The Effect of Internal Control Weakness Under Section 404 of the Sarbanes-Oxley Act on Audit Fees[*]

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Abstract

In this paper, we investigate the effect of the enactment of the Sarbanes-Oxley Act (SOX) in 2002 on audit pricing, using a sample of 252 firms that

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received an "Ineffective" audit opinion and other firms that received clean audit opinion on the effectiveness of the internal control over financial reporting under Section 404 of SOX. Our analyses show the following. First, we find that auditors charge significantly higher audit fees for all firms in the post-SOX period than in the pre-SOX period. Second, we find that auditors' opinions on the weakness in internal control (WIC) are positively associated with audit fees, and that the positive association between the two is pronounced primarily in the post-SOX period, but not in the pre-SOX period. Third, we find that clients with WIC problems that are highly levered and/or report losses pay incrementally higher audit fees during the post-SOX period. We also find that Big 4 audit fee premiums increase significantly for all clients during the post-SOX period, regardless of whether the clients have WIC or not. Overall, our results suggest that auditors, in terms of their behavior and pricing mechanism, responded to an upward shift in the strength of the legal liability regime caused by the SOX enactment.

INTRODUCTION

A series of corporate scandals that started with the Enron debacle and the subsequent collapse of Andersen LLP triggered the United States (U.S.) Congress to pass the Sarbanes-Oxley Act (SOX) of 2002 in an attempt to restore public confidence in the quality of audited financial statements. One of the most contentious measures mandated by SOX is related to the efficacy of a firm's internal controls over financial reporting (ICOFR). Section 404 of SOX mandates management to assess the effectiveness of a firm's ICOFR and to report its conclusion in the firm's annual reports for fiscal years ending after November 2004. Section 404 also requires the auditor to review management's assessment, and then, to report her own conclusion regarding the effectiveness of the ICOFR.

Corporate executives have increasingly voiced doubts about the net benefits of this controversial regulation, and have often claimed that the costs of Section 404 compliance are excessively high compared with the associated benefits alleged by regulators and lawmakers. For example, cross-listed foreign Securities and Exchange Commission (SEC) registrants often express that they are considering withdrawing their American Depository Receipts (ADR) listings from the US exchanges due to the high compliance cost.[1] Given that a non-trivial component of the Section 404 compliance cost is an in-

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1) See two recent speeches by SEC Commissioners (SEC 2005a, 2005b).

crease in audit fees and that data on auditors' assessment of clients' internal controls have now become publicly available, it is interesting and timely to examine whether and how the auditor incorporates her own assessment of the strength or weakness of a client's internal control system into audit pricing.

In this paper, we first investigate whether the enactment of SOX lead to an increase in the level of audit fees for all firms, regardless of the effectiveness of their ICOFRs. As further explained in the next section, SOX caused not only an increase in audit work but also an increase in auditors' legal liabilities. We therefore predict that auditors charge higher audit fees for all firms in the post-SOX period than in the pre-SOX period to compensate for the additional audit effort to comply with the SOX requirements and to compensate for the expected increases in legal liability costs.

Second, we examine whether and how auditors' assessments of material weaknesses in internal controls (hereafter WIC) of their client firms are priced in the audit fee-setting process. In doing so, we analyze auditors' opinions on the effectiveness of the ICOFR that are reported in recently filed 10-K reports, and identify client firms that received an "Ineffective" opinion on the ICOFR from their auditors. We label these 'WIC clients.'[2] We predict that auditors charge higher audit fees for WIC clients than for non-WIC clients because clients with WIC problems are more likely to have accounting errors or irregularities and to engage in opportunistic earnings management, compared with clients without WIC problems (Ashbaugh-Skaife et al. 2007). Auditors must therefore exert more engagement efforts to audit WIC clients than to audit non-WIC clients. In addition, auditors are likely to be exposed to a higher litigation risk, other things being equal, when auditing WIC clients than non-WIC clients. As a result, auditors are likely to charge higher audit fees for WIC clients than for non-WIC clients - to compensate for the higher effort and/ or the increased litigation risk associated with the audits of WIC clients.

Third, we test whether the positive relation, if any, between WIC and audit fees emerged only after the passage of SOX. Thus, we pre-

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2) In fact, Section 404 of SOX does not require firms to improve the efficacy of their internal controls, but it does require management to assess it and disclose their assessment in the company's annual report. It further mandates auditors to report their opinions on management's assessment in their audit reports. In this sense, Section 404 can be viewed as a pure disclosure regulation.

dict that the effect of WIC on fees will be stronger in the post-SOX period than in the pre-SOX period. This test allows us to make inference on how the effect of auditors' WIC assessment on the audit fees interacts with a shift in the auditors' legal liability caused by the enactment of SOX.

In addition to testing the above three predictions, we further examine whether SOX affected the audit fee structure. Specifically, we study the impact on audit fees of client-specific risk and auditor quality. Client-specific risk factors (e.g., leverage and loss) and auditor quality (Big 4 vs. non-Big 4 auditors) are likely to interact with WIC, and lead to high-risk clients with WIC problems and Big 4 auditors being even more exposed to potential legal liabilities subsequent to the enactment of SOX. We therefore examine whether and how the fee-increasing effect of client-specific risk and auditor quality differs systematically between the pre- and post-SOX periods, and this difference, if any, is greater for WIC clients than for non-WIC clients.

We test our hypotheses using audit fee data for the five-year period from 2000 to 2004 and data on auditors' opinions on WIC under Section 404 of the SOX that are recorded in recent 10K reports filed from February 2005 to May 2005. The results of our various tests reveal the following. First, we find that audit fees are, on average, significantly higher for all firms in the post-SOX period than in the pre-SOX period after controlling for all other factors that are deemed to affect audit fees, suggesting that SOX lead to increases in audit effort and/or auditors' legal liabilities. Second, we find that firms that received an "Ineffective" opinion on the ICOFR from their auditors in response to Section 404 of SOX (i.e., firms with WIC problems) pay higher audit fees, and that this positive association between audit fees and the weakness in internal control is pronounced primarily in the post-SOX period (2003~2004), but not in the pre-SOX period (2000~2002). This suggests that the effect of WIC on fees was driven by the upward shift in legal liability which resulted from the enactment of SOX. We also find that highly levered clients and/or clients reporting losses with WIC pay higher audit fees, compared with i) not-highly-levered and/or profit-reporting clients with WIC and ii) clients without WIC during the post-SOX period. However, we find that Big 4 audit fee premium increased for all clients during the post-SOX period, irrespective of whether the clients had WIC problems.

Our study contributes to the existing literature in the following ways. Several studies have examined the issue of WIC in various contexts such as the relation with accrual quality or earnings management (Ashbaugh-Skaife et al. 2007; Hogan and Wilkins 2008), cross-sectional determinants of WIC (Doyle et al. 2007; Ge and McVay 2005), and stock market reactions to WIC disclosure (Beneish et al. 2008; DeFranco et al. 2005; Hammersley et al. 2008). Specifically, previous research of Hogan and Wilkins (2008) and Hoitash et al. (2008) examines the relation between WIC and audit pricing. Our study provides further evidence how WICs interacts with other client-specific risks and auditor quality. Simunic and Stein (1996) argue that audit fees reflect client-specific litigation risk. More recently, Choi, Kim, Liu, and Simunic (2008: hereafter CKLS) provide a theory and, using country-level litigation risk measures, suggest international evidence showing that audit fees reflect expected legal liability costs. However, prior research has paid little attention to the issue of how WIC influence an auditor's assessment of client-specific litigation risk because data on auditors' assessment of WIC for public companies became publicly available only after Section 404 were implemented. In short, our results provide useful insights into how the auditors, in terms of client risk assessment and pricing mechanism, respond to a shift in the legal liability regime associated with the enactment of SOX. The higher level of auditors' attention to the risky clients, as reflected in higher audit fees in the post-SOX period, could imply more audit effort, assignment of more experienced or expert auditors, and/or the increased fee per hour for the clients. To the extent that these changes lead to the higher audit quality, evidence provided in this study supports the view that the SOX enactment accomplished its regulatory objectives at least partially.

The remainder of the paper is structured as follows. In section 2, we briefly discuss the new requirements for WIC disclosures and attestation under Sections 302 and 404 of SOX, and offer a review of prior studies related to WIC issues. Section 3 develops hypotheses while section 4 describes the sample, data sources and empirical procedures. Section 5 presents the results of our hypothesis testing. In section 6, we perform further analyses on the effect of the SOX and various sensitivity checks. The final section concludes the paper.

THEORY DEVELOPMENT

Background

The summary of the major SOX provisions that are important to accounting and auditing areas are reported in Appendix. Among them, Sections 302 and 404 of SOX are concerned with the internal controls over financial reporting (ICOFR). In particular, Section 302, which became effective for quarterly and annual reports covering periods ending after August 29, 2002, requires that chief executive officers (CEO) and chief financial officers (CFO) evaluate the design and effectiveness of internal controls and disclose any known material weakness, fraud, or changes in controls that are likely to have a material effect on financial statements. Compared with the Section 404 requirements, however, Section 302 requires relatively less extensive investigations and assessments by management, and does not specify specific procedures that management and the auditor must follow.

Section 404, which became effective for fiscal years ending after November 15, 2004 for accelerated filers,[3] has two main parts. Section 404(a) describes management's responsibility for maintaining an adequate internal control structure and procedures for financial reporting as well as responsibility for assessing the effectiveness of ICOFR. Section 404(b) mainly describes auditors' responsibility for attesting to management's report on the WIC assessment and their own assessment on the effectiveness of ICOFR.

Along with Section 404, the Public Company Accounting Oversight Board (2004) has adopted Auditing Standard No. 2, *An Audit of Internal Control over Financial Reporting Performed in Conjunction with an Audit of Financial Statements. The Standard requires* an integrat-

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3) A non-accelerated filer (a U.S. company with market capitalization less than $75 million that has filed at least one annual report with the SEC) must first comply with the SOX 404 requirements for its first fiscal year ending on or after July 15, 2007. The extension does not apply to a foreign private issuer that is an accelerated filer and that files annual reports on Form 20-F or Form 40-F; such an issuer must begin to comply with the internal control over financial reporting and related requirements in the annual report for its first fiscal year ending on or after July 15, 2006. We exclude non-accelerated filers and foreign firms from our sample.

ed audit of both financial statements and ICOFR, and requires auditors to express two separate opinions on: (1) whether the financial statements are fairly stated; and (2) whether the ICOFR is effective. The auditor is not permitted to conclude that the company's ICOFR are effective if there are one or more material weaknesses in the registrant's internal controls. In the event of a material weakness, the auditor could express an unqualified opinion (i.e., "fairly stated") on management's assessment so long as management properly identifies the material weakness, and conclude in their assessment that the internal controls are ineffective. If the auditors conclude that a material weakness exists but management does not and therefore concludes in their assessment that internal control is effective, the auditors should render an adverse opinion on management's assessment.[4]

Literature Review

Since the passage of SOX in 2002, several studies have investigated various issues related to internal controls using the WIC data disclosed under Section 302. For example, Ge and McVay (2005) find that WIC are positively associated with business complexity but negatively associated with firm size and profitability. Doyle et al. (2007) report a similar set of WIC determinants. In addition, they find that WIC clients have lower earnings quality measured by the extent to which accruals map into cash flows. Ashbaugh-Skaife et al. (2007) document that clients with more complex operations, recent changes in organization structure, more accounting risk exposure and less investment in internal control systems are more likely to disclose WIC. They also find that clients with WIC tend to have greater abnormal accruals and more frequent restatements of financial statements relative to their industry peers, consistent with the notion that WIC contribute to lower quality accounting information. Using the data for the period prior to the enforcement of Section 302 of SOX, Krishnan (2005) finds that firms with an indepen-

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4) Among our 252 sample firms that received an "Ineffective" opinion on the ICOFR from their auditors, only two firms received "not fairly stated" opinion on management assessment of the effectiveness of ICOFR and all the others received an unqualified opinion. This suggests that prior to the issuance of the opinion, the auditor and management have agreed on significant deficiency or material weakness in ICOFR in most cases since Section 404 was enacted.

dent audit committee with financial expertise are less likely to have WIC.[5]

On the other hand, Beneish et al. (2008), DeFranco et al. (2005), and Hammersley et al. (2008) examine stock market reactions to management's disclosure of WIC under Section 302. Overall, these studies find that the market reacts negatively to WIC disclosures.[6] These findings support the view that information about WIC is value-relevant.

