

Did the PCAOB's Restrictions on Auditors' Tax Services Improve Audit Quality?

*Clive Lennox **

University of Southern California

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ABSTRACT: In 2005-2006, the PCAOB imposed restrictions on auditors' tax services in order to strengthen auditor independence and improve audit quality. The restrictions resulted in a significant drop in auditor-provided tax services (APTS). To test the impact on audit quality, I partition the sample into a treatment group (companies whose APTS purchases dropped significantly when the restrictions were introduced) and a control group (companies whose APTS purchases were relatively unaffected) and I measure audit quality using the incidence of accounting misstatements, tax-related misstatements, and auditors' going-concern opinions. Using a difference-in-differences design, I find no change in audit quality for the treatment group relative to the control group after the restrictions are imposed.

Keywords: *PCAOB; audit quality; auditors' tax services*

I. INTRODUCTION

In 2005 the Permanent Subcommittee on Investigations of the U.S. Senate reported that audit firms were selling potentially abusive or illegal tax planning strategies to audit clients and their top executives. Moreover, audit firms were selling these highly aggressive tax services on a contingent fee basis. Regulators were concerned about this situation for three reasons.

First, regulators discovered that auditors were charging contingent fees for tax services even though contingent fees were supposed to be prohibited under Rule 302 of the AICPA's Code of Professional Conduct. Contingent fees pose a threat to auditor independence because they provide the auditor with an economic incentive to attain the client's desired reporting outcomes. Second, regulators discovered that auditors were selling aggressive tax plans to audit clients. Regulators were concerned that this could create a "self-review" threat to auditor independence because the audit firm would have a vested interest in defending its tax advice and this could compromise the audit firm's objectivity when passing judgment over the financial statements (PCAOB, 2004). Third, regulators discovered that auditors were selling personal tax services to the senior managers of audit clients. It was felt that such services align the auditor's objectives with those of management and so auditors might serve the best interests of management rather than investors. To address these potential threats to audit quality, the PCAOB adopted three new rules on July 26, 2005. First, Rule 3521 reaffirms the ban on contingent fees. Second, Rule 3522 bars audit firms from selling aggressive tax services to audit clients.¹ Third, Rule 3523 forbids audit firms from selling tax services to executives in a financial reporting role. The three rules became effective from October 31, 2006 onwards.

¹ The PCAOB clarified that a tax scheme is considered "aggressive" if tax avoidance is a significant purpose of the scheme and the tax treatment is less likely than not to be allowable under applicable tax laws.

The PCAOB stated that the rules were intended to improve audit quality and, by extension, the quality of financial reporting (PCAOB, 2004). The purpose of this study is to test whether the restrictions met this objective. While audit quality is not directly observable, DeFond and Zhang (2014) note that accounting misstatements and auditors' going-concern opinions are two of the most direct proxies for audit quality. Moreover, these proxies have been used extensively in prior research examining the consequences of tax and other non-audit services (DeFond, Raghunandan, and Subramanyam 2002; Craswell, Stokes, and Laughton 2002; Geiger and Rama 2003; Kinney, Palmrose, and Scholz 2004; Paterson and Valencia 2011; Seetharaman, Sun, and Wang 2011; De Simone, Ege, and Stomberg 2015). Of the two proxies, I expect accounting misstatements to be particularly appropriate for a couple of reasons. One is that auditors face significant costs when their clients' financial statements are restated (Palmrose and Scholz, 2004; Srinivasan, 2005; Hennes, Leone, and Miller 2014; Lennox and Li, 2014), whereas other suppliers of tax services bear no responsibility for their clients' financial statements. This means auditors have stronger incentives than other tax service providers to ensure that their tax advice does not cause a restatement. A second reason for examining restatements is that the debate about Rule 3521 (contingent tax fees) and Rule 3522 (auditors' aggressive tax services) centered on the quality of a company's financial reporting over its tax accounts (PCAOB, 2004; SEC, 2006). Therefore, I examine the misstatements that are tax-related as well as all other types of misstatements.

I begin by documenting that the PCAOB restrictions had a chilling effect on the tax services provided by audit firms. In particular, the yearly reductions in APTS are much larger during the period when the restrictions were introduced (i.e., from July 26, 2005 to October 31, 2006), than in the period before July 26, 2005 and the period after October 31, 2006. Based on these findings, I assign companies to a treatment group if they significantly reduced their APTS

purchases between July 26, 2005 and October 31, 2006; the other companies are assigned to a control group.

Next, I compare the differences in accounting misstatements, tax-related misstatements, and going-concern opinions between the treatment and control groups and I test whether these differences change after the PCAOB imposed the restrictions on auditors' tax services. In the period before the restrictions, there is no difference in the incidence of going-concern opinions between the treatment and control companies. However, the treatment companies are more likely than the control companies to have accounting misstatements and tax-related misstatements. This supports the premise of regulators that the treatment companies had lower quality auditing before the restrictions were introduced. I use a difference-in-differences research design to determine whether the APTS restrictions resulted in a subsequent improvement in audit quality. The results reveal no significant changes in misstatements, tax-related misstatements, or going-concern opinions subsequent to the APTS restrictions. To the contrary, the treatment companies continue to have significantly more accounting misstatements and more tax-related misstatements in the period subsequent to the APTS restrictions.

This study contributes to a literature that examines the PCAOB's role as an overseer of public company auditing. Prior studies consider the PCAOB's activities in audit firm inspections (Lennox and Pittman 2010; DeFond and Lennox 2011; Anantharaman 2012; Lamoreaux 2013), standard setting (Doogar, Sividasan, and Soloman 2010; Kinney and Shepardson 2011; Bronson, Hogan, Johnson, and Ramesh 2011), and audit enforcement (Dee, Lulseged, and Zhang 2011).² This study is different because it examines the PCAOB's

² Abernathy, Barnes, and Stefaniak (2013) provide a comprehensive review of prior research on the PCAOB.

restrictions on auditors' tax services. These restrictions have not been examined in prior literature.

This study also contributes to a literature that examines whether APTS pose a threat to audit quality. The evidence from prior studies is mixed. Some studies find that APTS are associated with higher audit quality (Kinney et al. 2004; Gleason and Mills 2011), while other studies find that APTS are associated with worse audit quality (Cook, Huston, and Omer 2008; Choudhary, Koester, and Pawlewicz 2014). My study differs from prior literature in a couple of important ways. One is that prior studies examine *all* tax services provided by auditors, whereas I focus specifically on the tax services that the PCAOB chose to ban. Another is that prior studies examine the consequences of APTS using cross-sectional research designs. That is, they compare companies that purchase relatively large amounts of APTS with companies that purchase relatively little. A limitation of the cross-sectional approach is that there are significant differences between companies that purchase large (small) amounts of APTS. I address this issue using a difference-in-differences (DiD) design as well as propensity score matching.

Section II discusses prior studies and develops the hypothesis. Section III describes the research design. Section IV reports the main results and Section V reports the results from untabulated supplementary analyses. Section VI concludes.

II. PRIOR LITERATURE AND HYPOTHESIS

Prior literature

Prior studies use accounting misstatements and auditors' going-concern opinions to test whether audit quality is impaired when auditors receive high fees from non-audit services (NAS). Studies have found an insignificant association between accounting misstatements and NAS fees (Kinney et al. 2004), and an insignificant association between going-concern opinions

and NAS fees (DeFond et al. 2002; Craswell et al. 2002; Geiger and Rama 2003). This suggests that audit quality may not be impaired when NAS fees are high, although appropriate caution is needed when drawing inferences from insignificant results.

Prior studies also examine auditors' fees from tax services. Using proprietary data, Kinney et al. (2004) find that accounting misstatements are negatively associated with APTS fees. Paterson and Valencia (2011) reach a similar conclusion using misstatement data from the Audit Analytics database. In contrast, Seetharaman et al. (2011) find that misstatements in the Audit Analytics database are not significantly associated with APTS fees and De Simone et al. (2015) find the same result after controlling for companies' reported internal control weaknesses.³ Thus, of the four studies that examine accounting misstatements, two find significant negative associations with APTS fees and two find insignificant associations.

The findings are also mixed in studies that examine other outcomes. Gleason and Mills (2011) show that companies with APTS purchases are fully reserved for IRS disputes whereas companies that do not purchase APTS are under-reserved. They conclude that auditors' tax services generate knowledge spillovers that improve audit quality. On the other hand, Cook et al. (2008) and Choudhary et al. (2014) conclude that high APTS fees are associated with lower audit quality. Among companies that would miss consensus earnings forecasts in the absence of reductions to the effective tax rate, Cook et al. (2008) find that higher APTS fees are associated with greater reductions in effective tax rates between the third and fourth quarters. They suggest that auditors are motivated to allow more earnings management when they sell more

³ De Simone et al. (2015) and Harris and Zhou (2013) find that APTS fees are negatively associated with reported internal control weaknesses. Although the findings of these two studies are similar, the conclusions are rather different. De Simone et al. (2015) argue that auditors' tax services improve internal controls and so companies with more APTS are less likely to receive adverse internal control opinions. In contrast, Harris and Zhou (2013) argue that auditor independence is impaired by APTS, and so auditors are less likely to issue adverse internal control opinions when APTS fees are high.

tax services to audit clients. Further, Choudhary et al. (2014) find that tax accrual quality is lower among companies that purchase more APTS. They suggest that auditors lower their professional skepticism when reviewing the work of tax professionals from the same accounting firm. Finally, Mishra, Raghunandan, and Rama (2005) find that shareholders are more likely to vote against an audit firm's appointment when companies pay higher APTS fees, which is consistent with shareholders perceiving a threat to audit quality when APTS fees are high.

My study has two main differences compared with prior research. First, I focus on the tax services that are now banned by the PCAOB. In contrast, prior studies examine the aggregate tax services provided by auditors including the services that are still permitted by the PCAOB such as tax compliance work. Second, I use a difference-in-differences design to exploit a quasi-exogenous regulatory shock to the APTS that were banned by the PCAOB. In contrast, prior studies undertake cross-sectional comparisons of companies that spend relatively more (less) on APTS.

