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The Effective Use of the Audit Risk Model at the Account Level

The Effective Use of the Audit Risk Model at the Account Level

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy in Business Administration

by

Timothy Seidel
Brigham Young University
Bachelor of Science in Business Management, 2001
University of Notre Dame
Master of Science in Accountancy, 2003

August 2014
University of Arkansas

This dissertation is approved for recommendation to the Graduate Council.

Dr. Linda A. Myers
Dissertation Director

Dr. Gary F. Peters
Committee Member

Dr. Junhee Han
Committee Member

Dr. Cory A. Cassell
Committee Member

ABSTRACT

I examine whether auditors effectively respond to an assessment of high control risk at the account level. The audit risk model assumes that auditors alter their audit procedures to compensate for a greater risk of material misstatement to maintain a low risk of audit failure (i.e., low audit risk). I use internal control weakness disclosures in interim and annual filings to identify assessments of high control risk within specific accounts, and restatements of these specific accounts to identify account-level audit failures. I find an increased incidence of account-level misstatements when control risk within that particular account is high, suggesting that, on average, auditors do not maintain a consistent level of audit risk at the account level in the presence of high control risk. In further analyses, I examine whether the effectiveness of the auditor's response varies as auditor effort (measured using excess audit fees) increases. For certain accounts, I find that additional auditor effort mitigates the likelihood of an ineffective response to high control risk, but that this mitigating effect occurs only at high levels of auditor effort. The results of this study provide insight into the effectiveness of auditors' use of the audit risk model at the account level and suggest areas of the audit where auditors can improve the link between account-level risk assessments and the design, performance, and evaluation of substantive audit tests.

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TABLE OF CONTENTS

I. INTRODUCTION	1
II. BACKGROUND, PRIOR LITERATURE, AND HYPOTHESES.....	9
A. BACKGROUND OF THE AUDIT RISK MODEL.....	9
B. PRIOR LITERATURE	11
C. HYPOTHESES.....	14
III. RESEARCH METHOD.....	17
IV. SAMPLE SELECTION AND DESCRIPTIVE STATISTICS.....	24
A. SAMPLE SELECTION.....	24
B. DESCRIPTIVE STATISTICS AND CORRELATIONS.....	27
V. EMPIRICAL RESULTS.....	29
A. MULTIVARIATE RESULTS.....	29
True Interaction Effect.....	31
Marginal Effect of High Control Risk at Varying Levels of Audit Effort	32
Visualizing the Interaction Effect.....	33
VI. ADDITIONAL ANALYSES.....	35
A. ADDITIONAL ANALYSES OF AUDIT EFFORT CONSTRUCT.....	35
The Effect of Internal Control Weaknesses on Audit Fees.....	35
Capturing Audit Effort at the Account Level When Excess Audit Fees are Low	36
B. WHY AUDITORS DO NOT RESPOND EFFECTIVELY	39
Examination by Industry and Year	42
Examination by Account.....	42
VII. CONCLUDING REMARKS	44
REFERENCES	46
APPENDIX A: VARIABLE DEFINITIONS.....	50
APPENDIX B: ACCOUNT/CLASS OF TRANSACTIONS GROUPINGS.....	53
APPENDIX C: COMPANY-SPECIFIC INTERNAL CONTROL DISCLOSURES.....	54

LIST OF FIGURES

FIGURES 1A – 1F: GRAPHS OF INTERACTION EFFECTS AGAINST PREDICTED
PROBABILITIES OF MISSTATEMENT

FIGURE 1A: REVENUE	56
FIGURE 1B: INVENTORY	57
FIGURE 1C: EXPENSE.....	58
FIGURE 1D: PAYABLES/RESERVES	59
FIGURE 1E: PPE/INTANGIBLES	60
FIGURE 1F: M&A, PURCHASE ACCT.....	61

LIST OF TABLES

TABLE 1: SAMPLE SELECTION AND COMPOSITION	62
TABLE 2: DESCRIPTIVE STATISTICS.....	64
TABLE 3: CORRELATIONS	65
TABLE 4: CORRELATIONS BETWEEN EXCESS AUDIT FEES AND HIGH CONTROL RISK BY ACCOUNT.....	66
TABLE 5: THE EFFECTIVENESS OF AUDITORS' RESPONSE TO HIGH CONTROL RISK.....	67
TABLE 6: ESTIMATING EXCESS AUDIT FEES	71
TABLE 7: THE EFFECTIVENESS OF AUDITORS' RESPONSE TO HIGH CONTROL RISK: INCORPORATING AUDITOR EFFORT	75
TABLE 8: ANALYSIS OF THE INTERACTION EFFECT.....	81
TABLE 9: THE IMPACT OF AUDITOR EFFORT ON THE EFFECTIVENESS OF AUDITORS' RESPONSE TO HIGH CONTROL RISK.....	82
TABLE 10: THE EFFECTIVENESS OF AUDITORS' RESPONSE TO HIGH CONTROL RISK USING DISTRIBUTION OF AUDITOR EFFORT FOR COMPANIES WITH INTERNAL CONTROL WEAKNESSES	84
TABLE 11: THE EFFECT OF INTERNAL CONTROL WEAKNESSES ON AUDIT FEES	86
TABLE 12: THE EFFECTIVENESS OF AUDITORS' RESPONSE TO HIGH CONTROL RISK WHEN ONLY ONE ACCOUNT-LEVEL MATERIAL WEAKNESS IN INTERNAL CONTROLS IS PRESENT	88
TABLE 13: THE EFFECTIVENESS OF AUDITORS' RESPONSE TO HIGH CONTROL RISK WHEN ONLY ONE ACCOUNT-LEVEL MATERIAL WEAKNESS IN INTERNAL CONTROLS IS PRESENT: INCORPORATING AUDITOR EFFORT.....	92
TABLE 14: THE EFFECTIVENESS OF AUDITORS' RESPONSE TO HIGH CONTROL RISK: CENSORING LOW AUDITOR EFFORT FOR COMPANIES WITH ACCOUNT-LEVEL INTERNAL CONTROL WEAKNESSES	98
TABLE 15: THE EFFECTIVENESS OF AUDITORS' RESPONSE TO HIGH CONTROL RISK: EXCLUDING COMPANIES WITH INTERNAL CONTROL	

WEAKNESSES AND LOW AUDITOR EFFORT	104
TABLE 16: THE EFFECTIVENESS OF AUDITORS' RESPONSE TO HIGH CONTROL RISK: EXCLUDING COMPANIES WITH INTERNAL CONTROL WEAKNESSES AND LOW AUDITOR EFFORT	108
TABLE 17: DETERMINANTS OF AN INEFFECTIVE RESPONSE TO HIGH CONTROL RISK.....	114
TABLE 18: ACCOUNT LEVEL AUDIT FAILURE BY INDUSTRY AND BY YEAR.....	115
TABLE 19: DETERMINANTS OF AN INEFFECTIVE RESPONSE TO HIGH CONTROL RISK BY ACCOUNT.....	116

I. INTRODUCTION

Auditing standards require that auditors plan and perform financial statement audits to provide reasonable assurance that amounts and disclosures in the financial statements are free of material misstatement. Absolute assurance is not possible given the volume of transactions underlying companies' financial statements, the complexity of companies' operations, the potential for management fraud, the potential for auditor error, and time constraints for completing an annual audit. Because of these constraints, auditors must accept some level of audit risk, defined as the risk that auditors will express an unqualified (clean) opinion on financial statements that are materially misstated. Messier et al. (2012, 100) state that "while the auditor is ultimately concerned with audit risk at the financial statement level, as a practical matter audit risk must be considered at more detailed levels through the course of the audit, including the account balance, class of transaction, or disclosure level." In fact, auditing standards state that

[t]he auditor needs to consider audit risk *at the individual account-balance or class-of-transactions level* because such consideration directly assists him in determining the scope of auditing procedures for the balance or class. The auditor should seek to restrict audit risk at the individual balance or class level in such a way that will enable him, at the completion of his examination, to express an opinion on the financial statements taken as a whole at an appropriately low level of audit risk

(AICPA 1983, 5-6).