A few studies examine the effect of the WIC disclosure under Section 302 and/or Section 404 on audit pricing. Hogan and Wilkins (2008) examine the effect of WIC disclosure under Section 302 on audit pricing. They find that audit fees of clients that disclosed WIC under Section 302 are higher than those of other clients. Under Section 404, Raghunandan and Rama (2006) and Hoitash et al. (2008) similarly find that audit fees for fiscal year 2004 are higher for clients with WIC compared to clients without such a weakness. Hoitash et al. (2008) also report that the severity of the WIC influences the audit fees.

Our study also investigates the effect of WIC on audit pricing but differs significantly from prior studies in the following ways. First, while they investigate the relation between WIC disclosed under Section 302 or 404 and the audit fees in the fiscal year that WIC were disclosed, we use a longer period of audit fee data covering the year 2004 (when auditors were required to express their opinions on ICOFR for the first time) and previous four years. The use of a longer time-series of audit fee data allows us to investigate whether there are changes in the audit fee-WIC association from the pre-SOX to the post-SOX period. We also address the issues of the interactions between WIC and other client characteristics, and changes in Big 4 audit fee premiums for the comprehensive analyses of audit pricing mechanism changes caused by the enactment of SOX.

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5) Before the enactment of the SOX, firms were required to publicly disclose information on the internal control weakness (if any) pointed out by the predecessor auditor when they file 8-K to the SEC, only if there was a change in auditor (SEC 1988).

6) More specifically, DeFranco et al. (2005) and Beneish et al. (2005) find cumulative size-adjusted returns of -1.8 percent and -1.73 percent over the three day window surrounding the WIC disclosures by 102 and 336 firms, respectively. Similarly, Hammersley et al. (2005) find negative size-adjusted returns and an increase in trading volume around the WIC disclosure.

Hypotheses Development

The enactment of SOX in 2002 caused a substantial change in the duties and responsibilities of external auditors of public companies. Specifically, Section 404 requires auditors to conduct an integrated audit of the financial statements and the internal control systems. Anecdotal evidence to date indicates that the audit fees paid by SEC registrants increased substantially subsequent to the enactment of SOX.[7]

The audit fee literature dates back to Simunic (1980). In his model, audit fees (or total audit costs) are a function of the expected costs of conducting the audit including a normal profit margin plus the expected costs of audit risk or the expected legal liability losses associated with an audit failure. Formally, his model can be expressed as:

$$E(tc) = cq + E(d)^* E(r) \qquad (1)$$

where $E(tc)$ is the expected total cost to the auditor; c is per unit cost of resources; q is quantity of resources used by the auditor in performing the audit; $E(d)$ is the expected present value of possible future losses due to undetected material misstatements in this period; $E(r)$ is the likelihood that the auditor will be liable from future litigation associated with undetected material misstatements in this period.

Previous audit fee research has relied on the above model when examining whether auditors price the expected litigation costs as well as their effort or resource costs when setting audit fees, and found a positive relation between audit fees and various proxies for litigation risk.[8] Recently, CKLS extend the Simunic model by developing a formal model in which the strength (or strictness) of legal regime plays a crucial role in determining auditor effort and thus

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7) For example, Financial Executives International indicated, in its January 2004 survey, an increase in audit fees of $591,000 due to Section 404 compliance. This is equivalent to an increase of 38 percent over pre-Section 404 fee levels. In its July 2004 survey, FEI updated this figure to $823,200, or an increase of 92.5 percent over pre-Section 404 levels.

8) For more details, see Pratt and Stice (1994), Simunic and Stein (1996), Seetharaman et al. (2002), and Lyon and Maher (2005).

audit fees.[9] The CKLS model predicts that audit fees increase monotonically with the strictness of legal regime, because as the legal regime becomes stronger, the auditor is more likely to suffer from legal liabilities in case of an audit failure, and thus charges a higher audit fee to compensate for the increased legal liability costs. The enactment of SOX and the implementation of other accompanying accounting and auditing regulations lead to not only an increase in audit effort to comply with the SOX and other related requirements but also a significant upward shift in what CKLS call "the strength of a legal regime" during the post-SOX period.[10] In a similar vein, Ijiri (2005) predicts that the civil or criminal litigation risk will increase significantly even for honest firms, and further argues that the SOX is likely to reduce investors' beta risk (the risk of a dishonest report being judged to be honest) at the expense of increasing firms' alpha risk (the risk of honest report being judged to be dishonest). We therefore predict that the enactment of SOX causes auditors to charge higher audit fees during the post-SOX period to compensate for the increases in their legal liabilities as well as audit efforts than during the pre-SOX period. To test this prediction, we hypothesize in an alternative form:

> **H1:** Other things being equal, audit fees are higher in the post-SOX period than in the pre-SOX period.

To prevent or detect material misstatements, the auditor typically performs various internal control tests to assess whether the internal control system of the client firm is properly designed. If the auditor concludes that the internal control system is not appropriate, auditing standards require her to perform additional substantive

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9) Using data from United Kingdom (UK), Seetharaman et al. (2002) also show that auditors of UK firms charge higher fees for their services when their clients are cross-listed on the U.S. market, suggesting that audit fees reflect country-level litigation risk.

10) If we name a few examples, by Title VIII, "Corporate and Criminal Fraud Accountability Act of 2002," auditors are required to maintain all audit or review work papers for five years. Title IX, "White Collar Crime Penalty Enhancements" increased the maximum criminal penalty for mail and wire fraud from 5 to 10 years. For the comprehensive summary of the SOX provisions and legal requirement changes that are important to auditor/auditing, please refer to the Appendix. For the review of the legislation process of the SOX and the environmental changes in the US accounting, please refer to Ijiri (2005).

tests, and such additional tests may increase her effort or resource costs (the first component in Eq. (1) or *cq*). Moreover, the auditor may use an engagement team with more industry-specific expertise if any WIC in complex situations requires a high level of industry-specific knowledge in detecting material misstatements (Johnstone and Bedard 2003). Such an audit team may charge a higher billing rate to the client, which leads to an increase in the first component in Eq. (1) or *cq*. Alternatively, the greater risk related to an ineffective internal control system may cause auditors to charge an insurance premium to cover possible future losses associated with undetected misstatements (Bell, Landsman, and Shackelford 2001).[11] Previous research on audit fees finds that audit fees are sensitive to conditions that increase the overall audit risk.[12] To the extent that auditors' effort costs and/or expected litigation costs are greater for clients with WIC than for clients with no WIC, auditors are likely to charge a higher fee for clients with WIC than for clients with no WIC. We therefore hypothesize in alternative form:

> **H2:** Other things being equal, audit fees are positively associated with material weaknesses in internal controls (WIC).

This hypothesis H2 is equivalent to those in the prior studies of Hogan and Wilkins (2008) and Raghunandan and Rama (2006). Using H2, we would like to show that the characteristics of our sample are not different from those used in prior studies.

In the context of the Simunic's model in Eq. (1), the enactment of SOX caused an upward shift in an auditor's assessment of $E(d)$ and $E(r)$, and thus lead the auditor to charge even higher audit fees for clients with WIC in the post-SOX period than in the pre-SOX period.[13] We therefore predict that the fee-increasing effect of WIC is more pronounced in the post-SOX period than in the pre-SOX period. To provide evidence on the above prediction, we test the follow-

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11) Charging an insurance premium may also be combined with additional substantive tests.
12) Experimental work by Houston et al. (1999) find that the presence of accounting choices reflecting higher risks of accounting irregularities leads to higher litigation risk assessments and fee premiums.
13) In addition, additional audit effort required to attest to the effectiveness of the client's internal control system will be another possible reason for the audit fee increase.

ing hypothesis in an alternative form:

> **H3:** Other things being equal, the positive association, if any, between audit fees and WIC is more pronounced in the post-SOX period than in the pre-SOX period.

TEST PROCEDURES

Empirical Model

Building upon previous research on audit fee determinants (Chaney et al. 2004; CKLS; Craswell et al. 1995; DeFond et al. 2002; Francis and Stokes 1986; Frankel et al. 2002; Sankaraguruswamy and Whisenant 2003; Simunic 1980; Simunic and Stein 1996), we posit the following audit fee model to test our hypotheses H1, H2 and H3:

$$
\begin{aligned}
AFEE = a_0 &+ a_1\, YR0304 + a_2\, WIC + a_3\, (YR0304{*}WIC) + \beta_1\, LEVE \\
&+ \beta_2\, LOSS + \beta_3\, BIG4 + \gamma_1\, LNTA + \gamma_2\, NBS + \gamma_3\, NGS \\
&+ \gamma_4\, EMPLOY + \gamma_5\, INVREC + \gamma_6\, ISSUE + \gamma_7\, BTM \qquad (2) \\
&+ \gamma_8\, FOREIGN + \gamma_9\, EXORD + \gamma_{10}\, AUDCHG + \gamma_{11}\, LAMDA \\
&+ industry\ dummies + error\ term
\end{aligned}
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where, for each firm and in each year:

$AFEE$ = natural log of fees paid to auditors for their financial statement audits (i.e., audit fees) in thousand dollars;

$YR0304$ = 1 if the fiscal year is 2003 or 2004 and 0 otherwise;

WIC = A weakness of a client's internal control variable measured by either WIC_D, WIC_C, or WIC_P where WIC_D equals 1 if a client receives an internal control weakness opinion from its auditor and 0 otherwise; WIC_C equals natural log of one plus the number of categories of internal control weakness cited in the auditor's report; WIC_P is the predicted value of WIC_C. The WIC_D and WIC_C are measured in 2004 and assumed to remain the same during the five-year sample period, 2000-2004, while WIC_P is measured for each firm-year observations.

