

The Effect of Internal Control Weaknesses and their Remediation on Audit Fees

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Abstract

The implementation of compliance procedures associated with the Sarbanes-Oxley Act of 2002 (SOX) came at a great cost to most publicly-traded firms, in large part due to the internal control disclosures required by Section 404 of the Act. In this paper we contribute to the inquiry on internal control environment by examining the impact of internal control weaknesses and their remediation on audit fees. We find a persistent ineffective control environment results in higher audit fees and firms that report the same material weakness in consecutive years pay higher fees than firms reporting a different material weakness in consecutive years. If a firm remediates, theory suggests that auditor effort and hence audit fees will decrease. However, such a negative relation need not occur if a risk premium is priced into the audit fee. We find that audit fees remain high one, two, and three years following remediation. This finding supports the contention that the increase in audit fees is due to a risk premium priced into the audit fee for firms with a prior internal control weakness and provides further support that audit fees are “sticky”. Probing further, we find that firms that report consecutive material weaknesses pay significantly higher audit fees than firms that remediate. We also find that Big 4 auditors charge higher fees for firms with an internal control weakness as compared to non-Big 4 auditors. Finally, we find an incremental impact on audit fees of additional material weakness disclosures.

Keywords: Internal control weaknesses; Consecutive; Remediation; Audit fees

JEL Classification: M42

Data Availability: The data is available from public sources.

1. INTRODUCTION

In response to the accounting scandals that occurred in 2001, Congress passed the Sarbanes-Oxley Act of 2002 (SOX) to help instill confidence in the financial statements of publicly-traded companies. Section 302 of the Act required management to disclose significant deficiencies in internal control when they certify quarterly or annual financial statements. Unlike Section 302, Section 404 of the Act requires all publicly-traded firms to assert as to the effectiveness of the internal controls around their financial reporting process and requires a public accounting firm to express an opinion on the effectiveness of internal control over financial reporting.

The Securities and Exchange Commission created the Public Company Accounting Oversight Board (PCAOB) to provide oversight of public companies and their auditors, including establishing audit standards. These standards include the process that companies and accounting firms are required to follow to determine the effectiveness of a firm's controls. The PCAOB requires that a material weakness be disclosed if internal controls are not sufficient to ensure that a material misstatement will be detected during the financial reporting process.

The evaluation of the effectiveness of internal controls is a costly project for firms, leading to the following questions, "what are the benefits of SOX and who receives these benefits?" With the added requirement that the auditor of the financial statements also attest to the effectiveness of the client's internal controls around financial reporting, we expect that the auditor will benefit from increased revenues as a result of additional testing requirements.

To carry out our analysis, we start with 9,122 firm-year observations covering the years 2004 through 2007. Our results can be summarized as follows. Though audit effort should not

increase significantly due to a disclosure in the second year, we find that fees are higher for firms that disclose ineffective controls in consecutive years. We also find that firms that report the same (different) material weakness in consecutive years have a positive effect on audit fees. Further, we find that firms reporting the same material weakness pay significantly higher audit fees than firms that report a different material weakness in consecutive years. These findings support the view that auditors charge a risk premium for firms with a consistent ineffective control environment. We find that firms continue to pay higher than normal audit fees one, two, and three years following remediation. This result is consistent with the argument that a portion of the increase in fees in response to the disclosure is due to the existence of a risk premium, rather than solely due to an increase in auditor effort. Further, we find that firms that report consecutive material weaknesses pay significantly higher audit fees than firms that remediate. Our results also suggest that Big 4 auditors charge higher audit fees on engagements with material weakness disclosures compared to non-Big 4 firms. In general, we find that incremental material weaknesses identified have a positive effect on audit fees.

Our paper contributes to several streams of research. First, we contribute to research examining the impact of internal control weaknesses. Ashbaugh-Skaife et al. (2008) and Doyle et al. (2007) find that firms with internal control weaknesses have lower accruals quality. Ashbaugh-Skaife et al. (2008) and Ogneva et al. (2007) find that internal control weaknesses are positively related to firm risk and cost of equity capital. We find that there is an incremental impact to disclosure of additional material weaknesses on audit fees, and firms that remediate continue to incur higher audit fees even three years after remediation.

We also contribute to research examining the impact of internal control weaknesses on audit fees. Elder et al. (2009) find that firms with internal control weaknesses are charged higher fees by their auditor and that the fee premium for company-level weaknesses is higher than for account-level weaknesses in the first year of SOX 404. Ghosh and Pawlewicz (2008) find that the increased responsibility placed on auditors due to the internal control opinions required by SOX results in a significant increase in audit fees. Prior research finds that internal control weaknesses represent risk that is meaningful to financial statement users and audit fees are higher for these firms in the first year following the implementation of SOX (Ashbaugh-Skaife et al. 2008; Hoitash et al. 2008; Raghunandan and Rama 2006). Our findings are consistent with the view that auditors build a risk premium into the audit fee at the time of disclosure. The presence of higher audit fees in years subsequent to remediation suggest that the audit fee is “sticky” and once the auditor increases their fee in response to an ineffective control environment, the auditor resists reducing the fee.

The remainder of the paper is organized as follows. Section 2 describes the related literature and develops the testable hypotheses. Section 3 describes the sample selection and the research design. Section 4 discusses the results and Section 5 summarizes and concludes the paper.

2. RELATED LITERATURE AND HYPOTHESIS DEVELOPMENT

Our study addresses the impact of internal control weaknesses and their remediation on audit fees in the implementation year of Section 404 and three subsequent years. Before turning to the literature examining the relation between a firm’s internal control environment and audit fees, it is useful to discuss why Section 404 was enacted.

Securities Exchange Commission (SEC) Release No. 33-8124, Section 302 (August 29, 2002), required management to disclose significant deficiencies in internal control when they certify quarterly or annual financial statements. SOX Section 404 was enacted to emphasize the importance of internal controls and to bolster investor confidence in the financial markets. On June 5, 2003, SEC Release No. 33-8238 required all publicly-traded firms 1) to assert as to the effectiveness of the internal controls around their financial reporting process and 2) to have a public accounting firm express an opinion on the appropriateness of management's assertion. Upon the passage of SOX, the SEC created the Public Company Accounting Oversight Board (PCAOB) to provide oversight of public companies and their auditors. The PCAOB established that a material weakness must be disclosed if controls around a significant financial reporting process are not sufficient to ensure that a material misstatement will be detected.

Hypothesis Development

Impact of disclosure of ineffective controls in consecutive years on audit fees

Elder et al. (2009, 3) find that "auditors price audit risk and client business risk into the audit fee." A firm with disclosures of ineffective internal controls in consecutive years is expected to have higher perceived client business risk. Table 1 suggests that approximately 30% of our sample firms that disclose an ineffective control environment in a given year disclose an ineffective control environment in the following year. Hoitash et al. (2008) compare audit fees for firms that disclose a material weakness during the last year of Section 302 to firms that continue to disclose an internal control weakness in the first year of Section 404 and find that audit fees remain high. We extend their analysis and examine the impact of consecutive

internal control weaknesses on audit fees within the Section 404 time period, when all internal control disclosures are audited.

A concurrent working paper by Hammersley et al. (2009) finds that companies that do not remediate pay higher audit fees on average. We differ from this aforementioned study in four important ways. First, our sample composition differs in that we include firms with internal control weakness disclosures and firms that never disclosed internal control weaknesses, while Hammersley et al. (2009) examine only firms with material weakness disclosures in at least one year and a control group. Second, our sample size is considerably larger. Specifically, Hammersley et al. (2009) examine 61 firm-years and a control group of 241 firm-years, while we examine 9,122 firm-year observations. Third, Hammersley et al. (2009) include fiscal years 2004 and 2005 in their sample, while our sample includes fiscal years 2004 through to 2007, which allows us to further investigate the impact of consecutive material weaknesses under Section 404. We expect firms with disclosures in consecutive years to have higher audit fees. This leads to the first hypothesis, stated as follows:

***H1:** The disclosure of ineffective controls in consecutive years is positively related to audit fees.*

Fourth, we further differentiate between ineffective controls in consecutive years by examining whether firms that report the same (different) material weakness in consecutive years have higher audit fees.

