and McGuire et al. 2012 by modeling the probability of purchasing auditor-provided tax services; we present the results of this first-stage model in Table 11. We define these variables in Appendix B. We obtain the inverse Mills ratio from this first-stage model and re-estimate Models (1) and (2), including the inverse Mills ratio as an additional explanatory variable; we present the results of these second-stage models in Table 12. In Model (1), the inverse Mills ratio is negative and significant; however, in Model (2), it is nonsignificant. We then use the residuals from these models to estimate Models (3) and (5). Consistent with our primary analyses in Tables 4 and 7, we find that (1) a negative and significance association persists between *SUSPECT* and *DiscTaxFees* in Table 13 and (2) a negative and significant (nonsignificant) association persists between *SUSPECT×PosDiscTaxFees* (*SUSPECT×NegDiscTaxFees*) and change in GAAP ETR in Table 14. Thus, correcting for self-selection bias using the Heckman two-stage procedure does not change the inferences that we draw from our primary analyses.

[Insert Tables 11, 12, 13, and 14 here.]

Conclusion

Prior research finds that firms wishing to decrease tax expense and, in turn, increase net income to meet or beat earnings targets may do so by increasing tax-service fees (i.e., the “indirect method”). We investigate whether firms decrease investments in tax planning to manage earnings and meet earnings benchmarks (i.e., the “direct method”). Our results suggest that suspect firms, on average, increase earnings by curtailing investments in tax planning to meet earning benchmarks. Given the choice between the direct and indirect methods, firm appear to select the direct method with significantly greater frequency. Thus, firms appear to prefer the "direct method" to the "indirect method" of manipulating discretionary tax fees to meet/beat earnings targets. Our study therefore fills a gap in the literature by investigating this specific and unique component of SG&A expense to manage earnings.

Because we find evidence of such a manipulation, we next examine the association between corporate tax avoidance and discretionary tax-fee management by suspect firms. Our findings suggest that suspect firms that increase investments in tax planning experience reductions in tax expense during the same period. In contrast, suspect firms that decrease investments in tax planning do not experiences a statistically significant change in ETRs.

In this study, we develop models that extract the discretionary component of total tax fees and contribute to research in real activity earnings management by providing evidence of suspect firms, on average, cutting discretionary tax fees to reach earnings targets. We also contribute to the tax-avoidance literature by examining the influence of investments in tax planning on tax-avoidance outcomes. This study demonstrates that increasing discretionary tax fees to achieve earnings benchmarks does reduce tax expense (i.e., lower ETRs) as prior research has demonstrated, but reducing discretionary tax fees to reach earnings benchmarks does not result in a symmetric effect on tax expense (i.e., higher ETRs).

Our findings are subject to two limitations. First, like other researchers, we have access only to firms that use their auditors as their tax service providers. If these firms are inherently different from other firms that do not purchase tax services from their auditors, our results may lack generalizability. However, in supplemental analyses, we use the Heckman two-stage approach to address this concern. Second, as Roychowdhury (2006) demonstrates, firms have other real activities at their disposal if they choose to manage earnings (e.g., discretionary R&D spending). If the costs associated with manipulating these other activities are less than those associated with manipulating tax planning, firms may not utilize this strategy, which would bias against us finding an association between suspect firms and discretionary tax fees. We provide evidence that firms appear to manipulate investments in tax planning in concert with R&D and other SG&A expenditures to reach earnings targets.

References

Anderson, M., R. D. Banker, and S. N. Janakiraman. 2003. Are selling, general, and administrative cost “sticky?” *Journal of Accounting Research* 41(1): 47-63.

Armstrong, C., J. Blouin, and D. Larcker. 2012. The incentive for tax planning. *Journal of Accounting and Economics* 53(1-2): 391-411.

Badertscher, B. A., J. D. Phillips, M. Pincus, and S. O. Rego 2009. Earnings management strategies and the trade-off between tax benefits and detection risk: to conform or not to conform? *The Accounting Review* 84(1): 63-97.

Bauman, C. C. and M. P. Bauman, and R. F. Halsey (2001) Do Firms Use the Deferred Tax Asset Valuation Allowance to Manage Earnings?. *The Journal of the American Taxation Association* 23 (s-1): 27-48.

Burgstahler, D., W. Elliott, and M. Hanlon. 2006. How firms avoid losses: Evidence of use of the net deferred tax asset account. Working paper, University of Washington.

Bens, D., V. Nagar, and F. Wong. 2002. Real investment implications of employee stock option exercises. *Journal of Accounting Research* 40 (20): 359-393.

Berger, P. 1993. Explicit and implicit tax effect of the R&D tax credit. *Journal of Accounting Research* 31 (2): 131-171.

Burgstahler, D. and I. Dichev. 1997. Earnings management to avoid earnings decreases and losses. *Journal of Accounting and Economics* 24 (1): 99–126.

Cazier, R., S. Rego, X. Tian, and R.Wilson. 2015. The impact of increased disclosure requirements and the standardization of accounting practices on earnings management through the reserve for income taxes. *Review of Accounting Studies* 20 (1):436–469.

Cohen, D.A., A. Dey, and T. J. Lys. 2008. Real and accrual-based earnings management in the pre- and post-Sarbanes-Oxley periods. *The Accounting Review* 83 (3): 757-787.

Cohen, D.A., and P. Zarowin. 2010. Accrual-based and real activity earnings management activities around seasoned equity offerings. *Journal of Accounting and Economics* 50 (1): 2–19.

Cook, K. A., G. R. Huston, and T. Omer. 2008. Earnings management through effective tax rates: The effects of tax planning investment and the Sarbanes-Oxley Act of 2002. *Contemporary Accounting Research* 25 (2): 447-471.

DeAngelo, L. E. 1988. Managerial competition, information costs, and corporate governance: The use of accounting performance measures in proxy contests. *Journal of Accounting and Economics* 10 (1): 3-36.

Dechow, P.M., S. P. Kothari, and R. L. Watts. 1998. The relation between earnings and cash flows. *Journal of Accounting and Economics* 25 (2): 133–168.

Dechow, P.M., and R. Sloan. 1991. Executive incentives and the horizon problem: An empirical investigation. *Journal of Accounting and Economics* 14 (1): 51–89.

DeFond, M. L., and C. W. Park. 1997. Smoothing income in anticipation of future earnings. *Journal of Accounting and Economics* 23 (2): 115-139.