According to auditing standards, as the auditor's assessment of the risk of material misstatement (comprised of inherent risk and control risk) increases, the auditor should alter the nature, timing, and extent of substantive audit procedures to restrict audit risk to the desired level (AICPA 1983, AICPA 1988, PCAOB 2010).¹ Although research suggests that auditors adjust

¹ Inherent risk is the susceptibility to a material misstatement assuming that there are no related internal control structure policies or procedures. Control risk is the risk that a material

their effort in the presence of high control risk (Raghunandan and Rama 2006; Hogan and Wilkins 2008; Hoitash et al. 2008; Hoag and Hollingsworth 2011), whether additional auditor effort mitigates an ineffective response at the account balance or class of transactions level (hereafter referred to as the account level) has not been previously documented. In addition, prior research does not link actual misstatements to internal control weaknesses at the account level where auditors not only make risk assessments, but also design their substantive audit procedures. During audit firm inspections, regulators continue to find instances where substantive audit procedures are not aligned appropriately with the auditors' risk assessments. In December 2012, the Public Company Accounting Oversight Board (PCAOB) released a report discussing their findings and observations related to audits of internal control over financial reporting. The report states that "inspections staff have observed instances in which firms failed to determine appropriately the effect that identified control deficiencies had on the nature, timing, and extent of their substantive procedures to reduce audit risk in the audit of the financial statements to an appropriately low level" (PCAOB 2012, 14). Additionally, recent peer reviews of nonpublic company audits reveal that audit firms may be struggling to properly assess and document risk, and adjust audit work plans accordingly. One of the most common areas of non-compliance noted by peer reviewers is the failure to assess and adjust for risk at the account level (Hood 2013). To the extent that auditors fail to modify substantive audit procedures in the presence of high control risk, audit quality can suffer.²

misstatement that could occur will not be prevented or detected on a timely basis by the entity's internal control structure policies or procedures (AICPA 1983).

² Audit quality can be defined as the joint probability of detecting and reporting material misstatements (DeAngelo 1981).

In this study, I examine whether auditors effectively respond to an assessment of high control risk at the account level. The audit risk model assumes that auditors alter their audit procedures to compensate for a greater risk of material misstatement. As such, I examine whether the auditor's response to high control risk (i.e., the adjustment to detection risk accomplished by altering the nature, timing, and extent of substantive audit procedures) is effective in maintaining a consistent, low level of audit risk at the account level, where consistency is the similarity of account-level audit risk between companies with high account-level control risk and those without. In further analyses, I examine whether increased auditor effort (measured using excess audit fees) in response to an assessment of high control risk is effective in maintaining a consistent level of audit risk.

To ensure that controls were actually tested and to allow time for misstatements to be revealed, my sample consists of accelerated filers from 2004 through 2009 inclusive. I identify account-specific misstatements revealed through subsequent restatements.³ An account-level misstatement is an ex-post measure of audit failure for that particular account. I measure account-level control risk assessments by identifying account-specific internal control weaknesses disclosed in quarterly or annual filings. I use the categorizations in Audit Analytics to identify account-level misstatements and internal control material weaknesses. I examine whether an auditor's assessment of high account-level control risk affects the likelihood of an account-level misstatement. An increased (decreased) likelihood of an account-level misstatement among companies with an assessment of high account-level control risk would suggest an insufficient (overcompensating) alteration of detection risk to maintain a consistent

³ Given that restatements are an indicator of a material weakness in internal controls, my analyses focus on misstated periods identified by a subsequent restatement rather than on the period of the restatement announcement.

level of audit risk. I find that for many of the companies with high control risk within specific accounts, auditors respond effectively (e.g., for each account grouping examined, less than 11 percent of the observations with high control risk result in future restatements of those particular accounts). Although many auditors respond effectively to assessments of high control risk at the account level, in general, I find an increased likelihood of account-level misstatements when control risk within that particular account is high. This suggests that for most accounts, on average, auditors do not sufficiently alter detection risk to maintain a consistent level of audit risk at the account level in the presence of high control risk.

I next examine whether increased auditor effort in response to an assessment of high control risk is effective in maintaining a consistent level of audit risk. Using a procedure to capture excess audit fees related to account-level internal control weaknesses, I find evidence, for certain accounts considered routine or core to the on-going operations of the company that increased auditor effort in response to an assessment of high control risk is effective in maintaining a consistent level of audit risk at the account-level. ⁴ Further analyses reveal, however, that this occurs only at high levels of auditor effort. For other, more non-routine accounts, I find no evidence to suggest that additional auditor effort, as proxied by excess audit fees, in response to an assessment of high control risk, even at high levels, results in a consistent level of audit risk at the account level.

In additional analysis, I explore why auditors do not effectively respond to an assessment of high control risk at the account level. Understanding the factors that give rise to an ineffective response to an assessment of high control risk creates an awareness among auditors and

⁴ Consistent with Palmrose et al. (2004), core accounts are those that relate to the on-going operations of the company and include revenue, cost of sales, operating expenses and their related balance sheet accounts.

regulators and can lead to improvements in audit quality. To conduct this analysis, I limit the sample to company-years with high control risk in at least one account grouping and I identify company-year observations with an account-level audit failure (i.e., a misstatement exists within an account with an assessment of high control risk). I then examine what factors influence the likelihood of an account-level audit failure. I find that client complexity, auditor-client misalignments for small auditors (presumably due to a lack of expertise or resources), the presence of an entity-level internal control weakness, and the timing of internal control weakness reporting (and presumably discovery) increase the likelihood of an ineffective response to an assessment of high control risk. I also find that when the audit report date is close to the required filing deadline, and the company files on time, auditors are more likely to respond effectively to the assessment of high control risk, suggesting that the observed audit report delay is due to the auditors' effective adjustments to the timing and extent of substantive audit procedures.

This study contributes to prior literature in several ways. Prior research examining the use of the audit risk model at the account level provides little evidence suggesting that auditors are responsive to account-level risks (see e.g., Bedard 1989; Mock and Wright 1993; Waller 1993; Mock and Wright 1999). However, these studies focus on adjustments to substantive audit procedures in the presence of risk factors and not the effectiveness of the audit procedures actually performed. In addition, these studies tend to examine specific settings (e.g., particular accounts or time periods) with small samples. This study contributes to this research by examining the effectiveness of auditors' response to account-level control risk among a broad range of accounts in the current regulatory regime.

Prior research examining auditors' response to identified risk factors at the overall financial statement level find some evidence that auditors respond to internal control related risks

(see e.g., Raghunandan and Rama 2006; Hogan and Wilkins 2008; Hoitash et al. 2008; Hoag and Hollingsworth 2011; Lu et al. 2011). However, as noted in a recent literature review of archival auditing research, “while audit fees increase in the presence of a wide array of risk factors, most studies are unable to distinguish whether the higher fees are due to more audit effort or simply a risk premium” (DeFond and Zhang 2013, 7). Additionally, with the exception of Lu et al. (2011), these studies do not investigate whether the auditor response is effective in maintaining a consistent overall level of audit risk. In fact, prior research finds evidence of lower financial reporting quality among companies with internal control weaknesses, suggesting that auditor effort in the presence of high control risk is not effective (see e.g., Doyle et al. 2007; Ashbaugh-Skaife et al. 2008; Lu et al. 2011). While Lu et al. (2011) provide some evidence at the overall financial statement level that higher audit fees may capture additional auditor effort, their results suggest that auditors’ response to assessments of high control risk is not entirely effective. Specifically, they find that although accrual quality in the presence of internal control weaknesses improves as audit fees increase, accrual quality is still lower relative to companies without internal control weaknesses.

This study contributes to prior research by adding further insights into the effectiveness of the audit risk model at the account level, where auditors make risk assessments and design account-specific audit procedures. Doyle et al. (2007) find that lower accrual quality is concentrated in companies with entity-level control weaknesses and not companies with account-specific weaknesses only, suggesting that auditors may be effective at responding to assessments of high account-level control risk. By directly linking account-specific internal control weaknesses and related account-specific misstatements I am able to identify ineffective auditor responses to assessments of high control risk. Without this linkage, a failure in the audit risk

model is not apparent. For example, if a company misstates revenue, an ineffective response to the risk assessment occurs when control risk is high for revenue, but not when control risk is high for another account. In addition, because lower accrual quality does not necessarily indicate the existence of a material misstatement, I examine actual account-related misstatements (as revealed through subsequent restatements). This study provides evidence that higher excess audit fees in the presence of high control risk within certain routine or core accounts lead to increased account-level audit quality. This result suggests that, for these accounts, higher audit fees are the result of greater audit effort and such increases are effective at maintaining a consistent level of audit risk at the account-level.

Finally, this study contributes to the literature by examining why auditors are not effective in adjusting substantive audit procedures in the presence of high control risk. Unlike Rice and Weber (2011) who examine determinants of why auditors fail to accurately assess internal control weaknesses, this study examines determinants of why auditors respond ineffectively to an assessment of high control risk (i.e., inadequate auditing of the particular financial statement account rather than inadequate auditing of the internal controls related to the account). The results of this study should be informative to regulators and auditors. The results provide insight into areas of the audit where additional effort is effective and where it is not. The results also suggest areas of the audit where auditors can improve the link between account-level risk assessments and the design, performance and evaluation of substantive audit tests.

The remainder of this paper is organized as follows. In Section II, I discuss the audit risk model, review related prior literature, and develop my hypotheses. In Section III, I describe my research design. In Section IV, I describe my sample selection procedures and discuss

descriptive statistics. I discuss the multivariate results in Section V, additional analyses in Section VI, and provide concluding remarks in Section VII.