$LEVE$ = leverage measured by total liabilities divided by total assets; windsorized at 5;

$LOSS$ = 1 if the firm reports net loss and 0 otherwise;

$BIG4$ = 1 if the auditor is one of Big 4 and 0 otherwise;

$LNTA$ = natural log of total assets in thousand dollars;

NBS = natural log of one plus number of business segments;

NGS = natural log of one plus number of geographic segments;

$EMPLOY$ = square root of the number of employees;

$INVREC$ = inventory plus receivables, divided by total assets;

$ISSUE$ = 1 if the sum of debt or equity issued during the past 3 years are more than 5 percent of the total assets and 0 otherwise;

BTM = book-to-market ratio, windsorized at 0 and 4;

$FOREIGN$ = 1 if the firm pays any foreign income tax and 0 otherwise;

$EXORD$ = 1 if the firm reports any extraordinary gains or losses and 0 otherwise;

$RNDTA$ = research and development expenditure (*Compustat* data item number 46) divided by total assets;

$AUDCHG$ = 1 if the incumbent auditor is different from the last year's auditor and 0 otherwise;

$LAMDA$ = inverse Mills ratio.

In the above, all the independent variables are measured as of the end of fiscal year unless otherwise noted. The variables, *LNTA* and *EMPLOY*, are used as proxies for client size, while the variable, *NBS*, *NGS*, *INVREC*, *FOREIGN*, *EXORD*, and *RNDTA* as proxies for the scope and complexity of the client's business. The demand for audit services is likely to increase with firm size (*LNTA* and *EM-PLOY*) and the extent of business diversification (*NBS* and *NGS*). We expect audit fees to be positively associated with these variables. Furthermore, audit fees are likely to be higher for clients with more complex business operations, so we expect the variables representing client complexity (i.e., *INVREC*, *FOREIGN*, *EXORD*, and *RNDTA*) to be positively associated with audit fees. In short, all coefficients on the aforementioned variables are expected to be positive.

We also include *AUDCHG* to control for possible low balling by

new auditors (Sankaraguruswamy and Whisenant 2003). A negative sign on *AUDCHG* is consistent with the low balling hypothesis. We include *ISSUE* and *BTM* to capture the effect of the client's growth potential on audit fees. Growing firms are more often involved in external financing activities such as equity and bond offerings, and the demand for both audit and non-audit services is greater for high-growth firms than for low-growth firms. In addition, firms with equity and debt offerings in the recent past are in a need of more extensive audit services (Reynolds et al. 2004). We therefore expect a positive (negative) coefficient on *ISSUE* (*BTM*).

In Eq. (2), we also include *LOSS* and *LEVE*, to proxy for a client's risk characteristics. Since auditors charge higher fees for risky clients (Simunic and Stein 1996), we predict the coefficients on *LOSS* and *LEVE* to be positive. We include *BIG4* to capture the effect of audit quality differentiation on audit fees. A positive coefficient on *BIG4* suggests the existence of a Big 4 fee premium.

Our variables of interest are *YR0304*, *WIC*, and the interaction between *YR0304* and *WIC* (i.e., *YR0304*WIC*). We measure *WIC* in three different ways. The first measure (*WIC_D*) is a dummy variable that equals 1 if a client receives a weakness-in-internal control opinion (hereafter WICO) on the effectiveness of ICOFR from the auditor in fiscal year 2004, and 0 otherwise. The second measure (*WIC_C*) is a continuous variable, measured by the natural log of one plus the number of categories of *WIC* cited in the auditor's report in the same year. The third measure (*WIC_P*) is the predicted value of *WIC_C*. We include the predicted value to control for the possible self-selection problem by using an instrumental variable approach.[14] It is possible that firms may have had greater internal control problems in the pre-SOX period than in the post-SOX period because WIC did not receive serious attention in the pre-SOX period. The use of *WIC_P* at least partially solves this problem by using year-by-year data to independently predict the value of *WIC_C* or *WIC_D* for each year.

If auditors charge higher audit fees in the post-SOX period than in the pre-SOX period as predicted in H1, the coefficient on *YR0304* should be positive (i.e., $a_1 > 0$).[15] Similarly, if firms that receive WICO

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14) *WIC_D* and *WIC_C* assume that a firm receiving a WICO in 2004 has the same problem from 2000 to 2004 inclusive. This is a strong assumption and is a limitation of our work, necessitated because of data availability.

15) We choose year 2003 as the cut-off year to make the dummy variable *YR0304*. Even though the SOX was enforced from November 2002, the year-by-year analy-

pay higher audit fees as predicted in H2, the coefficient on *WIC* should be positive (i.e., $a_2 > 0$). In addition, if the fee-increasing effect of *WIC* is more pronounced during the post-SOX period as predicted in H3, the coefficient on *YR0304*WIC*, should be positive ($a_3 > 0$). Hoitash et al. (2008) report that audit fee structure with respect SOX changed from year 2003 even though auditors are required to follow section 404 from year 2004. Thus, we choose year 2003 as a cut-off year. As explained later in Table 4, our empirical analyses also support this prediction.

In our regression specification in Eq. (2), audit fees are linked to *WIC* and many other control variables. Previous research suggests that clients who receive WICO may be inherently different from those who do not (Ashbaugh-Skaife et al. 2007; Doyle et al. 2007). Suppose that clients who have the ability to pay high audit fees tend to keep weak or strong internal control systems. In such a case, the error term in Eq. (2) is likely to be correlated with the *WIC* variable and coefficient estimate is likely to be biased. To address this potential self-selection bias, we estimate the two-stage treatment effect model (Greene 2000). In the first stage, we estimate the probit WICO model with *WIC_D* as the dependent variable and obtain the inverse Mills ratio.[16)] We then include the inverse Mills ratio, denoted

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ses reveal that there exist clear coefficients differences between the period until 2002 and the period after year 2002. The results for year 2002 are more similar to those of year 2000 or 2001 in the year-by-year analyses than those of year 2003 or 2004. Thus, we select year 2003 as the cut-off year. This result suggests that it took about 1 year for the SOX to change the pricing mechanism of the auditors.

16) Following Ashbaugh-Skaife et al. (2007) and Doyle et al. (2007), we run the following probit model.

$WIC\_D = \alpha + \beta_1\ LNTA + \beta_2\ GROWTH + \beta_3\ INVTA + \beta_4\ LOSS + \beta_5\ ROA + \beta_6\ NBS$
$+ \beta_7\ NGS + \beta_8\ FOREIGN + \beta_9\ MA + \beta_{10}\ RESTRUCT + \beta_{11}\ BIG4 + \beta_{12}\ AUDCHG$
$+ \beta_{13}\ OWNERSHIP + \beta_{14}\ LITIG\_IND + error\ terms$

where, *GROWTH* is the assets growth from year t - 1 to year t scaled by the assets of year t - 1; *INVTA* is inventory divided by total assets, *MA* is merger and acquisition dummy that has a value of 1 if the firm has any merger and acquisition activity in the year, and 0 otherwise; *RESTRUCT* is dummy variable if the firm's restructuring cost is higher than 1 percent of the sales; *OWNERSHIP* is a measure of ownership concentration (1 - [1,000 * (# of shareholders / # of outstanding shares)]); *LITIG_IND* is the litigious industry dummy variable. The definitions of other variables are the same as before. We also repeat the tests (i) after removing insignificant independent variables, and (ii) after removing the variables that are already included in Eq. (2), but the results are always similar. We also perform the OLS regression for the same equation as in the above with *WIC_C* as the dependent variable instead of *WIC_D* and with the same set of independent vari-

by *LAMDA*, in Eq. (1) when we use *WIC_D* as a variable of interest in our analyses. Instead, when we use *WIC_C*, we repeat the test using *WIC_P*, which is the predicted value of *WIC_C* using an instrumental variable approach.

Sample and Data Sources

We obtain audit fee data from the 2005 *Audit Analytics* database. We retrieve all other financial data from the 2005 *Compustat* Industrial annual file. Our sample period is restricted to the five-year period from 2000 to 2004 because *Audit Analytics* includes audit fee data starting in 2000,[17] and the current version of the database includes the data only up to fiscal year 2004. We exclude the data in the financial service industry because the audit fee determinants of firms in this industry may differ from those in other industries.

We hand-collected the data on WICO from recently filed 10-K reports. Because Section 404 of SOX applies to annual reports for fiscal year ending November 2004, we search the *EDGAR* database for all firms in our sample with fiscal years ending between November 2004 and February 2005 (inclusive) that filed their 10K reports from February 2005 to May 2005. To supplement our initial *EDGAR*-based sample, we also refer to the PricewaterhouseCoopers (PwC) database that collected and compiled auditors' internal control reports from all SEC filings in 2005, and then classified each WIC cited in auditors' reports into 1 of 26 categories, based on the nature of the WIC.

In Panel A of Table 1, Section A reports the number of firms in our sample that received WICO from their auditors, while Section B reports the number of firm-year observations with WICO. As mentioned earlier, we hand-collected information on WICO for firms with fiscal years ending between November 2004 and February 2005. Assuming that WIC were constant for each sample firm over the five-year sample period, 2000-2004, we construct a sample of firm-year observations with WICO by including the same firms with WICO

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ables. Using the OLS estimates of regression parameters, we obtain the predicted value of *WIC_C*, namely *WIC_P*.

17) The SEC's Final Rule S7-13-00 (Revision of the Commission's Auditor Independence Requirements) requires registrants to disclose information about fees paid to the auditor in proxy statements filed on and after February 5, 2001.

identified in our 2004 sample into the 2000-2003 sample as long as the data requirements for estimating our regression models are satisfied.[18] As shown in Panel A of Table 1, our final sample consists of 2,437 client firms or 9,067 firm-year observations. As shown in Section A, 252 of the 2,437 clients (or 10.27 percent of the sample) received WICO from their auditors in 2004. Similarly, 88.33 percent of the observations have *WIC_D* that equals 0 and the remaining 11.67 percent of our sample have *WIC_D* that equals 1. Panel A also reports the number of the categories of WIC cited on the auditor's report. Twenty-eight firms (121 observations) receiving WICOs from their auditors have only one category of WIC, whereas 6 firms (25 observations) have 10 different categories of WIC.

Panel B of Table 1 reports the number of firm-year observations by each category of WIC. We collect a total of 26 different categories of WIC mentioned in the audit report. Among them, the most frequently mentioned WIC is related to the 'application of GAAP and accounting policies' which comprises 32.61 percent of all WIC.[19] The next most frequently mentioned WIC is related to 'review of transactions' which comprises 32.42 percent of all WIC. Because some categories of WIC are rarely mentioned, we group WIC into 15 different categories as reported in Panel B, and combine all other 11 categories to the 'Others' category. This final category comprises 31.47 percent of all WIC. One may argue that auditors charge higher audit fees for clients that receive multiple categories of WICO. As mentioned earlier, we therefore measure WIC by using the continuous variable (i.e., *WIC_C*) which is defined as natural log of one plus the number of WIC categories, in addition to the dummy variable (i.e., *WIC_D*).