De Simone, L., J. R. Robinson, and B. Stomberg. 2014. Distilling the reserve for uncertain tax positions: the revealing case of black liquor. *Review of Accounting Studies* 9 (1):456–472.

Dhaliwal, D., C. Gleason, and L. Mills. 2004. Last-chance earnings management: Using the tax expense to meet analysts' forecasts. *Contemporary Accounting Research* 21 (2): 431-459.

Dye, R. 1988. Earnings management in an overlapping generation's model. *Journal of Accounting Research* 26 (2): 195-235.

Dyreng, S. D., M. Hanlon, and E. L. Maydew. 2010. The effects of executives on corporate tax avoidance. *The Accounting Review* 85 (4): 1163-1189.

Fama, E., and J. Macbeth. 1973. Risk, return and equilibrium: Empirical tests. *Journal of Political Economy* 81 (3): 607-36.

Frank, M. M. and S. O. Rego (2006) Do Managers Use the Valuation Allowance Account to Manage Earnings around Certain Earnings Targets?. *The Journal of the American Taxation Association* 28 (1): 43-65.

Gaver, J., K. Gaver, and J. Austin. 1995. Additional evidence on bonus plans and income management. *Journal of Accounting and Economics* 19 (1): 3-28.

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

Graham, J. R., C. R. Harvey, and S. Rajgopal. 2005. The economic implications of corporate financial reporting. *Journal of Accounting and Economics* 40 (1-3): 3–73.

Graham, J. R., M. Hanlon, T. Shevlin, and N. Shroff. 2014. Incentives for tax planning and avoidance: evidence from the field. *The Accounting Review* 89 (3): 991-1023.

Gunny, K. 2010. The relation between earnings management using real activities manipulation and future performance: Evidence from meeting earnings benchmarks? *Contemporary Accounting Research* 27 (3): 855–888.

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

Healy, P. 1985. The effect of bonus schemes on accounting decisions. *Journal of Accounting and Economics* 7 (1-3): 85-107.

Healy, P., S. Kang, and K. Palepu. 1987. The effect of accounting procedure changes on CEOs' cash salary and bonus compensation. *Journal of Accounting and Economics* 9 (1): 7-34.

Healy, P., and J. M. Wahlen. 1999. A review of the earnings management literature and its implications for standard setting. *Accounting Horizons* 13 (4): 365–383.

Krishnan, G. V., and G. Visvanathan. 2011. Is there an association between earnings management and auditor-provided tax services? *Journal of 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. R., T. C. Omer, M. K. Shelley, and L. M. Smith. 2010. Do complexity, governance, and auditor independence influence whether firms retain their auditors for tax services? *Journal of American Taxation Association* 32 (1): 1-23.

Krull, L. K. 2004. Permanently Reinvested Foreign Earnings, Taxes, and Earnings Management. *The Accounting Review* 79 (3): 745-767.

McGuire, S. T., T. C. Omer, and D. Wang. 2012. Tax avoidance: Does tax-specific industry expertise make a difference? *The Accounting Review* 87 (3): 975-1003.

McGuire, S. T., D. Wang, and R. J. Wilson. 2014. Dual class ownership and tax avoidance. *The Accounting Review* 89 (4): 1487-1516.

McNichols, M., and P. Wilson. 1988. Evidence of earnings management from the provision for bad debts. *Journal of Accounting Research* 26 (Supplement): 1-31.

Maydew, E., and D. Shackelford. 2007. The changing role of auditors in corporate tax planning. In J. Slemrod and A. Auerbach (eds.), *Taxing Income in the 21st Century* (307-337), Cambridge University Press.

Mills, L., M. M. Erickson, and E. L. Maydew. 1998. Investments in tax planning. *Journal of American Tax Association* 20 (1): 1-20.

Mills, L., and K. J. Newberry (2001) The Influence of Tax and Nontax Costs on Book - Tax Reporting Differences: Public and Private Firms. *The Journal of the American Taxation Association* 23 (1):1-19.

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.

Petersen, M. A. 2009. Estimating standard errors in finance panel data sets: Comparing approaches. *Review of Financial Studies* 22 (1): 435-80.

Phillips, J., M. Pincus, and S. O. Rego (2003) Earnings Management: New Evidence Based on Deferred Tax Expense. *The Accounting Review* 78 (2): 491-521.

Phillips, J. D., M. Pincus, S. O. Rego, and H. Wan (2004) Decomposing Changes in Deferred Tax Assets and Liabilities to Isolate Earnings Management Activities. *The Journal of the American Taxation Association* 26 (1): 43-66.

Rego, S. 2003. Tax avoidance activity of U.S. multinational corporations. *Contemporary Accounting Research* 20 (4): 805-833.

Robinson, J., S. Sikes, and C. Weaver. 2010. The impact of evaluating the tax department as a profit center on effective tax rates. *The Accounting Review* 85 (3): 1035-1064.

Roychowdhury, S. 2006. Earnings management through real activities manipulation. *Journal of Accounting and Economics* 42 (3): 335-370.

Schneider, A., B. K. Church, and K. M. Ely. 2006. Non-audit services and auditor independence: A review of the literature. *Journal of Accounting Literature* 25: 169-211.

Schrand, C.M., and M. H. Wong. 2003. Earnings Management Using the Valuation Allowance for Deferred Tax Assets under SFAS No. 109. *Contemporary Accounting Research* 20 (3): 579–611

Seetharaman, A., Y. Sun, and W. Wang. 2011. Tax-related financial statement restatements and auditor-provided tax services. *Journal of Accounting, Auditing and Finance* 26 (4):677-698.

Thomas, J. K., and H. Zhang. 2002. Inventory changes and future returns. *Review of Accounting Studies* 7 (2), 163–187.

Trueman, B., and S. Titman. 1988. An explanation for accounting income smoothing. *Journal of Accounting Research* 26 (Supplement): 127-139.

Visvanathan, G. 1998. Defered tax valuation allowances and earnings management. *Journal of Financial Statement Analysis* 3(4): 6-15.

Watts, R. L., and J. L. Zimmerman. 1978. Towards a positive theory of the determination of accounting standards. *The Accounting Review* 53 (1): 112-134.

Zang, A. 2012. Evidence on the trade-off between real activities manipulation and accrual-based earnings management. *The Accounting Review* 87 (2): 675-703.