II. BACKGROUND, PRIOR LITERATURE, AND HYPOTHESES

A. BACKGROUND OF THE AUDIT RISK MODEL

The audit risk model and the risk-based audit approach evolved from statistical sampling techniques. Elliott and Rogers (1972) introduced an audit approach using the statistical technique of hypothesis testing. The model incorporates auditors' judgments of audit risk, materiality and internal control. In 1972, the American Institute of Certified Public Accountants (AICPA) incorporated the Elliot and Rogers' model into Appendix B of Statement of Audit Procedure 54, *The Auditor's Study and Evaluation of Internal Control* (AICPA 1972). In 1981, the AICPA issued Statement on Auditing Standards (SAS) No. 39, *Audit Sampling, Materiality and Risk* (AICPA 1981), which outlined the elements of the risk that the auditor would fail to detect a monetary error equal to the maximum tolerable amount. Although the existence of inherent risk was recognized, it was not incorporated into the model until 1983, when the AICPA issued SAS No. 47, *Audit Risk and Materiality in Conducting an Audit* (AICPA 1983). The key modifications from the risk model in SAS No. 39 were the inclusion of inherent risk and the combination of analytical review risk and tests of details risk to form detection risk.

The audit risk model, according to SAS No. 47, is as follows: Audit Risk = Inherent Risk x Control Risk x Detection Risk.⁵ Although the audit risk model has its roots in statistical sampling, SAS No. 47 specifically states that "these components of audit risk may be assessed in quantitative terms such as percentages or in nonquantitative terms that range, for example from a minimum to a maximum" (AICPA 1983, 8). In 1988, the AICPA issued SAS No. 55, *Consideration of the Internal Control Structure in a Financial Statement Audit*, which added

⁵ Inherent risk and control risk are defined in footnote 1. Detection risk is "the risk that the auditor will not detect a material misstatement that exists in an assertion" (AICPA 1983).

additional insight into the audit risk components. The guidance set forth in SAS No. 47 and 55 form part of AU Section 312.⁶ Because of difficulties with the application of the statistical audit risk model, practitioners shifted to the development and use of the audit risk model at a conceptual level. According to Srivastava and Mock (2005, 1), although “early audit research and standard setting explored more rigorous guidance concerning statistical sampling, more recently audit practice has moved away from these approaches in favor of judgment sampling and relegating precise formulations of audit risk to providing ‘general guidance’ for audit planning.” Similarly, according to the AICPA, the audit risk model “expresses the general relationship of the risks associated with the auditor’s assessment of inherent and control risks” and “is not intended to be a mathematical formula including all factors that may influence the determination of individual risk components” (AICPA 1992, AU 350.48).

In 2002, the Sarbanes Oxley Act (SOX) was signed into law, which created the PCAOB to oversee auditors of public companies. Under Section 101 of the Act, the PCAOB was given authority to set auditing standards for publicly traded companies. In April 2003, the PCAOB adopted certain preexisting standards as its interim standards. These standards consisted of generally accepted auditing standards that were in existence on April 16, 2003, including the guidance set forth in AU Section 312 (PCAOB 2003). In 2010, the PCAOB issued Auditing Standard (AS) No. 8, *Audit Risk*, effective for public company audits beginning on or after December 15, 2010, which superseded the guidance in AU Section 312.⁷ Although AS No. 8 uses slightly different terminology, the concept of assessing risk at lower levels of the audit

⁶ The AU codification organizes the SAS according to topical content.

⁷ For nonpublic entities not subject to the PCAOB, SAS No. 47 was superseded by SAS No. 107, *Audit Risk and Materiality in Conducting an Audit*, which was effective for audits beginning on or after December 15, 2006 (AICPA 2006).

remains intact.⁸ However, for the period examined in this study, AU Section 312 is the authoritative auditing guidance relating to the use of the audit risk model.

B. PRIOR LITERATURE

Prior research examining the use of the audit risk model at the account level finds little evidence that auditors employ the model in practice. These studies, however, examine specific settings (e.g., particular accounts or time periods) with small samples and focus on adjustments to substantive audit procedures in the presence of risk factors. Jiambalvo and Waller (1984) examine experimentally whether auditors alter audit procedures in the presence of specific client risks surrounding an important account balance, accounts receivable. They do not find a significant difference in the design of substantive audit tests between auditors that are required to first consider inherent and control risk and auditors that are not. Daniel (1988) extends the work by Jiambalvo and Waller (1984) related to auditors' risk assessments of accounts receivable using a slightly larger sample of auditors and finds that auditors do not follow a well-defined model to assess audit risk. Bedard (1989) examines data from actual audit engagements in the accounts receivable, inventory, and accounts payable areas. She finds little evidence of adjustments to audit plans based on the presence of risk factors. Using data gathered on risk assessments from the working papers of 74 randomly selected manufacturing clients of one Big N auditing firm, Mock and Wright (1999) find that while risk assessments and evidential plans

⁸ Auditing Standard No. 8, *Audit Risk*, which superseded SAS No. 47, includes updated terminology to read “at the assertion level” rather than at the account balance or class of transactions level. It is clear however, that the “assertion level” refers to the assertions at the account balance or class of transactions level. For example, PCAOB Auditing Standard No. 12, *Identifying and Assessing Risks of Material Misstatement*, describes the approach auditors are to take to identify and assess risks of material misstatement at the financial statement level and then work down to the significant accounts and disclosures and their relevant assertions (PCAOB 2010b).

for accounts receivable differ considerably across engagements, audit plans for accounts receivable are not strongly associated with the level of client risks.

While many studies fail to find that account-level audit plans are adjusted for specific risks, there are some exceptions. Mock and Wright (1993) gather audit testing and risk assessments related to accounts receivable and accounts payable over a two year period from a sample of manufacturing and merchandising clients. Their findings do not indicate a strong association between the nature of tests and the level of risks; however, they find that the extent (amount) of substantive tests is related to some risk factors. Using 215 actual audit engagements from one Big N auditor, Waller (1993) examines auditors' inherent and control risk assessments for assertions related to three specific accounts: accounts receivable, inventory, and accounts payable. He finds that auditors typically assess inherent risk and control risk at the same value for all assertions for an account. He finds that in many cases control risk is assessed at the maximum and suggests that this relates to audit efficiency.⁹ He also finds a positive but weak association between inherent risk and auditor detected misstatements suggesting that auditors' substantive procedures are guided by the identification of risk.

Although prior research examining account-level risk assessments finds little evidence that auditors adjust substantive audit procedures for specific risks (inherent and control risk), these studies focus on certain routine accounts only (such as accounts receivable, inventory, or accounts payable) and are limited to small sample sizes with data typically from one audit firm. In recent years, increased disclosure requirements related to audit fees and internal control

⁹ Prior to the passage of SOX for public company audits, auditing standards specifically allowed auditors of public companies to use a non-reliance strategy, where auditors could forego testing controls, assess control risk at the maximum, and alter the nature, timing and extent of substantive procedures accordingly (AICPA 1988).

weaknesses has allowed for examination of audit risk and its components at the overall financial statements level using larger samples. For example, Hogan and Wilkins (2008) examine whether the audit risk model is descriptive of what occurs in practice by examining audit fees in the fiscal year prior to disclosure of internal control deficiencies for a sample of firms that disclosed deficiencies between November 2003 and November 2004. To the extent that audit fees represent auditor effort, their results suggest that auditors increase their effort in the presence of increased control risk. Other studies also find that companies disclosing material weaknesses in internal control have higher audit fees (see e.g., Raghunandan and Rama 2006; Hoitash et al. 2008; Hoag and Hollingsworth 2011). Hoitash et al. (2008) and Hoag and Hollingsworth (2011) find that audit pricing for companies with internal control problems varies by the severity and nature of the problem (when severity is measured as material weaknesses versus significant deficiency and nature is measured as entity-level versus account-specific control weaknesses). They find a stronger association between audit fees and entity-level control weaknesses. Unlike many of the earlier studies using actual audit engagement working papers, the findings of these studies suggest that auditors do respond to increased levels of risk related to internal controls (although the alternative explanation of auditors simply charging a risk premium cannot be ruled out).

While the findings from these studies suggest an increase in auditor effort in the presence of higher control risk, another stream of research finds that companies with internal control weaknesses have lower accrual quality. This would suggest that, on average, although auditors increase their effort in the presence of high control risk, the additional effort is not necessarily effective. Ashbaugh-Skaife et al. (2008) find that companies reporting internal control deficiencies (302 and 404 for accelerated filers) have lower accrual quality relative to companies

without internal control problems. Doyle et al. (2007) find a consistent result but that this relation is driven by weakness disclosures that relate to overall entity-level controls, which may be more difficult to audit around. They do not find a significant association between accrual quality and account-specific weaknesses. Li and Wang (2006) find that companies that report material weaknesses are more likely to report restatements in the future, although they do not perform their examination at the account level and their examination focuses solely on material weaknesses disclosed via Section 404 of SOX. Lu et al. (2011) find a direct negative association between disclosed internal control weaknesses and accrual quality. However, they find an offsetting indirect effect between internal control weaknesses on accrual quality when audit fees are higher. They suggest that although accrual quality in the presence of internal control weaknesses improves as audit fees increase, accrual quality is still lower relative to companies without internal control weakness.