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18) Implicit here is the assumption that clients that receive WICO in 2004 have a similar level of WIC problems in 2000-2003 as well. This is a reasonable assumption in that, as pointed out in footnote 2, Section 404 of SOX does not require management to improve the effectiveness of ICOFR, though it requires management to disclose its assessment on the effectiveness of ICOFR. The findings of Ghosh and Rubberink (2006) also support this assumption. They report that companies with WIC have lower earnings response coefficient and less favorable common stock rating and debt ratings even before the firms disclose the WIC problems. However, as an alternative way to analyze the data without the assumption, we use the predicted value of the WIC (*WIC_P*) for our variable of interest in the analyses.

19) The sum of the percentage (%) in Panel B of Table 1 is greater than 100 percent because many client firms receive WICO with multiple categories of internal control weakness as reported in Panel A of Table 1.

Table 1. Statistics on weakness in internal control

Panel A: Number of internal control weakness opinions

Number of weakness in internal control	Section A No. of Firms		Section B No. of firm-year observations	
	Number	%	Number	%
0	2,185	89.73	8,009	88.33
1	28	1.14	121	1.33
2	73	2.97	311	3.43
3	48	1.96	209	2.31
4	43	1.75	178	1.96
5	20	0.82	76	0.84
6	17	0.69	65	0.72
7	9	0.37	41	0.45
8	3	0.12	11	0.12
9	5	0.20	21	0.23
10	6	0.24	25	0.28
Total	2,437	100.00	9,067	100.00

Panel B: Categorization of the weakness in internal control

Category	Number of observations	%
Application of GAAP/accounting policies	345	32.61
Review of transactions	343	32.42
Tax-related issues	319	30.15
Staffing issues (levels, training, or expertise)	293	27.69
Property, equipment, lease	277	26.18
Policies/documentation issues	241	22.78
Financial statement closing process/controls	233	22.02
Control environments	198	18.71
International operations/subsidiaries	172	16.26
IT & applications	138	13.04
Merger/acquisition-related issues	136	12.85
Inventory management	113	10.68
Revenue/billing	101	9.55
Segregation of duties	93	8.79
Employee benefit/pension	74	6.99
Others	333	31.47

MAIN RESULTS

Descriptive statistics

Table 2 presents descriptive statistics for the variables used in this study. With respect to the results in Table 2, the following are noteworthy: First, the mean *AFEE*, measured by natural log of audit fees in thousand dollars, over the five-year sample period is 6.0235 which translates into $ 413,022. The median *AFEE* is 5.9319 with a standard deviation of 1.2757, suggesting that *AFEE* is reasonably distributed. Second, the mean *WIC_D* of 0.1167 indicates that 11.67 percent of our sample clients received a WICO from their auditors in fiscal year 2004. The mean *WIC_C* is 0.1635 with a relatively large standard deviation of 0.4731, suggesting that the *WIC_C* distribution is skewed. Finally, the distributional properties of all other variables (that are used as control variables in our regressions) are, overall, comparable with those reported in previous research on audit fee determinants (e.g., CKLS; Frankel et al. 2002; Ashbaugh-Skaife et al. 2007). Note that *LEVE* is windsorized at 5 (approximately one percent of observations were extremely large) in order to alleviate the influence of a few extreme outliers on our results. Similarly, the *BTM* is winsorized at 0 and 4.

Pairwise Correlation among Research Variables

Table 3 presents the correlation matrix for the variables included in Eq. (2). As shown in Table 3, *WIC_D* and *WIC_C* are highly correlated (ρ = 0.948), suggesting that both capture the same underlying construct (i.e., WIC). Consistent with H2, both measures are significantly and positively correlated with audit fees (*AFEE*). With respect to the correlation among our explanatory variables, the following are apparent: First, our two proxies for client-specific litigation risk (i.e., *LEVE* and *LOSS*) are significantly and positively correlated with each other (ρ = 0.106). Second, firm size (*LNTA*) is significantly and negatively correlated with the two proxies. Third, none of the control variables are highly correlated with two measures of WIC (i.e., *WIC_D* and *WIC_C*). Fourth, the inverse Mills ratio (*LAMDA*) is highly correlated with several other control variables. Thus, we perform analyses with and without the LAMDA variable. Finally, except for

Table 2. Distributions of variables

Variable	Mean	Std. Dev.	1%	50%	99%
AFEE	6.0235	1.2757	3.2048	5.9319	9.2003
WIC_D	0.1167	0.3211	0	0	1
WIC_C	0.1635	0.4731	0	0	2.0794
LEVE	0.5293	0.4776	0.0451	0.4791	2.1748
LOSS	0.4028	0.4905	0	0	1
BIG4	0.8894	0.3137	0	1	1
LNTA	12.7669	2.0210	7.3265	12.7305	17.2799
NBS	1.0029	0.4830	0	0.6931	2.0794
NGS	0.9833	0.6315	0	1.0986	2.3026
EMPLOY	64.5678	76.5885	2.2360	38.9101	370.1351
INVREC	0.2393	0.1818	0	0.2114	0.7613
ISSUE	0.4872	0.4999	0	0	1
BTM	0.5686	0.6146	0	0.4078	3.5834
FOREIGN	0.4773	0.4995	0	0	1
EXORD	0.2296	0.4206	0	0	1
RNDTA	0.0679	0.1417	0	0.0039	0.7812
AUDCHG	0.0867	0.2814	0	0	1
LAMDA	1.7863	0.2378	1.3580	1.7588	2.6232

Definitions of Variables

AFEE = natural log of audit fees in thousand dollars;

WIC_D = 1 if the auditor of the client firm receives internal control weakness opinion in fiscal year 2004, 0 otherwise;

WIC_C = natural log of one plus the number categories of internal control weakness cited in the auditor's report for fiscal year 2004;

LEVE = leverage (total liabilities divided by total assets);

LOSS = 1 if the firm reports a loss during the year, 0 otherwise;

BIG4 = 1 if the auditor is a Big 4 or predecessor auditor, 0 otherwise;

LNTA = natural log of total assets in thousand dollars;

NBS = natural log of one plus number of business segments;

NGS = natural log of one plus number of geographic segments;

EMPLOY = square root of the number of employees;

INVREC = inventory and receivables divided by total assets;

ISSUE = 1 if the sum of debt or equity issued during the past 3 years are more than 5% of the total assets, 0 otherwise;

BTM = book-to-market ratio, windsorized at 0 and 4;

FOREIGN = 1 if the firm pays any foreign income tax, 0 otherwise;

EXORD = 1 if the firm reports any extraordinary gains or losses, 0 otherwise;

RNDTA = research and development expenditure divided by total assets;

AUDCHG = 1 if auditor is in the first year of audit engagement, 0 otherwise;

LAMDA = inverse Mills ratio for the receipt of endogenous weak internal control opinion.

Table 3. Pearson correlations among variables

Variable	AFEE	WIC_D	WIC_C	LEVE	LOSS	BIG4	LNTA	NBS	NGS	EMP-LOY	INV-REC	ISSUE	BTM	FOR-EIGN	EXORD	RNDTA	AUD-CHG
WIC_D	0.057 (<0.001)																
WIC_C	0.061 (<0.001)	0.948 (<0.001)															
LEVE	0.027 (0.011)	-0.018 (0.092)	-0.017 (0.092)														
LOSS	-0.230 (<0.001)	0.036 (0.001)	0.048 (<0.001)	0.106 (<0.001)													
BIG4	0.359 (<0.001)	0.037 (<0.001)	0.031 (0.003)	-0.157 (<0.001)	-0.126 (<0.001)												
LNTA	0.800 (<0.001)	0.027 (0.009)	0.022 (0.040)	-0.041 (<0.001)	-0.334 (<0.001)	0.441 (<0.001)											
NBS	0.227 (<0.001)	0.028 (0.007)	0.029 (0.005)	0.039 (<0.001)	-0.096 (<0.001)	0.056 (<0.001)	0.216 (<0.001)										
NGS	0.407 (<0.001)	0.060 (<0.001)	0.075 (<0.001)	-0.034 (0.001)	-0.140 (<0.001)	0.157 (<0.001)	0.335 (<0.001)	0.119 (<0.001)									
EMP-LOY	0.594 (<0.001)	-0.008 (0.433)	-0.019 (0.074)	0.083 (<0.001)	-0.258 (<0.001)	0.197 (<0.001)	0.687 (<0.001)	0.140 (<0.001)	0.187 (<0.001)								
INVREC	0.031 (0.003)	0.003 (0.812)	-0.003 (0.798)	0.078 (<0.001)	-0.231 (<0.001)	-0.071 (<0.001)	-0.040 (<0.001)	0.074 (<0.001)	0.148 (<0.001)	0.083 (<0.001)							
ISSUE	-0.043 (<0.001)	-0.012 (0.255)	-0.014 (0.182)	0.123 (<0.001)	0.125 (<0.001)	-0.046 (<0.001)	-0.052 (<0.001)	-0.032 (0.002)	-0.111 (<0.001)	-0.068 (<0.001)	-0.111 (<0.001)						
BTM	-0.067 (<0.001)	0.019 (0.070)	0.021 (0.049)	-0.117 (<0.001)	0.061 (<0.001)	0.015 (0.142)	0.020 (0.052)	0.068 (<0.001)	0.004 (0.735)	-0.014 (0.181)	0.126 (<0.001)	-0.111 (<0.001)					
FOR-EIGN	0.482 (<0.001)	0.054 (<0.001)	0.065 (<0.001)	-0.021 (0.043)	-0.208 (<0.001)	0.179 (<0.001)	0.406 (<0.001)	0.137 (<0.001)	0.594 (<0.001)	0.268 (<0.001)	0.157 (<0.001)	-0.118 (<0.001)	-0.024 (0.021)				
EXORD	0.225 (<0.001)	0.024 (0.024)	0.028 (0.008)	0.122 (<0.001)	0.035 (<0.001)	0.054 (<0.001)	0.221 (<0.001)	0.136 (<0.001)	0.074 (<0.001)	0.172 (<0.001)	-0.026 (0.015)	0.018 (0.083)	0.073 (<0.001)	0.082 (<0.001)			
RNDTA	-0.253 (<0.001)	-0.039 (<0.001)	-0.024 (0.022)	0.046 (<0.001)	0.366 (<0.001)	-0.074 (<0.001)	-0.392 (<0.001)	-0.168 (<0.001)	-0.167 (<0.001)	-0.251 (<0.001)	-0.219 (<0.001)	0.116 (<0.001)	-0.180 (<0.001)	-0.164 (<0.001)	-0.122 (<0.001)		
AUD-CHG	-0.104 (<0.001)	0.021 (0.045)	0.020 (0.054)	0.045 (<0.001)	0.048 (<0.001)	-0.155 (<0.001)	-0.090 (<0.001)	-0.012 (0.263)	-0.019 (0.077)	-0.065 (<0.001)	0.006 (0.599)	-0.013 (0.235)	0.040 (<0.001)	-0.045 (<0.001)	0.018 (0.083)	0.008 (0.441)	
LAMDA	-0.598 (<0.001)	-0.092 (<0.001)	-0.092 (<0.001)	0.330 (<0.001)	0.013 (0.235)	-0.639 (<0.001)	-0.711 (<0.001)	-0.216 (<0.001)	-0.469 (<0.001)	-0.383 (<0.001)	-0.019 (0.067)	0.055 (<0.001)	-0.080 (<0.001)	-0.516 (<0.001)	-0.133 (<0.001)	0.241 (<0.001)	-0.023 (0.029)

the correlation between *LNTA* and *EMPLOY* (ρ = 0.687), the magnitude of pairwise correlations among other explanatory variables (except for the correlation with *LAMDA*) does not exceed 0.5, suggesting that our multivariate regressions are unlikely to suffer from multi-collinearity problems.[20]

Univariate Analyses on Audit Fee Changes around the SOX Enactment

Panel A of Table 4 reports average audit fees by each year for the total sample, for the sample of firms that receive WICO (*WIC_D* = 1), and for the sample firms that do not receive WICO (*WIC_D* = 0). As shown in the table, audit fees for all three samples increase monotonically over the sample period, 2000-2004. Consistent with hypothesis H2, audit fees are greater for the WIC sample than for the non-WIC sample in all years.