Appendix A - Sample Selection

Merged Audit Analytics and Compustat 2003-2015 firm-year observations		107,397
Less financial-services and utility observations	(37,851)	
Less observations in industry-year groups with fewer than 15 observations	(1,189)	
		68,357
Less observations missing information required to calculate control variables in Model 1	(17,878)	
Observations in Model 1		50,479
Less observations missing information required to calculate control variables in Model 2	(20,899)	
Observations in Model 2		47,456
Less observations missing information required to calculate control variables in Model 3-1	(23,995)	
Observations in Model 3-1		44,362
Less observations missing information required to calculate control variables in Model 3-2	(25,729)	
Observations in Model 3-2		42,628
Less observations missing information required to calculate control variables in Models 4 and 5	(57,347)	
Observations in Models 4 and 5		11,010

Appendix B - Variable Descriptions

Variables in Model (1) and (2)

TaxFees	total tax fees (sum of Audit Analytics TAX_FEES of a firm at certain fiscal year); Tax_Fees are in millions;
A	total assets (Compustat AT);
MV	the natural log of market value (Compustat CSHO×PRCC_F);
Q	Tobin's Q (Compustat ((CSHO×PRCC_F) + UPSTK + DLTT + DLC)/LSE; Missing values are set to 0;
INT	internal funds (Compustat IB + XRD + DP); Missing values are set to 0;
S	total sales (Compustat SALE); and
DD	indicator variable that is set equal to 1 when total sales decrease between *t-1* and *t*, zero otherwise.

Variables in Model (3)

DiscTaxFees	residuals from Model (1) or (2), i.e., DiscTaxFees_1, and DiscTaxFees_2, respectively; DiscTaxFees in Model (3) are in thousands;
SUSPECT	an indicator variable that is set equal to one if (a) net income divided by total assets is between 0 and 0.01 or (b) the change in net income divided by total assets between t-1 and t is between 0 and 0.01, zero otherwise;
SIZE	the natural logarithm of total assets (Compustat AT);
MTB	the market value of equity divided by the book value of equity (Compustat (CSHO×PRCC_F)/CEQ); and
ROA	income before extraordinary items (Compustat IB) divided by lagged total assets (Compustat AT).

Variables in Models (4) and (5)

Independent Variables

ETR	total income tax (Compustat TXT) divided by pre-tax book income (Compustat PI) less special items (Compustat SPI) in year *t*; Observations with (1) negative or missing TXT, (2) non-positive or missing PI are eliminated. Missing values of SPI are set to 0. Winsorize ETRs to be between 0 and 1;
Δ*ETR*	change of ETR, i.e., ETR_t-ETR_{t-1}

Variable of Interest

NegDiscTaxFees	indicator variable equal to 1 if the DiscTaxFees from Models (1) or (2) are less than 0, zero otherwise;
SUSPECT×NegDiscTaxFees	interaction of *SUSPECT* in Model (3) and *NegDiscTaxFees.*
PosDiscTaxFees	indicator variable equal to 1 if the DiscTaxFees from Models (1) or (2) are greater than 0, zero otherwise;
SUSPECT×PosDiscTaxFees	interaction of *SUSPECT* in Model (3) and *PosDiscTaxFees.*

Control Variables

BEAT	indicator variable equal to 1 if (a) net income divided by total assets is greater than 0.01 or (b) the change in net income divided by total assets between t-1 and t is greater than 0.01, and (c) *SUSPECT* not equal to one, zero otherwise;
JUSTMISS	indicator variable equal to 1 if (a) net income divided by total assets is between -0.01 and 0 or (b) the change in net income divided by total assets between t-1 and t is between -0.01 and 0, and (c) *SUSPECT* or *BEAT* is not equal to one, zero otherwise;
ROA	ratio of pre-tax income (Compustat PI) less extraordinary items (Compustat XI) in year t to total assets at the beginning of the year (Compustat AT);
LEV	leverage for year t (Compustat DLTT) scaled by total assets at the beginning of the year (Compustat AT);
NOL	indicator variable equal to 1 if there is a tax loss carryforward (Compustat TLCF is positive) during year t, zero otherwise;
Δ*NOL*	change in tax-loss carryforward (Compustat TLCF) from year t-1 to t scaled by total assets at the beginning of the year (Compustat AT);
FORINC	pre-tax foreign income for year t (Compustat PIFO) scaled by total assets at the beginning of the year (Compustat AT). Missing values of pre-tax foreign income are set to 0;
CAPINT	net PPE for year t (Compustat PPENT) scaled by total assets at the beginning of the year (Compustat AT);
RND	research and development expense in year t (Compustat XRDQ) scaled by total assets at the beginning of the year (Compustat AT);
MTB	market-to-book ratio for the beginning of year t, measure as market value of equity (Compustat PRCC_F × CSHO) divided by book value of equity (Compustat CEQ);
SIZE	natural log of market value of equity (Compustat PRCC_F × CSHO) at the beginning of year *t*;
LOSSINT	loss intensity over the previous four-year period defined as the number of years a firm has negative pre-tax book income from year *t-4* to year *t-1* scaled to range between 0 to 1;
INDUSTRY	indicator variable equal to 1 if firm i is a member of industry *j*; Industries are defined based on two-digital SIC codes;
YEAR	indicator variable equal to 1 if observation's year is equal to one unique year.

<u>Variables in the Heckman First-Stage Model</u>

Dependent Variable

TAXSERVICE	indicator variable equal to 1 if the firm purchased tax services from their external auditor; 0 otherwise.

Independent Variables

FOREIGN	indicator variable equal to 1 if foreign income taxes in a given year are greater than 0, and 0 otherwise;
MERGER	indicator variable equal to 1 if Compustat Footnote is coded AA or AB, and a 0 otherwise;
NOL	indicator variable equal to 1 if there is a tax loss carryforward (Compustat TLCF is positive) during year t, zero otherwise;
CAPINTENSITY	gross property, plant, and equipment scaled by total assets;
INSTOWN	Percentage of shares owned by institutions at the beginning of the year;

AUDINDEP	Auditor independence from the client, measured as nonaudit fees less tax fees divided by total audit fees received from the client;
TENURE	Length of the audit firm's tenure with its client;
AUDINDEP × *TENURE*	interaction of *AUDINDEP* and *TENURE;*
LNASSETS	natural log of total assets;
LEVERAGE	total assets minus stockholder equity divided by total assets;
LNAUDIFEES	natural log of audit fees;
ETR	total income taxes (txt) less deferred taxes (txdi) divided by pre-tax income (pi), winsorized at 0 and 1; and
TAXAVOIDANCE	cash taxes paid (txpd) divided by pre-tax book income (pi) less special items (spi), winsorized at 0 and 1; if cash taxes paid is missing, income tax expense (txc) is substituted.