***H1a:** The disclosure of the same ineffective controls in consecutive years is positively related to audit fees.*

H1b: *The disclosure of different ineffective controls in consecutive years is positively related to audit fees.*

Impact of remediation on audit fees

Hogan and Wilkins (2008) investigate the relationship between audit fees and internal control deficiencies as disclosed under SOX Section 302 certifications prior to a requirement for firms to comply with Section 404 of the Act. The authors find that auditors increase effort in response to an internal control weakness, assuming that audit fees are a proxy for auditor effort. An alternative explanation for an increase in fees proposed by the authors is that a risk premium is priced into the audit. If a firm's internal controls are effective, then the auditor is expected to reduce the extent of substantive testing (scopes, sample sizes, etc.) on account balances during the audit of the financial statements, therefore reducing the audit hours incurred on the integrated audit. However, if a firm's controls are deemed ineffective as of the end of the year, the controls are also ineffective to start the current fiscal year. Thus, the auditor cannot reduce testing, and additional audit hours are incurred. If the firm remediated by the end of the current year, the auditor is not likely to reduce the extent of testing and auditor effort will remain high in the year of remediation. If audit fees are a proxy for auditor effort, then audit fees will remain high. Related research suggests that remediation is associated with improvements in internal governance, specifically the strengthening of the audit committee (Li et al. 2008). Goodwin-Stewart and Kent (2006) find that strengthening of the audit committee is associated with a higher level of audit fees. The combined results of the two aforementioned studies suggest that audit fees will not decrease in the year of remediation.

Hoitash et al. (2008) examine firms that disclose an internal control weakness in the Section 302 period and do not report a material weaknesses in the Section 404 period and find that firms continue to pay higher fees in the subsequent year. We extend their analysis in several ways. First, both disclosures and remediation in our sample occur in the Section 404 period, when an auditor's opinion on internal control is required, allowing us to examine the impact of remediation on audit fees during one regulatory regime. This is an important distinction because under Section 302, the unaudited executive certifications could disclose control deficiencies that would not have been considered material weaknesses under Section 404. Therefore firms in the Hoitash et al. (2008) sample could be incorrectly classified as remediators when comparing across regimes. Second, Hoitash et al. (2008) suggest that the impact of remediation on audit fees is because the auditor leaves the control assessment as "high" for the substantive audit in the year of remediation because controls are not effective throughout the year. Examining the impact of remediation on audit fees within one regulatory regime allows us to examine whether this explanation is plausible. In addition, our longer sample period allows us to examine the impact of remediation on audit fees one, two, and three years after remediation.

Upon remediation, auditors may be able to reduce their effort surrounding the audit of a client's internal controls and reduce fees. However, the auditor may elect not to rely on the firm's controls for the purposes of the substantive audit since the controls were not effective throughout the fiscal year, therefore any reduction in fees may not be significant. Due to contradictory arguments, we do not predict the direction of the relationship between audit fees and remediation.

H2: Audit fees paid by firms one year after the remediation of material weaknesses do not differ from audit fees paid the previous year.

Audit fee studies in existing accounting literature assume that the audit fee changes freely with audit fee determinants (Simunic 1980; Francis 1984). Using data from Australia and the United Kingdom and economic theory on competition as support, Ferguson et al. (2005) show that audit fees are “sticky”, especially in a downwards direction. Economic theory also suggests that prices can be “sticky” (Barro 1972; Bhaduri and Falkinger 1990; Ferguson et al. 2005). Barro (1972) shows that price rigidity would exist in an imperfectly competitive market if it is costly for the seller to change the price. Duellman and Harris (2008) find that the competitive nature of the audit industry increased over the past quarter century. However, the authors argue that the audit industry is not considered an example of perfect competition, as there are significant switching costs to the buyer due to the nature of the service that requires a vast understanding of the buyer’s business. Economic theory also predicts that prices are stickier when markets are characterized by imperfect information (Bhaduri and Falkinger 1990; Ferguson et al. 2005). The assumption of imperfect information applies to auditing because the auditor does not know the price level that will make the buyer consider switching to another auditor.

The availability of data allows us to examine the impact of remediation on audit fees two and three years after disclosure of a material weakness. If a firm disclosed an effective control environment in the current year as well as the prior year, the firm’s control environment was likely effective throughout the year. In this case, the auditor is able to rely on the controls and reduce testing. Auditor effort related to a client two (three) years after the

disclosure of an ineffective control environment should not be materially different from a client that never disclosed an ineffective control environment. Thus, audit fees should decrease two (three) years after remediation. However, if audit fees of a firm remain high two or more years after remediation, a portion of the increase in fees is likely due to the existence of a risk premium in response to the disclosure, rather than solely to an increase in auditor effort. This leads to hypothesis 2a, stated as follows:

***H2a:** Audit fees paid by firms two (three) years after the remediation of a material weakness will differ from audit fees paid the previous year.*

Our next hypothesis examines whether auditor type impacts the relationship between internal control weaknesses and audit fees. Simon and Francis (1988) find a significant Big Eight price premium (29.7 percent) with respect to other national firms when they partition their sample into 208 small companies. We expect that Big 4 auditors are more proficient in capturing an audit fee premium on engagements with material weakness disclosures, compared to non-Big 4 auditors (DeAngelo 1981). We express hypothesis 3 as follows:

***H3:** Big 4 auditors charge higher audit fees for firms with internal control weaknesses as compared to non-Big 4 auditors.*

We next examine the incremental impact of each additional internal control weakness on audit fees. An auditor is required to expand the nature and extent of testing on the account balances of a company deemed to have ineffective controls. If during the testing of a control, it is determined that the control is deficient, a firm can identify another control that mitigates the risk of a material misstatement. Since most firms test controls at an interim date, a firm can also remediate, and retest closer to the balance sheet date. Either method of remediation will

result in additional hours of testing by the auditor. If the deficiencies cannot be remediated or mitigated, and are determined to enable a potential material misstatement, then a material weakness must be disclosed (Public Company Accounting Oversight Board 2004).

In an integrated audit of both the internal controls and the financial statements of a client, if internal controls are deemed effective, then the auditor should be able to reduce testing, and reduce audit hours. If instead, the controls around the financial reporting process are deemed ineffective, then the auditor cannot reduce work. Ghosh and Pawlewicz (2008) find that the increased responsibility placed on auditors, due to the internal control opinions required by SOX, result in an increase in audit fees. Prior studies also find that internal control weaknesses represent risk that is meaningful to financial statement users and that audit fees are higher for these firms in the first year following the implementation of SOX (Ashbaugh-Skaife et al. 2006; Hoitash et al. 2008; Raghunandan and Rama 2006).

As the auditor identifies more material weaknesses, we expect that additional procedures and hours are incurred to investigate the effectiveness of compensating controls and to assess the ineffective results of the audit tests. The added hours of testing will be priced into the audit fees charged to the client. As firms disclose additional internal control weaknesses, we expect the auditor to assess more risk, increase testing, and charge higher audit fees.

H3a: There is an incremental impact of additional internal control weaknesses on audit fees.

We next empirically evaluate these predictions.

3. SAMPLE SELECTION AND RESEARCH DESIGN

To empirically evaluate the impact of internal control weaknesses and their remediation on audit fees, we identify firms in *Audit Analytics* with available data on audit fees and internal control disclosures. *Audit Analytics* includes the number of internal control weaknesses for each firm and a description of each type of weakness. Financial information is obtained from *Compustat* to calculate control variables relevant to our study. We exclude observations missing necessary *Compustat* data. With these restrictions, the sample consists of 9,122 firm year observations involving 1,832 unique firms.¹

We use Ordinary Least Squares (OLS) regression to test the relation between internal control weaknesses and their remediation on audit fees. We estimate the following model:

$$LNAUDITFEE_{it} = \beta_0 + \beta_1 ICW_{it} + \beta_2 BIG_{it} + \beta_3 ICW * BIG_{it} + \beta_4 CONSECUTIVE_{it} + \beta_5 REMEDIYR_{1it} + \beta_6 REMEDIYR_{2it} + \beta_7 REMEDIYR_{3it} + \beta_8 DTACC_{it} + \beta_9 LEVERAGE_{it} + \beta_{10} ROA_{it} + \beta_{11} LOSS_{it} + \beta_{12} LNASSETS_{it} + \beta_{13} SALESGR_{it} + \beta_{14} LNSEGS_{it} + \beta_{15} FY2004_{it} + \beta_{16} FY2005_{it} + \beta_{17} FY2006_{it} + \sum INDUSTRY_{it} + \varepsilon_{it} \quad (1)$$

Dependent Variable

LNAUDITFEES, the dependent variable, measures audit fees and is defined as the natural logarithm of audit fees.