C. HYPOTHESES

While the results of earlier research using data from actual audit engagements provide little evidence to suggest that audit plans are modified for risk assessments for specific accounts, more recent research using audit fees to proxy for auditor effort suggests that auditor effort is sensitive to auditors' risk assessments. Prior research also suggests, however, that additional auditor effort may not necessarily be effective, at least at the overall financial statements level, in maintaining audit risk at a constant level given the observed association between internal control weaknesses and accrual quality. Given the lack of a clear linkage between the pricing of additional risk by auditors and the effectiveness of the audit procedures potentially represented by the additional fees, and that overall accrual quality may not necessarily indicate whether a material misstatement exists, prior research provides little evidence of whether auditor effort, as

represented by fees, is effective in restricting audit risk to an acceptably low level at the account level in response to an assessment of high control risk.

I extend prior research by examining the effectiveness of the audit risk model at the account level using a large sample of companies that take a reliance approach for testing and evaluating internal controls. If the audit risk model is indicative of what occurs in practice and the alteration of the nature, timing and extent of substantive audit procedures is effective in restricting audit risk to a consistent, low level, then the likelihood of material misstatement within a specific account would not differ between companies with account-specific internal control weaknesses and those without, after controlling for other factors that could affect the likelihood of misstatement within the account. Although prior research finds that overall accrual quality is lower, on average, for companies with internal control weaknesses, Doyle et al. (2007) find that this association is significant only in the presence of entity-level internal control weaknesses and not account-specific internal control weaknesses. This finding suggests that auditors' alteration of account-specific substantive procedures in response to high control risk may be effective in restricting the risk of material misstatement within the specific account. As such, my first hypothesis is the following (stated in the null):

Hypothesis 1: The likelihood of an account level misstatement (capturing the effectiveness of the account-level audit procedures in maintaining a consistent, low level of audit risk) does not differ with an assessment of high account-level control risk.

At the overall financial statements level, the findings in Lu et al. (2011) suggest that increased auditor effort does improve overall accrual quality in the presence of internal control weaknesses, although this substitution effect is limited and incomplete. I extend this research by directly linking internal control weaknesses and misstatements at the account level and

examining the effect of increased auditor effort related to the internal control weakness. My second hypothesis, therefore, is the following:

Hypothesis 2: As auditor effort (measured using excess audit fees) increases, the likelihood of an account-level misstatement (capturing the effectiveness of the account-level audit procedures in maintaining a consistent, low level of audit risk) does not differ with an assessment of high account-level control risk.

III. RESEARCH METHOD

To test my first hypothesis, I use accounting restatements to capture materially misstated accounts within misstated periods. I identify internal control weaknesses within the same account grouping. I examine whether the probability of an account-level misstatement differs between companies with an assessment of high account-level control risk and those without. Thus, detection risk (the auditor response to the assessed level of risk) is a function of the assessment of control risk, and audit failure at the account level (capturing audit risk) is the observed outcome (i.e., the misstatement identified through subsequent restatement). To determine whether auditors effectively maintain a consistent, low level of audit risk at the account level in the presence of high control risk, I estimate the following logistic regression model separately for each account grouping examined:

$$\begin{aligned} \Pr(\text{Misstate_acctspecific}_{it}=1) = & \beta_0 + \beta_1 \text{HighCR_acctspecific}_{it} + \beta_2 \text{LnAssets}_{it} + \beta_3 \text{LEV}_{it} + \\ & \beta_4 \text{MTB}_{it} + \beta_5 \text{FIN}_{it} + \beta_6 \text{Loss}_{it} + \beta_7 \text{StdROA}_{it} + \beta_8 \text{LnSEG}_{it} + \beta_9 \text{FOROPS}_{it} + \\ & \beta_{10} \text{M\&A}_{it} + \beta_{11} \text{Restructure}_{it} + \beta_{12} \text{BigN}_{it} + \beta_{13} \text{Specialist}_{it} + \beta_{14} \text{EntityICweak}_{it} + \\ & \beta_{15} \text{HighCR_otheraccts}_{it} + \beta_k \text{Industry FE} + \beta_k \text{Year FE} \end{aligned} \quad (1)$$

where:

$\text{Misstate_acctspecific}$ = an indicator set equal to one if the specific account grouping (as outlined in Appendix B) was misstated in year t , and zero otherwise;

$\text{HighCR_acctspecific}$ = an indicator set equal to one if control risk is high within a specific account grouping (as outlined in Appendix B), where high control risk is measured as the disclosure of a 404 material weakness and/or a 302 material weakness within the specific account grouping during year t , and zero otherwise;

LnAssets = the natural log of total assets;

LEV = long-term debt plus the current portion of long-term debt divided by total assets;

MTB = the market-to-book ratio, calculated as the market value of equity divided by the book value of equity;

FIN = debt and equity issuances during year t divided by total assets;

Loss	= an indicator variable set equal to one if net income is less than zero, and zero otherwise;
StdROA	= the standard deviation of return on assets over the prior five years, where return on assets is net income divided by total assets;
LnSEG	= the natural log of the number operating segments;
FOROPS	= an indicator variable set equal to one if the company has foreign operations, and zero otherwise;
M&A	= an indicator variable set equal to one if the company is involved in a merger or acquisition during the year, and zero otherwise;
Restructure	= an indicator variable set equal to one if the company is involved in restructuring activity during the year, and zero otherwise;
BigN	= an indicator variable set equal to one if the auditor is from the Big 4, and zero otherwise;
Specialist	= an indicator variable set equal to one if the auditor is an industry specialist (audit fee market share in the 2-digit SIC code exceeds 30% at the national level), and zero otherwise;
EntityICweak	= an indicator if variable set equal to one if there is a control environment weakness (e.g., senior management competency, tone, reliability issues, accounting documentation, policy and/or procedures, accounting personnel resources, competency or training, information technology, software, security and access issues, segregation of duties/design of controls, or journal entry control issues);
HighCR_othraccts	= an indicator variable set equal to one if control risk is high within account groupings other than the account being examined (as outlined in Appendix B), where high control risk is measured as the disclosure of a 404 material weakness and/or a 302 material weakness within the specific account grouping during year t, and zero otherwise;
Industry FE	= indicator variables for each industry following Ashbaugh et al. (2003) determined by SIC code as follows: agriculture (0100-0999), mining and construction (1000-1999, excluding 1300-1399), food (2000-2111), textiles and printing/publishing (2200-2799), chemicals (2800-2824; 2840-2899), pharmaceuticals (2830-2836), extractive (1300-1399; 2900-2999), durable manufacturers (3000-3999, excluding 3570-3579 and 3670-3679), transportation (4000-4899), retail (5000-5999), services

(7000-8999, excluding 7370-7379), computers (3570-3579; 3670-3679; 7370-7379), and utilities (4900-4999);

Year FE = indicator variables for each year in the sample period; and

i and t = company and year indicators, respectively.

For each regression, the coefficient of interest is β_1 , which is the coefficient on the variable HighCR_acctspecific, indicating whether or not account-specific internal control weaknesses affect the likelihood of misstatement in that particular account grouping and providing insights into the effectiveness of auditors' response to an assessment of high control risk to maintain a consistent level of audit risk. Because the risk of material misstatement at the account level consists of both inherent risk and control risk, I control for inherent risk, high control risk within other accounts, and control risk at the entity-level.

Inherent risk refers to the susceptibility of an account or related assertion to misstatement before consideration of any related controls (AICPA 1983). SAS No. 47 states that inherent risk at the account level can arise from the nature of the account (more subjectivity, volume of transactions, susceptibility to theft, etc.) as well as from external factors that could affect several or all of the account balances (e.g., technological developments, market or industry dynamics, lack of sufficient capital to operate the business, etc.).¹⁰ Cushing and Loebbecke (1983) identify several internal and external factors which could influence the likelihood of a material misstatement before consideration of internal controls. These include characteristics of the company's industry, size, market position, financial circumstances, and organizational structure. As such, I include company-specific controls for size (LnAssets), leverage (LEV), anticipated

¹⁰ Paragraph 22 of SAS No. 47 states, "when the auditor assesses inherent risk for an account balance or class of transactions, he...considers not only factors peculiar to the related balance or class, but also other factors pervasive to the financial statements taken as a whole that may also influence inherent risk related to the balance or class" (AICPA 1983).

growth (MTB), and financing needs (FIN) (see also Romanus et al. 2008 and Blankley et al. 2012). I control for inherent risk that arises from financial distress (Loss) and uncertainty in company performance (StdROA) (following Hogan and Wilkins 2008). I control for company complexity using the natural log of the number of operating segments (LnSEG) and the existence of foreign operations (FOROP). I control for the inherent risk that arises from nonrecurring transactions such as mergers and acquisitions (M&A) and restructurings (Restructure). I include industry fixed effects to control for inherent risk that can arise from industry dynamics (i.e., changes in product demand, changes in industry sales, etc.).