To assess the effect of SOX on audit fees, we further examine changes in audit fees from the pre-SOX period to the post-SOX period. In Panel B of Table 4, we present the change in *AFEE* from 2002 (the year in which SOX was enacted) to 2003 for the WIC sample and for the non-WIC sample, and test for differences in means and medians between the two samples. In doing so, we include only those firms that are included in our dataset for both 2002 and 2003 in our WIC and non-WIC samples.

As shown in Panel B, the mean and median changes in *AFEE* changes from 2002 to 2003 are 0.3335 (a 7.76% percent increase) and 0.2571 (a 4.34 percent increase), respectively, for the WIC sample, and 0.2468 (a 5.63 perecent increase) and 0.1942 (a 3.15 percent increase), respectively, for the non-WIC sample.[21] Both the mean and median differences are significant, as reported in the bottom two rows of Panel B. These results suggest that SOX caused

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20) In performing regression analyses, we also measure the VIF values to test for potential multi-collineraity problems. But none of the VIF values are high enough to cause the problem. Thus, we do not separately report the values in the paper. As a robustness test, we also drop all the control variables or one of the control variables that are highly correlated with other control variable (one by one) and perform regression analyses with variables of interest. The results are qualitatively similar.

21) In dollar values, the median audit fee changes from $399,076 to $557,721 (a 40 percent increase) during the period for the clients with WIC, and $334,932 to $422,581 (a 26 percent increase) for the clients without WIC.

Table 4. Audit fee difference between the pre-SOX and post-SOX periods

Panel A: Mean audit fees by year for the total sample, the WIC sample, and the non-WIC sample

Year	N	Total sample	*WIC sample* (*WIC_D* = 1)	*Non-WIC sample* (*WIC_D* = 0)
2000	1,626	5.5856	5.5984	5.5840
2001	1,740	5.6589	5.7522	5.6483
2002	1,868	5.8200	6.0080	5.7956
2003	1,941	6.0791	6.3239	6.0464
2004	1,892	6.8787	7.2209	6.8304

Panel B: Average audit fee changes from 2002 to 2003 for the WIC and non-WIC samples

	N		Amount of change	Percentage change (%)
WIC sample (*WIC_D* = 1)	228	Mean	0.3335	7.76
		Median	0.2571	4.34
Non-WIC sample (*WIC_D* = 0)	1,689	Mean	0.2468	5.63
		Median	0.1942	3.15
Test for mean differences		t value	2.38***	1.56*
Test for median differences		z value	2.61***	3.05***

Panel C: Average audit fee changes from years 2001 and 2002 to years 2003 and 2004 for the WIC and non-WIC samples

	N		Amount of change	Percentage change (%)
WIC sample (*WIC_D* = 1)	215	Mean	0.9408	17.70
		Median	0.9571	16.76
Non-WIC sample (*WIC_D* = 0)	1,378	Mean	0.6988	12.49
		Median	0.6943	12.02
Test for mean difference		T value	7.47***	7.35***
Test for median differences		z value	4.59***	6.47***

The amount of change represents the change of the log value of audit fees (in thousand of dollars) and the percentage change represents the change in the log value of audit fees scaled by the log value of the audit fees at the start of the period. *, **, and *** denote p-value < 10%, p-value < 5%, and p-value < 1%, respectively with one-tailed tests.

audit fees to increase more for firms that received WICO than for firms that did not, consistent with hypotheses, H1 and H3.

In Panel C of Table 4, we present the amount by which *AFEE* changes from the two-year pre-SOX period (i.e., 2001 and 2002) to the two-year post-SOX period (i.e., 2003 and 2004) for the WIC sample and for the non-WIC sample, along with the results of tests for the mean and median differences between the two samples. Here, the WIC and non-WIC samples consider only those firms included in our dataset for both two-year periods.

As shown in Panel C, the mean and median changes in *AFEE* are 0.9408 (a 17.70 percent increase) and 0.9571 (a 16.76 percent increase), respectively, for the WIC sample, and 0.6988 (a 12.49 percent increase) and 0.6943 (a 12.02 percent increase), respectively, for the non-WIC sample. Both the mean and median differences are highly significant, as reported in the bottom two rows of Panel C. Similar to the results reported in Panel B, these results reconfirm that SOX caused audit fees to increase more for firms which received WICO than for firms that did not.

Results of Multivariate Tests for H1, H2, and H3

To examine the effect of auditors' opinions on internal control weakness (WICO) on audit fees, we estimate various regressions for Eq. (2). Table 5 report the regression results. In Table 5, reported t-values are on an adjusted basis using White's (1980) heteroskedasticity-consistent covariance matrix.[22] To verify whether our dataset produces the coefficient estimates that are comparable to those reported in previous research in terms of their signs, significance, and magnitude, we first estimate model 1 which excludes our test variables, namely *WIC*, *YR0304*, and *YR0304*WIC* from Eq. (2). In models 2 (3), we include only one test variable, *YR0304* (*WIC*). In models 4 and 5, we include both *YR0304* and *WIC*. We also estimate models 6 to 9 with all three test variables, *YR0304*, *WIC*, and *YR0304*WIC*, included for our hypotheses, H1, H2, and H3, respectively. In models 3 to 7, the *WIC* variable is measured us-

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22) We repeat all the regression tests performed in this study by adjusting standard errors with a clustering procedure that accounts for serial dependence across years of a given firm. Because most of the results are qualitatively identical, we do not report them separately, except an exceptional case when the result is different.

Table 5. OLS Regression analyses on determinants of audit fees

$AFEE = \alpha_0 + \alpha_1\,YRO304 + \alpha_2\,WIC + \alpha_3\,(YRO304*WIC) + \beta_1\,LEVE + \beta_2\,LOSS + \beta_3\,BIG4 + \gamma_1\,LNTA + \gamma_2\,NBS + \gamma_3\,NGS + \gamma_4\,EMPLOY + \gamma_5\,INVREC + \gamma_6\,ISSUE + \gamma_7\,BTM + \gamma_8\,FOREIGN + \gamma_9\,EXORD + \gamma_{10}\,AUDCHG + \gamma_{11}\,LAMDA + industry\ dummies + error\ term$

Variables	Predicted sign	Model 1 With both WIC and YRO304 excluded	Model 2 With WIC excluded	Model 3 WIC = WIC_D With YRO304 excluded	Model 4 WIC = WIC_D With Lamda excluded	Model 5 WIC = WIC_D With Lamda included	Model 6 WIC = WIC_D With Lamda excluded	Model 7 WIC = WIC_D With Lamda included	Model 8 WIC = WIC_C With Lamda excluded	Model 9 WIC = WIC_P With Lamda excluded
YRO304	+		0.7084 (51.91***)		0.7073 (51.98***)	0.7086 (52.20***)	0.6742 (47.21***)	0.6758 (47.42***)	0.6751 (47.50***)	0.6359 (18.05***)
WIC	+			0.1187 (4.63***)	0.1020 (4.77***)	0.1095 (5.14***)	-0.0187 (-0.72)	-0.0105 (-0.41)	-0.0019 (-0.11)	-0.0971 (-1.08)
YRO304 *WIC	?						0.2775 (6.49***)	0.2756 (6.47***)	0.1911 (6.51***)	0.1820 (2.25**)
LEVE	+	0.1831 (11.45***)	0.2031 (12.07***)	0.1846 (11.56***)	0.2042 (12.23***)	0.1110 (5.29***)	0.2041 (12.23***)	0.1113 (5.32***)	0.2044 (12.25***)	0.2019 (11.93***)
LOSS	+	0.1115 (6.45***)	0.1557 (10.23***)	0.1065 (6.19***)	0.1503 (9.96***)	0.2600 (12.07***)	0.1508 (9.98***)	0.2587 (12.07***)	0.1495 (9.90***)	0.1607 (7.44***)
BIG4	+	0.0800 (2.94***)	0.2098 (7.97***)	0.0769 (2.82***)	0.2075 (7.94***)	0.3952 (10.37***)	0.2078 (7.94***)	0.3950 (10.43***)	0.2083 (7.97***)	0.2128 (7.66***)
LNTA	+	0.4433 (64.69***)	0.4211 (64.74***)	0.4431 (64.70***)	0.4216 (65.08***)	0.4630 (54.11***)	0.4217 (65.11***)	0.4635 (54.34***)	0.4216 (65.07***)	0.4215 (64.38***)
NBS	+	0.1079 (6.86***)	0.1122 (8.17***)	0.1058 (6.76***)	0.1096 (8.04***)	0.1393 (9.72***)	0.1098 (8.05***)	0.1385 (9.69***)	0.1097 (8.06***)	0.1136 (7.58***)
NGS	+	0.1468 (9.59***)	0.1426 (10.50***)	0.1440 (9.43***)	0.1394 (10.32***)	0.1778 (12.11***)	0.1396 (10.34***)	0.1769 (12.10***)	0.1387 (10.29***)	0.1446 (8.28***)
EMPLOY	+	0.0012 (7.82***)	0.0017 (10.94***)	0.0013 (7.97***)	0.0017 (11.05***)	0.0016 (10.15***)	0.0017 (11.03***)	0.0016 (10.12***)	0.0017 (11.08***)	0.0017 (10.92***)
INVREC	+	0.3962 (8.20***)	0.5191 (11.77***)	0.3993 (8.26***)	0.5211 (11.86***)	0.6081 (13.34***)	0.5207 (11.85***)	0.6068 (13.37***)	0.5197 (11.84***)	0.5195 (11.78***)

Table 5. (Continued)