Test Variables

CONSECUTIVE measures the disclosure of an ineffective control environment in consecutive years. *CONSECUTIVE* is an indicator variable equal to 1 if the firm disclosed an internal control weakness in the previous year and again in the current year; 0 otherwise. We expect the continued existence of internal control weaknesses to indicate greater audit risk.

¹ The sample breakdown of firm-year observations by year is 1,447, 2,224, 2,575 and 2,876 from fiscal years 2004, 2005, 2006 and 2007, respectively.

The auditor will respond to the increased risk with an increase in audit testing and a subsequent increase in audit fees. Thus, we expect a positive coefficient on *CONSECUTIVE*.

We further examine consecutive weaknesses by differentiating between firms with the same material weakness in consecutive years (*REPEATSAME*) and firms with different material weaknesses in consecutive years (*REPEATDIFFERENT*). Firms with the same material weakness in consecutive years chose not to remediate. We expect *REPEATSAME* firms to have greater audit risk, leading to more audit testing and higher fees. We expect firms with different material weaknesses in consecutive years to also have high risk because the firm has two (or more) problems with their control environment in a relatively short window of time. We expect the auditor will respond by increasing testing and charging higher fees. Thus, we expect positive coefficients on both *REPEATSAME* and *REPEATDIFFERENT*. In addition we expect differential fee pricing by the auditor depending on whether the material weakness is the same or different in consecutive years. Specifically, we expect that audit risk is higher for firms with the same material weakness as the firm had the opportunity to remediate. Thus, we expect the coefficient on *REPEATSAME* to be significantly higher than the coefficient on *REPEATDIFFERENT*.

REMEDYYR1 is an indicator variable equal to 1 if a firm previously disclosed an ineffective control environment and remediated and it is the first year after the disclosure, and zero otherwise. If a firm remediates, auditors may be able to reduce their effort surrounding the audit of a client's internal controls and reduce fees. However, in the first year after disclosure, the control environment will be ineffective at the beginning of the year, and the auditor may not elect to rely on the internal controls throughout the year. Though the firm

remediated, the auditor may not reduce testing. Due to the contradictory arguments, we do not make a sign prediction on the coefficient on *REMEDYYR1*.

REMEDYYR2 (*REMEDYYR3*) equal 1 if a firm previously disclosed an ineffective control environment and remediated, and it is the second (third) year after disclosure. In the second (third) year after a firm remediates, auditor effort may decline and audit fees are expected to decrease. Alternatively, a risk premium may be built into the audit fee at the time of disclosure and we would expect audit fees to remain high even in years subsequent to remediation. Thus we do not make a sign prediction on *REMEDYYR2* (*REMEDYYR3*).

ICW is measured as the number of material weaknesses a firm discloses on Form 10-K.² We expect that Big 4 auditors are more proficient in capturing an audit fee premium on engagements with material weakness disclosures compared to non-Big 4 auditors. We predict a positive coefficient on the interaction term between *ICW* and *BIG4*.

Control Variables

We include control variables that prior literature posits are relevant in determining auditor fees. Following Elder et al. (2009), we include the number of internal control weakness, *ICW*. An auditor of a firm with more internal control weaknesses will perform additional testing, thus, we predict a positive coefficient on *ICW*. We include discretionary accruals, *DTACC*, to measure financial reporting quality. *DTACC* controls for inherent risk, a component of audit risk, and is calculated using the modified-Jones approach as defined in the appendix. We expect

² Form 10-K, Item 9A, Controls and Procedures includes management's assessment on the effectiveness of the firm's internal controls over financial reporting, and if necessary, describes any material internal control weaknesses identified.

firms with higher discretionary accruals, thus lower financial reporting quality, to have higher audit fees. Thus, we expect a positive coefficient on *DTACC*.

Several prior studies (including Francis 1984; Francis and Stokes 1986; and Palmrose 1986) suggest that the former Big 8 firms are able to charge higher audit fees for the perceived higher quality of their services. We predict a positive coefficient on *BIG4*, measured as a dichotomous variable that equals one if the firm is audited by a Big 4 firm, zero otherwise.

Following prior research, we include several variables to control for client-business risk, “the risk that the client’s economic condition will deteriorate in either the short term or long term” (Johnstone 2000). Specifically, we include leverage (*LEVERAGE*), return on assets (*ROA*), and loss (*LOSS*) (Elder et al. 2009, Francis et al. 2005). We expect that firms with higher leverage and loss firms are riskier and pay higher audit fees. Thus, we predict a positive coefficient on *LEVERAGE* and *LOSS*. Firms with better performance have a higher *ROA* and less risk and are expected to have lower audit fees. Therefore, we expect a negative coefficient on *ROA*.

We also control for other variables that are related to audit fees. Prior literature (Elder et al. 2009, Francis et al. 2005) suggests that higher fees are expected for larger clients. We control for size with *LNASSETS*, measured as the natural logarithm of a firm’s assets and predict a positive coefficient. Firms with strong sales growth have better performance, are less risky and are expected to pay lower audit fees. Alternatively, firms with strong sales growth may have more audit work and pay higher fees due to additional hours of testing. *SALESGR* is measured as the difference in sales growth from year *t* to year *t-1* divided by sales growth in year *t-1* (Elder et al. 2009). We do not make a sign prediction on *SALESGR*. Prior literature suggests that more complex firms have higher audit fees (Elder et al. 2009, Francis et al. 2005).

We proxy for firm complexity with *LNSEGS*, measured as the natural log of the number of business segments. We expect a positive coefficient on *LNSEGS*.

Following Elder et al. (2009) and Francis et al. (2005) we control for macroeconomic factors related to time and industry. The dichotomous year variables, *FY2004*, *FY2005*, and *FY2006*, control for macroeconomic effects that may change from year to year. We control for industry effects based on the Fama and French (1997) industry classifications, *INDUSTRY*.

4. RESULTS

Table 1 provides percentages of internal control weaknesses for firms disclosing a material weakness in one year, two, three, and four consecutive years. Firms disclosing a material weakness in one year include firm-years in the first year in our sample and firm-years in which the firm did not disclose a material weakness in the previous year. The denominator of each successive year includes only firms that disclosed a material weakness in the preceding year(s). 743 firms disclosed a material weakness in at least one year from a population of 8,372 firm-years. Firms disclosing a material weakness in two consecutive years include any firm-year in which the firm disclosed a material weakness in the prior year, but did not disclose a material weakness two years prior, either because the firm had a clean opinion or because there were no disclosures two years prior. One-hundred-eighty firms disclosed a material weakness in at least two years, representing 30.8% of a possible 585 firm-years. Firms disclosing a material weakness in three (four) consecutive years represent 44.3% (47.1%) of a possible 131 (34) firm-years.³

³ Firms that disclose a material weakness in the prior three consecutive years with available *Compustat* data for the fourth year are included in the denominator of firms disclosing a material weakness in four consecutive years (34 firm-years).