<u>Additional Variable in the Heckman Second-Stage Model</u>

INVMILLS	Inverse Mills ratio calculated based on the coefficient estimate from the Heckman First Stage Model.

Table 1, Panel A: Descriptive Statistics of Variables in Model (1)

Variable	N	Mean	Std. dev.	Min.	1st quartile	Median	3rd quartile	Max.
$TaxFees_{t}$	50479	0.20781	0.538543	0	0	0.02055	0.13654	3.583
A_{t-1}	50479	2392.149	7848.206	0.027	27.985	181.836	1042.965	60498.14
$TaxFees_{t}/A_{t-1}$	50479	0.000629	0.001571	0	0	8.77E-05	0.000531	0.011447
MV_{t}	50479	5.422683	2.431971	0.237362	3.615061	5.465603	7.13609	11.19166
Q_{t}	50479	5.295263	21.29774	0.215053	0.883662	1.382632	2.547873	199.7165
INT_{t}/A_{t-1}	50479	-0.47305	3.036681	-25.2037	-0.04176	0.086391	0.170053	0.903808
$TaxFees_{t-1}/A_{t-1}$	50479	0.000579	0.001466	0	0	7.53E-05	0.000483	0.010398

Table 1, Panel B: Descriptive Statistics of Variables in Model (2)

Variable	N	Mean	Std. dev.	Min.	1st quartile	Median	3rd quartile	Max.
TaxFees_{t}	47456	0.222802	0.556953	0	0	0.026	0.154279	3.583
A_{t-1}	47456	2574.267	8121.096	0.027	39.1565	228.0055	1210.935	60498.14
$\text{TaxFees}_{t}/\text{A}_{t-1}$	47456	0.000559	0.001339	0	0	9.17E-05	0.000516	0.011447
MV_{t}	47456	5.588352	2.395547	0.237362	3.820147	5.651932	7.264601	11.19166
Q_{t}	47456	3.202705	12.39252	0.215053	0.867694	1.330043	2.308731	199.7165
INT_{t}/A_{t-1}	47456	-0.16813	1.918333	-25.2037	0.000493	0.095701	0.176541	0.903808
$\Delta S_{t}/A_{t-1}$	47456	0.115433	0.407778	-1.16261	-0.02674	0.062758	0.199389	2.325338
DD	47456	0.314649	0.464381	0	0	0	1	1

Note:

All continuous control variables are winsorized at the top and bottom 1 percent of their distributions.

Table 2: Estimation of the Normal Level of Tax Fees

$$\frac{TaxFees_t}{A_{t-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{t-1}} + \beta_1 MV_t + \beta_2 Q_t + \beta_3 \frac{INT_t}{A_{t-1}} + \beta_4 \frac{TaxFees_{t-1}}{A_{t-1}} + \varepsilon_t^{TaxFees} \quad (1)$$

$$\frac{TaxFees_t}{A_{t-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{t-1}} + \beta_1 MV_t + \beta_2 Q_t + \beta_3 \frac{INT_t}{A_{t-1}} + \beta_4 \frac{\Delta S_t}{A_{t-1}} + \beta_5 \frac{\Delta S_t}{A_{t-1}} \times DD + \varepsilon_t^{TaxFees} \quad (2)$$

Model (1): $TaxFees_t / A_{t-1}$		Model (2): $TaxFees_t / A_{t-1}$	
Intercept	0.00028*** (0.0000)	Intercept	0.00062*** (0.0000)
$1 / A_{t-1}$	0.00092 (0.1379)	$1 / A_{t-1}$	0.00134 (0.2204)
MV_t	-0.00003*** (0.0000)	MV_t	-0.00007*** (0.0000)
Q_t	0.00001 (0.6038)	Q_t	0.000060*** (0.0000)
INT_t / A_{t-1}	0.00000 (0.9618)	INT_t / A_{t-1}	0.0001 (0.3271)
$TaxFees_{t-1} / A_{t-1}$	0.75088*** (0.0000)	$\Delta S_t / A_{t-1}$	0.00007 (0.6667)
		$(\Delta S_t / A_{t-1}) \times DD$	-0.00049** (0.025)
Total no. of obs.	50,479		47,456
No. of industry-year	567		565
Avg. no. of obs.	89		84
Adj. R^2	0.624		0.261

Notes:

1. Please see Appendix B for variable descriptions. All continuous variables are winsorized at the top and bottom 1 percent of their distributions.

2. *, **, and *** indicate significance at the 0.10, 0.05, and 0.01 level, respectively, using two-tailed tests.

3. The regressions are estimated for each industry-year combination from 2003 to 2015. Two-digit SIC codes are used to define industries. Industry-years with fewer than 15 firms are eliminated from the sample. The table reports the mean coefficient across all industry-years, and two-tailed p-values are calculated using the standard errors of the mean coefficient across the industry-years. The table also reports the mean adjusted R^2 and the number of observations is the mean across the industry-years.

Table 3, Panel A: Descriptive Statistics for Model (3) with the Residual from Model (1)

Variable	N	Mean	Std. dev.	Min.	1st quartile	Median	3rd quartile	Max.
$DiscTaxFees\_1_t$	44362	-0.01334	0.634708	-2.27106	-0.21589	-0.0637	0.060675	3.982075
$SUSPECT_t$	44362	0.132636	0.339185	0	0	0	0	1
$SIZE_t$	44362	5.632906	2.28258	0.007968	3.980111	5.607635	7.243068	10.95653
MTB_t	44362	4.457282	8.960018	0.177851	1.309293	2.211235	3.977627	75.9729
ROA_t	44362	-0.20049	1.752497	-28.4667	-0.0788	0.030502	0.085768	0.595307

Table 3, Panel B: Descriptive Statistics for Model (3) with the Residual from Model (2)

Variable	N	Mean	Std. dev.	Min.	1st quartile	Median	3rd quartile	Max.
$DiscTaxFees\_2_t$	42628	-0.02428	0.818878	-2.0646	-0.39337	-0.1069	0.138656	5.211173
$SUSPECT_t$	42628	0.136952	0.343801	0	0	0	0	1
$SIZE_t$	42628	5.775808	2.221571	0.053541	4.172123	5.736919	7.336916	10.95653
MTB_t	42628	4.069292	7.849156	0.177851	1.301584	2.169173	3.84025	75.9729
ROA_t	42628	-0.07977	0.942822	-28.4667	-0.05483	0.035081	0.088378	0.595307