Hypothesis development

The late 1990s and early 2000s witnessed numerous lawsuits and IRS settlements in which audit firms were accused of selling overly aggressive tax strategies to their audit clients. An investigation by the Government Accountability Office (GAO) found 61 Fortune 500 companies had purchased tax shelters from their auditors during the period 1998-2003 (GAO 2005), with the IRS considering many of the tax shelters to be abusive. The Permanent Subcommittee found that auditors were receiving contingent fees for their tax services (Permanent Subcommittee 2005). Contingent pricing was particularly prevalent for highly aggressive tax schemes where

the tax savings are more uncertain.⁴ Auditors were charging contingent fees even though contingent fees are banned under Rule 302 of the AICPA's Code of Professional Conduct.⁵ Contingent fees mean that auditors earn higher fees when audit clients attain their desired results, which could align auditors' objectives with those of management and therefore poses a threat to auditor independence. Therefore, the PCAOB decided that it was necessary to pass Rule 3521 in order to reaffirm the ban on contingent fees.

Investor groups told the PCAOB that auditor involvement in the tax sheltering industry posed another risk to auditor independence due to a self-review threat. For example, a representative from the CFA Institute told the PCAOB that:

"Every tax strategy, every tax decision, has a financial-reporting effect. It's inconceivable to me that companies do not want to know, in addition to the tax effect, what that financial reporting effect is [...] It seems to me that if the auditor is involved heavily in providing advice and planning around all of these issues, then invariably they will be violating the principle that they shouldn't audit their own work. Once the client begins to take the advice that the auditor gives that provides a particular financial-reporting effect, as well as a particular tax effect, the auditor will be in that position" (p. 96, PCAOB 2004).

Similarly, a representative from CALPERS stated that providing aggressive tax advice puts an audit firm in the position of auditing the financial reporting consequences of its own advice:

"the issue of independence is particularly acute when the tax strategy is sold to achieve a financial statement result. The whole point of the auditor is to audit the financial statements, but now they're affecting the financial statement of results and they're then going to audit that? How can that possibly be independent?" (p. 111, PCAOB 2004).

⁴ The Permanent Subcommittee reported that: *"Traditionally, accounting firms charged flat fees or hourly fees for tax services. In the 1990's, however, accounting firms began charging 'value added' fees based on the value of the services provided, as opposed to the time required to perform the services. In addition, some firms began charging 'contingent fees' that were paid only if a client obtained specified results from the services offered, such as achieving specified tax savings"* (p. 71, Permanent Subcommittee 2005).

⁵ The Permanent Subcommittee found significant disagreements within audit firms about the precise interpretation of what constitutes a contingent fee. For example, the Permanent Subcommittee found the following situation at KPMG: *"Within KPMG, the head of DPP-Tax took the position that fees based on projected client tax savings were contingent fees prohibited by AICPA Rule 302. Other KPMG tax professionals disagreed, complained about the DPP interpretation, and pushed hard for fees based on projected tax savings. For example, one memorandum objecting to the DPP interpretation of Rule 302 warned that it 'threatens the value to KPMG of a number of product development efforts,' 'hampers our ability to price the solution on a value added basis,' and will cost the firm millions of dollars."* (p. 71: Permanent Subcommittee 2005).

Another investor group cited the case of Enron and Arthur Andersen to illustrate the problems that can arise when auditors sell aggressive tax strategies to their clients:

“When Enron collapsed, in the initial round of hearings, there were a series of statements by Arthur Andersen that it was not involved in structuring the special purpose entities that were at the heart of what was wrong with Enron. These were entities that both could be characterized as tax planning structures and also obviously structures for affecting the shape of the GAAP financials of Enron. Andersen sought to deny that they were involved in structuring them in the initial hearings. Of course, it turned out that they were lying. Much of the AFL-CIO’s concern about this issue of auditor independence and particularly around tax issues arose out of that experience, and our sense that our members as investors directly and through our pension plans were seriously endangered by the practice of audit firms structuring these off-balance sheet vehicles and then auditing their own work. [...] It is not acceptable to have an audit firm creating the structures they audit” (p. 105: PCAOB 2004).⁶

Responding to these concerns, the PCAOB decided to pass Rule 3522 which prohibits auditors from selling tax plans that involve confidential transactions under IRS regulations or transactions that would be considered tax aggressive.

Finally, there were concerns that audit quality is threatened when auditors sell personal tax schemes to top executives. For example, a representative from the IRS told the PCAOB that:

“real or perceived conflicts of interest may exist where independent auditors certify the accuracy and integrity of the company’s financial statements and these auditors advise senior executives on their personal tax issues about abusive tax shelters they promoted, the same executives that oversee the relationship with the auditing firm” (p. 5: PCAOB 2005).

Similarly, a representative from CALPERS said that personal tax services align the interests of the auditor with those of management creating a potential threat to auditor independence:

“When you have the audit firm providing tax advice for the senior management, you’ve now created a mutual interest between the executive management and that audit firm.” (p. 146: PCAOB 2004).

⁶ Although Arthur Andersen was involved in structuring the special purpose entity transactions, Enron’s investment banks arguably had an even larger role in the tax planning elements of the structure. Drawing on the Joint Committee on Taxation’s report on Enron (U.S. Congress, 2003), Desai (2005) argues that Enron’s motivation to report higher profits fostered greater tax avoidance and, in turn, its desire to reduce taxes afforded the opacity that made it easier to misrepresent profits. Consistent with this perspective, Balakrishnan, Blouin, and Guay (2014) find that tax aggressive companies operate in less transparent information environments.

To address this concern, the PCAOB passed Rule 3523 which prohibits audit firms from selling tax services to executives with financial reporting responsibilities.⁷

Overall, Rules 3521, 3522 and 3523 were intended to strengthen audit quality. However, critics argued that the rules could have unintended negative consequences because tax services provide auditors with superior client-specific knowledge.⁸ Consistent with positive knowledge spillovers, Gleason and Mills (2011) report that tax partners typically inform their audit colleagues of the financial reporting implications of their tax advice. Regulatory restrictions on APTS could mean less knowledge being shared between the audit side and the tax side and therefore a reduction in audit quality.

In addition to the potential loss of audit knowledge, critics argued that APTS restrictions would motivate companies to switch to other tax service providers who have less incentive than auditors to consider whether their tax advice might increase the risk of a material misstatement. Auditors face adverse litigation and reputational consequences when their clients' financial

⁷ A restatement by Imclone illustrates the connection between executive compensation, tax avoidance, and tax-related misstatements: "We are delaying the filing of our Form 10-K due to the need to restate our 2001 and later financial statements and possibly certain of our financial statements for earlier periods to reflect the impact of a potential withholding tax liability on the exercise of company stock options and warrants issued to our former President and Chief Executive Officer due to his non-payment of New York State income taxes and potential non-payment of federal income taxes. We have been engaged in discussions with both the Internal Revenue Service and the New York State Department of Taxation and Finance regarding the extent of our liability and any interest or penalties that may be assessed. In addition, we are reviewing certain other options and warrants to determine the extent, if any, of potential withholding tax liabilities associated with the exercise of those warrants and options which were held by current and former officers, directors and employees, including our former President and Chief Executive Officer. We currently estimate that the total amount to be reflected on our balance sheet relating to the non-payment of state and federal taxes by our former President and Chief Executive Officer and our review of certain options and warrants could be up to \$60 million, exclusive of penalties and interest. While the amount of this liability and the amount ultimately charged against earnings will be determined by our ongoing review of the certain other options and warrants, the charge against earnings will be at least \$23.3 million, an amount representing the withholding tax liability attributable to our former President and Chief Executive Officer, exclusive of penalties and interest" (Imclone's NT 10-K filing on April 1, 2003).

⁸ For example, Ms Sayther (Financial Executives International) told the PCAOB that allowing auditors to provide tax services: "*enables the knowledge spillover and enhanced communication between the tax side and the audit side*" (p. 183, PCAOB 2004).

statements are restated (Palmrose and Scholz 2004; Srinivasan 2005; Hennes et al. 2014; Lennox and Li 2014), which means that auditors are motivated to provide advice that would not impair financial reporting quality. In contrast, this is not a consideration for other tax service providers because they are not responsible for their clients' financial statements.⁹ Therefore, other tax service providers are less likely than auditors to consider whether their tax advice might increase the risk of a restatement. For example, an AICPA representative told the PCAOB:

“you will get more aggressive positions from the outside preparer because, frankly, they don't have the responsibility of having to report it on the financial statements. So they can take a much more aggressive position than the auditor would permit their own tax staff to take” (p. 94: PCAOB 2004).

According to this argument, the risk of a misstatement might increase once companies obtain aggressive tax advice from other providers rather than from their auditors.

Given that there are arguments on both sides, it is unclear whether the APTS restrictions would improve audit quality as regulators had intended. Therefore, the hypothesis is presented without a directional prediction:

***Hypothesis:** There is no change in audit quality after companies reduce their APTS purchases following the new rules.*

III. RESEARCH DESIGN

Identification of the treatment and control groups

I partition the sample companies into a treatment group and control group. The treatment group comprises companies that significantly reduce their APTS fees when the PCAOB

⁹ There is mixed evidence as to whether companies suffer adverse reputational consequences when they are found to be aggressively avoiding taxes (Hanlon and Slemrod 2009; Graham, Hanlon, Shevlin, and Shroff 2014; Gallemore, Maydew, and Thornock 2014). If being tax aggressive carries little risk of reputation loss, companies would likely switch to other providers of aggressive tax plans rather than desist from purchasing aggressive tax plans altogether. Klassen, Lisowsky, and Mescall (2015) find that many companies purchase tax services from sources other than their auditors.

restrictions come into effect. Other companies belong to the control group because the PCAOB restrictions appear to have little or no effect on their APTS fees.