Insert Table 1 about here

Table 2 provides descriptive statistics for our sample. The mean statistics indicate that the natural log of audit fees (*LNAUDITFEES*) is 14.1, similar to Francis et al. (2005). The mean audit fee is \$2,640 million similar to Elder et al. (2009). Twenty-five percent of sample firms disclose internal control weaknesses and 18 percent of sample firms that disclose have a Big 4 auditor. Two percent of firms disclose consecutive internal control weaknesses in each of the previous two years. Five percent of firms are in the first year after a disclosed internal control weakness is remediated. Three (one) percent of firms are in the second (third) year after a disclosed internal control weakness is remediated. Table 2 also provides descriptive statistics for the control variables. The mean firm size measured by total assets is \$7,638 million. The median statistics are similar to Elder et al. (2009) with the exception of *ICW*, *DTACC*, *LNASSETS*, *SALESGR*, and *LNSEGS* which are higher in our sample perhaps due to our longer sample period and larger sample size.

Insert Table 2 about here

Table 3 provides the Pearson correlation coefficients among the dependent, test, and control variables. We expect the disclosure of consecutive internal control weaknesses, *CONSECUTIVE*, to indicate greater audit risk and that the auditor will increase audit testing and audit fees. The correlation between *LNAUDITFEE* and *CONSECUTIVE* is positive and significant as expected. Further, we expect that when a firm discloses the same material weakness in the previous and current year, *REPEATSAME*, that the auditor will assess greater risk, increase audit testing and increase fees. The correlation between *LNAUDITFEE* and *REPEATSAME* is positive and significant suggesting that auditors assess higher risk for firms that chose not to remediate.

We also examine the relationship between *LNAUDITFEE* and *REPEATDIFFERENT*. We expect that the auditor of a firm disclosing different material weaknesses in consecutive years will assess higher risk, increase testing and subsequently increase audit fees because the client has two (or more) internal control issues in a relatively short period of time. The correlation between *LNAUDITFEE* and *REPEATDIFFERENT* is positive and significant.

Another primary interest is in the relationship between audit fees, *LNAUDITFEE*, and remediation. If a firm's controls are ineffective at the end of the prior year, the controls are ineffective at the start of the current fiscal year, the auditor is not likely to reduce substantive testing and audit fees should remain high. Alternatively, remediation may reduce auditor effort and result in a decrease in audit fees. We do not make a sign prediction on the relationship between *LNAUDITFEE* and the remediation variables. The correlations between *LNAUDITFEE* and *REMEDYYR1* (*REMEDYYR2*) (*REMEDYYR3*) are not significant. However, the univariate analysis does not account for other factors that can impact the relationship between audit fees and remediation. We utilize multivariate analysis to address these issues.

Other univariate relationships reported in Table 3 are worth noting. Audit fees are significantly positively correlated with the number of ICWs (*ICW*), higher long-term debt-to-asset ratios (*LEVERAGE*), the ratio of income before extraordinary items divided by average total assets (*ROA*), whether a firm is a Big 4 auditor, (*BIG4*), the natural logarithm of total assets (*LNASSETS*), and the natural logarithm of the number of business segments (*LNSEGS*). Audit fees (*LNAUDITFEE*) are significantly negatively correlated with discretionary accruals (*DTACC*), and loss firms (*LOSS*). The correlation between *LNAUDITFEE* and *SALESGR* is not significant. We control for these variables in our multivariate tests to assess the marginal impact of

CONSECUTIVE, *REPEATSAME*, *REPEATDIFFERENT* and *REMEDYYR1*, *REMEDYYR2*, and *REMEDYYR3*, *BIG*ICW* on audit fees.

Insert Table 3 about here

Table 4 reports the regression results from the OLS estimation of Equation (1). We report White (1980) heteroskedasticity-consistent t-statistics. Before proceeding to the discussion of the results it is useful to discuss the goodness-of-fit statistics for the model. The model explains audit fees well, with an adjusted r-square of 0.743, which is similar to previous audit fee studies (Elder et al. 2009; Francis et al. 2005).

Recent research suggests that audit and client business risk are priced into audit fees (Elder et al. 2009). We account for firms that disclose an ineffective control environment in both of the previous two years, with the variable *CONSECUTIVE*. The coefficient on *CONSECUTIVE* is positive and significant, suggesting that audit fees are higher for firms that disclose ineffective controls in consecutive years.⁴ Since audit effort should not increase significantly due to the material weakness disclosure in the second year, this finding supports the view that auditors charge a risk premium for firms with a consistent ineffective control environment. We further examine consecutive material weaknesses by differentiating between firms that disclose the *same (different)* material weakness in consecutive years, *REPEATSAME (REPEATDIFFERENT)*. The coefficient on *REPEATSAME* is positive and significant suggesting that firms that disclose the same material weakness in consecutive years pay higher audit fees. The coefficient on *REPEATDIFFERENT* is also positive and significant which provides evidence that firms that report different material weaknesses in consecutive years also pay higher audit fees.

⁴ We repeat the analysis excluding 2004 since *CONSECUTIVE* and *REMEDYYR1* are always coded 0 in 2004. Results (untabulated) are qualitatively similar.

We compare the coefficient on *REPEATSAME* to the coefficient on *REPEATDIFFERENT* and find that firms that report the same control weakness pay higher audit fees than firms that report a different material weakness in consecutive years ($F=8.67$, $p= 0.00$). This finding suggests that auditors assess higher risk if the firm repeats the same material weakness in consecutive years than if the firm discloses a different material weakness in the second year, perhaps because in the former case the firm had the opportunity to remediate.

We include three additional variables to account for the impact of remediation. A firm can remediate by taking actions to either repair their existing control functions or implement a new or mitigating control in order to ensure that their control system is sufficient to prevent or detect a material misstatement. The coefficient on *REMEDYYR1* is positive and significant, suggesting that auditor effort remains high in the first year following the disclosure of an ineffective control environment even though the firm remediated. We next examine whether there is differential pricing by the auditor for firms with consecutive weaknesses (*CONSECUTIVE*) as compared to firms that remediate (*REMEDYYR1*). We expect firms with consecutive weaknesses to pay higher audit fees than firms that remediate. We compare the coefficient on *CONSECUTIVE* to the coefficient on *REMEDYYR1* and find that firms that report consecutive material weaknesses pay significantly higher audit fees than firms that remediate ($F=14.22$, $p=0.0002$).

The coefficients on *REMEDYYR2* and *REMEDYYR3* are positive and significant. Though the auditor should be able to rely on the controls and reduce testing and effort, we find that firms are still paying higher audit fees two and three years after the initial disclosure. This finding supports the argument that auditors build a risk premium into the audit fee at the time

of disclosure. The presence of higher audit fees in years subsequent to remediation suggests that the audit fee is “sticky” and once the auditor increases their fee in response to an ineffective control environment, the auditor resists reducing the fee. A potential explanation for the “stickiness” is that the auditor did not reduce their perceived risk at the time of remediation. Another explanation is that though the firm remediated and receives a clean audit opinion on the effectiveness of their internal controls, the firm’s internal controls are not as effective as a company that never reported a material weakness.

We next discuss the results on our predicted relation on the interaction between *ICW* and *BIG4* and audit fees. The coefficient on the interaction term in Table 4 is positive and significant suggesting that Big 4 auditors are able to capture an additional fee premium on engagements with material weakness disclosures as compared to non-Big 4 auditors.

Turning to our control variables, we find the coefficients on *ICW*, *LEVERAGE*, *LOSS*, *BIG4*, *LNASSETS*, *SALESGR*, and *LNSEGS* are positive and significant suggesting that firms with more internal control weaknesses, high leverage, loss firms, firms with a Big 4 auditor, larger firms, firms with higher sales growth and firms with more business segments have higher audit fees.⁵ The coefficient on *ROA* is negative and significant, suggesting that firms with better performance are less risky and incur lower audit fees. The coefficient on discretionary accruals, *DTACC*, is statistically insignificant. The control variables in Table 4 are significant in the predicted directions and consistent with Elder et al. (2009) with the exception of the leverage

⁵ Elder et al. (2009) find a positive relationship between an internal control weakness and audit fees in the first year of SOX Section 404. We examine individual regressions by year (untabulated) and find evidence that the positive relationship between number of internal control weaknesses and audit fees exists in the SOX Section 404 implementation year and persists two years after.

variable (*LEVERAGE*) that has a positive and significant coefficient. However, our finding that more highly levered firms have higher audit fees is consistent with Francis et al. (2005).