Variable	Pred. sign	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
ISSUE	+	0.0097 (0.65)	0.0176 (1.34)	0.0096 (0.64)	0.0175 (1.35)	0.0356 (2.70***)	0.0176 (1.35)	0.0356 (2.70***)	0.0174 (1.33)	0.0177 (1.35)
BTM	-	-0.1444 (-12.44***)	-0.0176 (-1.65*)	-0.1441 (-12.37***)	-0.0181 (-1.70*)	-0.0229 (-2.14**)	-0.0181 (-1.70*)	-0.0234 (-2.21**)	-0.0183 (-1.72*)	-0.0177 (-1.66*)
FOREIGN	+	0.2853 (14.38***)	0.2644 (15.30***)	0.2807 (14.15***)	0.2585 (15.03***)	0.3347 (16.65***)	0.2588 (15.03***)	0.3326 (16.63***)	0.2579 (15.00***)	0.2669 (13.19***)
EXORD	+	0.1324 (7.40***)	0.1605 (10.08***)	0.1313 (7.35***)	0.1590 (10.03***)	0.1533 (9.66***)	0.1591 (10.04***)	0.1529 (9.67***)	0.1583 (9.98***)	0.1606 (10.08***)
RNDTA	+	0.5076 (8.17***)	0.6047 (10.38***)	0.5137 (8.26***)	0.6117 (10.55***)	0.5300 (8.82***)	0.6112 (10.54***)	0.5319 (8.89***)	0.6114 (10.56***)	0.6053 (10.44***)
AUDCHG	-	-0.1380 (-4.63***)	-0.0388 (-1.40)	-0.1412 (-4.75***)	-0.0447 (-1.63)	0.0378 (1.26)	-0.0446 (-1.62)	0.0344 (1.15)	-0.0443 (-1.61)	-0.0338 (-1.17)
LAMDA	?					0.6795 (7.11***)		0.6756 (7.10***)		
Intercept	?	-0.2427 (-3.15***)	-0.5367 (-7.33***)	-0.2479 (-3.22***)	-0.5327 (-7.31***)	-2.5748 (-8.80***)	-0.5317 (-7.30***)	-2.5543 (-8.77***)	-0.5318 (-7.30***)	-0.5098 (-6.92***)
Industry dummies		Included	Included	Included	Included	Included	Included	Included	Included	Included
N		9,067	9,067	9,067	9,067	9,067	9,067	9,067	9,067	9,067
Adjusted R^2		0.7084	0.7775	0.7093	0.7793	0.7795	0.7793	0.7807	0.7796	0.7776

All t-statistics in parentheses are calculated using White's (1980) consistent standard error estimates to correct for heteroskedasticity. *, **, and *** denotes p-value < 10%, p-value < 5%, and p-value < 1%, respectively with two-tailed tests. *WIC_D*: 1 if the company receives internal control weakness opinion in fiscal year 2004 and 0 otherwise. WIC_C: natural log of one plus the number categories of internal control weakness cited in the auditor's report of fiscal year 2004. *WIC_P*: predicted number of internal control weakness categories. *YR0304*: 1 if the fiscal year is 2003 or 2004 and 0 otherwise. See Table 1 for the definitions of other variables.

ing the dummy variable, *WIC_D*, while in model 8, it is measured by the continuous variable, *WIC_C*, which is natural log of one plus the number of *WIC* categories. In model 9, the *WIC* variable is measured by *WIC_P*, which is the predicted value of *WIC_C*. Finally, models 5 and 7 include *LAMDA* (inverse Mills ratio), while all other models do not.

The results for models 1, 2 and 3 show that all explanatory variables except *ISSUE* and *AUDCHG* are highly significant with expected signs for all specifications, and the explanatory power of all three models is very high as reflected in the adjusted R^2 of about 71 to 78 percent. This suggests that a set of audit fee determinants included in Eq. (2) as our control variables explain a large portion of cross-sectional variations in audit fees.

As shown in Table 5, the coefficient on *YR0304* is highly significant across all specifications, which strongly supports H1. The result indicates that auditors charge higher audit fees in the post-SOX period than in the pre-SOX period, which is consistent with the CKLS prediction and anecdotal evidence[23] as well as the findings in Table 4. In model 3 to 5 where the interaction term *YR0304*WIC* is omitted, the coefficient on *WIC* is significantly positive, which is consistent with H2. This suggests that clients with WIC problems pay higher audit fees than do clients without WIC problems. However, when we estimate regressions with the interaction term *YR0304*WIC* included, as in models 6 to 9, the *WIC*-coefficient becomes insignificant, but the coefficient on the interaction term, i.e., *YR0304*WIC*, becomes significantly positive in all cases. This indicates that firms with WIC problems in fiscal year 2004 began to pay higher audit fees *only* in the post-SOX period (but not in the pre-SOX period). The results are robust to whether we use *WIC_D, WIC_C*, or *WIC_P*.[24] Thus, it seems that the differences in the audit fees between WIC clients and non-WIC clients, as reported in Table 4, during the pre-SOX period simply reflect the different firm-specific characteristics of the clients rather than the audit fee effect of WIC.

To examine the economic significance of the results, we set all variables except *WIC* to their sample medians and calculate average

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23) See footnote 7 for anecdotal evidence.

24) When we perform analyses with individual categories of WIC mentioned in Panel B of Table 1, we find that segregation of duties and property/equipment/ lease are not significantly related to audit fees, while all the other categories are significantly associated with audit fees with positive signs.

audit fees. Using the estimated coefficients from model 4, this proce-
dure yields average audit fees of $548,986 for non-WIC firms during
the post-SOX period. This indicates that WIC firms pay higher audit
fees than do non-WIC firms by $58,952 (or 10.74 percent of audit
fees). This suggests that the increase in audit fees for WIC firms is
economically significant as well.

FURTHER ANALYSES

The Effect of the Enactment of SOX on the Audit Fee Structure

The regression results in Table 5, overall, reveal that auditors
charge higher audit fees for WIC clients than for non-WIC clients
during the post-SOX period but not during the pre-SOX period. In
this section, we further investigate whether and how the legal regime
shift caused by SOX affects the structure of audit fees, in particular,
the audit fee effects of client-specific risk and auditor quality.

To do so, we first examine whether the incremental fees that
auditors charge for clients with WIC to compensate for the increased
legal liability associated with SOX varies systematically across
clients, depending on client-specific risk characteristics proxied by
LEVE and *LOSS*. Auditors' assessment of the legal liability is likely
to be greater when clients are exposed to a higher level of litigation
risk. Auditors are likely to be exposed to a higher litigation risk
during the post-SOX period, in particular, for the audits of WIC
clients. We therefore predict that the fee-increasing effect of client-
specific risk (i.e., *LEVE* and *LOSS*) is pronounced during the post-
SOX period, and the effect is even more pronounced for clients with
WIC problems than those with no WIC.

Previous research shows that the potential legal liability cost is
greater for Big 4 auditors than for non-Big 4 auditors, because Big
4 auditors have greater reputation losses at stake (DeAngelo 1981)
as well as "deeper pockets," and thus they have more to lose in case
of an audit failure (Dye 1993; Khurana and Raman 2004; Kim et
al. 2003). To minimize this legal liability cost, Big 4 auditors have a
greater incentive to increase audit effort, for example, by conducting
more substantive tests than non-Big 4 auditors, which in turn leads
to Big 4 auditors charging higher audit fees than non-Big 4 auditors
(CKLS; Craswell et al. 1995; DeFond et al. 2000). This leads us to

predict that the differences in audit fees charged by Big 4 auditors vis-à-vis non-Big 4 auditor (i.e., Big 4 fee premiums) are greater in the post-SOX period than in the pre-SOX period.

To test the above two predictions, we posit the following regression model which is an augmented version of Eq. (2):

$$
\begin{aligned}
AFEE = \ & \alpha_0 + \alpha_1 \, YR0304 + \alpha_2 \, WIC + \alpha_3 \, (YR0304{*}WIC) \\
& + \beta_1 \, LEVE + \beta_2 \, (LEVE{*}YR0304) + \beta_3 \, (LEVE{*}YR0304{*}WIC) \\
& + \beta_4 \, LOSS + \beta_5 \, (LOSS{*}YR0304) + \beta_6 \, (LOSS{*}YR0304{*}WIC) \\
& + \beta_7 \, BIG4 + \beta_8 \, (BIG4{*}YR0304) + \beta_9 \, (BIG4{*}YR0304{*}WIC) \quad (3) \\
& + \gamma_1 \, LNTA + \gamma_2 \, NBS + \gamma_3 \, NGS + \gamma_4 \, EMPLOY + \gamma_5 \, INVREC \\
& + \gamma_6 \, ISSUE + \gamma_7 \, BTM + \gamma_8 \, FOREIGN + \gamma_9 \, EXORD \\
& + \gamma_{10} \, AUDCHG + \gamma_{11} \, LAMDA + industry \ dummies + error \ term
\end{aligned}
$$

where all variables are as defined earlier. Compared with Eq. (2), we add the interaction terms between *YR0304* and two firm-specific risk variables (i.e., *LEVE* and *LOSS*) as well as the *BIG4* dummy variable. In addition, we also add the variables representing the three-way interactions among the three variables representing client-specific risk and auditor quality (*LEVE*, *LOSS*, and *BIG4*), the dummy variable representing the post-SOX period (*YR0304*) and the weakness in internal control variable (*WIC*).

The positive coefficients on *LEVE*YR0304* and *LOSS*YR0304* in Eq. (3) (i.e., β_2, $\beta_5 > 0$) are consistent with the fee-increasing effect of client-specific risk (i.e., *LEVE* and *LOSS*) being greater in the post-SOX period than in the pre-SOX period. Moreover, the positive coefficients on the three-way interaction terms, *LEVE*YR0304*WIC* and *LOSS*YR0304*WIC* (i.e., β_3, $\beta_6 > 0$), support the view that the incremental fee-increasing effect of client-specific risk (i.e., *LEVE* and *LOSS*) arising from SOX is greater for clients with WIC than for those with no WIC. In a similar vein, the positive coefficients on *BIG4*YR0304* and *BIG4*YR0304*WIC* (i.e., β_8, $\beta_9 > 0$) are consistent with the view that Big 4 auditors charge higher audit fees during the post-SOX period and, in particular, for the audits of clients with WIC, compared with non-Big 4 auditors.

Table 6 presents the results of various regressions for Eq. (3). In Table 6, we report the results using *WIC_D* only, for brevity, because the results using WIC_C or *WIC_P* are qualitatively identical with those using *WIC_D*. With respect to the effect of *LEVE* on audit fees, the coefficient on *LEVE* is significantly positive in all cases, while

the coefficient on the two-way interaction term, i.e., *LEVE*YR0304*, is insignificant in all cases. In addition, the three-way interaction term, i.e., *LEVE*YR0304*WIC*, is significant with a positive sign (as in models 2, 5, and 7). The above results, taken as a whole, suggest that highly levered firms pay higher audit fees in general, and the highly levered firms with WIC problems paid additionally higher fees during the post-SOX period, while the firms without WIC problems did not pay such incremental fees during the post-SOX period after an overall shift in audit fees in the post-SOX period is controlled for by *YR0304*.