Audit firms were selling aggressive tax services to their audit clients prior to Rule 3522 (GAO 2005; Permanent Subcommittee on Investigations 2005), so I expect significant falls in APTS fees after Rule 3522 is passed. In addition, contingent fee arrangements motivate tax service providers to find larger tax savings, so companies have less incentive to purchase tax plans from their auditors after Rule 3521. Rule 3523 might also contribute to a reduction in APTS fees because executives' personal tax services are sometimes paid by companies (PCAOB, 2004) and these executive perks are included in the company's reported APTS fee. Therefore, Rule 3523 would cause a drop in the company's reported APTS fee to the extent that executives' tax services are provided by auditors and paid by companies.

Timeline

The three rules were announced on July 26, 2005, approved by the SEC on April 19, 2006, and became effective as of October 31, 2006. Therefore, I expect the reductions in APTS fees to be concentrated in the period from July 26, 2005 to October 31, 2006 (hereafter the "transition" window).¹⁰ APTS fees are disclosed annually but APTS purchases can occur at any point during the fiscal year. Hence, I code a fiscal year as belonging to the transition window when the fiscal year overlaps with the period from July 26, 2005 to October 31, 2006. This means that fiscal years beginning or ending in the period from July 26, 2005 to October 31, 2006 belong to the transition window. Fiscal years ending before July 26, 2005 belong to the pre-event window,

¹⁰ On July 14, 2004 the PCAOB held a roundtable discussion on whether there should be restrictions on auditors' tax services. The earlier date for this discussion could mean that the reductions in APTS fees started before July 26, 2005. As a robustness test, I redefine the *TRANSITION_t* variable using July 14, 2004 rather than July 26, 2005 as the start of the transition window. This alternate research design does not change the inferences.

while fiscal years beginning after October 31, 2006 belong to the post-event window. Figure 1 shows a time-line for the three windows (pre-event, transition, and post-event).

[INSERT FIG. 1 HERE]

Difference-in-differences design

I use a difference-in-differences design to test whether the difference in audit quality between the treatment and control groups changes when moving from the pre-event window to the post-event window. I estimate the following models of accounting misstatements, tax-related misstatements, and going-concern opinions in Eqs. (1) to (3):

$$Pr(MISS_{it} = 1) = F [\gamma_0 + \gamma_1 TREAT_i + \gamma_2 TREAT_i \times POST_t + \gamma_3 POST_t + CONTROLS_{it} + u_{it}] \quad (1)$$

$$Pr(TAXMISS_{it} = 1) = F [\gamma_0 + \gamma_1 TREAT_i + \gamma_2 TREAT_i \times POST_t + \gamma_3 POST_t + CONTROLS_{it} + u_{it}] \quad (2)$$

$$Pr(GC_{it} = 1) = F [\gamma_0 + \gamma_1 TREAT_i + \gamma_2 TREAT_i \times POST_t + \gamma_3 POST_t + CONTROLS_{it} + u_{it}] \quad (3)$$

The dependent variable in Eq. (1) ($MISS_{it}$) equals one if company i 's audited financial statements in year t are subsequently restated; zero otherwise.¹¹ The dependent variable in Eq. (2) ($TAXMISS_{it}$) equals one if company i 's audited financial statements in year t are subsequently restated due to tax issues; zero otherwise.¹² In Eq. (3) the dependent variable (GC_{it}) equals one if company i receives a going-concern opinion from its auditor in year t ; zero otherwise.

¹¹ Although Enron's financial reporting problems were closely linked to its aggressive tax planning (U.S. Congress 2003; Desai 2005), Enron's restatement (announced in an 8-K filing on November 8, 2001) does not disclose significant tax issues and is therefore not coded by Audit Analytics as tax related. This suggests that some restatements may be connected to aggressive tax planning even when the restatements do not disclose tax issues. Therefore, I examine all restatements of the audited financial statements, not just those coded as tax related in Audit Analytics.

¹² Tax accounts are often used to manage earnings (Dhaliwal, Gleason, and Mills 2004; Schrand and Wong 2003; Krull 2004) and are associated with higher audit risk (Hanlon, Krishnan, Mills 2012; Donahoe and Knechel, 2014).

The treatment variable ($TREAT_i$) equals one if company i substantially reduces its APTS fees during the transition window; zero otherwise. In the tabulated tests, I define the reduction as substantial if the company's APTS fees fall by at least 75 percent during the transition window. However, my results are not sensitive to this research design choice as later sensitivity tests show similar results when the cut-off is -50 percent or -100 percent. The $POST_t$ variable equals one in the post-event window and zero in the pre-event window.¹³ The difference-in-differences effect is captured by $TREAT_i \times POST_t$. If the treatment group experiences a relative improvement in audit quality when moving from the pre-event window to the post-event window, I would expect a larger decline in misstatements and tax misstatements, resulting in negative coefficients on $TREAT_i \times POST_t$ in Eqs. (1) and (2). Further, an improvement in auditor independence could increase the issuance of going concern audit opinions, in which case there would be a positive coefficient on $TREAT_i \times POST_t$ in Eq. (3).

Prior studies show that misstatements and going concern opinions are associated with company size, audit fees, auditor size, financial distress, whether or not a company is traded on a stock exchange, and whether a company is headquartered in the U.S. (DeFond and Lennox 2011; Lobo and Zhao 2013; Lennox and Li 2014). Therefore, Eqs. (1) to (3) control for: the log of total assets (LTA_{it}), log of audit fees (LTA_{it}), a Big 4 dummy (BIG_{it}), a loss dummy ($LOSS_{it}$), a dummy for being traded on a stock exchange ($EXCH_{it}$), and a dummy for being headquartered in the U.S. (US_CO_{it}). Eqs. (1) to (3) also control for a company's APTS fee at the end of the pre-event window (LTP_i) and the reduction in a company's spending on other (non-tax) non-audit

¹³ Observations in the transition window are dropped when estimating Eqs. (1) to (3) but my results are not sensitive to this research design choice. For example, the conclusions are similar when the first half of the transition window is assigned to the pre-event window ($POST_t = 0$) and the second half of the transition window is assigned to the post-event window ($POST_t = 1$).

services ($\%OTHER_DOWN_{it}$) because later analysis finds that these variables are significantly correlated with the reductions in APTS fees. Finally, Eqs. (1) to (3) include industry fixed effects.

IV. MAIN RESULTS

The sample

The sample begins in 2002 because auditors' tax fees were disclosed on a voluntary basis in 2000 and 2001 causing missing data problems in those years (Omer, Bedard, and Falsetta 2006). The sample ends in 2009 to ensure that the post-event window is approximately the same length as the pre-event window (see Figure 1). There is generally a lag between the issuance of misstated financial statements and a subsequent restatement announcement, so I use restatements announced in 2002-2013 to identify materially misstated financial statements during the sample period (2002-2009). Following De Simone et al. (2015), I determine whether a misstatement is attributable to tax issues using the coding in Audit Analytics.¹⁴ Data for fees and the control variables are from Audit Analytics.¹⁵ I drop all observations pertaining to companies that pay zero APTS fees at the end of the pre-event window because such companies cannot reduce their APTS fees during the transition window. Dropping these companies leaves a final sample of 41,535 company-year observations.

¹⁴ Audit Analytics codes a restatement as tax-related when a company discloses that the misstatement occurred because of the company's failure to properly apply the accounting rules relating to one or more tax accounts. Seetharaman et al. (2011) suggest there are errors in the coding of tax misstatements in Audit Analytics. However, for a random sample of 30 restatements in my treatment sample, I find the coding of tax-related misstatements in Audit Analytics is accurate, suggesting the coding errors are not a significant concern.

¹⁵ Audit Analytics covers the population of SEC registrants whereas COMPUSTAT does not. Therefore, Audit Analytics provides a substantially larger sample for examining accounting misstatements and going-concern opinions which increases the power of the tests.

Descriptive statistics

Panel A of Table 1 reports the mean fees paid to auditors for tax services (TAX_{it}) and other non-audit services ($OTHER_{it}$) in each sample year. Mean APTS fees increase from \$327,660 in 2002 to \$386,720 in 2003 whereas fees for other non-audit services show a substantial drop, falling by 31.0 percent from \$478,850 in 2002 to \$330,360 in 2003. This suggests that the Sarbanes-Oxley Act (2002) substantially reduced auditors' fees for other non-audit services but did not reduce auditors' tax fees. In the following year, mean APTS fees drop by 5.9 percent from \$386,720 in 2003 to \$364,020 in 2004. The largest drops in APTS fees occur in 2005 and 2006, which coincides with the period when the PCAOB restrictions were introduced. Mean APTS fees fall by 21.5 percent in 2005 (from \$364,020 to \$285,660) and by another 24.7 percent in 2006 (from \$285,660 to \$215,090). From 2007 onwards, mean APTS fees stabilize at around \$215,000. Thus, the falls in APTS fees are concentrated in the period 2005-2006, which is when the restrictions on auditors' tax services were introduced.