Insert Table 4 about here

We replace *ICW* with two variables that measure the type of internal control weakness (Elder et al. 2009). Specifically, *ICWCOMP* (*ICWACCT*) equals one for a company-wide (account-specific) internal control weakness; 0 otherwise. Prior research suggests that company-wide issues are more severe than account-specific issues, based on greater association with accruals quality (e.g., Doyle et al. 2006) and auditor realignments (Ettredge et al. 2006). The coefficients on *ICWCOMP* and *ICWACCT* are positive and significant. We find that the coefficient on company-wide weaknesses is significantly higher than the coefficient on account-specific weaknesses, which suggests that auditors charge higher fees for company-wide weaknesses.⁶

The coefficients on *CONSECUTIVE*, *REPEATSAME*, *REPEATDIFFERENT*, *REMEDYYR1*, *REMEDYYR2*, *REMEDYYR3* and *ICW*BIG4* remain positive and significant after including indicator variables for type of internal control weakness. Coefficients on the control variables are similar to those reported in Table 4, column 1.

Incremental Impact of Internal Control Weaknesses

Next, we analyze the incremental impact of each additional internal control weakness on the audit fee by replacing *ICW* with indicator variables that represent a specified number of disclosed material weaknesses for each firm. For example, the variable *ICW1* equals 1 if the firm discloses one material weakness and zero otherwise; the variable *ICW2* equals 1 if the firm

⁶ Elder et al. (2009) find that audit fees are higher if a firm has a company-wide weakness than an account-specific weakness in the first year of SOX Section 404. We estimate the regression model by year (untabulated) and find evidence that this relationship exists in the SOX Section 404 implementation year and in each of the three years after.

discloses two material weaknesses and zero otherwise; and so forth.⁷ The sample size remains 9,122 firm-year observations. The adjusted r-square is 0.744 in Table 5, which is similar to the adjusted r-square reported in Table 4. The coefficients on the number of weaknesses are positive and significant and generally increase as the number of weaknesses increase. The results suggest that as the number of weakness disclosures increase, auditors assess more risk, increase testing, and increase fees.

Insert Table 5 about here

Audit Fee Change

The results reported in Table 4 suggest that the audit fee of a firm with a prior disclosure of a material weakness remains high even in the years following remediation. While we argue our finding is due to an increase in the auditor’s perceived risk of the firm, an alternative explanation is that prices remain high following remediation because the audit fee is “sticky”. To further examine the effect of remediation on audit fees, we analyze how auditors change fees in response to changes in the client’s control environment. Specifically, we use Ordinary Least Squares (OLS) regression to examine the effect of remediation on change in audit fees and estimate the following model:

$$\begin{aligned}
 AUDITFEECG_{it} = & \beta_0 + \beta_1 ICWNEW_{it} + \beta_2 REMEDYYR_{1i} + \beta_3 REMEDYYR_{2i} + \beta_4 REMEDYYR_{3i} + \beta_5 DTACCCG_{it} + \\
 & \beta_6 LEVERAGECG_{it} + \beta_7 ROACG_{it} + \beta_8 LOSSCG_{it} + \beta_9 ASSETSCG_{it} + \beta_{10} SALESGRCG_{it} + \beta_{11} SEGSCG_{it} + \\
 & \beta_{12} FY2004_{it} + \beta_{13} FY2005_{it} + \beta_{14} FY2006_{it} + \sum INDUSTRY_{it} + \varepsilon_{it}
 \end{aligned} \tag{2}$$

Change in audit fees from the prior year, *AUDITFEECG*, is the dependent variable. The independent variables measure change in audit risk. We include, *ICWNEW*, to measure disclosure of a material weakness in the current year where no such disclosures were made in

⁷ No firm in our sample reports exactly thirteen, fifteen or nineteen disclosed weaknesses, thus ICW13, ICW15 and ICW19 are not included in Table 5.

the prior year. We include *REMEDYYR1*, to measure firms that remediate material weaknesses disclosed in the prior year. We include *REMEDYYR2* (*REMEDYYR3*) to measure firms that remediate material weaknesses disclosed two (three) years ago, respectively. Finally, we include change in client business risk, and change in a set of control variables as discussed earlier and defined in the Appendix. The sample size for the model is 5,086 firm-years.

We next discuss the goodness-of-fit measures in the audit fee change model. The adjusted r-square for the model in Table 6, column 1 is 0.046, similar to Elder et al. (2009). The coefficient on *ICWNEW* is positive and significant, which suggests that firms with newly identified internal control weaknesses have a greater increase in audit fees, due to additional testing and higher risk. The coefficients on the remediation variables, *REMEDYYR1*, *REMEDYYR2*, and *REMEDYYR3*, are not significant. This finding provides further support that auditors do not reduce audit fees for clients that disclosed and subsequently remediate. This finding also provides support that audit fees are “sticky”.

Similar to Elder et al. (2009) the coefficients on *LOSSCG*, change in the loss indicator variable, and *ASSETSCG*, change in total assets are positive and significant. These findings suggest that larger firms and profitable firms that change to a loss position experience an increase in fees. The coefficients on *SALESGRCG* and *SEGSCG* are also positive and significant suggesting that firms that have more sales or become more complex experience an increase in audit fees. Results are robust to replacing *ICWNEW* with *ICWCOMPNEW* and *ICWACCTNEW* as shown in Table 6, column 2.

Insert Table 6 about here

5. CONCLUSION

This paper examines the impact of internal control weaknesses and their remediation on audit fees and contributes to the literature examining the effect of a client's ineffective control environment on fees. We find that a persistently ineffective control environment has a positive effect on audit fees, indicating that auditors may use disclosure in consecutive years as a signal of client related risk and price it into the audit fee. In addition, our results suggest that firms that report the same material weakness in consecutive years pay higher audit fees than firms that report different material weaknesses in consecutive years. We also analyze the impact of additional internal control weakness on the audit fee and find that there is a significant incremental impact for additional disclosed material weaknesses. Further, our results suggest that Big 4 auditors are more proficient at capturing a fee premium on engagements with disclosure of ineffective controls as compared to non-Big 4 auditors.

Our results suggest that firms that remediate continue to pay higher audit fees in the year of remediation. This finding suggests that the auditor is not able to rely on the client's controls despite their effectiveness in the current disclosure year, and is unable to reduce testing. We also find that audit fees continue to remain high two and three years after remediation, despite the auditor's ability to rely on controls and reduce testing. The findings are consistent with the contention that a portion of the increase in fees in response to the disclosure of an ineffective control environment is due to the existence of a risk premium, rather than solely to an increase in auditor effort. An analysis of change in audit fees provides further support that auditors do not reduce audit fees for clients that remediate. The finding that audit fees do not decrease significantly even three years after a firm remediates provides

evidence that audit fees are “sticky”. Future research can examine whether the relationship between audit fees and remediation differs for accelerated versus non-accelerated filers. Prior research finds that internal governance factors such as audit committee and board structure are determinants of remediation; however, remediation is not associated with external governance factors such as the nature of the auditor, analyst following or institutional ownership (Li et al. 2008). Future studies can shed light on other determinants of remediation.

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APPENDIX

Variable names	Variable definitions
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Dependent Variables:

LNAUDITFEES	The natural logarithm of total audit fees.
AUDITFEECG	The difference in audit fees between year t and year t-1, divided by the audit fees from year t-1.