In addition to controls for inherent risk, I control for high control risk within other accounts (HighCR_otheraccts), and high entity-level control risk (EntityICweak). To control for entity-level control risk, I use a categorization of entity-level control weaknesses consistent with Ge and McVay (2005) and Hoitash et al. (2008). I also include controls for differences in auditor characteristics (BigN and Specialist) where specialized methodology or knowledge may have an effect on the assessment of inherent and/or control risk related to specific accounts. Finally, I include year fixed effects to control for variation in misstatements across time, and I cluster standard errors by company to control for serial dependence (Petersen 2009).

To test my second hypothesis relating to whether the effectiveness of auditors' response to high control risk to maintain a consistent level of audit risk at the account level varies with auditor effort, I first estimate additional auditor effort related to the account-specific internal control weakness. Prior research suggests that audit fees capture auditor effort (e.g., see Palmrose 1986; O'Keefe et al. 1994; Deis and Giroux 1996; Lu et al. 2011; Blankley et al. 2012; Hribar et al. 2014). From a sample of audits of Texas independent school districts, Deis and Giroux (1996) find a significant positive Spearman correlation of 0.76 between audit hours and

audit fees. Several studies find a positive association between audit fees and internal control weaknesses, suggesting that auditors increase their effort in the presence of internal control weaknesses (e.g., see Raghunandan and Rama 2006; Hogan and Wilkins 2008; Hoitash et al. 2008; Hoag and Hollingsworth 2011). Blankley et al. (2012) find that following SOX, abnormal audit fees are negatively associated with the likelihood of a future restatement, consistent with the notion that lower abnormal fees reflect low audit effort or underestimated audit risk. Consistent with this finding, Hribar et al. (2014) find that abnormal audit fees are positively correlated with other measures of audit quality and are incrementally predictive of fraud, restatements, and SEC comment letters after controlling for other measures of quality.

To capture auditor effort related to internal control weaknesses, I first identify companies that do not disclose any material weaknesses (identified through 404 disclosures in the annual filing) or 302 material weaknesses during the related year (identified through 302 disclosures in quarterly filings as well as the annual filing). I then estimate the following audit fee regression separately for each year for all companies with no disclosed internal control problems:

$$\begin{aligned} \text{LnAFEE}_i = & \delta_0 + \delta_1 \text{LnAssets}_i + \delta_2 \text{LnSEG}_i + \delta_3 \text{FOROPS}_i + \delta_4 \text{ROA}_i + \delta_5 \text{Loss}_i + \\ & \delta_6 \text{INVREC}_i + \delta_7 \text{LEV}_i + \delta_8 \text{Delay}_i + \delta_9 \text{Busy}_i + \delta_{10} \text{GC}_i + \delta_{11} \text{BigN}_i + \delta_{12} \text{RESTATE}_i \\ & + \delta_{13} \text{ACCEL}_i + \delta_{14} \text{MTB}_i + \delta_{14} \text{Specialist}_i + \delta_{14} \text{Restructure}_i + \delta_{14} \text{M\&A}_i + \\ & \delta_{14} \text{StdROA}_i + \delta_k \text{Industry FE} + \varepsilon_i \end{aligned} \quad (2)$$

where:

LnAFEE = the natural log of audit fees;

ROA = return on assets measured as net income divided by total assets;

INVREC = the sum of inventory and accounts receivable divided by total assets;

Delay = the number of consecutive days from the company's fiscal year-end to the date the company's annual report is filed;

Busy = an indicator variable set equal to one if the company's fiscal year ends in December or January, and zero otherwise;

- GC = an indicator variable set equal to one if the company received a going concern modification to the auditor's report, and zero otherwise;
- RESTATE = an indicator variable set equal to one if a restatement was announced during the fiscal year, and zero otherwise;
- ACCEL = an indicator variable set equal to one if the company is categorized as an accelerated or large accelerated filer, and zero otherwise; and

all other variables as previously defined. Model variables follow prior literature (see Hay et al. 2006; Doogar et al. 2010; Blankley et al. 2012). Similar to the procedure used by Doogar et al. (2010), I save the estimated coefficients for each year's regression and use them to estimate a benchmark audit fee for each company-year in my sample. The difference between the actual audit fee and the benchmark fee represents the fee adjustment related to the internal control weakness. For companies that disclose more than one internal control weakness, I divide this fee adjustment by the number of weaknesses disclosed.¹¹ I then use this measure to proxy for auditor effort related to account-specific internal control weaknesses.

Next, I estimate the following logistic regression separately for each account grouping to test whether the effectiveness of auditors' response to high control risk at the account level varies with auditor effort:

$$\begin{aligned} \Pr(\text{Misstate_acctspecific}_{it}=1) = & \gamma_0 + \gamma_1 \text{HighCR_acctspecific}_{it} + \gamma_2 \text{AuditFeeAdj}_{it} + \\ & \gamma_3 \text{HighCR_acctspecific}_{it} * \text{AuditFeeAdj}_{it} + \gamma_4 \text{LnAssets}_{it} + \gamma_5 \text{LEV}_{it} + \\ & \gamma_6 \text{MTB}_{it} + \gamma_7 \text{FIN}_{it} + \gamma_8 \text{Loss}_{it} + \gamma_9 \text{StdROA}_{it} + \gamma_{10} \text{LnSEG}_{it} + \gamma_{11} \text{FOROPS}_{it} + \\ & \gamma_{12} \text{M\&A}_{it} + \gamma_{13} \text{Restructure}_{it} + \gamma_{14} \text{BigN}_{it} + \gamma_{15} \text{Specialist}_{it} + \gamma_{16} \text{EntityICweak}_{it} + \\ & \gamma_{17} \text{HighCR_otheracct}_{it} + \gamma_k \text{Industry FE} + \gamma_k \text{Year FE} \end{aligned} \quad (3)$$

where:

- AuditFeeAdj = auditor effort related to the internal control weakness, estimated by subtracting the estimated benchmark log of audit fees from actual log of audit fees and dividing this measure by the number of internal control

¹¹ In supplemental analysis, I exclude observations with more than one account level internal control weakness.

material weaknesses present, where the benchmark log of audit fees is estimated by saving the parameter estimates from equation (2); and

all other variables as previously defined. For each regression, the coefficient of interest is γ_3 , which is the coefficient on the interaction of HighCR_acctspecific and AuditFeeAdj. The sign and significance of this coefficient indicates whether or not additional auditor effort has a moderating effect on the likelihood of misstatement within an account with high control risk.

IV. SAMPLE SELECTION AND DESCRIPTIVE STATISTICS

A. SAMPLE SELECTION

The sample is comprised of accelerated filers subject to the provisions of Section 404 of SOX from 2004 through 2009 with available data in Compustat and Audit Analytics to construct the model variables. Appendix A presents all variable definitions. Because accelerated filers are subject to the provisions of SOX, they are required to have an audit of internal controls over financial reporting. I include these firms in my sample to ensure that controls are tested by the auditor. Prior to 2004, auditors of accelerated filers were not required to test internal controls. Depending on the nature of the account as well as other factors influencing audit efficiency and effectiveness, auditors could use a non-reliance strategy by deciding not to test controls for a particular account or class of transactions, thereby assessing control risk as high and adjusting the nature, timing and extent of substantive audit procedures accordingly. Likewise, auditors of non-accelerated filers can use this strategy because these companies are not subject to an audit of internal control over financial reporting. The sample period ends in 2009 to allow time for misstatements to be revealed through a subsequent restatement. I use the categorization of restatements in Audit Analytics to identify misstatements within specific accounts.¹² Likewise, I use the categorization of internal control weaknesses in Audit Analytics, which is consistent with the categorization of restatements, to determine account-specific internal control weaknesses.¹³

¹² Audit Analytics provides the restatement announcement date as well as the beginning and ending dates of the misstated period. Using these dates, I identify misstated periods.

¹³ Because I am interested in the auditor's adjustment to detection risk based on the assessment of control risk, I do not categorize company-years with restated adverse internal control opinions as high control risk. To ensure that I capture only non-restated opinions of internal control over financial reporting, I use the Audit Analytics variable IS NTH RESTATE to identify restated internal control opinions (i.e., observations where the high control risk was not identified until after the related audit through a subsequent restatement) and ensure that high control risk is set at '0' for these observations.