[INSERT TABLE 1 HERE]

I calculate the annual percentage reductions in APTS fees ($\% \Delta TAX_DOWN_{it}$) and the annual percentage reductions in fees for other non-audit services ($\% \Delta OTHER_DOWN_{it}$) using the following variables:

$$\% \Delta TAX_DOWN_{it} = (TAX_{it} - TAX_{it-1}) / TAX_{it-1} \text{ if } TAX_{it} < TAX_{it-1}; = 0 \text{ if } TAX_{it} \geq TAX_{it-1}.$$

$$\% \Delta OTHER_DOWN_{it} = (OTHER_{it} - OTHER_{it-1}) / OTHER_{it-1} \text{ if } OTHER_{it} < OTHER_{it-1}; = 0 \text{ if } OTHER_{it} \geq OTHER_{it-1}.$$

TAX_{it} is the fee paid by company i to its auditor for tax services in year t , while $OTHER_{it}$ is the fee for other non-audit services.¹⁶ Panel B of Table 1 reports the mean reductions in APTS fees ($\% \Delta TAX_DOWN_{it}$) and other non-audit fees ($\% \Delta OTHER_DOWN_{it}$) during the pre-event

¹⁶ Audit fees increase significantly following the Sarbanes-Oxley Act (Maydew and Shackelford 2006; Raghunandan and Rama 2006; Ettredge, Scholz, and Li 2007). To avoid the confounding influence of audit fees I use lagged APTS fees rather than audit fees as the denominator in $\% \Delta TAX_DOWN_{it}$.

window, the transition window, and the post-event window. Consistent with Panel A, the reductions in APTS fees are concentrated in the transition window. APTS fees fall in 46.14 percent of observations during the transition window compared with 29.61 percent and 34.90 percent during the pre-event and post-event windows, respectively, and the percentage is significantly higher in the transition window ($\text{Chi}^2 = 683.82$). Moreover, the mean reductions in APTS fees are larger during the transition window than the other two windows. The mean annual values of $\% \Delta \text{TAX_DOWN}_{it}$ are -23.36 percent during the transition window compared with -12.59 percent and -16.58 percent during the pre-event and post-event windows, respectively, and again the difference is significant ($t\text{-stat.} = -27.58$). Therefore, APTS fees fall more often and the drops are larger during the transition window than the other two windows.

Panel C reports the number of observations per audit firm. There are 9,808 audits by the non-Big Four, 8,522 by PricewaterhouseCoopers, 9,409 by Ernst & Young, 7,577 by Deloitte Touche, and 6,219 by KPMG. The Federal Grand jury investigation of KPMG was announced on February 20, 2004, while KPMG admitted wrongdoing and announced a deferred settlement agreement with the Department of Justice on August 29, 2005. To determine whether the falls in APTS fees during the transition window are driven only by KPMG, Panel D reports the mean values of $\% \Delta \text{TAX_DOWN}_{it}$ for KPMG and the other auditors. For KPMG, the mean annual value of $\% \Delta \text{TAX_DOWN}_{it}$ is -27.80 percent during the transition window, compared with -14.74 percent and -17.45 percent during the other two windows. However, the other audit firms also exhibit larger reductions in APTS fees during the transition window. For the other three Big Four firms, the mean value of $\% \Delta \text{TAX_DOWN}_{it}$ is -22.76 percent during the transition window compared with -13.03 percent and -17.39 percent during the other two windows. For the non-Big Four firms, the mean value of $\% \Delta \text{TAX_DOWN}_{it}$ is -22.10 percent during the transition

window, compared with -9.08 percent and -14.53 percent during the other two windows. Therefore, the falls in APTS fees are not unique to KPMG.

Reductions in APTS fees during the transition window

Eqs. (4) to (6) test whether the annual reductions in APTS fees are abnormally large during the transition window:

$$\% \Delta TAX_DOWN_{it} = \alpha_0 + \alpha_1 TRANSITION_t + CONTROLS_{it} + u_{it} \quad (4)$$

$$\% \Delta TAX_DOWN_{it} = \beta_0 + \beta_1 TRANSITION_t + \beta_2 TRANSITION_t \times BIG_{it} + \beta_3 BIG_{it} + CONTROLS_{it} + u_{it} \quad (5)$$

$$\% \Delta TAX_DOWN_{it} = \delta_0 + \delta_1 TRANSITION_t + \delta_2 TRANSITION_t \times BIG_{it} + \delta_3 TRANSITION_t \times KPMG_{it} + \delta_4 BIG_{it} + \delta_5 KPMG_{it} + CONTROLS_{it} + u_{it} \quad (6)$$

The dependent variable ($\% \Delta TAX_DOWN_{it}$) takes negative values when there are reductions in APTS, and zero values otherwise. To account for the right censoring of the dependent variable, Eqs. (4) to (6) are estimated using tobit. The $TRANSITION_t$ variable equals one during the transition window, and zero in the pre-event and post-event windows. I expect larger reductions in APTS fees during the transition window, so I predict a significant negative coefficient on $TRANSITION_t$ in Eq. (4). Eq. (5) tests whether the percentage drops in APTS fees during the transition window are larger for the Big Four firms ($TRANSITION_t \times BIG_{it}$). Eq. (6) tests whether the percentage drops in APTS fees during the transition window are bigger for KPMG. Regulators had identified KPMG as being a particularly aggressive seller of tax shelters (GAO 2005; Permanent Subcommittee 2005) and KPMG was censured during the transition window for its previous tax sheltering activities. Therefore, I expect a negative coefficient on $TRANSITION_t \times KPMG_{it}$ in Eq. (6).

Eqs. (4) to (6) control for other factors that potentially explain the yearly reductions in APTS fees. To control for a company's purchases of APTS prior to the restrictions, I use the log

of the fee paid by company i to its auditor for tax services during the final year of the pre-event window (LTP_i). A company might reduce its purchases of tax and non-tax services at the same time in order to signal that its auditor is not compromised by the fees it receives from both types of non-audit service (Maydew and Shackelford 2007). I therefore control for the contemporaneous reductions in the fees for other non-audit services ($\% \Delta O T H E R_D O W N_{i t}$). I also control for company size ($L T A_{i t}$ = the log of assets), whether the company is traded on a stock exchange ($E X C H_{i t}$), whether the company is reporting a loss ($L O S S_{i t}$), and whether the company is headquartered in the US ($U S_C O_{i t}$).¹⁷ Table 2 reports descriptive statistics for these variables. The Big Four firms comprise 76.4 percent of the sample, 58.6 percent of observations are traded on a stock exchange, 30.6 percent of companies report losses, and 90.5 percent are head-quartered in the US.

[INSERT TABLE 2 HERE]

Regression results for Eqs. (4) to (6)

Table 3 reports the tobit regression results for Eqs. (4) to (6). Col. (1) shows that the coefficient on $T R A N S I T I O N_t$ is negative and highly significant (t-stat. = -26.87). This means that there was an abnormally large drop in APTS fees during the transition window, which is when the PCAOB restrictions came into effect. The coefficient on $T R A N S I T I O N_t$ shows a 22 percent reduction in APTS fees during each year of the transition window. The transition window is approximately 27 months long as it comprises fiscal years that begin or end in the period from July 26, 2005 to October 31, 2006. Therefore, the estimated reduction in APTS fees during the transition window as a whole is 49.5 percent ($= -0.22 \times 27/12$). This estimate is in line with Panel

¹⁷ The sample includes both US and non-US companies because the APTS restrictions apply to all SEC registrants regardless of their location. Nevertheless, the results are very similar when the regressions are estimated using just the US companies.

A of Table 1, which shows that mean APTS fees fall by 21.5 percent and 24.7 percent in 2005 and 2006, respectively. Clearly, these results indicate a large negative shock to auditors' tax services during the transition window.

[INSERT TABLE 3 HERE]

In Col. (2) the coefficient on $TRANSITION_t \times BIG_{it}$ is insignificant. In Col. (3) the coefficient on $TRANSITION_t \times KPMG_{it}$ is negative and significant (t-stat. = -2.75). Therefore, the reductions in APTS fees are significantly larger for KPMG than the other Big Four firms. The coefficients in Col. (3) show that, over the transition window as a whole, the estimated reductions in APTS fees are approximately 60.75 percent for KPMG, 47.25 percent for the other three Big Four firms, and 56.25 percent for the non-Big Four firms.

Turning to the control variables, there are significant negative coefficients on LTP_{it} , signifying larger reductions in APTS among the companies that spent more on APTS during the last year of the pre-event window. The coefficients on $\% \Delta OTHER_DOWN_{it}$ are significantly positive, indicating that companies reduce their APTS purchases at the same time they reduce their purchases of other non-audit services. The significant negative coefficients on LTA_{it} , $LOSS_{it}$ and $EXCH_{it}$ show that the reductions in APTS are bigger among companies that are larger, loss-making, and not traded on a stock exchange.

Identifying the treatment and control groups

Having established that there were large falls in APTS fees during the transition window, I next assign each company to a treatment or control group. Company i is assigned to the treatment group ($TREAT_i = 1$) if its APTS fee falls by at least 75 percent during the transition window; otherwise company i is assigned to the control group ($TREAT_i = 0$). The $TREAT_i$

variable has no time subscript because company i is assigned to the same group throughout the entire sample period.

[INSERT TABLE 4 HERE]

Table 4 shows that there are significant differences in company characteristics between the treatment and control groups, suggesting that the group assignment is non-random and potentially endogenous (Gow, Larcker, and Reiss 2015).¹⁸ To mitigate these differences in observable characteristics, I match each treatment observation to an observation in the control group that has the closest propensity score. I obtain the propensity scores by estimating separate probit models for each window, where the dependent variable is $TREAT_i$ and the independent variables are LTP_i , $\% \Delta OTHER_DOWN_{it}$, BIG_{it} , $KPMG_{it}$, LTA_{it} , $EXCH_{it}$, $LOSS_{it}$ and US_CO_{it} .

Panels A to C of Table 4 show how matching affects the characteristics of companies in the control group vis-à-vis the treatment group. There are large and highly significant differences between the treatment and unmatched control groups. In contrast, the differences are much smaller and are mostly insignificant between the treatment and matched control groups. This illustrates that propensity score matching helps to align the observable characteristics of the treatment and control groups.

However, there are important drawbacks to using matched samples. One is a reduction in testing power because matching significantly reduces the size of the control group. A second is that inferences can be highly sensitive to the criteria used in the matching process (DeFond, Erkens, and Zhang 2014). Moreover, seemingly innocuous changes in matching variables can substantially change the composition of the control group, essentially allowing the researcher to

¹⁸ Unfortunately, there are few archival settings where assignment to the treatment and control groups is completely random (Gow et al. 2015).