Audit Risk Variables:

ICW	The number of weaknesses identified by the auditor in the Auditor's Report.
ICWCOMP	An indicator variable that takes on a value of one if the firm has either weaknesses related to "ineffective control environment" or "management override" or weaknesses related to at least three account-specific problems; 0 otherwise.
ICWACCT	An indicator variable that takes on a value of one if the firm discloses less than three account-specific weaknesses; 0 otherwise.
CONSECUTIVE	An indicator variable equal to 1 if the firm disclosed an internal control weakness in both of the previous two years; 0 otherwise.
REPEATSAME	An indicator variable equal to 1 if the firm disclosed an internal control weakness in both of the previous two years and the weakness is the same in both years; 0 otherwise.
REPEATDIFFERENT	An indicator variable equal to 1 if the firm disclosed an internal control weakness in both of the previous two years and the weakness is not the same in both years; 0 otherwise.
REMEDYYR1	An indicator variable equal to 1 if the firm previously disclosed an ineffective internal control environment, the firm remediated the internal control weaknesses and it is the first year after the disclosure of the ineffective control environment; 0 otherwise.
REMEDYYR2	An indicator variable equal to 1 if the firm previously disclosed an ineffective internal control environment, the firm remediated the internal control weaknesses and it is the second year after the disclosure of the ineffective control environment; 0 otherwise.
REMEDYYR3	An indicator variable equal to 1 if the firm previously disclosed an ineffective internal control environment, the firm remediated the internal control weaknesses and it is the third year after the disclosure of the ineffective control environment; 0 otherwise.
DTACC	The residual from the following regression (following Kothari et al. (2005)): $TOTACC_{i,t} = B_0(1/TA_{i,t-1}) + B_1(\Delta SALES_{i,t} - \Delta AR_{i,t})/TA_{i,t-1} + B_2(PPE_{i,t}/TA_{i,t-1})$ where: $TOTACC_{i,t} = (OpInc_{i,t} - (CFO_{i,t} - ExtraIncDiscOp_{i,t}))/TA_{i,t-1}$ (following Hribar and Collins (2002)), $\Delta SALES$ is the change in a firm's sales revenue; ΔAR is the change in accounts receivable; PPE is gross property, plant, and equipment; and TA is total assets. The regression is estimated for firms in a given two-digit SIC code each year.

Client Business Risk Variables:

LEVERAGE	The ratio of long-term debt to total assets.
ROA	The ratio of income before extraordinary items divided by average total assets.
LOSS	An indicator variable equal to 1 if the firm incurred a loss in the current fiscal year; 0 otherwise.

Control Variables:

LNASSETS	The natural logarithm of total assets.
SALESGR	The difference in sales from year t-1 to year t divided by sales in year t-1. If a firm has zero sales in the prior year and sales in the current year, sales growth is set to 100%.
LNSEGS	The natural logarithm of the number of business segments.
BIG4	An indicator variable equal to 1 if the auditor was one of the Big 4 auditors; 0 otherwise.
FY2004	An indicator variable equal to 1 if the firm year is 2004, or the first year that Section 404 was effective; 0 otherwise.
FY2005	An indicator variable equal to 1 if the firm year is 2005; 0 otherwise.
FY2006	An indicator variable equal to 1 if the firm year is 2006; 0 otherwise.

Variables to measure incremental impact of an internal control weakness:

ICW1	An indicator variable equal to 1 if the firm discloses one material weaknesses; 0 otherwise.
ICW2	An indicator variable equal to 1 if the firm discloses two material internal control weaknesses; 0 otherwise.
ICW3	An indicator variable equal to 1 if the firm discloses three material internal control weaknesses; 0 otherwise.
ICW4	An indicator variable equal to 1 if the firm discloses four material internal control weaknesses; 0 otherwise.
ICW5	An indicator variable equal to 1 if the firm discloses five material internal control weaknesses; 0 otherwise.
ICW6	An indicator variable equal to 1 if the firm discloses six material internal control weaknesses; 0 otherwise.
ICW7	An indicator variable equal to 1 if the firm discloses seven material internal control weaknesses; 0 otherwise.
ICW8	An indicator variable equal to 1 if the firm discloses eight material internal control weaknesses; 0 otherwise.
ICW9	An indicator variable equal to 1 if the firm discloses nine material internal control weaknesses; 0 otherwise.
ICW10	An indicator variable equal to 1 if the firm discloses ten material internal control weaknesses; 0 otherwise.
ICW11	An indicator variable equal to 1 if the firm discloses eleven material internal control weaknesses; 0 otherwise.
ICW12	An indicator variable equal to 1 if the firm discloses twelve material internal control weaknesses; 0 otherwise.
ICW13	An indicator variable equal to 1 if the firm discloses thirteen material internal control weaknesses; 0 otherwise.
ICW16	An indicator variable equal to 1 if the firm discloses sixteen material internal control weaknesses; 0 otherwise.
ICW17	An indicator variable equal to 1 if the firm discloses seventeen material internal control weaknesses; 0 otherwise.
ICW18	An indicator variable equal to 1 if the firm discloses eighteen material internal control weaknesses; 0 otherwise.
ICW20	An indicator variable equal to 1 if the firm discloses twenty material internal control weaknesses; 0 otherwise.

Change Variables:

ICWNEW	An indicator variable that takes on a value of 1 if the firm discloses a material weakness in the current year where no such disclosures were made in the prior year and 0 otherwise.
ICWCOMPNEW	An indicator variable that takes on a value of one if the firm has either weaknesses related to “ineffective control environment” or “management override” or weaknesses related to at least three account-specific problems and no such disclosures were made in the prior year and 0 otherwise.
ICWACCTNEW	An indicator variable that takes on a value of one if the firm discloses less than three account-specific weaknesses and no such disclosures were made in the prior year and 0 otherwise.
DTACCCG	The change in discretionary accruals from year t-1 to year t, divided by the discretionary accruals of year t-1.
LEVERAGECG	The change in leverage from year t-1 to year t, divided by the leverage of year t-1.
ROACG	The change in return on assets from year t-1 to year t, divided by the return on assets of year t-1.
LOSSCG	The change in the <i>LOSS</i> indicator variable from year t-1 to year t.
ASSETSCG	The change in total assets from year t-1 to year t, divided by the total assets from year t-1.
SALESGRCG	The change in the growth of sales from year t-1 to year t, divided by the growth in sales of year t-1.
SEGSCG	The change in the number of business segments from year t-1 to year t, divided by the number of business segments of year t-1.

Table 1. Material Weakness Percentages

	<u>Number of firm-years</u>	<u>Possible firm-years</u>	<u>Percentage</u>
Firms disclosing a material weakness in one year	743	8,372	8.9%
Firms disclosing a material weakness in two consecutive years	180	585	30.8%
Firms disclosing a material weakness in three consecutive years	58	131	44.3%
Firms disclosing a material weakness in four consecutive years	<u>16</u>	<u>34</u>	<u>47.1%</u>
Total	<u>997</u>	<u>9,122</u>	<u>10.9%</u>

Table 2. Descriptive Statistics for the 2004-2007 Sample Data

Variable	Mean	Q1	Median	Q3	Std dev
Dependent Variable					
LNAUDITFEES	14.0577	13.3412	13.9622	14.7059	1.0991
AUDITFEES (in Millions)	2.6406	0.6223	1.1580	2.4360	5.9874
Audit Risk Variables					
ICW	0.2457	0.0000	0.0000	0.0000	1.0189
ICWCOMP	0.0471	0.0000	0.0000	0.0000	0.2119
ICWACCT	0.0622	0.0000	0.0000	0.0000	0.2415
BIGX*ICW	0.1826	0.0000	0.0000	0.0000	0.8782
CONSECUTIVE	0.0234	0.0000	0.0000	0.0000	0.1510
REPEATSAME	0.0167	0.0000	0.0000	0.0000	0.1280
REPEATDIFFERENT	0.0067	0.0000	0.0000	0.0000	0.0815
REMEDYYR1	0.0544	0.0000	0.0000	0.0000	0.2268
REMEDYYR2	0.0323	0.0000	0.0000	0.0000	0.1769
REMEDYYR3	0.0094	0.0000	0.0000	0.0000	0.0966
DTACC	0.0216	-0.0270	0.0114	0.0590	0.1977
Client Business Risk Variables					
LEVERAGE	0.1837	0.0010	0.1259	0.2851	0.2249
ROA	0.0048	0.0012	0.0444	0.0900	0.2285
LOSS	0.2495	0.0000	0.0000	0.0000	0.4328
Control Variables					
BIGX	0.8594	1.0000	1.0000	1.0000	0.3477
LNASSETS	20.5544	19.2305	20.3879	21.7084	1.8494
TOTALASSETS (Millions)	7,638.07	224.74	715.108	2,678.20	54,687.73
SALESGR	1.6853	0.0293	0.1207	0.2724	124.4945
LNSEGS	0.6627	0.0000	0.6931	1.3863	0.6988
FY2004	0.1586	0.0000	0.0000	0.0000	0.3653
FY2005	0.2438	0.0000	0.0000	0.0000	0.4294
FY2006	0.2823	0.0000	0.0000	1.0000	0.4501
N	9,122				

All variable definitions are in the Appendix.