Table 3, Panel C: Descriptive Statistics for Discretionary Tax Fees of Suspect firms

Variable	N	Percentage	Mean	Std. dev.	Min.	1st quartile	Median	3rd quartile	Max.
DiscTaxFees_1ₜ	5881	100%	-0.04356 t = -8.155 (0.0000)	0.4097	-2.2711	-0.1662	-0.0489 z = -21.880 (0.0000)	0.0422	3.9821
PosDiscTaxFees_1ₜ	2089	35%	0.246 t = 24.165 (0.0000)	0.4654	0.0000	0.03381	0.0946 z = 39.587 (0.0000)	0.2553	3.9821
NegDiscTaxFees_1ₜ	3792	65% proportion test >0.5 z = 22.2070 (0.0000)	-0.2031 t = -47.433 (0.0000)	0.2637	-2.2711	-0.24626	-0.1258 z = -53.333 (0.0000)	-0.0540	0.0000
DiscTaxFees_2ₜ	5835	100%	-0.0525 t = -7.428 (0.0000)	0.5397	-2.0646	-0.29714	-0.0762 z = -17.047 (0.0000)	0.1167	5.2112
PosDiscTaxFees_2ₜ	2251	38%	0.3756 t = 32.084 (0.0000)	0.5554	0.0000	0.071123	0.1906 z = 41.093 (0.0000)	0.4542	5.2112
NegDiscTaxFees_2ₜ	3584	62% proportion test >0.5 z = 17.4506 (0.0000)	-0.3214 t = -62.936 (0.0000)	0.3057	-2.0646	-0.44154	-0.2355 z = -51.850 (0.0000)	-0.1038	0.0000

Notes:
1. p-values are in parentheses.
2. t is t-test score.
3. z is Wilcoxon signed-rank test z score.

Table 4: Association between Discretionary Tax Fees and Firms just meeting zero or last year's earnings (OLS)

$$DiscTaxFees_t = \gamma_0 + \gamma_1 SUSPECT_t + \gamma_2 SIZE_t + \gamma_3 MTB_t + \gamma_4 ROA_t + \varepsilon_t \quad (3)$$

Variables	***$DiscTaxFees\_1_t$***	***$DiscTaxFees\_2_t$***
Intercept	-0.0280**	-0.0784***
	(0.025)	(0.007)
$SUSPECT_t$	**-0.0281*** **	**-0.0282*** **
	(0.000)	**(0.002)**
$SIZE_t$	0.0004	0.0054
	(0.813)	(0.176)
MTB_t	0.0033***	0.0062***
	(0.000)	(0.000)
ROA_t	-0.0067	-0.0190
	(0.168)	(0.138)
Observations	44,362	42,628
F value	13.18	11.98
Prob > F	0.0000	0.0000
Adj. R^2	0.0032	0.0045

Notes:

1. *, **, *** indicate significance at the 0.10, 0.05, and 0.01 level, respectively, two-tailed, p-values are in parentheses. Standard errors are robust and clustered by firms.

2. All variables are defined in Appendix B.

3. All continuous control variables are winsorized at the top and bottom 1 percent of their distributions.

Table 5: Descriptive Statistics for Model (4) and Model (5)

Variable	N	Mean	Std. dev.	Min.	1st quartile	Median	3rd quartile	Max.
ETR_t	11010	0.301241	0.135497	0	0.239158	0.320836	0.37105	1
ΔETR_t	11010	0.004987	0.143202	-1	-0.03016	0	0.031463	1
BEAT	11010	0.607448	0.488341	0	0	1	1	1
JUSTMISS	11010	0.000727	0.026947	0	0	0	0	1
NegDiscTaxFees_1	11010	0.59564	0.49079	0	0	1	1	1
SUSPECT×NegDiscTaxFees_1	11010	0.118075	0.322711	0	0	0	0	1
PosDiscTaxFees_1	11010	0.40436	0.49079	0	0	0	1	1
SUSPECT×PosDiscTaxFees_1	11010	0.08347	0.276603	0	0	0	0	1
NegDiscTaxFees_2	11010	0.572934	0.494675	0	0	1	1	1
SUSPECT×NegDiscTaxFees_2	11010	0.109991	0.312893	0	0	0	0	1
PosDiscTaxFees_2	11010	0.427066	0.494675	0	0	0	1	1
SUSPECT×PosDiscTaxFees_2	11010	0.091553	0.288407	0	0	0	0	1
ETR_{t-1}	11010	0.296254	0.144863	0	0.231129	0.321641	0.372489	1
ROA	11010	0.141652	0.110129	-0.21259	0.068693	0.115171	0.181061	0.6765
LEV	11010	0.159821	0.198965	0	0	0.106942	0.251182	2.220108
NOL	11010	0.616803	0.486188	0	0	1	1	1
ΔNOL	11010	-0.00085	0.238966	-2.29033	-0.00216	0	0.002167	13.07692
FORINC	11010	0.024017	0.042444	-0.09882	0	0	0.035486	0.193798
CAPINT	11010	0.268355	0.252668	0	0.093168	0.189974	0.355329	1.636223
EQUINC	11010	0.001008	0.004288	-0.01179	0	0	0	0.029167
RND	11010	0.029802	0.061608	0	0	0.000407	0.035638	1.300655
MTB	11010	3.033471	4.441415	0.199776	1.368226	2.077776	3.303255	59.40746
SIZE	11010	6.737755	2.176271	-0.98832	5.439084	6.844438	8.15132	11.44019
LOSSINT	11010	0.092144	0.202182	0	0	0	0	1

Note:
All continuous control variables are winsorized at the top and bottom 1 percent of their distributions.