“re-sample” the population many times (Shipman, Swanquist, and Whited 2014). Given these drawbacks, I report results using the full sample as well as the matched sample. Further, I acknowledge that matching may not mitigate any unobserved differences between the treatment and control groups (Lennox, Francis, and Wang 2012).

Accounting misstatements, tax-related misstatements, and going-concern audit opinions

I use the DiD design to test whether there are significant changes in audit quality for the treatment group relative to the control group after the restrictions on APTS are introduced. A key assumption of the DiD design is that the treatment and control groups exhibit parallel trends for the outcome variables outside of the period in which the treatment group is subject to the quasi-exogenous shock (Roberts and Whited 2013; Atanasov and Black 2015). To verify whether this assumption is met in the data, Table 5 reports the frequencies of accounting misstatements (Panel A), tax-related misstatements (Panel B), and going-concern audit opinions (Panel C) for the treatment and control groups.

[INSERT TABLE 5 HERE]

Consistent with the DiD assumption of parallel trends during the pre-event window, Panel A shows that accounting misstatements trend downwards for both the treatment and control groups from 2002 to 2005. Similar parallel trends are observed in Panel B for the tax-related misstatements. Panel C shows that the parallel trends assumption also appears to hold for going-concern opinions, which decline from 2002 to 2005 for both the treatment group and the control group.¹⁹

¹⁹ To test the parallel trends assumption, I estimate the following models using observations from the pre-event window only (i.e., fiscal years ending on or before July 26, 2005):
 $Pr (Dep. Var_{it} = 1) = F [\alpha_0 + \alpha_1 TREND_t + \alpha_2 TREAT_i + \alpha_3 TREAT_i \times TREND_t + u_{it}]$

Table 5 shows that the treatment group has a higher proportion of misstatements and tax-related misstatements compared with the two control groups. In Panel A, the differences in misstatement frequencies between the treatment and unmatched control groups are significant in all eight sample years. When the comparison is to the matched control group, the differences are significant in six of the eight years. Similarly, Panel B shows that the treatment group has more tax-related misstatements than the two control groups. The differences are significant in all eight years for the treatment vs. unmatched comparison and significant in five of the eight years for the treatment vs. matched comparison. Panel C shows that the differences in going-concern opinions between the treatment and control groups are mostly insignificant.

Panel D of Table 5 aggregates the observations into pre-event and post-event windows. Consistent with Panels A and B, the treatment companies have significantly more misstatements and tax-related misstatements than the control groups in both the pre-event window and the post-event window. The univariate DiD tests show that the differences between the treatment and control groups do not change significantly when moving from the pre-event window to the post-event window. Similarly, the DiD tests are insignificant for going-concern opinions. Overall, these results do not support the view that audit quality improves more for the treatment group than the control group after the regulatory restrictions on APTS.

Regression results for Eqs. (1) to (3)

Table 6 reports the logit results for Eqs. (1) to (3). The models of accounting misstatements in Cols. (1) and (2) have significant positive coefficients on $TREAT_i$ in both the

The dependent variables are $MISS_{it}$, $TAXMISS_{it}$, and GC_{it} . The treatment variable is $TREAT_i$, which denotes whether the company belongs to the treatment or control groups. The $TREND_t$ variable is a count of the number of days from the start of the sample period (January 1st 2002) to the end of the pre-event window (July 26, 2005). Consistent with the parallel trends assumption, I find no significant differences in the trend rate between the treatment sample and the matched control sample during the pre-event window (i.e., the α_3 coefficients are insignificantly different from zero).

full sample and the matched sample (z -stats. = 3.39, 2.30). Therefore, the treatment companies are more likely than the control companies to misstate their financial statements during the pre-event window. Similarly, there are significant positive coefficients on $TREAT_i$ in the models of tax-related misstatements in Cols. (3) and (4) (z -stats. = 3.10, 1.87). Therefore, the treatment companies are more likely than the control companies to misstate their financial statements for tax-related reasons. The $TREAT_i$ coefficients are insignificant in the models of going-concern reporting in Cols. (5) and (6).

Turning next to the DiD tests, Table 6 shows that the $TREAT_i \times POST_t$ coefficients are statistically insignificant at the 5 percent level in all six columns of Table 6. This suggests no significant change in misstatements, tax-related misstatements or going-concern opinions for the treatment group relative to the control group after the restrictions on auditors' tax services come into effect. Therefore, the evidence does not suggest a significant improvement in audit quality after Rules 3521, 3522, and 3523.

[INSERT TABLE 6 HERE]

Results for the control variables in Col. (1) show that loss-making and small companies have significantly higher rates of misstatement. Audit fees are positively related to misstatements, signifying that auditors charge higher fees when companies have a higher risk of misstatement (Lobo and Zhao 2013). The coefficients on $POST_t$ are significantly negative, because misstatements occur less often in the post-event window (see Table 5). The audit reporting models show that companies are more likely to receive going-concern opinions when they are small, loss-making, not traded on a stock exchange, and not head-quartered in the US. Consistent with Kaplan and Williams (2012), Big Four clients are less likely to receive going-concern opinions. Audit fees are positively related to going-concern opinions, which is

consistent with auditors undertaking more testing and charging a risk premium when companies have going-concern difficulties (Geiger and Rama 2003).

Is the lack of statistical significance due to low power tests?

Appropriate caution is needed when drawing inferences from insignificant results because of potential concerns that the tests lack power. Two factors suggest that low power may not be responsible for the insignificant results. First, the $TREAT_i \times POST_t$ coefficients are very small as well as statistically insignificant. For example, the $TREAT_i \times POST_t$ coefficient in Col. (1) of Table 6 is -0.04, which translates to a reduction of just -0.39 percent in the estimated probability of a misstatement. Second, I formally investigate the power of the DiD tests in two ways. I begin by determining whether the $TREAT_i \times POST_t$ coefficients would have been statistically significant if the coefficients had been large enough to fully offset the significant positive coefficients on $TREAT_i$ in Cols. (1) to (4). In each column, the $TREAT_i \times POST_t$ coefficients are significantly different from minus one times the coefficients on $TREAT_i$ (p-values < 0.05). This means the DiD results would have been statistically significant if misstatements and tax-related misstatements had occurred with equal frequency for the treatment and control groups during the post-event window. Next, I re-estimate Cols. (1) to (4) after imposing the restriction that the coefficient on $TREAT_i \times POST_t$ is equal to minus one times the coefficient on $TREAT_i$. The logit regressions with these coefficient restrictions yield significant negative coefficients on $TREAT_i \times POST_t$ (z-stats. = -3.36, -2.29, -3.07, -1.86). This means the $TREAT_i \times POST_t$ coefficients are statistically significant under the restriction that they fully offset the positive coefficients on $TREAT_i$. Taken together, these results suggest that low power does not explain the lack of significant results for $TREAT_i \times POST_t$ in Cols. (1) to (4) of Table 6. However, I acknowledge that a similar statement cannot be made about the models of going-concern reporting in Cols. (5)

and (6), where the coefficients on $TREAT_i$ are small and statistically insignificant. Thus, the results for going-concern opinions could lack significance because the going-concern variable does not provide a powerful test of the impact of APTS fees on audit quality. Moreover, I acknowledge that the matched sample tests suffer from lower power because they rely on substantially smaller samples.

V. UNTABULATED SUPPLEMENTARY ANALYSES

Auditor changes

Companies could respond to the APTS restrictions by switching to a new auditor while continuing to purchase aggressive tax services from their former auditor (Cook and Omer 2013). Moreover, auditor changes could contaminate the comparisons of audit quality between the pre-event and post-event windows. To address this, I add an auditor change dummy to Table 6, where $AUDCH_i$ equals one if company i changes auditor at least once during the sample period, and zero otherwise. I also include the interaction variable $AUDCH_i \times POST_t$ because auditor changes could cause audit quality to change between the pre-event and post-event windows. Including $AUDCH_i$ and $AUDCH_i \times POST_t$ has little effect on the results of Table 6. The $TREAT_i$ coefficients remain positive and significant in Cols. (1) to (4) and insignificant in Cols. (5) and (6), while the $TREAT_i \times POST_t$ coefficients remain insignificant in all six columns. The untabulated results for $AUDCH_i$ and $AUDCH_i \times POST_t$ are mixed. The $AUDCH_i$ coefficients are significantly positive in Cols. (1) and (2) which shows that auditor change companies have more misstatements. However, the $AUDCH_i$ coefficients are insignificant in Cols. (3) to (6). The $AUDCH_i \times POST_t$ coefficients are significantly positive in Col. (1), significantly negative in Col. (6), and insignificant in the other four columns.

Treatment and control groups

To assess whether the results are robust to using a cut-off of -75 percent, I use other thresholds to assign companies to the treatment and control groups. Using a threshold of -100 percent, the $TREAT_i$ coefficients remain positive and significant in Cols. (1) to (4) while they remain insignificant in Cols. (5) to (6); the $TREAT_i \times POST_t$ coefficients remain insignificant in all six columns. Using a threshold of -50 percent, the $TREAT_i$ coefficients are positive and significant in Cols. (1) to (3) and insignificant in Cols. (4) to (6), while the $TREAT_i \times POST_t$ coefficients remain insignificant throughout.

Overstatements and understatements

Accounting misstatements include both irregularities and errors (Hennes, Leone, and Miller 2008). Theory suggests that threats to auditor independence can reduce an auditor's incentives to exert effort (Thoman 1996), which makes it more likely that an auditor would fail to detect accidental reporting errors as well as irregularities. Accordingly, I keep both types of misstatement in my main analysis. The statistics on overstatements and understatements suggest that most misstatements are motivated by an intention to overstate net income or net assets rather than by accidental reporting errors. In the full (matched) samples, 86.02 (85.90) percent of misstatements result in net income or net assets being overstated whereas only 13.98 (14.10) percent are understatements. Further, 76.12 (74.85) percent of tax-related misstatements result in net income or net assets being overstated whereas 23.88 (25.15) percent are understatements. In an untabulated analysis, I estimate the Table 6 models separately for overstatements and understatements. In the models of overstatements, the $TREAT_i$ coefficients are positive and significant in Cols. (1), (2) and (3) but insignificant in Col. (4), while the $TREAT_i$

$\times POST_t$ coefficients are insignificant in all four columns. In the models of understatements, all the $TREAT_i$ coefficients are positive and significant while all the $TREAT_i \times POST_t$ coefficients are insignificant.