With respect to the effect of *LOSS* on audit fees, the coefficient on *LOSS* itself is significantly positive at the 1% level, while the coefficient on *LOSS*YR0304* is insignificant across all cases. The coefficient on *LOSS*YR0304*WIC* is significantly positive. These results, taken as a whole, suggest that firms that report losses generally paid higher audit fees. In addition, the loss firms with WIC began to pay even higher fees in the post-SOX period, while the loss firms without WIC problems paid no marginally higher fees in the post-SOX period.

With respect to the effect of *BIG4* on audit fees, we find that the coefficient on *BIG4* itself is significantly positive across all cases, suggesting the existence of a Big 4 audit fee premium. Furthermore, the coefficient on *BIG4*YR0304* is also significant with a positive sign in all cases, suggesting that Big 4 audit fee premium increased significantly for both clients with and without WIC during the post-SOX period. However, the coefficients on the three-way interaction term, i.e., *BIG4*YR0304*WIC*, are insignificant across all cases, suggesting that Big 4 audit fee premium increased by the similar magnitude for both clients, or equivalently WIC clients pay a similar level of the Big 4 premium as do non-WIC clients.

Finally, as shown in Table 6, the coefficients on the *WIC* variable (i.e., α_2) are significant in models 1 and 6. When we add the interaction term, *YR0304*WIC*, as in models 2 to 7, however, the coefficient on *WIC* becomes insignificant and only the coefficient on the interaction term (i.e., α_3) is significantly positive. These results are consistent with those in Table 5 that clients with WIC began to pay higher fees from year 2003.[25] Also similar to the results reported in

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25) When we estimate clustered standard error by each firm, the weakly significant results in models 5 and 7 for the coefficients on *YR0304*WIC* becomes marginally insignificant.

Table 6. OLS Regression analyses on interactions with firm-specific risks and internal control weakness

$AFEE = \alpha_0 + \alpha_1\ YR0304 + \alpha_2\ WIC + \alpha_3\ (YR0304*WIC) + \beta_1\ LEVE + \beta_2\ (LEVE*YR0304) + \beta_3\ (LEVE*YR0304*WIC)$
$+ \beta_4\ LOSS + \beta_5\ (LOSS*YR0304) + \beta_6\ (LOSS*YR0304*WIC) + \beta_7\ BIG4 + \beta_8\ (BIG4*YR0304) + \beta_9\ (BIG4*YR0304*WIC)$
$+ \gamma_1\ LNTA + \gamma_2\ NBS + \gamma_3\ NGS + \gamma_4\ EMPLOY + \gamma_5\ INVREC + \gamma_6\ ISSUE + \gamma_7\ BTM + \gamma_8\ FOREIGN + \gamma_9\ EXORD + \gamma_{10}\ AUDCHG$
$+ \gamma_{11}\ LAMDA + industry\ dummies + error\ term$

Variables	Predicted Sign	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
YR0304	+	0.9072 (18.18***)	0.8972 (18.00***)	0.8952 (18.03***)	0.8779 (17.36***)	0.8941 (17.56***)	0.9066 (18.25***)	0.8929 (17.65***)
WIC	+	0.1000 (5.21***)	-0.0125 (-0.49)	-0.0126 (-0.50)	-0.0126 (-0.50)	-0.0125 (-0.49)	0.1068 (5.59***)	-0.0048 (-0.19)
*YR0304*WIC*	+		0.1578 (2.94***)	0.2030 (4.74***)	0.3365 (3.28***)	0.1950 (1.66*)		0.1997 (1.71*)
LEVE	+	0.2209 (11.27***)	0.2204 (11.19***)	0.2200 (11.17***)	0.2198 (11.18***)	0.2204 (11.17***)	0.1357 (5.89***)	0.1356 (5.85***)
*LEVE * YR0304*	+	-0.0338 (-1.13)	-0.0432 (-1.43)	-0.0317 (-1.07)	-0.0306 (-1.03)	-0.0408 (-1.35)	-0.0369 (-1.22)	-0.0437 (-1.44)
LEVE *YR0304*WIC*	+		0.1998 (2.69***)			0.1705 (2.27**)		0.1700 (2.23**)
LOSS	+	0.1611 (9.42***)	0.1627 (9.53***)	0.1622 (9.50***)	0.1634 (9.57***)	0.1616 (9.46***)	0.2597 (11.70***)	0.2598 (11.75***)
*LOSS * YR0304*	+	0.0261 (1.04)	0.0157 (0.63)	-0.0007 (-0.03)	0.0180 (0.72)	0.0011 (0.04)	0.0325 (1.29)	0.0071 (0.27)
LOSS *YR0304*WIC*	+			0.1418 (2.44**)		0.1142 (1.92*)		0.1169 (1.96**)
BIG4	+	0.0907 (2.83***)	0.0982 (3.08***)	0.0979 (3.07***)	0.0970 (3.04***)	0.0996 (3.12***)	0.2673 (6.44***)	0.2757 (6.68***)
*BIG4 * YR0304*	+	0.3129 (7.17***)	0.2985 (6.85***)	0.3001 (6.91***)	0.3124 (6.99***)	0.3056 (6.83***)	0.3087 (7.13***)	0.3023 (6.81***)
BIG4 *YR0304*WIC*	+				-0.0986 (-0.93)	-0.0759 (-0.70)		-0.0845 (-0.78)

Table 6 (Continued)

Variables	Predicted Sign	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
$LNTA$	+	0.4083 (66.72***)	0.4081 (66.87***)	0.4083 (66.89***)	0.4085 (66.89***)	0.4075 (66.67***)	0.4472 (55.60***)	0.4463 (55.68***)
NBS	+	0.1124 (8.90***)	0.1117 (8.86***)	0.1120 (8.89***)	0.1116 (8.86***)	0.1117 (8.86***)	0.1393 (10.49***)	0.1385 (10.46***)
NGS	+	0.1381 (11.05***)	0.1371 (11.02***)	0.1370 (11.00***)	0.1370 (11.01***)	0.1365 (10.96***)	0.1731 (12.76***)	0.1713 (12.69***)
$EMPLOY$	+	0.0019 (12.61***)	0.0019 (12.59**)	0.0019 (12.59***)	0.0019 (12.60***)	0.0019 (12.60***)	0.0018 (11.72**)	0.0018 (11.71**)
$INVREC$	+	0.5328 (13.02***)	0.5299 (12.99***)	0.5306 (13.01***)	0.5315 (13.02***)	0.5280 (12.94***)	0.6124 (14.51***)	0.6073 (14.45***)
$ISSUE$	+	0.0277 (2.29**)	0.0272 (2.25**)	0.0285 (2.37**)	0.0278 (2.30**)	0.0278 (2.30**)	0.0438 (3.59***)	0.0439 (3.61***)
BTM	-	-0.0136 (-1.30)	-0.0140 (-1.35)	-0.0139 (-1.34)	-0.0143 (-1.37)	-0.0137 (-1.32)	-0.0186 (-1.79*)	-0.0187 (-1.81*)
$FOREIGN$	+	0.2548 (16.07***)	0.2533 (16.04***)	0.2534 (16.06***)	0.2537 (16.07***)	0.2537 (16.08***)	0.3236 (17.48***)	0.3224 (17.50***)
$EXORD$	+	0.1702 (11.53***)	0.1694 (11.50***)	0.1698 (11.53***)	0.1697 (11.53***)	0.1697 (11.52***)	0.1645 (11.18***)	0.1641 (11.17***)
$RNDTA$	+	0.5000 (9.41***)	0.5010 (9.47***)	0.5041 (9.52***)	0.5010 (9.46***)	0.5030 (9.51***)	0.4268 (7.78***)	0.4300 (7.89***)
$AUDCHG$	-	-0.1031 (-3.86***)	-0.1076 (-4.04***)	-0.1062 (-3.99***)	-0.1080 (-4.05***)	-0.1084 (-4.06***)	-0.0289 (-1.01)	-0.0345 (-1.20)
$LAMDA$	?						0.6301 (7.11***)	0.6282 (7.12***)
$Intercept$	?	-0.4201 (-5.90***)	-0.4078 (-5.73***)	-0.4113 (-5.78***)	-0.4131 (-5.80***)	-0.4011 (-5.63***)	-2.3028 (-8.45***)	-2.2777 (-8.40***)
Industry dummies		Included	Included	Included	Included	Included	Included	Included
N		9,067	9,067	9,067	9,067	9,067	9,067	9,067
Adjusted R^2		0.8130	0.8141	0.8142	0.8141	0.8143	0.8142	0.8154

All t-statistics in parentheses are calculated using White's (1980) consistent standard error estimates to correct for heteroskedasticity. *, **, and *** denotes p-value < 10%, p-value < 5%, and p-value < 1%, respectively with two-tailed tests. $WIC = WIC\_D$. WIC_D: 1 if the company receives internal control weakness opinion in fiscal year 2004 and 0 otherwise. $YR0304$: 1 if the fiscal year is 2003 or 2004 and 0 otherwise. See Table 1 for the definitions of other variables.

Table 5, the coefficients on all the control variables except *BTM* are highly significant with expected signs.

One may argue that the significant correlations among three variables of interest (*LEVE, LOSS*, and *BIG4*) as reported in Table 3 and the correlations among the associated interaction terms lead to some of their coefficients being insignificant as reported in Table 6. To examine this possibility, we estimate Eq. (3) after including only one variable of interest and its interaction terms. For example, we examine the audit fee effect of *BIG4* using the following specification which excludes all the variables that contain *LEVE* and *LOSS*.

$$
\begin{aligned}
AFEE = {}& \alpha_0 + \alpha_1\ YR0304 + \alpha_2\ WIC + \alpha_3\ (YR0304*WIC) + \beta_1\ BIG4 \\
& + \beta_2\ (BIG4 * YR0304) + \beta_3\ (BIG4 * YR0304 * WIC) \\
& + \gamma_1\ LNTA + \gamma_2\ NBS + \gamma_3\ NGS + \gamma_4\ EMPLOY + \gamma_5\ INVREC \\
& + \gamma_6\ ISSUE + \gamma_7\ BTM + \gamma_8\ FOREIGN + \gamma_9\ EXORD \qquad\text{(4)} \\
& + \gamma_{10}\ AUDCHG + \gamma_{11}\ LAMDA + industry\ and\ year\ dummies \\
& + error\ term
\end{aligned}
$$

The regression results for Eq. (4) reveal that the coefficient on *BIG4*YR0304*WIC* is not significantly different from zero, while the coefficient on *BIG4*YR0304* is significant at 1 percent level. For example, we find that β_2 is 0.3044 with $t = 6.81$ and β_3 is -0.0812 with $t = -0.73$. Overall, the regression results for Eq. (4) are consistent with those presented in Table 6.

Similarly, to examine the *LEVE* (*LOSS*) effect, we estimate Eq. (4) after replacing BIG4 with *LEVE* (*LOSS*). Because the results are not qualitatively different from those reported Table 6, we do not separately report them for brevity.[26] In short, the above results indicate that our results reported in Table 6 are robust with respect potential problems of multi-collinearity among the three variables of interest, namely, *LEVE, LOSS*, and *BIG4* and the interaction terms associated therewith.