Table 6: The Association between Corporate Tax Avoidance (level of ETR) and Discretionary Tax Fee Management by Suspect firms

$$TaxAvoid_t = \gamma_1 BEAT_t + \gamma_2 JUSTMISS_t + \gamma_3 NegDiscTaxFees_t + \gamma_4 SUSPECT_t \times NegDiscTaxFees_t + \gamma_5 PosDiscTaxFees_t + \gamma_6 SUSPECT_t \times PosDiscTaxFees_t + \gamma_7 TaxAvoid_{t-1} + \gamma_8 ROA_t + \gamma_9 LEV_t + \gamma_{10} NOL_t + \gamma_{11} \Delta NOL_t + \gamma_{12} FORIN_t + \gamma_{13} CAPINTt + \gamma_{14} RNA_t + \gamma_{15} MTB_t + \gamma_{16} SIZE_t + \gamma_{17} LOSSINT_t + \gamma_k INDUSTRY + \gamma_j YEAR + \varepsilon_t \quad (4)$$

VARIABLES	ETR_t	
	Using residuals from Model (1)	Using residuals from Model (2)
BEAT	-0.0126***	-0.0126***
	(0.002)	(0.002)
JUSTMISS	0.0809	0.0804
	(0.268)	(0.269)
NegDiscTaxFees_1	0.1493***	
	(0.000)	
SUSPECT×NegDiscTaxFees_1	**0.0007**	
	(0.895)	
PosDiscTaxFees_1	0.1476***	
	(0.000)	
SUSPECT×PosDiscTaxFees_1	**-0.0113****	
	(0.040)	
NegDiscTaxFees_2		0.1474***
		(0.000)
SUSPECT×NegDiscTaxFees_2		**0.0021**
		(0.687)
PosDiscTaxFees_2		0.1437***
		(0.000)
SUSPECT×PosDiscTaxFees_2		**-0.0119****
		(0.023)
ETR_{t-1}	0.3939***	0.3934***
	(0.000)	(0.000)
ROA	0.0261	0.0263
	(0.121)	(0.119)
LEV	-0.0185**	-0.0182**
	(0.029)	(0.032)
NOL	-0.0041	-0.0039
	(0.157)	(0.184)
Δ*NOL*	0.0036	0.0036
	(0.627)	(0.623)
FORINC	-0.2460***	-0.2445***
	(0.000)	(0.000)

CAPINT	-0.0167**	-0.0172**
	(0.033)	(0.028)
EQUINC	-0.6961*	-0.7051*
	(0.056)	(0.053)
RND	-0.1740***	-0.1729***
	(0.000)	(0.000)
MTB	0.0007**	0.0007**
	(0.037)	(0.035)
SIZE	-0.0001	0.0000
	(0.873)	(0.978)
LOSSINT	-0.0095	-0.0099
	(0.399)	(0.375)
Observations	11,010	11,010
Adjusted R-squared	0.876	0.876
Industry Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes

Notes:

1. *, **, *** indicate significance at the 0.10, 0.05, and 0.01 level, respectively, using two-tailed tests. *p*-values are in parentheses. Standard errors are robust and clustered by firms.

2. All variables are defined in Appendix B.

3. Tax avoidance variables are winsorized at 0 and 1. All continuous independent variables are winsorized at the top and bottom 1 percent of their distributions.

Table 7: The Association between Corporate Tax Avoidance (change in ETR) and Discretionary Tax Fee Management by Suspect firms

$$\Delta TaxAvoid_t = \gamma_1 BEAT_t + \gamma_2 JUSTMISS_t + \gamma_3 NegDiscTaxFees_t + \gamma_4 SUSPECT_t \times NegDiscTaxFees_t + \gamma_5 PosDiscTaxFees_t + \gamma_6 SUSPECT_t \times PosDiscTaxFees_t + \gamma_7 ROA_t + \gamma_8 LEV_t + \gamma_9 NOL_t + \gamma_{10} \Delta NOL_t + \gamma_{11} FORIN_t + \gamma_{12} CAPINTt + \gamma_{13} RNA_t + \gamma_{14} MTB_t + \gamma_{15} SIZE_t + \gamma_{16} LOSSINT_t + \gamma_k INDUSTRY + \gamma_j YEAR + \varepsilon_t \quad (5)$$

VARIABLES	ΔETR_t	
	Using residuals from Model (1)	Using residuals from Model (2)
BEAT	-0.0091*	-0.0091*
	(0.064)	(0.064)
JUSTMISS	-0.0160	-0.0161
	(0.795)	(0.795)
NegDiscTaxFees_1	0.0046	
	(0.802)	
SUSPECT×NegDiscTaxFees_1	**-0.0002**	
	(0.979)	
PosDiscTaxFees_1	0.0058	
	(0.753)	
SUSPECT×PosDiscTaxFees_1	**-0.0127****	
	(0.043)	
NegDiscTaxFees_2		0.0037
		(0.838)
SUSPECT×NegDiscTaxFees_2		**-0.0014**
		(0.821)
PosDiscTaxFees_2		0.0024
		(0.896)
SUSPECT×PosDiscTaxFees_2		**-0.0100***
		(0.097)
ROA	0.0079	0.0082
	(0.617)	(0.605)
LEV	-0.0058	-0.0057
	(0.445)	(0.454)
NOL	-0.0015	-0.0014
	(0.531)	(0.553)
Δ*NOL*	0.0073	0.0073
	(0.246)	(0.241)
FORINC	-0.0921***	-0.0913***
	(0.006)	(0.006)
CAPINT	-0.0031	-0.0032

	(0.643)	(0.625)
EQUINC	-0.1718	-0.1714
	(0.612)	(0.612)
RND	-0.0468*	-0.0460*
	(0.052)	(0.056)
MTB	0.0009***	0.0009***
	(0.005)	(0.004)
SIZE	-0.0003	-0.0002
	(0.695)	(0.794)
LOSSINT	0.0853***	0.0851***
	(0.000)	(0.000)
Observations	11,010	11,010
Adjusted R-squared	0.015	0.015
Industry Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes

Notes:

1. *, **, *** indicate significance at the 0.10, 0.05, and 0.01 level, respectively, using two-tailed tests. p-values are in parentheses. Standard errors are robust and clustered by firms.

2. All variables are defined in Appendix B.

3. Tax avoidance variables are winsorized at 0 and 1. All continuous independent variables are winsorized at the top and bottom 1 percent of their distributions.