Table 3. Pearson correlation coefficients

	LNAUDITFEES	ICW	ICWCOMP	ICWACCT	BIGX*ICW	CONSECUTIVE	REPEATSAME	REPEATDIFFERENT
LNAUDITFEES	1.0000							
ICW	0.0855 ***	1.0000						
ICWCOMP	0.0666 ***	0.7389 ***	1.0000					
ICWACCT	0.0061	0.2410 ***	-0.0573 ***	1.0000				
BIGX*ICW	0.1394 ***	0.8490 ***	0.6335 ***	0.2112 ***	1.0000			
CONSECUTIVE	0.0875 ***	0.3845 ***	0.3561 ***	0.2579 ***	0.2870 ***	1.0000		
REPEATSAME	0.0883 ***	0.3032 ***	0.2862 ***	0.2290 ***	0.2441 ***	0.8419 ***	1.0000	
REPEATDIFFERENT	0.0235 **	0.2363 ***	0.2102 ***	0.1182 ***	0.1484 ***	0.5306 ***	-0.0107	1.0000
REMEDYR1	0.0041	-0.0578 ***	-0.0533 ***	-0.0617 ***	-0.0499 ***	-0.0371 ***	-0.0312 ***	-0.0197
REMEDYR2	0.0036	-0.0441 ***	-0.0407 ***	-0.0471 ***	-0.0380 ***	-0.0283 ***	-0.0238 **	-0.0150
REMEDYR3	-0.0015	-0.0235 **	-0.0217 **	-0.0251 **	-0.0203 *	-0.0151	-0.0127	-0.0080
DTACC	-0.1643 ***	-0.0073	-0.0142	-0.0002	-0.0371 ***	-0.0200 *	-0.0106	-0.0202
LEVERAGE	0.1436 ***	-0.0033	-0.0177 *	-0.0091	0.0200 *	-0.0222 **	-0.0147	-0.0180
ROA	0.1927 ***	-0.0542 ***	-0.0553 ***	-0.0217 **	-0.0256 **	-0.0289 ***	-0.0313 ***	-0.0043
LOSS	-0.1906 ***	0.1280 ***	0.1228 ***	0.0583 ***	0.0944 ***	0.0887 ***	0.0773 ***	0.0428
BIGX	0.3571 ***	-0.0804 ***	-0.0677 ***	-0.0591 ***	0.0841 ***	-0.0836 ***	-0.0680 ***	-0.0481
LNASSETS	0.7875 ***	-0.0518 ***	-0.0584 ***	-0.0623 ***	0.0089	-0.0214 **	-0.0130	-0.0192
SALESGR	-0.0128	-0.0027	-0.0026	-0.0023	-0.0025	-0.0019	-0.0016	-0.0010
LNSEGS	0.4333 ***	0.0192 *	0.0185 *	-0.0159	0.0390 ***	0.0179 *	0.0323 ***	-0.0175
FY2004	-0.0043	0.0682 ***	0.0634 ***	0.0374 ***	0.0737 ***	-0.0671 ***	-0.0565 ***	-0.0356
FY2005	-0.0194 *	0.0420 ***	0.0375 ***	0.0315 ***	0.0395 ***	0.0136	0.0099	0.0098
FY2006	0.0259 **	-0.0257 **	-0.0223 **	-0.0122	-0.0314 ***	0.0304 ***	0.0268 **	0.0143

	REMEDYR1	REMEDYR2	REMEDYR3	DTACC	LEV	ROA	LOSS
LNAUDITFEES							
ICW							
ICWCOMP							
ICWACCT							
BIGX*ICW							
CONSECUTIVE							
REPEATSAME							
REPEATDIFFERENT							
REMEDYR1	1.0000						
REMEDYR2	-0.0438 ***	1.0000					
REMEDYR3	-0.0234 **	-0.0178 *	1.0000				
DTACC	0.0039	-0.0123	-0.0191 *	1.0000			
LEV	-0.0138	-0.0069	0.0383 ***	-0.0534 ***	1.0000		
ROA	-0.0141	0.0079	-0.0065	0.1914 ***	-0.0768 ***	1.0000	
LOSS	0.0628 ***	-0.0052	0.0145	-0.1246 ***	0.0714 ***	-0.5904 ***	1.0000
BIGX	-0.0949 ***	-0.0776 ***	-0.0650 ***	-0.1381 ***	0.0873 ***	0.0863 ***	-0.1158 ***
LNASSETS	-0.0579 ***	-0.0278 ***	-0.0112	-0.1590 ***	0.2143 ***	0.3189 ***	-0.3403 ***
SALESGR	-0.0025	-0.0023	-0.0013	-0.0500 ***	-0.0090	0.0270 ***	-0.0046
LNSEGS	-0.0068	0.0072	-0.0014	-0.0170	0.0650 ***	0.1522 ***	-0.1928 ***
FY2004	-0.1041 ***	-0.0794 ***	-0.0424 ***	0.0063	0.0139	-0.0113	0.0021
FY2005	0.0260 **	-0.1038 ***	-0.0554 ***	-0.0017	-0.0235 **	0.0138	-0.0147
FY2006	0.0601 ***	0.0437 ***	-0.0612 ***	0.0055	-0.0192 *	0.0049	-0.0250 **

	BIGX	LNASSETS	SALESGR	LNSEGS	FY2004	FY2005	FY2006
LNAUDITFEES							
ICW							
ICWCOMP							
ICWACCT							
BIGX*ICW							
CONSECUTIVE							
REPEATSAME							
REPEATDIFFERENT							
REMEDYR1							
REMEDYR2							
REMEDYR3							
DTACC							
LEV							
ROA							
LOSS							
BIGX	1.0000						
LNASSETS	0.3492 ***	1.0000					
SALESGR	-0.0264 **	-0.0248 **	1.0000				
LNSEGS	0.1188 ***	0.4054 ***	-0.0107	1.0000			
FY2004	0.0730 ***	-0.0060	-0.0036	0.0236 **	1.0000		
FY2005	0.0300 ***	-0.0297 ***	-0.0062	-0.0008	-0.2466 ***	1.0000	
FY2006	-0.0174 *	0.0233 **	-0.0069	0.0065	-0.2723 ***	-0.3561 ***	1.0000

All variable definitions are in the Appendix.

*, **, *** denote significance at the 10, 5, and 1 percent levels, respectively.

Table 4. Regression analyses on the relation between audit fees and material weakness disclosures

$$\begin{aligned}
 LNAUDITFEE_{it} = & \beta_0 + \beta_1 ICW_{it} + \beta_2 BIGX_{it} + \beta_3 CONSECUTIVE_{it} + \beta_4 REMEDYR1_{it} \\
 & + \beta_5 REMEDYR2_{it} + \beta_6 REMEDYR3_{it} + \beta_7 DTACC_{it} + \beta_8 LEVERAGE_{it} + \beta_9 ROA_{it} \\
 & + \beta_{10} LOSS_{it} + \beta_{11} BIGX_{it} + \beta_{12} LNASSETS_{it} + \beta_{13} SALESGR_{it} + \beta_{14} LNSEGS_{it} \\
 & + \beta_{15} FY2004_{it} + \beta_{16} FY2005_{it} + \beta_{17} FY2006_{it} + \sum INDUSTRY_{it} + \varepsilon_{it}
 \end{aligned}$$