Sensitivity Checks

We perform a variety of sensitivity analyses to check the

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26) For example, if we replace *BIG4* in Eq. (4) for *LEVE* (*LOSS*), the value of β_3 is 0.2528 (0.1412) with $t = 3.30$ (2.37). These results are qualitatively similar to those in Table 6.

robustness of our findings. First, given that the SOX was enacted in 2002, it is unclear whether or not the SOX influenced an auditor's pricing behavior in 2002. As a sensitivity check, we repeat our regression analyses after excluding the 2002 data. We find that the exclusion of the 2002 data does not alter our statistical inferences on the variables of interest.

Second, the SOX specifically states that companies that are not required to file annual and quarterly reports on an accelerated basis (i.e., U.S. companies with market capitalization below \$75 million) must comply with the Section 404 requirements starting the fiscal year ending on or after July 15, 2007. As explained before, our sample therefore does not include any firms that belong to this category because auditors are not required to report any WICO on these firms in 2004. We notice, however, that for some of such firms that belong to this category, auditors voluntarily report their opinions on WIC. As a sensitivity check, we expand our sample by including all firms regardless of their size. Using this expanded sample of 12,403 firm-year observations, we repeat our regression analyses. Though not reported, overall, the results using this expanded sample are qualitatively similar to those reported in the paper.

Third, we construct a balanced-panel sample by including the same set of sample firms throughout the five-year sample period, 2000 to 2004. Though not reported, the results using the balanced panel data are qualitatively identical to those reported in the paper.

Fourth, we perform tests using the following regression specification (with *YR0304* excluded) after restricting the data period to the post-SOX period (year 2003 and 2004).

$$
\begin{aligned}
AFEE = {} & \alpha_0 + \alpha_1\ WIC + \beta_1\ LEVE + \beta_2\ (LEVE*WIC) + \beta_3\ LOSS \\
& + \beta_4\ (LOSS*WIC) + \beta_5\ BIG4 + \beta_6\ (BIG4*WIC) + \gamma_1\ LNTA \\
& + \gamma_2\ NBS + \gamma_3\ NGS + \gamma_4\ EMPLOY + \gamma_5\ INVREC \qquad (6) \\
& + \gamma_6\ ISSUE + \gamma_7\ BTM + \gamma_8\ FOREIGN + \gamma_9\ EXORD \\
& + \gamma_{10}\ AUDCHG + \gamma_{11}\ LAMDA + industry\ dummies \\
& + error\ term
\end{aligned}
$$

Consistent with the results reported in Table 6, we find that the coefficient on *WIC* is not significant, while the coefficients, β_1 to β_6 are all significant with positive sign except the insignificant coefficients of β_6. This indicates that all the major inferences we made in Table 6 remain unaltered.

Finally, in an attempt to check whether our sample is comparable with the samples used in previous research, we replicate Hogan and Wilkins (2008). Consistent with their findings, we find that performance-matched discretionary accruals (Kasznik 1999 or Kothari et al. 2005) are not significantly related to WIC. When our sample firms with WIC are matched to non-WIC firms in the same industry (2-digit SIC code) and the same year which have the closest return on assets, there is no significant difference in terms of the level of absolute discretionary accruals in both univairate and multivariate tests. The above results suggest that the characteristics of our dataset are not different from those used in previous related research.

CONCLUSION

The SOX requires the implementation of many new rules and procedures. In particular, Section 404 of SOX mandates management to assess the effectiveness of a firm's internal control in financial reporting (ICOFR) and to report its conclusion in the firm's annual reports for fiscal years ending after November 2004. Section 404 also mandates the auditor to review management's assessment, and then, to report her own conclusion regarding the effectiveness of the ICOFR.

Using a sample of 252 firms that received an "Ineffective" audit opinion on the effectiveness of the ICOFR under Section 404 of SOX, this study investigates the effect of the enactment of SOX in year 2002 on audit pricing. The results of various tests reveal the following. First, we find that audit fees were, on average, significantly higher in the post-SOX period than in the pre-SOX period after controlling for all other factors that are deemed to affect audit fees. This suggests that SOX lead to an upward shift in the strength of the US legal environment, which in turn increased an auditor's legal liability. This increased legal liability caused the auditor to charge higher audit fees and/or work harder. Second, we find that firms that received an "Ineffective" opinion on the ICOFR from their auditors in response to Section 404 of SOX paid higher audit fees for their financial statement audits. In other words, auditors' opinions on WIC are positively associated with audit fees. We also find that this positive association between audit fees and WIC is pronounced primarily in the post-SOX period (years 2003 and 2004), but not in

the pre-SOX period (years 2000 to 2002). The above results, taken as a whole, suggest that auditors either worked more or charged higher risk premiums to compensate for the increased legal liability cost associated with the audits of clients with WIC during the post-SOX period.

Further analyses reveal that clients with WIC that are highly levered and/or report losses paid higher audit fees during the post-SOX period, compared with not-highly-levered and/or profit-reporting clients with WIC and clients without WIC. However, we find that Big 4 audit fee premium increased for both clients with and without WIC during the post-SOX period, whether or not the clients had WIC.

Overall, our results suggest that the SOX is successful in changing auditors' behavior by motivating them to focus more on the WIC. To the extent that this change results in the higher audit quality, evidence provided in this study supports the view that the enactment of SOX accomplished its regulatory objectives at least partially. In conclusion, given the scarcity of empirical evidence on the issue, our results provide useful insights into how the auditors, in terms of client risk assessment and pricing mechanism, respond to the legal regime shift caused by the enactment of SOX.

This study has some limitation. First, the higher audit fee does not necessarily imply the higher audit quality, although the fee is frequently used as a proxy for the quality. Second, Ge and McVay (2005) and Doyle et al. (2007) classify the WIC to different types. Due to time limitation, we do not follow the classifications. Future studies should investigate this issue.

Appendix
Summary of the major SOX provisions that are important to Auditor/ Auditing

Section/Title number	Key provisions
Section 101: establishment; Administrative Provisions.	The Public Company Accounting Oversight Board (The Board) is established as an independent non-profit corporation which shall oversee the audit of public companies that are subject to the securities laws and related matters.
Section 103: Auditing, Quality Control, And Independence Standards And Rules.	The Board must require registered public accounting firms to "prepare, and maintain for a period of not less than 7 years, audit work papers, and other information related to any audit report, in sufficient detail to support the conclusions reached in such report." The Board must require a 2nd partner review (concurring review) and approval of audit reports registered accounting firms must adopt quality control standards.
Section 104: Inspections of Registered Public Accounting Firms.	Annual quality reviews (inspections) must be conducted for firms that audit more than 100 issues, all others must be conducted every 3 years. The SEC and/or the Board may order a special inspection of any firm at any time.
Section 201: Services Outside The Scope Of Practice Of Auditors.	It shall be "unlawful" for a registered public accounting firm to provide any non-audit service to an issuer contemporaneously with the audit, including: (1) bookkeeping or other services related to the accounting records or financial statements of the audit client; (2) financial information systems design and implementation; (3) appraisal or valuation services, fairness opinions, or contribution-in-kind reports; (4) actuarial services; (5) internal audit outsourcing services; (6) management functions or human resources; (7) broker or dealer, investment adviser, or investment banking services; (8) legal services and expert services unrelated to the audit; (9) any other service that the Board determines, by regulation, is impermissible.
Section 203: Audit Partner Rotation	The lead audit or coordinating partner and the reviewing partner must rotate off of the audit every 5 years.

Section/Title number	Key provisions
Section 206: Conflicts of Interest.	The CEO, Controller, CFO, Chief Accounting Officer or person in an equivalent position cannot have been employed by the company's audit firm during the 1-year period preceding the audit.
Section 301: Public Company Audit Committees.	Each member of the audit committee shall be a member of the board of directors of the issuer, and shall otherwise be independent. The audit committee of an issuer shall be directly responsible for the appointment, compensation, and oversight of the work of any registered public accounting firm employed by that issuer.
Section 302: Corporate Responsibility For Financial Reports	The CEO and CFO of each issuer shall prepare a statement to accompany the audit report to certify the "appropriateness of the financial statements and disclosures contained in the periodic report, and that those financial statements and disclosures fairly present, in all material respects, the operations and financial condition of the issuer."
Section 304: Forfeiture of Certain Bonuses and Profits	If an issuer is required to prepare a restatement due to "material noncompliance" with financial reporting requirements, the chief executive officer and the chief financial officer shall "reimburse the issuer for any bonus or other incentive-based or equity-based compensation received" during the twelve months following the issuance or filing of the non-compliant document and "any profits realized from the sale of securities of the issuer" during that period.
Section 402: Enhanced Conflict of Interest Provisions.	Generally, it will be unlawful for an issuer to extend credit to any director or executive officer.
Section 404: Management Assessment Of Internal Controls	Requires each annual report of an issuer to contain an "internal control report", which shall: (1) state the responsibility of management for establishing and maintaining an adequate internal control structure and procedures for financial reporting; and (2) contain an assessment, as of the end of the issuer's fiscal year, of the effectiveness of the internal control structure and procedures of the issuer for financial reporting. Each issuer's auditor shall attest to, and report on, the assessment made by the management of the issuer. An attestation made under this section shall be in accordance with standards for attestation engagements issued or adopted by the Board.

Section/Title number	Key provisions
Section 407: Disclosure of Audit Committee Financial Expert.	The SEC shall issue rules to require issuers to disclose whether at least 1 member of its audit committee is a "financial expert."
Title VIII: Corporate and Criminal Fraud Accountability	It is a felony to "knowingly" destroy or create documents to "impede, obstruct or influence" any existing or contemplated federal investigation. Auditors are required to maintain "all audit or review work papers" for five years. The statute of limitations on securities fraud claims is extended to the earlier of five years from the fraud, or two years after the fraud was discovered, from three years and one year, respectively. Employees of issuers and accounting firms are extended "whistleblower protection" that would prohibit the employer from taking certain actions against employees who lawfully disclose private employer information to, among others, parties in a judicial proceeding involving a fraud claim. Whistle blowers are also granted a remedy of special damages and attorney's fees. A new crime for securities fraud that has penalties of fines and up to 10 years imprisonment.
Title IX: White Collar Crime Penalty Enhancements.	Maximum penalty for mail and wire fraud increased from 5 to 10 years. SEC is given authority to seek court freeze of extraordinary payments to directors, offices, partners, controlling persons, agents of employees. SEC may prohibit anyone convicted of securities fraud from being an officer or director of any publicly traded company. Financial statements filed with the SEC must be certified by the CEO and CFO. The certification must state that the financial statements and disclosures fully comply with provisions of the Securities Exchange Act and that they fairly present, in all material respects, the operations and financial condition of the issuer. Maximum penalties for willful and knowing violations of this section are a fine of not more than $500,000 and/or imprisonment of up to 5 years.

Reference: the American Institute of Certified Public Accountants, Summary of the Provisions of the Sarbanes-Oxley Act of 2002 (http://www.aicpa.org)

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