Table 8: Correlations between discretionary tax fees, discretionary R&D, and discretionary SG&A

	DiscTaxFee_1	DiscTaxFee_2	DiscR&D	DiscSG&A
DiscTaxFee_1	1			
DiscTaxFee_2	0.7235	1		
	(0.000)			
DiscR&D	0.073	0.0631	1	
	(0.000)	(0.000)		
DiscSG&A	0.1047	0.2023	0.2064	1
	(0.000)	(0.000)	(0.000)	

Table 9: The Association between Corporate Tax Avoidance (level of ETR, year t+1) and Discretionary Tax Fee Management by Suspect firms

$$TaxAvoid_{t+1} = \gamma_1 BEAT_t + \gamma_2 JUSTMISS_t + \gamma_3 NegDiscTaxFees_t + \gamma_4 SUSPECT_t \times NegDiscTaxFees_t + \gamma_5 PosDiscTaxFees_t + \gamma_6 SUSPECT_t \times PosDiscTaxFees_t + \gamma_7 TaxAvoid_{t-1} + \gamma_8 ROA_t + \gamma_9 LEV_t + \gamma_{10} NOL_t + \gamma_{11} \Delta NOL_t + \gamma_{12} FORIN_t + \gamma_{13} CAPINTt + \gamma_{14} RNA_t + \gamma_{15} MTB_t + \gamma_{16} SIZE_t + \gamma_{17} LOSSINT_t + \gamma_k INDUSTRY + \gamma_j YEAR + \varepsilon_t$$

	ETR $_{t+1}$	
VARIABLES	Using residuals from Model (1)	Using residuals from Model (2)
BEAT	-0.0059	-0.0059
	(0.137)	(0.141)
JUSTMISS	0.0392	0.0384
	(0.708)	(0.713)
NegDiscTaxFees_1	0.1650***	
	(0.000)	
SUSPECT×NegDiscTaxFees_1	**0.0011**	
	(0.844)	
PosDiscTaxFees_1	0.1620***	
	(0.000)	
SUSPECT×PosDiscTaxFees_1	-0.0117**	
	(0.036)	
NegDiscTaxFees_2		0.1628***
		(0.000)
SUSPECT×NegDiscTaxFees_2		**-0.0017**
		(0.764)
PosDiscTaxFees_2		0.1605***
		(0.000)
SUSPECT×PosDiscTaxFees_2		-0.0070
		(0.201)
ETR $_{t-1}$	0.3294***	0.3293***
	(0.000)	(0.000)
ROA	0.0428**	0.0422**
	(0.018)	(0.019)
LEV	-0.0027	-0.0031
	(0.778)	(0.754)
NOL	-0.0058*	-0.0058*
	(0.078)	(0.079)
ΔNOL	-0.0047	-0.0048
	(0.422)	(0.412)

FORINC	-0.2397***	-0.2389***
	(0.000)	(0.000)
CAPINT	-0.0127	-0.0123
	(0.169)	(0.181)
EQUINC	-0.6677*	-0.6715*
	(0.076)	(0.075)
RND	-0.1378***	-0.1395***
	(0.000)	(0.000)
MTB	0.0006*	0.0007*
	(0.059)	(0.052)
SIZE	-0.0017**	-0.0018**
	(0.049)	(0.048)
LOSSINT	-0.0540***	-0.0542***
	(0.000)	(0.000)
Observations	11,010	11,010
Adjusted R-squared	0.847	0.847
Industry	Yes	Yes
Year	Yes	Yes

Notes:

1. *, **, *** indicate significance at the 0.10, 0.05, and 0.01 level, respectively, using two-tailed tests. p-values are in parentheses. Standard errors are robust and clustered by firms.

2. All variables are defined in Appendix B.

3. Tax avoidance variables are winsorized at 0 and 1. All continuous independent variables are winsorized at the top and bottom 1 percent of their distributions.

Table 10: Comparison of Negative Discretionary Tax Fees of Suspect Firms for Years t+1 and t in Models (4) and (5)

Variable	Obs.	Mean	Diff. of Mean	Median	Diff. of Median
$NegDiscTaxFees1_{t+1}$	1,207	-0.0000383	0.0001394	-0.0000481	0.0000639
$NegDiscTaxFees1_{t}$	1,207	-0.0001777		-0.0001120	
			t = 15.2112		z = 18.021
			(0.0000)		(0.0000)
$NegDiscTaxFees2_{t+1}$	1,114	-0.0001993	0.0000915	-0.0001624	0.0000444
$NegDiscTaxFees2_{t}$	1,114	-0.0002908		-0.0002068	
			t = 9.8063		z = 11.155
			(0.0000)		(0.0000)

Notes:

1. t is t-test score

2. z is Wilcoxon signed-rank test z score

3. p-values are in parentheses

Table 11: Heckman First-Stage Model: Probability of Purchasing Auditor-Provided Tax Services

(n=35,211)

$$PR(TAXSERVICE) = \alpha_0 + \beta_1 FOREIGN + \beta_2 MERGER + \beta_3 NOL + \beta_4 CAPINTENSITY + \beta_5 INSTOWN + \beta_6 AUDINDEP + \beta_7 TENURE + \beta_8 AUDINDEP \times TENURE + \beta_9 LNASSETS + \beta_{10} LEVERAGE + \beta_{11} LNAUDIFEES + \beta_{12} ETR + \beta_{13} TAXAVOIDANCE + \varepsilon$$

Variables	Coefficient
Intercept	-1.4399***
	(0.000)
FOREIGN	0.1762***
	(0.000)
MERGER	-0.0152
	(0.465)
NOL	0.0530***
	(0.009)
CAPINTENSITY	-0.3172***
	(0.000)
INSTOWN	0.1487***
	(0.000)
AUDINDEP	-0.0272
	(0.522)
TENURE	0.0171***
	(0.000)
AUDINDEP × TENURE	0.0819***
	(0.000)
LNASSETS	0.0648***
	(0.000)
LEVERAGE	-0.0148
	(0.671)
LNAUDIFEES	0.1004***
	(0.000)
ETR	0.0515*
	(0.087)
TAXAVOIDANCE	0.0320
	(0.310)

Notes:

1. Please see Appendix B for variable descriptions. All continuous observations are winsorized at the top and bottom 1 percent of their distributions.

2. *, **, and *** indicate significance at the 0.10, 0.05, and 0.01 level, respectively, using two-tailed tests.