Market reactions to news of the regulatory restrictions

Regulators stated that the APTS restrictions were introduced in order to protect investors (PCAOB, 2004; SEC, 2006). However, investors might view the restrictions as harmful because the restrictions could result in companies paying higher taxes (Frischmann, Shevlin, and Wilson 2008). To investigate investor perceptions, I examine the market reactions to six events that signaled a higher likelihood of APTS restrictions being imposed: 1) The PCAOB's roundtable discussion (July 14, 2004), 2) The PCAOB's proposed restrictions on APTS (December 14, 2004), 3) The GAO's report on tax shelters sold by audit firms (February 1, 2005), 4) The Permanent Subcommittee's recommendation that the PCAOB adopt the proposed rules (February 8, 2005), 5) The PCAOB's adoption of the rules (July 26, 2005), and 6) The SEC's approval of the rules (April 19, 2006). I calculate three-day cumulative abnormal returns ($CAR[-1,+1]$) centered on each event date using the equally-weighted market return. (Inferences are similar using the value-weighted market return.) Stock returns are obtained from CRSP for 23,292 observations.²⁰ Summing over the six events, I find the market reaction is not significantly different between the treatment and control groups (t-stat. = 1.02). This suggests that investors did not perceive the rules as being beneficial or harmful. This is consistent with the DiD results in Table 6 which show no change in audit quality after the rules are introduced.

²⁰ Matching is unnecessary when examining market reactions because observable differences between the treatment and control companies should be priced by an efficient stock market well in advance of the event dates.

VI. CONCLUSIONS

The PCAOB introduced restrictions on auditors' tax services because of three concerns. First, audit firms were charging tax fees on a contingent basis, which was a violation of the AICPA's Code of Professional Conduct. Second, audit firms were selling aggressive tax schemes to their audit clients. Third, audit firms were selling personal tax services to executives with financial reporting responsibilities. The rules introduced in 2005-2006 were intended to improve auditor independence and, by extension, the quality of financial reporting. However, some argued that the rules might have unintended negative consequences for a couple of reasons. One is that there would be less information sharing between the audit side and tax side and this could result in worse audit quality. A second is that audit firms are motivated to consider the risk of a client restatement, whereas other tax service providers do not bear any responsibility for their clients' financial statements and so they are less likely to consider whether their tax advice might result in a material misstatement.

Consistent with the restrictions having a chilling effect on the provision of tax services by audit firms, I find large and highly significant reductions in APTS fees when the restrictions were introduced. Further, the companies that significantly reduced their APTS purchases when the restrictions were introduced had exhibited significantly more accounting misstatements and more tax-related misstatements during the period prior to the restrictions. However, I find no evidence that these companies experience an improvement in audit quality subsequent to the restrictions. To the contrary, I find that they continue to have significantly more accounting misstatements and tax-related misstatements in the period after the APTS restrictions.

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FIGURE 1
The timeline

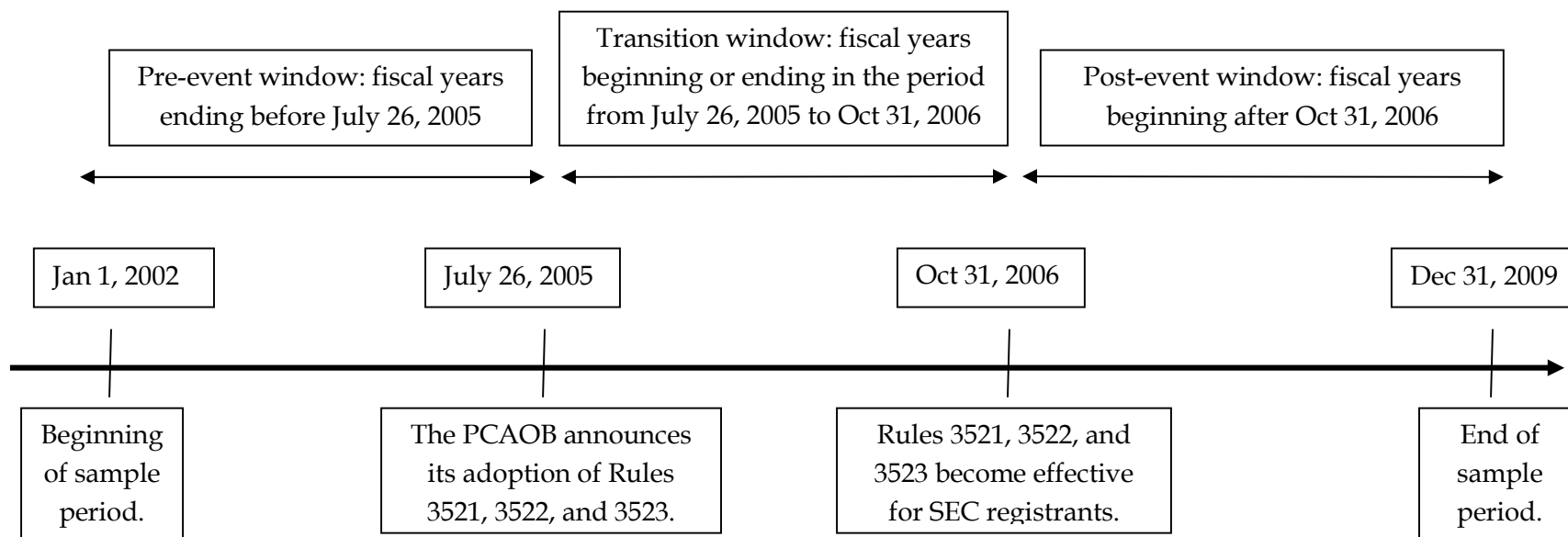


TABLE 1
Auditors' tax fees and fees for other non-audit services (N = 41,535 observations).

Panel A: Mean tax fees paid to auditors (TAX_{it}) and mean fees for other non-audit services ($OTHER_{it}$).

Year	Auditors' tax fees (\$000)	Fees for other non-audit services (\$000)
2002	327.66	478.85
2003	386.72	330.36
2004	364.02	334.19
2005	285.66	312.88
2006	215.09	280.88
2007	214.24	277.51
2008	217.68	256.77
2009	223.15	257.12

Panel B: The percentage reductions in auditors' tax fees ($\% \Delta TAX_DOWN_{it}$) and the percentage reductions in other non-audit service fees ($\% \Delta OTHER_DOWN_{it}$).

The pre-event window comprises fiscal years ending before July 26, 2005. The transition window comprises fiscal years beginning or ending in the period from July 26, 2005 to Oct 31, 2006. The post-event window comprises fiscal years beginning after Oct 31, 2006. See Figure 1 for further details.

	% of obs. with a reduction in auditors' tax fees	Mean values of $\% \Delta TAX_DOWN_{it}$	Obs.
Pre-event window	29.61%	-12.59%	14,577
Transition window	46.14%	-23.36%	10,684
Post-event window	34.90%	-16.58%	16,274
			41,535

	% of obs. with a reduction in auditors' other non-audit fees	Mean values of $\% \Delta OTHER_DOWN_{it}$	Obs.
Pre-event window	52.88%	-33.22%	14,577
Transition window	39.33%	-23.86%	10,684
Post-event window	35.99%	-21.37%	16,274
			41,535

Panel C: The audit firms.

	Obs.
Non-Big Four audit firms:	9,808
Big Four audit firms:	
KPMG	6,219
PricewaterhouseCoopers	8,522
Ernst & Young	9,409
Deloitte Touche	7,577
Total	41,535

TABLE 1 (cont.)
Auditors' tax fees and fees for other non-audit services (N = 41,535 observations).

Panel D: The percentage reductions in auditors' tax fees ($\% \Delta TAX_DOWN_{it}$) for KPMG, the other Big 4 firms, and the non-Big Four firms.

	Mean values of $\% \Delta TAX_DOWN_{it}$		
	KPMG	Other Big 4 firms	Non-Big 4 firms
Pre-event window	-14.74%	-13.03%	-9.08%
Transition window	-27.80%	-22.76%	-22.10%
Post-event window	-17.45%	-17.39%	-14.53%

Variable definitions

TAX_{it} = the tax fee paid by company i in year t to its auditor.

$OTHER_{it}$ = the fee for other (i.e., non-tax) non-audit services paid by company i in year t to its auditor.

$\% \Delta TAX_DOWN_{it} = (TAX_{it} - TAX_{it-1}) / TAX_{it-1}$ if $TAX_{it} < TAX_{it-1}$; = 0 if $TAX_{it} \geq TAX_{it-1}$.

$\% \Delta OTHER_DOWN_{it} = (OTHER_{it} - OTHER_{it-1}) / OTHER_{it-1}$ if $OTHER_{it} < OTHER_{it-1}$; = 0 if $OTHER_{it} \geq OTHER_{it-1}$.

TABLE 2
Descriptive statistics for the full sample (N = 41,535).

	Mean	10 th percentile	25 th percentile	Median	75 th percentile	90 th percentile
$\% \Delta TAX_DOWN_{it}$	-0.169	-0.708	-0.222	0.000	0.000	0.000
$TRANSITION_t$	0.257	0.000	0.000	0.000	1.000	1.000
BIG_{it}	0.764	0.000	1.000	1.000	1.000	1.000
$KPMG_{it}$	0.150	0.000	0.000	0.000	0.000	1.000
LTP_i	9.660	1.000	8.820	10.450	11.982	13.269
$\% \Delta OTHER_DOWN_{it}$	-0.262	-0.959	-0.543	0.000	0.000	0.000
LTA_{it}	6.313	3.216	4.908	6.416	7.880	9.399
$EXCH_{it}$	0.586	0.000	0.000	1.000	1.000	1.000
$LOSS_{it}$	0.306	0.000	0.000	0.000	1.000	1.000
US_CO_{it}	0.905	1.000	1.000	1.000	1.000	1.000

$\% \Delta TAX_DOWN_{it}$ = the percentage reduction in the fee paid by company i to its auditor for tax services in year t ; = 0 if no reduction.