Variable	Predicted Sign	LNAUDITFEES	LNAUDITFEES	LNAUDITFEES	LNAUDITFEES
Intercept		3.7605 *** (39.69)	3.69841 *** (39.03)	3.76268 *** (39.72)	3.70152 *** (39.08)
Audit Risk Variables					
ICW	+	0.07261 *** (4.80)		0.0756 *** (5.20)	
ICWCOMP	+		0.46215 *** (12.40)		0.46427 *** (12.47)
ICWACCT	+		0.23276 *** (8.60)		0.23156 *** (8.57)
BIGX*ICW	+	0.03983 ** (2.37)		0.03704 ** (2.28)	
CONSECUTIVE	+	0.47563 *** (9.86)	0.40915 *** (8.07)		
REPEATSAME				0.54504 *** (10.36)	0.47319 *** (8.47)
REPEATDIFFERENT				0.29422 *** (3.17)	0.24885 *** (2.70)
REMEDYR1		0.29 *** (10.30)	0.30441 *** (10.79)	0.29046 *** (10.31)	0.30451 *** (10.79)
REMEDYR2		0.22339 *** (6.97)	0.23594 *** (7.34)	0.22376 *** (6.98)	0.23600 *** (7.34)
REMEDYR3		0.17734 *** (3.50)	0.18967 *** (3.75)	0.17773 *** (3.51)	0.18968 *** (3.75)
DTACC		-0.02735 (-0.54)	-0.02208 (0.44)	-0.02924 (-0.58)	-0.02362 (-0.47)
Client Business Risk Variables					
LEVERAGE	+	0.05341 * (1.81)	0.06052 ** (2.05)	0.05347 * (1.82)	0.06052 ** (2.05)
ROA	-	-0.21787 *** (-5.60)	-0.21894 *** (-5.51)	-0.21582 *** (-5.55)	-0.21717 *** (-5.47)
LOSS	+	0.11714 *** (6.37)	0.11681 *** (6.27)	0.11677 *** (6.36)	0.11656 *** (6.27)
Control Variables					
BIGX	+	0.28785 *** (14.09)	0.30454 *** (15.25)	0.28866 *** (14.15)	0.30420 *** (15.25)
LNASSETS	+	0.48414 *** (105.21)	0.48621 *** (105.61)	0.48409 *** (105.22)	0.48617 *** (105.65)
SALESGR	+	0.000115 *** (18.33)	0.00012 ** (19.16)	0.00012 *** (18.31)	0.00012 *** (19.13)
LNSEGS	+	0.17116 *** (17.34)	0.1715 *** (17.39)	0.17031 *** (17.24)	0.17075 *** (17.31)
FY2004		0.01131 (0.61)	0.00582 (0.31)	0.01117 (0.60)	0.00585 (0.31)
FY2005		-0.00641 (-0.40)	-0.01011 (-0.63)	-0.00643 (-0.40)	-0.01002 (-0.62)
FY2006		0.01273 (0.83)	0.01031 (0.68)	0.01264 (0.83)	0.01029 (0.68)
Adj R ²		0.7425	0.7424	0.7427	0.7426
F-value		299.87	299.77	296.85	296.67
N		9,122	9,122	9,122	9,122

This table presents the regression results between the natural logarithm of audit fees and consecutive internal control weaknesses, remediation, client business risk variables and control variables for firm-years in 2004 - 2007. The White (1980) heteroskedasticity-consistent t-statistics are reported in the parentheses below parameter estimates. In our regression models, we control for industry dummies, but do not report the coefficients on these variables for brevity. The industry classification follows Fama and French (1997). All variable definitions are in the Appendix.

*, **, *** denote significance at the 10, 5, and 1 percent levels, respectively.

Table 5. Regression analysis on the relation between audit fees and material weakness disclosures

Variable	Predicted Sign	<i>LNAUDITFEES</i>
Intercept		3.71936 (40.95) ***
Audit Risk Variables		
ICW1	+	0.24879 *** (9.49)
ICW2	+	0.32073 *** (7.72)
ICW3	+	0.41178 *** (6.85)
ICW4	+	0.38330 *** (4.65)
ICW5	+	0.60545 *** (6.68)
ICW6	+	0.61820 *** (5.67)
ICW7	+	0.89150 *** (5.00)
ICW8	+	0.64541 *** (4.42)
ICW9	+	0.65027 *** (3.05)
ICW10	+	0.12309 (0.49)
ICW11	+	0.90695 (1.60)
ICW12	+	0.81305 ** (2.52)
ICW13	+	0.57983 (1.03)
ICW16	+	1.54630 *** (2.76)
ICW17	+	1.44294 *** (3.64)
ICW18	+	2.21878 *** (5.54)
ICW20	+	2.25344 *** (4.04)
CONSECUTIVE		0.39069 *** (8.82)
REMEDYR1		0.30438 *** (11.53)
REMEDYR2		0.23535 *** (6.96)
REMEDYR3		0.18937 *** (3.08)
DTACC		-0.02800 (-0.88)
Client Business Risk Variables		
LEVERAGE	+	0.05741 * (1.96)
ROA	-	-0.21866 *** (-6.42)
LOSS	+	0.11376 *** (6.39)
Control Variables		
BIGX		0.30875 *** (16.49)
LNASSETS		0.48494 *** (111.85)
SALESGR	+	0.00012 ** (2.50)
LNSEGS	+	0.17148 *** (17.70)
FY2004	+	0.00281 (0.15)
FY2005		-0.01196 (-0.74)
FY2006		0.00972 (0.64)
Adj R^2		0.7436
F-value		257.82
N		9,122

This table presents the regression results between the natural logarithm of audit fees and the incremental impact of a material internal control weakness, client business risk variables and control variables for firm-years in 2004 - 2007. The White (1980) heteroskedasticity-consistent t -statistics are reported in the parentheses below parameter estimates. In our regression models, we control for industry dummies, but do not report the coefficients on these variables for brevity. The industry classification follows Fama and French (1997). All variable definitions are in the Appendix.

*, **, *** denote significance at the 10, 5, and 1 percent levels, respectively.

Table 6. Regression analyses on the relation between audit fee change and change in material weakness disclosures

Variable	Predicted Sign	<i>AUDITFEECG</i>	<i>AUDITFEECG</i>
Intercept		0.04417 (0.86)	0.04337 (0.85)
Audit Risk Variables			
ICWNEW	+	0.26556 *** (7.55)	
ICWCOMPNEW	+		0.42891 *** (8.07)
ICWACCTNEW	+		0.14334 *** (3.95)
REMEDYYR1		-0.00746 (-0.27)	-0.00332 (-0.12)
REMEDYYR2		-0.04256 (-1.19)	-0.03963 (-1.11)
REMEDYYR3		-0.10270 (-1.61)	-0.10030 (-1.57)
DTACCCG		-0.00010 (-1.17)	-0.00010 (-1.19)
Client Business Risk Variables			
LEVERAGECG	+	0.00000 (-0.10)	0.00000 (-0.12)
ROACG	-	-0.00001 (0.02)	0.00000 (0.00)
LOSSCG	+	0.08947 *** (4.52)	0.08445 *** (4.27)
Control Variables			
ASSETSCG	+	0.27048 *** (14.38)	0.27103 *** (14.44)
SALESGRCG	+	0.00005 ** (2.12)	0.00005 ** (2.13)
SEGSCG	+	0.05473 ** (2.30)	0.05197 ** (2.19)
FY2005		0.02888 (1.46)	0.02579 (1.31)
FY2006		0.06004 *** (3.47)	0.05966 *** (3.45)
Adj R^2		0.0497	0.0530
F-value		4.61	4.82
N		5,806	5,806

This table presents the regression results between the changes in audit fees and changes in audit risk variables, client business risk variables, and control variables for firm-years in 2005 - 2007. T-statistics are reported in the parentheses below parameter estimates. The sample size for Table 6 is 5,806 because we require auditing and financial information for consecutive years. From our full sample of 9,122 firms, we exclude the 1,447 data items from 2004, since audits from the prior year were not conducted according to the provisions of Section 404 of the Sarbanes-Oxley Act of 2002. An additional 1,869 firms were excluded for not having sufficient auditing and financial information for the previous year. In our regression models, we control for industry dummies, but do not report the coefficients on these variables for brevity. The industry classification follows Fama and French (1997). All variable definitions are in the Appendix.

*, **, *** denote significance at the 10, 5, and 1 percent levels, respectively.