Appendix B presents the categorization by Audit Analytics for specific account groupings.¹⁴ To examine the reliability of the Audit Analytics categorization by account grouping, I randomly selected thirty observations with an identified material weakness in internal control over financial reporting and compared these with actual company filings. I find that disclosures within company filings are 1) specific enough to determine the account or account grouping affected, and 2) consistent with the categorization by Audit Analytics.¹⁵ Appendix C presents examples of company provided disclosures of internal control material weaknesses.

Because 404 internal control opinions report the state of internal controls ‘as of’ the period end date, there may be observations where internal control weaknesses exist during the year but are remediated before year-end. Although the internal control weakness does not exist at the balance sheet date, if it is present during the audit period, auditors would not be able to rely on the effectiveness of the controls for purposes of the financial statement audit and would have to adjust the nature, timing and extent of their audit procedures accordingly. As such, in order to better capture high control risk within these account groupings, I not only identify 404 material weakness disclosures within specific account groupings, but also 302 disclosures of

¹⁴ I use the categorizations in Audit Analytics to identify account-level misstatements and internal control material weaknesses. Audit Analytics includes other categorizations that are not included in my analyses due to either a small number of observations or a lack of identification to a specific account or account grouping. The categories that I do not use are: asset retirement obligations; gain or loss recognition issues; classification issues related to the balance sheet, statement of cash flows or income statement; consolidation and financial close issues such as intercompany/ subsidiary/ affiliate issues; off-balance sheet consolidation issues; and financial statement footnote or segment disclosure issues.

¹⁵ Of the thirty observations selected, I noted only one issue. For one observation, I noted that the original internal control disclosure did not indicate a material weakness. Through review of the related SEC filings, I noted that the material weakness in internal control was a restatement of the original disclosure. As such, I performed the procedures outlined in footnote 13 to ensure that only original internal control disclosures are considered.

material weaknesses for these groupings that occurred during the fiscal year (i.e., those in interim quarterly filings).

[Insert Table 1 Here]

Table 1 presents a summary of the sample selection procedure as well as a breakout of misstatements and internal control weaknesses by account grouping. The final sample consists of 22,253 company-year observations with available data from Compustat and Audit Analytics, which includes 1,346 misstated company-years and 2,606 company-years with an account-specific internal control weakness at some point during the year. To perform my tests at the account-grouping level, I exclude company-year observations that do not have a balance for the particular account grouping. Compustat variables used to identify missing or zero balances are listed in Table 1.

Table 1 also reveals that the percentage of company-years with an account-specific internal control weakness that result in a future restatement of that particular account ranges from 1.5 to 10.3 percent, while the percentage of company-years without an account-specific internal control weakness that result in a future restatement of that particular account ranges from 0.2 to 6.4 percent. If auditors alter detection risk to maintain a consistent, low level of audit risk, then these two ratios should be the same. Although the percentage of account-level misstatements with an assessed internal control weakness is larger than the percentage of account-level misstatements without an assessed internal control weakness (with the exception of acquisition, merger, disposal or reorganization issues), only a few account groupings exceed 5 percent (lease related issues; deferred, stock-based and/or executive compensation issues; derivatives/hedging issues; and tax expense/benefit/deferral/other issues). However, of the total company-year observations with a high level of assessed control risk within a particular account (2,606), 240 or

9.2 percent experience a future restatement of that account, compared to 5.6 percent of the company-year observations without high account-level control risk.

B. DESCRIPTIVE STATISTICS AND CORRELATIONS

Table 2 presents descriptive statistics. Rather than including all account-specific internal control weaknesses and misstatements, I include Misstate, an indicator variable set equal to one if an account-specific misstatement exists, and ICWeak_Acct, an indicator variable set equal to one if an account-specific internal control weakness exists. The descriptive statistics indicate that approximately 6 percent of the company-years in the sample are misstated, while 12.3 percent have an account-specific internal control weakness and 8.4 percent have an entity-level control weakness.

[Insert Table 2 Here]

Table 3 presents the Spearman and Pearson correlations. I find positive and significant correlations (at $p \leq 0.01$) between Misstate and ICWeak_Acct. I also find positive and significant correlations (at $p \leq 0.01$) between ICWeak_Acct and AuditFeeAdj. I also examine correlations between AuditFeeAdj and high control risk within specific account groupings for each of the separate account-level subsamples.

[Insert Table 3 Here]

Table 4 presents the Spearman and Pearson correlations between AuditFeeAdj and high control risk within each account grouping. I find positive and significant correlations between AuditFeeAdj and high control risk within each account grouping. Although these positive associations suggest that auditors expend additional effort in the presence of high control risk, regardless of the account, there may be some differences in the amount of effort expended by auditors for certain accounts (correlations range from 0.022 to 0.178).

[Insert Table 4 Here]

V. EMPIRICAL RESULTS

A. MULTIVARIATE RESULTS

Table 5 presents the results of the regression models used to test my first hypothesis. For each of the regressions presented, the area under the ROC curve ranges from 0.761 to 0.897 suggesting fair model fit (Hosmer and Lemeshow 2000). For each of the account groupings, with the exception of pensions and other post-employment benefits and acquisition, merger, disposal or reorganization issues, after controlling for inherent risk factors, high control risk within other accounts, entity-level control risk, and differences in auditor characteristics, I find that when account-level control risk is high there is an increased likelihood of a material misstatement within that account, suggesting an insufficient adjustment to detection risk to maintain a consistent level of audit risk. For these account groupings, the odds of a material misstatement within an account with high control risk is approximately 1.7 to 7.3 over the odds of a material misstatement within an account without high control risk. For acquisition, merger, disposal or reorganization issues, I find a decreased incidence of account-level misstatements when related control risk is high, suggesting that auditors' substantive procedures for these non-routine, higher profile transactions not only compensate for the additional risk but result in a lower level of audit risk.

[Insert Table 5 Here]

Next, I examine the effectiveness in maintaining a consistent level of account-level audit risk as auditor effort increases in response to high account-level control risk. Table 6 presents the results of the audit fee regressions, estimated by year for companies without internal control weaknesses, used to measure auditor effort related to internal control weaknesses. In general, I find that the sign and significance of model variables are consistent with prior research. I find

that the significance of some model variables varies by year (e.g., LEV, Busy, RESTATE, M&A, and StdROA). The adjusted r-square for the regressions range from 0.815 to 0.827 indicating good model fit. The parameters from these regressions are then applied to the sample observations to determine a benchmark audit fee assuming no internal control weaknesses, which is subtracted from the actual audit fee to capture auditor effort related to internal control weaknesses.

[Insert Table 6 Here]

Table 7 presents the results of the regression models used to test my second hypothesis. Consistent with Table 5, I find an increased likelihood of misstatement in an account with high control risk, with the exception of pensions and other post-retirement benefits and acquisition, merger, disposal or reorganization issues. I find a negative and significant coefficient on the interaction of AuditFeeAdj and HighCR_acctspecific for revenue related issues; inventory and cost of sales issues; expense related issues; liabilities, payables, reserves and accrual estimate failures; tax related issues; intangible or fixed asset value/diminution issues; and acquisition, merger, disposal or reorganization issues. To the extent that AuditFeeAdj captures auditor effort, these results suggest that increased auditor effort in response to an assessment of high control risk is effective in maintaining a consistent level of audit risk at the account-level. Many of these accounts appear routine or core to the on-going operations of the business. Because the volume and frequency of transactions related to these routine or core accounts are high, auditors can increase sample sizes of substantive audit tests to respond to the increased risk. In relation to fixed asset or intangible asset valuation issues, which requires more judgment, increased control risk might lead to greater use of valuation specialists. The use of valuation specialists can improve the audit of the estimate as well as increase audit fees. For acquisition, merger, disposal

or reorganization issues, which tend to be infrequent, significant events, auditors may divert significant attention and resources to ensure appropriate accounting when internal controls in this area are weak.

For other non-routine accounts, including accounts/loans receivable, investments and cash issues; lease, legal, contingency and commitment issues; deferred, stock-based and/or executive compensation issues; financial derivatives/hedging issues; and debt, quasi-debt, warrants and equity security issues; I find an insignificant coefficient on the interaction of AuditFeeAdj and HighCR_acctspecific. This suggests that for these specific account groupings, which appear to be related to more frequent or recurring non-routine processes, even high levels of auditor effort are not effective in maintaining a consistent level of audit risk at the account level.