$TRANSITION_t$ = 1 if the fiscal year begins or ends in the period July 26, 2005 to Oct 31, 2006; = 0 otherwise.

BIG_{it} = 1 if company i is audited by a Big Four firm in year t ; = 0 otherwise.

$KPMG_{it}$ = 1 if company i is audited by KPMG in year t ; = 0 otherwise.

LTP_i = natural log of the fee paid by company i to its auditor for tax services in the last year of the pre-event window (see Figure 1 for a description of the pre-event window).

$\% \Delta OTHER_DOWN_{it}$ = $(OTHER_{it} - OTHER_{it-1}) / OTHER_{it-1}$ if $OTHER_{it} < OTHER_{it-1}$; = 0 if $OTHER_{it} \geq OTHER_{it-1}$, where $OTHER_{it}$ = the fee for other (i.e., non-tax) non-audit services paid by company i in year t .

LTA_{it} = natural log of total assets for company i in year t .

$EXCH_{it}$ = 1 if company i is listed on a stock exchange in year t ; = 0 otherwise.

$LOSS_{it}$ = 1 if company i reports a loss in year t ; = 0 otherwise.

US_CO_{it} = 1 if company i has its headquarters in the United States; = 0 otherwise.

TABLE 3

Determinants of the percentage annual reductions in tax fees paid to auditors (N = 41,535).

The dependent variable ($\% \Delta TAX_DOWN_{it}$) equals the percentage reduction in the fee paid by company i to its auditor for tax services in year t (equals zero if no reduction). The models are estimated using tobit because the dependent variable is right-censored at zero. Standard errors are adjusted for clustering on each company and t-statistics are reported in parentheses below the coefficients.

	(1)	(2)	(3)
$TRANSITION_t$	-0.22*** (-26.87)	-0.25*** (-12.98)	-0.25*** (-12.99)
$TRANSITION_t \times BIG_{it}$		0.03 (1.41)	0.04** (1.96)
$TRANSITION_t \times KPMG_{it}$			-0.06*** (-2.75)
LTP_i	-0.01** (-11.33)	-0.01*** (-11.32)	-0.01*** (-11.26)
$\% \Delta OTHER_DOWN_{it}$	0.04*** (3.92)	0.04*** (3.89)	0.04*** (3.89)
BIG_{it}	-0.01 (-0.77)	-0.02 (-1.32)	-0.01 (-0.91)
$KPMG_{it}$			-0.02* (-1.91)
LTA_{it}	-0.02*** (-11.38)	-0.02*** (-11.38)	-0.02*** (-11.44)
$EXCH_{it}$	-0.07*** (-9.07)	-0.07*** (-9.06)	-0.07*** (-8.94)
$LOSS_{it}$	-0.06*** (-6.58)	-0.06*** (-6.56)	-0.06*** (-6.54)
US_CO_{it}	0.01 (0.16)	0.01 (1.17)	0.01 (1.05)
Industry dummies?	YES	YES	YES
F-statistics	108.37	102.90	94.82
p-values	< 0.001	< 0.001	< 0.001
Pseudo R ²	3.2%	3.2%	3.3%

See Table 2 for variable definitions.

***, **, * denote that the coefficients are statistically significant at the 1%, 5% and 10% levels (two-tailed). Industry dummies are based on the Fama and French 12 industry classification scheme. The standard errors are calculated with clustering on each company and adjusted for heteroskedasticity.

TABLE 4
Descriptive statistics for the treatment group, unmatched control group, and matched control group.

Company i belongs to the treatment group ($TREAT_i = 1$) if the fee paid to the company's auditor for tax services falls by at least 75% during the transition window. All other companies belong to the unmatched control group ($TREAT_i = 0$). To obtain the propensity scores, I estimate separate probit models for each window where $TREAT_i$ is the dependent variable and the following are the independent variables: LTP_i , $\% \Delta OTHER_DOWN_{it}$, BIG_{it} , $KPMG_{it}$, LTA_{it} , $EXCH_{it}$, $LOSS_{it}$ and US_CO_{it} . To obtain the matched control group, I match each observation in the treatment group to an observation in the control group with the closest propensity score.

Panel A: The pre-event window

	Treatment group ($TREAT_i = 1$)	Unmatched control group ($TREAT_i = 0$)	Matched control group ($TREAT_i = 0$)	Treatment vs. unmatched t-stat.	Treatment vs. matched t-stat.
$\% \Delta TAX_DOWN_{it}$	-0.149	-0.120	-0.122	-5.41***	-3.91***
LTP_i	10.935	9.931	11.128	14.17***	-3.53***
$\% \Delta OTHER_DOWN_{it}$	-0.349	-0.328	-0.333	-2.54***	-1.52
BIG_{it}	0.850	0.806	0.834	5.43***	1.63
$KPMG_{it}$	0.201	0.162	0.181	5.02***	1.99**
LTA_{it}	5.950	6.165	5.983	-4.24***	-0.50
$EXCH_{it}$	0.677	0.528	0.685	14.46***	-0.65
$LOSS_{it}$	0.342	0.284	0.327	6.08***	1.20
US_CO_{it}	0.921	0.922	0.912	-0.20	1.20
Obs.	2,854	11,723	2,854		

Panel B: The transition window

	Treatment group ($TREAT_i = 1$)	Unmatched control group ($TREAT_i = 0$)	Matched control group ($TREAT_i = 0$)	Treatment vs. unmatched t-stat.	Treatment vs. matched t-stat.
$\% \Delta TAX_DOWN_{it}$	-0.555	-0.147	-0.166	-56.95***	-36.42***
LTP_i	10.796	10.000	10.88	11.00***	-1.30
$\% \Delta OTHER_DOWN_{it}$	-0.298	-0.223	-0.289	-8.79***	-0.77

TABLE 4 (cont.)
Descriptive statistics for the treatment group, unmatched control group, and matched control group.

Panel B: The transition window (cont.)

	Treatment group ($TREAT_i = 1$)	Unmatched control group ($TREAT_i = 0$)	Matched control group ($TREAT_i = 0$)	Treatment vs. unmatched t-stat.	Treatment vs. matched t-stat.
BIG_{it}	0.732	0.785	0.748	-5.30***	-1.19
$KPMG_{it}$	0.172	0.141	0.169	-3.63***	0.28
LTA_{it}	6.192	6.603	6.205	7.07***	-0.16
$EXCH_{it}$	0.659	0.611	0.670	4.23***	-0.79
$LOSS_{it}$	0.292	0.203	0.287	9.15***	0.39
US_CO_{it}	0.887	0.894	0.885	-1.02	0.23
Obs.	2,264	8,420	2,264		

Panel C: The post-event window

	Treatment group ($TREAT_i = 1$)	Unmatched control group ($TREAT_i = 0$)	Matched control group ($TREAT_i = 0$)	Treatment vs. unmatched t-stat.	Treatment vs. matched t-stat.
$\% \Delta TAX_DOWN_{it}$	-0.133	-0.174	-0.203	6.83***	8.98***
LTP_i	10.818	8.451	11.021	27.37***	-3.74***
$\% \Delta OTHER_DOWN_{it}$	-0.225	-0.211	-0.2221	-1.98**	-0.45
BIG_{it}	0.692	0.717	0.708	-2.68***	-1.38
$KPMG_{it}$	0.155	0.128	0.140	3.97***	1.68*
LTA_{it}	6.333	6.354	6.438	-0.39	-1.57
$EXCH_{it}$	0.607	0.585	0.616	2.26**	-0.70
$LOSS_{it}$	0.409	0.363	0.408	4.80***	0.13
US_CO_{it}	0.908	0.896	0.906	1.91*	0.22
Obs.	3,138	13,136	3,138		

$TREAT_i = 1$ if the fee paid by company i to its auditor for tax services falls by at least 75% during the transition window; = 0 otherwise. The transition window comprises fiscal years that begin or end in the period July 26, 2005 to Oct 31, 2006. See Table 2 for other variable definitions.

***, **, * denote that the differences are statistically significant at the 1%, 5% and 10% levels, respectively (two-tailed).

TABLE 5
Accounting misstatements, tax account misstatements, and going-concern audit opinions (2002-2009).

Panel A: Frequencies of accounting misstatements (MIS_{it})

Year	Treatment group N = 8,256. ($TREAT_i = 1$) Misstatements (%)	Unmatched control group N = 33,279. ($TREAT_i = 0$) Misstatements (%)	Matched control group N = 8,256. ($TREAT_i = 0$) Misstatements (%)	Treatment vs. unmatched t-stat.	Treatment vs. matched t-stat.
2002	19.83%	12.82%	15.09%	5.63***	2.70***
2003	19.58%	14.55%	15.80%	3.64***	2.09**
2004	17.63%	12.47%	14.76%	3.97***	1.63*
2005	11.92%	9.25%	12.31%	2.43**	-0.26
2006	8.92%	5.91%	5.53%	3.61***	3.13***
2007	7.19%	4.89%	4.06%	3.26***	3.36***
2008	8.00%	5.22%	5.02%	3.66***	2.96***
2009	7.05%	5.66%	6.14%	1.73*	0.85

Panel B: Frequencies of tax-related misstatements ($TAXMIS_{it}$)

Year	Treatment group N = 8,256. ($TREAT_i = 1$) Tax misstatements (%)	Unmatched control group N = 33,279. ($TREAT_i = 0$) Tax misstatements (%)	Matched control group N = 8,256. ($TREAT_i = 0$) Tax misstatements (%)	Treatment vs. unmatched t-stat.	Treatment vs. matched t-stat.
2002	4.88%	2.29%	2.64%	4.40***	2.53**
2003	4.66%	2.26%	3.49%	3.07***	1.26
2004	3.80%	2.29%	3.41%	2.50**	0.44
2005	3.03%	1.59%	1.68%	2.86***	1.91*
2006	2.79%	1.19%	1.53%	3.89***	2.17**
2007	2.16%	1.15%	1.67%	2.80***	0.89
2008	2.13%	1.29%	1.21%	2.17**	2.70***
2009	2.44%	1.33%	1.01%	2.67***	2.27**

TABLE 5 (cont.)
Accounting misstatements, tax account misstatements, and going-concern audit opinions (2002-2009).