Table 12: Estimation of the Normal Level of Tax Fees with Inverse Mills Ratio

$$\frac{TaxFees_t}{A_{t-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{t-1}} + \beta_1 MV_t + \beta_2 Q_t + \beta_3 \frac{INT_t}{A_{t-1}} + \beta_4 \frac{TaxFees_{t-1}}{A_{t-1}} + \beta_5 INVMILLS + \varepsilon_t^{TaxFees} \quad (1)$$

$$\frac{TaxFees_t}{A_{t-1}} = \alpha_0 + \alpha_1 \frac{1}{A_{t-1}} + \beta_1 MV_t + \beta_2 Q_t + \beta_3 \frac{INT_t}{A_{t-1}} + \beta_4 \frac{\Delta S_t}{A_{t-1}} + \beta_5 \frac{\Delta S_t}{A_{t-1}} \times DD + \beta_6 INVMILLS + \varepsilon_t^{TaxFees} \quad (2)$$

Model (1): TaxFees $_t$ /A $_{t-1}$		Model (2): TaxFees $_t$ /A $_{t-1}$	
Intercept	0.00076***	Intercept	0.00024
	(0.0014)		(0.4116)
1 /A $_{t-1}$	0.01712 *	*1 /A $_{t-1}$*	-0.01958
	(0.0576)		(0.3101)
MV $_t$	-0.00003	*MV $_t$*	-0.00019***
	(0.1167)		(0.0016)
Q $_t$	-0.00040	*Q $_t$*	0.00188
	(0.1712)		(0.1491)
INT $_t$ /A $_{t-1}$	0.00104	*INT $_t$ /A $_{t-1}$*	-0.00724
	(0.2013)		(0.1851)
TaxFees $_{t-1}$ /A $_{t-1}$	0.57343 ***	*ΔS $_t$ /A $_{t-1}$*	-0.00268
	(0.0000)		(0.114)
INVMILLS	-0.00048**	*(ΔS $_t$ /A $_{t-1}$) * DD*	0.00365
	(0.0254)		(0.1590)
		INVMILLS	0.00178
			(0.2462)
Total no. of obs.	22,119		24,389
No. of industry-year	561		561
Avg. no. of obs.	39		43
Adj. R^2	0.730		0.455

Notes:

1. Please see Appendix B for variable descriptions. All observations are winsorized at the top and bottom 1 percent of their distributions.

2. *, **, and *** indicate significance at the 0.10, 0.05, and 0.01 level, respectively, using two-tailed tests.

3. The regressions are estimated for each industry-year from 2003 to 2015. Two-digit SIC codes are used to define industries. Industry-years with fewer than 15 firms are eliminated from the sample. The table reports the mean coefficient across all industry-years, and two-tailed p-values are calculated using the standard errors of the mean coefficient across the industry-years. The table also reports the mean adjusted R^2 and the number of observations is the mean across the industry-years.

Table 13: Association between Discretionary Tax Fees and Firms just meeting zero or last year's earnings after self-selection correction (OLS)

$$DiscTaxFees_t = \gamma_0 + \gamma_1 SUSPECT_t + \gamma_2 SIZE_t + \gamma_3 MTB_t + \gamma_4 ROA_t + \varepsilon_t$$

Variables	**DiscTaxFees_1$_t$**	**DiscTaxFees_2$_t$**
Intercept	-0.0192	-0.0193
	(0.128)	(0.480)
SUSPECT $_t$	**-0.0180*** **	**-0.0178** **
	(0.002)	**(0.043)**
SIZE $_t$	0.0018	0.0013
	(0.262)	(0.711)
MTB $_t$	0.0005	0.0004
	(0.369)	(0.664)
ROA $_t$	-0.0111	-0.0262*
	(0.124)	(0.073)
Observations	22,030	24,320
Adjusted R-squared	0.000486	0.000333

Notes:

1. *, **, *** indicate significance at the 0.10, 0.05, and 0.01 level, respectively, two-tailed, p-values are in parentheses. Standard errors are robust and clustered by firms.

2. All variables are defined in Appendix B.

3. All continuous control variables are winsorized at the top and bottom 1 percent of their distributions.

Table 14: The Association between Corporate Tax Avoidance (change in ETR) and Discretionary Tax Fee Management by Suspect firms after self-selection correction

$$\Delta TaxAvoid_t = \gamma_1 BEAT_t + \gamma_2 JUSTMISS_t + \gamma_3 NegDiscTaxFees_t + \gamma_4 SUSPECT_t \times NegDiscTaxFees_t + \gamma_5 PosDiscTaxFees_t + \gamma_6 SUSPECT_t \times PosDiscTaxFees_t + \gamma_7 ROA_t + \gamma_8 LEV_t + \gamma_9 NOL_t + \gamma_{10} \Delta NOL_t + \gamma_{11} FORIN_t + \gamma_{12} CAPINTt + \gamma_{13} RNA_t + \gamma_{14} MTB_t + \gamma_{15} SIZE_t + \gamma_{16} LOSSINT_t + \gamma_k INDUSTRY + \gamma_j YEAR + \varepsilon_t \quad (5)$$

	ΔETR $_t$	
VARIABLES [a]	Using residuals from Model (1)	Using residuals from Model (2)
BEAT	-0.0071	-0.0069
	(0.178)	(0.187)
JUSTMISS	0.0262	0.0268
	(0.718)	(0.713)
NegDiscTaxFees_1	0.0017	
	(0.933)	
SUSPECT*NegDiscTaxFees_1	**0.0020**	
	(0.806)	
PosDiscTaxFees_1	0.0060	
	(0.763)	
SUSPECT*PosDiscTaxFees_1	**-0.0122****	
	(0.046)	
NegDiscTaxFees_2		0.0020
		(0.922)
SUSPECT*NegDiscTaxFees_2		**0.0041**
		(0.607)
PosDiscTaxFees_2		0.0077
		(0.699)
SUSPECT*PosDiscTaxFees_2		**-0.0142****
		(0.018)
ROA	0.0554***	0.0553***
	(0.001)	(0.001)
LEV	0.0067	0.0066
	(0.600)	(0.602)
NOL	0.0021	0.0021
	(0.426)	(0.410)
Δ*NOL*	-0.0030	-0.0029
	(0.852)	(0.855)
FORINC	-0.1027***	-0.1042***
	(0.006)	(0.005)

CAPINT	-0.0042	-0.0042
	(0.654)	(0.657)
EQUINC	-0.2344	-0.2228
	(0.515)	(0.535)
RND	-0.0270	-0.0279
	(0.350)	(0.335)
MTB	0.0004	0.0004
	(0.163)	(0.157)
SIZE	-0.0005	-0.0005
	(0.514)	(0.520)
LOSSINT	-0.0358**	-0.0360**
	(0.015)	(0.014)
Observations	10,319	10,319
Adjusted R-squared	0.002	0.002
Industry	Yes	Yes
Year	Yes	Yes

Notes:

1. *, **, *** indicate significance at the 0.10, 0.05, and 0.01 level, respectively, using two-tailed tests. p-values are in parentheses. Standard errors are robust and clustered by firms.

2. All variables are defined in Appendix B.

3. Tax avoidance variables are winsorized at 0 and 1. All continuous independent variables are winsorized at the top and bottom 1 percent of their distributions.