[Insert Table 7 Here]

True Interaction Effect

Following Norton et al. (2004), I examine the true interaction effect using the INTEFF procedure in STATA. Ai and Norton (2003) and Greene (2010) suggest that the coefficient of the interaction term in nonlinear models can vary in sign and statistical significance from the test of the estimated coefficient of the interaction term. To determine if the true interaction effect is significant, I examine the mean interaction effect as well as the mean z-score of the interaction. Table 8 presents, by account grouping, statistics provided by the INTEFF command. Specifically, the table presents the mean, as well as the minimum and maximum interaction effect (marginal effect), the mean z-statistic, as well as the minimum and maximum z-statistic, and the proportion of z-statistics in the significant range ($p < 0.10$). I find that for revenue recognition issues, inventory and cost of sales issues, expense related issues, liabilities/payables,

reserves and accrual estimate failures, value/diminution issues related to intangibles or fixed assets, and acquisition, merger, disposal, or reorganization issues that the interaction effect does not change sign, the mean z-statistic of the interaction effect is above or near conventional levels of significance, and a large proportion of the z-statistics are in the significant range. Thus, I find evidence that the true interaction effect for each of the account groupings with a significant interaction coefficient from Table 7 appears significant with the exception of tax related issues (i.e., the interaction effect does not change sign, the mean z-statistic is statistically significant and/or a fairly significant portion of the z-statistics are in the significant range). For tax related issues, there is little evidence to suggest that the true interaction effect is significant.

[Insert Table 8 Here]

Marginal Effect of High Control Risk at Varying Levels of Audit Effort

I further explore the effectiveness of additional auditor effort by examining the association between internal control weaknesses within specific accounts and misstatements within those same accounts at various levels of auditor effort. Wiersema and Bowen (2008) recommend this tabular presentation if the true interaction effect is statistically significant. Table 9 presents the marginal effect of HighCR_acctspecific at various levels of AuditFeeAdj, while holding fixed the value of all other model variables at their sample mean. The accounts included in this table are those where the interaction term between HighCR_acctspecific and AuditFeeAdj is significant based on the results from Table 7 and the procedures previously discussed to test the true interaction effect. I split AuditFeeAdj into five levels, where very low (very high) AuditFeeAdj is two standard deviations below (above) the sample mean, and low (high) AuditFeeAdj is one standard deviation below (above) the sample mean. For each of the account groupings, I find that when AuditFeeAdj is at or below the sample mean, the marginal effect of

account-specific internal control weaknesses on the likelihood of misstatements within those specific accounts is positive and significant, suggesting that high levels of auditor effort in response to an assessment of high control risk is effective in maintaining a consistent level of audit risk at the account level. For acquisition, merger, disposal or reorganization issues, where the likelihood of an ineffective response to high control risk is low on average relative to company-years where control risk is not high, I find that this only occurs at higher levels of AuditFeeAdj.

[Insert Table 9 Here]

Because I am interested in the effort associated specifically with auditors' response to an assessment of high account-level control risk, I re-perform this analysis examining the effect of different levels of AuditFeeAdj using only the distribution of the 2,606 company-years with high control risk. For this subset of company-year observations, mean AuditFeeAdj is 0.268 with a standard deviation of 0.554. Table 10 presents this analysis. Using these alternative cut-offs for AuditFeeAdj, I find consistent results with those presented in Table 9. The only differences noted are that the marginal effect of HighCR_acctspecific is not significant when AuditFeeAdj is at the mean for expense related issues and HighCR_acctspecific is significant when AuditFeeAdj is one standard deviation below the mean for acquisition, merger, disposal or reorganization issues.

[Insert Table 10 Here]

Visualizing the Interaction Effect

To assess the magnitude of these effects, I examine graphical evidence to visualize and interpret how the interaction of AuditFeeAdj and HighCR_acctspecific affects the predicted probabilities of misstatement within these specific account groupings (see e.g., Evans et al. 2010;

Greene 2010). While the use of predicted probabilities are intuitive for interpreting main effects and interactions, the pattern of results depends on the values of all other model variables. Mitchell and Chen (2005) discuss a methodology for visualization of the interaction on the predicted probability of the outcome, creating an index for the covariate contribution (the contribution of all other covariates in the model). Figures 1a through 1f present graphs for each account grouping with a significant interaction effect. These figures present graphs of the predicted probability of misstatement within an account as excess audit fees increase for companies with high control risk within the specific account, and those without, holding covariate contribution at its median value. The vertical reference lines in each figure are set at two standard deviations below (above) mean AuditFeeAdj. I find when control risk related to revenue is high, the predicted probability of a revenue related misstatement is approximately 7.5 percent when AuditFeeAdj is two standard deviations below the sample mean. Increasing AuditFeeAdj from two standard deviations below the mean to two standard deviations above the mean, holding covariate contribution at the median, decreases the estimated probability of a revenue related misstatement by approximately 6.5 percent. Under the same scenario for inventory and cost of sales, there is a 2 percent decline in the estimated probability of misstatement from 2.5 percent to 0.5 percent. For expense related issues, the decline is 4 percent, from 4.5 percent to 0.5 percent. For liabilities, payables, reserves and accrual estimate failures, the decline is 3.5 percent, from 4.5 percent to 1.0 percent. For intangible or fixed asset value/diminution issues, the decline is 5 percent, from 6.0 percent to 1.0 percent.

[Insert Figures 1a – 1f Here]

VI. ADDITIONAL ANALYSES

A. ADDITIONAL ANALYSES OF AUDIT EFFORT CONSTRUCT

In this Section I examine the robustness of AuditFeeAdj, my construct for audit effort related to account-level internal control weaknesses. To determine whether the results in my primary analyses are sensitive to research design choices, I first examine whether my measure of excess audit fees captures effort related to internal control weaknesses by examining the effect of internal control material weaknesses on audit fees. Second, because I make assumptions about the level of effort related to internal control weaknesses when more than one account-level internal control weakness is present, I examine a subset of observations with only one account-level internal control weakness. Third, because I make the assumption that the entire excess fee adjustment represents additional audit effort related to internal control weaknesses and lower levels of audit fee adjustment could represent less effort in other areas of the audit rather than the account(s) with high control risk, I re-perform my tests censoring low levels of AuditFeeAdj or deleting those observations from my tests.

The Effect of Internal Control Weaknesses on Audit Fees

To provide further evidence that my measure of excess audit fees is capturing effort related to internal control weaknesses, I examine the effect of internal control material weaknesses on audit fees. Table 11 presents the results of four separate regressions where the dependent variable is the natural log of audit fees. The first column presents the results without a variable capturing the effect of internal control weaknesses. The second column presents the results of the effect of internal control material weaknesses. In this column, I include the variable ICMW, an indicator variables set equal to one if a material weakness in internal control is present, and zero otherwise. The third column includes a variable to capture the magnitude of

the internal control problem. COUNT_ICMW represents the number of material weaknesses in internal control present. The fourth column includes both ICMW and COUNT_ICMW.

Consistent with prior research, I find a positive and significant association between internal control weaknesses and audit fees with an incremental increase in the explanatory power of the model. I also find when including a variable for the count of internal control weaknesses, while controlling for the presence of an internal control weakness, that both the presence and severity of internal control problems are positively associated with audit fees and increase the explanatory power of the model.

[Insert Table 11 Here]

Capturing Audit Effort at the Account Level When Excess Audit Fees Are Low

My measure of auditor effort in the presence of account-level internal control weaknesses assumes that equal auditor effort is given to internal control weaknesses when more than one account-level internal control weakness exists. Because this may not always hold true, I re-perform my tests by excluding observations from the sample with more than one account-level internal control weakness disclosed. Table 12 presents the results of these limited samples. Table 12 does not include the results when the dependent variable is an expense related misstatement, a lease related misstatement, or a pension/OPEB related misstatement because high control risk within those particular accounts perfectly predicts the dependent variable (i.e., none of the observations with high control risk within the particular account have a misstatement within the same account). With the exception of inventory and cost of sales issues and acquisition, merger, disposal or reorganization issues, I find results generally consistent with those presented in Table 5, in that the likelihood of misstatement within a particular account is higher when control risk within the account is assessed as high. For inventory and cost of sales

issues and acquisition, merger, disposal or reorganization issues, I do not find a significant difference in the likelihood of misstatement between companies with high control risk and those without.

[Insert Table 12 Here]

Table 13 presents the results of my second hypothesis excluding observations from the sample with more than one account-level internal control weakness disclosed. Table 13 does not include the results when the dependent variable is an expense related misstatement, a lease related misstatement, or a pension/OPEB related misstatement because high control risk within those particular accounts perfectly predicts the dependent variable (i.e., none of the observations with high control risk within the particular account have a misstatement within the same account). I find results generally consistent with those presented in Table 7. I do not find a significantly higher likelihood of an inventory related misstatement when control risk is high. I also do not find that the likelihood is affected by increasing audit effort. Unlike Table 7, with this limited sample I do find that AuditFeeAdj has a moderating effect on the increased likelihood of a stock compensation related misstatement when control risk is high. For investments and cash issues and financial derivatives/hedging issues, I find that the likelihood of misstatement increases as AuditFeeAdj increases when control risk is high within these accounts. Overall, other than the differences noted, the results are fairly consistent with the main tests.