Panel C: Frequencies of going-concern audit opinions (GC_{it})

Year	Treatment group N = 8,256. $(TREAT_i = 1)$ GC opinions (%)	Unmatched control group N = 33,279. $(TREAT_i = 0)$ GC opinions (%)	Matched control group N = 8,256. $(TREAT_i = 0)$ GC opinions (%)	Treatment vs. unmatched t-stat.	Treatment vs. matched t-stat.
2002	6.13%	6.74%	6.72%	-0.69	-0.52
2003	4.78%	5.60%	5.12%	-0.95	-0.33
2004	3.69%	2.79%	2.72%	1.39	1.14
2005	3.90%	2.21%	4.58%	2.87***	-0.72
2006	7.39%	4.11%	7.26%	4.56***	0.12
2007	5.72%	4.59%	4.90%	1.69*	0.90
2008	7.48%	6.27%	6.83%	1.52	0.62
2009	7.42%	7.27%	8.47%	0.18	-0.89

Panel D: Descriptive statistics for the pre-event and post-event windows.

Misstatements (%):

Window	Treatment group $(TREAT_i = 1)$	Unmatched control group $(TREAT_i = 0)$	Matched control group $(TREAT_i = 0)$	Treatment vs. unmatched t-stat.	Treatment vs. matched t-stat.
Pre-event	18.75%	13.28%	15.45%	7.48***	3.31***
Post-event	7.39%	5.18%	4.91%	4.85***	4.10***

Difference-in-differences tests:

Treatment vs. unmatched, $\chi^2 = 0.10$ (p-value = 0.76). Treatment vs. matched, $\chi^2 = 2.50$ (p-value = 0.28).

TABLE 5 (cont.)
Accounting misstatements, tax account misstatements, and going-concern audit opinions (2002-2009).

Panel D: Descriptive statistics for the pre-event and post-event windows (cont.).

Tax-related misstatements (%):

	Treatment group ($TREAT_i = 1$)	Unmatched control group ($TREAT_i = 0$)	Matched control group ($TREAT_i = 0$)	Treatment vs. unmatched t-stat.	Treatment vs. matched t-stat.
Window					
Pre-event	4.52%	2.44%	3.22%	6.00***	2.54**
Post-event	2.33%	1.23%	1.27%	4.66***	3.13***

Difference-in-differences tests:

Treatment vs. unmatched, $\text{Chi}^2 = 0.01$ (p-value = 0.94). Treatment vs. matched, $\text{Chi}^2 = 1.17$ (p-value = 0.28).

Going-concern opinions (%):

	Treatment group ($TREAT_i = 1$)	Unmatched control group ($TREAT_i = 0$)	Matched control group ($TREAT_i = 0$)	Treatment vs. unmatched t-stat.	Treatment vs. matched t-stat.
Window					
Pre-event	4.87%	4.95%	4.73%	-0.17	0.25
Post-event	7.04%	6.22%	7.07%	1.70*	-0.05

Treatment vs. unmatched, $\text{Chi}^2 = 1.44$ (p-value = 0.23). Treatment vs. matched, $\text{Chi}^2 = 0.05$ (p-value = 0.82).

***, **, * denote that the differences between the treatment and control groups are statistically significant at the 1%, 5% and 10% levels, respectively (two-tailed).

$TREAT_i = 1$ if the fee paid by company i to its auditor for tax services falls by at least 75% during the transition window; = 0 otherwise. The transition window comprises fiscal years that begin or end in the period July 26, 2005 to Oct 31, 2006. $MISS_{it} = 1$ if company i 's financial statements issued in year t are subsequently restated; = 0 otherwise. $TAXMISS_{it} = 1$ if company i 's financial statements issued in year t are subsequently restated due to incorrect tax reporting; = 0 otherwise. $GC_{it} = 1$ if company i receives a going-concern opinion from its auditor in year t ; = 0 otherwise.

TABLE 6

Accounting misstatements, tax-related misstatements, and going-concern opinions for the treatment group vs. the control group ($TREAT_i = 0, 1$) in the periods before vs. after the restrictions on auditors' tax services ($POST_t = 0, 1$).

The models are estimated using observations from the pre-event window ($POST_t = 0$) and the post-event window ($POST_t = 1$). Z-statistics are reported in parentheses below each coefficient. The full sample comprises observations from the treatment group and unmatched control group. The matched sample comprises observations from the treatment group and matched control group.

	Accounting misstatements ($MISS_{it}$)		Tax-related misstatements ($TAXMISS_{it}$)		Going-concern audit opinions (GC_{it})	
	Full sample (1)	Matched sample (2)	Full sample (3)	Matched sample (4)	Full sample (5)	Matched sample (6)
$TREAT_i$	0.27*** (3.39)	0.22** (2.30)	0.49*** (3.10)	0.35* (1.87)	-0.17 (-0.78)	0.02 (-0.13)
$TREAT_i \times POST_t$	-0.04 (-0.34)	0.21 (1.27)	-0.01 (-0.01)	0.29 (0.91)	0.29* (1.66)	-0.01 (-0.02)
$POST_t$	-1.11*** (-17.63)	-1.38*** (-10.43)	-0.79*** (-5.82)	-1.12*** (-4.33)	-0.17* (-1.90)	0.08 (0.43)
LTP_i	0.02** (2.06)	-0.01 (-0.15)	0.01 (0.55)	-0.02 (-0.38)	-0.03*** (-3.32)	-0.05 (-1.48)
$\% \Delta OTHER_DOWN_{it}$	-0.08* (-1.73)	-0.01 (-0.14)	-0.06 (-0.70)	-0.04 (-0.24)	-0.13* (-1.75)	-0.11 (-0.88)
LTA_{it}	-0.07*** (-3.57)	-0.01 (-0.44)	-0.02 (-0.39)	-0.01 (-0.09)	-0.65*** (-20.74)	-0.77*** (-14.14)
LAF_{it}	0.23*** (7.29)	0.17*** (3.38)	0.28*** (4.36)	0.31*** (3.30)	0.55*** (10.31)	0.78*** (8.46)
BIG_{it}	-0.03 (-0.36)	-0.04 (-0.37)	0.17 (0.96)	0.18 (0.70)	-0.58*** (-6.66)	-0.46*** (-3.19)
$LOSS_{it}$	0.24*** (4.30)	0.35*** (4.02)	0.23** (2.00)	0.32* (1.93)	2.08*** (21.34)	2.04*** (10.86)
$EXCH_{it}$	0.28*** (4.69)	0.12 (1.37)	0.20 (1.51)	-0.13 (-0.15)	-0.98*** (-10.84)	-0.83*** (-5.99)
US_CO_{it}	0.09 (0.88)	0.27* (1.84)	0.54*** (2.73)	0.83** (2.49)	-0.50*** (-3.66)	-0.40* (-1.86)

TABLE 6 (cont.)

Accounting misstatements, tax-related misstatements, and going-concern opinions for the treatment group vs. the control group ($TREAT_i = 0, 1$) in the periods before vs. after the restrictions on auditors' tax services ($POST_t = 0, 1$).

Industry fixed effects?	YES	YES	YES	YES	YES	YES
Treatment obs.	5,992	5,992	5,992	5,992	5,992	5,992
Unmatched obs.	24,859		24,859		24,859	
Matched obs.		5,992		5,992		5,992
Chi ² statistics	873.93	354.62	257.94	125.79	1964.23	800.63
(p-values)	(< 0.001)	(< 0.001)	(< 0.001)	(< 0.001)	(< 0.001)	(< 0.001)
Pseudo R ²	7.95%	8.21%	7.60%	7.14%	43.45%	42.42%

***, **, * denote that the coefficients are statistically significant at the 1%, 5% and 10% levels (two-tailed). The standard errors are calculated with clustering on each company and adjusted for heteroskedasticity.

$MISS_{it} = 1$ if company i 's financial statements issued in year t are subsequently restated; = 0 otherwise. $TAXMISS_{it} = 1$ if company i 's financial statements issued in year t are subsequently restated due to incorrect tax reporting; = 0 otherwise. $GC_{it} = 1$ if company i receives a going-concern opinion from its auditor in year t ; = 0 otherwise. $TREAT_i = 1$ if the fee paid by company i to its auditor for tax services falls by at least 75% during the transition window; = 0 otherwise. $POST_t = 1$ if the fiscal year begins after Oct 31, 2006; = 0 if the fiscal year ends before July 26, 2005. LTP_i = natural log of the fee paid by company i to its auditor for tax services in the last year of the pre-event window (see Figure 1 for a description of the pre-event window). $BIG_{it} = 1$ if company i is audited by a Big Four firm in year t ; = 0 otherwise. $KPMG_{it} = 1$ if company i is audited by KPMG in year t ; = 0 otherwise. LTA_{it} = natural log of total assets for company i in year t . LAF_{it} = natural log of audit fees for company i in year t . $EXCH_{it} = 1$ if company i is listed on a stock exchange in year t ; = 0 otherwise. $LOSS_{it} = 1$ if company i reports a loss in year t ; = 0 otherwise. $US_CO_{it} = 1$ if company i has its headquarters in the United States; = 0 otherwise. Industry dummies are based on the Fama and French 12 industry classification scheme.