[Insert Table 13 Here]

Additionally, in my main tests, the full audit fee adjustment is attributed to the account(s) with the internal control weakness. However, a lower fee adjustment may not necessarily represent lower effort related to that account but to other areas of the audit (i.e., the auditor diverts attention from less risky areas of the audit to areas of higher risk). Therefore, I re-

perform my tests in the following ways. First, I censor AuditFeeAdj at zero for companies that have internal control weaknesses. Second, I exclude observations with high control risk within specific accounts where AuditFeeAdj is negative. Table 14 presents the results of my second hypothesis where AuditFeeAdj is censored at zero for companies that have internal control weaknesses. I find consistent results with those presented in Table 7.

[Insert Table 14 Here]

Tables 15 and 16 present the results of my primary tests excluding observations with high control risk within specific accounts where AuditFeeAdj is negative. Table 15 presents the results of my first hypothesis with these limited samples. Results are generally consistent with those presented in Table 5. The only differences noted are that high control risk related to expense issues or intangible or fixed asset value/diminution issues is not significantly associated with the likelihood of misstatement within those accounts.

[Insert Table 15 Here]

Table 16 presents the results of my second hypothesis with these limited samples. Again, results are generally consistent with those presented in Table 7. The only differences noted are that the main effect of HighCR_acctspecific is not significantly associated with the likelihood of misstatement for expense related issues, investments and cash issues, and debt, quasi-debt, warrants and equity security issues.

[Insert Table 16 Here]

Overall, the results of these analyses suggest that the results presented in the main tests are fairly robust and that for most accounts, on average, auditors do not maintain a consistent level of audit risk at the account level in the presence of high control risk. These analyses also suggest that for certain accounts that appear more routine or are related to less frequent non-

routine processes that additional auditor effort mitigates the likelihood of an ineffective response to high control risk.

B. WHY AUDITORS DO NOT RESPOND EFFECTIVELY

Given the findings in my primary tests, I explore why auditors do not effectively respond to high control risk at the account level. Several factors could influence the effectiveness of an auditor's response to high control risk at the account level. For example, a lack of auditor expertise or industry knowledge, a lack of client-specific knowledge, a strong incentive to please the client to avoid losing future fees, auditor-client misalignments (where a small auditor auditing a large company may lack expertise or capacity, or where a large auditor auditing a small company may not dedicate sufficient attention or resources), resource constraints on the auditor, and time constraints due to filing requirements could all affect the likelihood that an auditor's response to high control risk is not effective in restricting the risk of material misstatement to an appropriately low level. Differences in company characteristics, such as size and complexity, as well as the presence of non-recurring transactions could also play a role given the time constraints imposed by reporting deadlines. In addition, weak entity-level controls on top of weak account-level controls could exacerbate the risk of material misstatement despite an increase in auditor effort.

To explore why auditors' alterations of substantive audit procedures are not effective in the presence of high control risk, I limit the sample to company-years with high control risk in at least one account grouping and use the following logistic regression:

$$\begin{aligned} \Pr(\text{Misstate_acctspecific}_{it}=1 \mid \text{HighCR_acctspecific}_{it}=1) = & \alpha_0 + \alpha_1 \text{LnAssets}_{it} + \\ & \alpha_2 \text{OfficeImport}_{it} + \alpha_3 \text{LnSEG}_{it} + \alpha_4 \text{M\&A}_{it} + \alpha_5 \text{Restructure}_{it} + \alpha_6 \text{BigN}_{it} + \\ & \alpha_7 \text{Specialist}_{it} + \alpha_8 \text{Tenure}_{it} + \alpha_9 \text{OfficeSize}_{it} + \alpha_{10} \text{AUD_WLC}_{it} + \\ & \alpha_{11} \text{Mismatch_LargeAUD}_{it} + \alpha_{12} \text{Mismatch_SmallAUD}_{it} + \alpha_{13} \text{EntityICweak}_{it} + \\ & \alpha_{14} \text{LateDisclose}_{it} + \alpha_{15} \text{ChgDeadline}_{it} + \alpha_{16} \text{CloseToDeadline}_{it} \end{aligned} \quad (4)$$

where:

- OfficeImport = the ratio of total company fees to the sum of total fees of all public clients of the auditor office issuing the audit report (see Chung and Kallapur 2003);
- Tenure = the number of consecutive years to date of the auditor-client relationship;
- OfficeSize = the natural log of the sum of total fees of all public clients of the auditor office issuing the audit report (see Francis and Yu 2009);
- AUD_WLC = relative level of workload compression of an auditor office during the fiscal year-end month of a client, measured as audit fees charged to clients with the same fiscal year-end month in each office divided by the sum of total office audit fees during the fiscal year (see Lopez and Peters 2012);
- Mismatch_LargeAUD= an indicator variable set equal to one if the company is misaligned with a large auditor based on the methodology in Shu (2000), where a large auditor is defined as a Big N auditor (PWC, KPMG, Deloitte, and Ernst & Young), and zero otherwise;
- Mismatch_SmallAUD= an indicator variable set equal to one if the company is misaligned with a small auditor based on the methodology in Shu (2000), where a small auditor is defined as an auditor other than a Big N auditor, and zero otherwise;
- LateDisclose = an indicator variable set equal to one if an account-level material weakness was disclosed under Section 404 in the annual report, but no Section 302 disclosure was made for that particular account in any of the interim quarterly filings during the year, and zero otherwise;
- ChgDeadline = an indicator set equal to one if the required filing deadline changed during the year, and zero otherwise;¹⁶

¹⁶ Historically, the annual report had to be filed with the SEC within 90 days of the company's fiscal year-end. In 2002, the SEC adopted a final rule to accelerate the filing of quarterly and annual reports for accelerated filers. In December 2005, the SEC adopted amendments that created a new category of "large accelerated filers" (companies with a public float of \$700 million or more). The amendments also redefine "accelerated filers" as companies that have at least \$75 million, but less than \$700 million, in public float. For fiscal years beginning after December 15, 2006, large accelerated filers are required to file within 60 days, while the deadline for accelerated filers and non-accelerated filers is 75 and 90 days, respectively (SEC 2002, SEC 2005).

CloseToDeadline = an indicator set equal to one if the audit report date is within three days of the required filing deadline, and zero otherwise,^{17,18} and

all other variables as previously defined.

Table 17 presents the results of this regression. I find that the likelihood of an ineffective response to high control risk is higher for companies with a greater number of operating segments (LnSEG), which suggests that client complexity affects an effective auditor response to high control risk. I find an increased likelihood of an ineffective response to high control risk by smaller auditors misaligned with larger companies (non-Big N and non-second tier) (Mismatch_SmallAUD). This finding could suggest that smaller auditors may not have sufficient expertise or resources for clients that are larger (misaligned). I find a positive association between entity-level control weaknesses and the likelihood of an ineffective response to high control risk at the account level. This result suggests that alterations to account-level substantive audit procedures are less likely to be effective in the presence of an entity-level control weakness. I also find that the timing of the disclosure (and presumably the timing of the discovery) of the internal control weakness matters. When internal control weaknesses are reported (and presumably discovered) late in the audit process (LateDisclose), there is an increased likelihood of an ineffective response. I also find that when the audit report date is close to the required filing date, and the company files on time, auditors are more likely to

¹⁷ Alternatively, I define this variable as five days or less between the audit report date and the required filing date, 4 days or less, or 2 days or less. Results are consistent with each of these alternative definitions.

¹⁸ To calculate the required filing date, I add the number of days companies have to file based on filer status (accelerated, large accelerated, foreign filer, etc.) and the fiscal year. I adjust required filing dates falling on weekends. I reconcile late filers with Audit Analytics' non-timely filer information and analysis database and adjust required filing dates accordingly.

respond effectively to the increased risk. This suggests that delay in the audit report represents effective adjustment to the timing and extent of substantive audit procedures.

[Insert Table 17 Here]

Examination by Industry and Year

Table 18 presents a breakout, by industry and year, of account level audit failures, defined as an assessment of high control risk within an account that contains a misstatement. As noted in Panel A, the industries with the largest number of account-level audit failures include computers (SIC codes 3570-3579; 3670-3679; 7370-7379), financial companies (SIC codes 6000-6999), durable manufacturers (SIC codes 3000-3999, excluding 3570-3579 and 3670-3679), and retailers (SIC codes 5000-5999). Panel B reveals a decreasing trend in account-level audit failures by year. Although later years in the sample have less elapsed time between the misstatement year and the restatement, there does appear to be an improvement over time in auditors' response to assessments of high control risk at the account-level.

[Insert Table 18 Here]

Examination by Account

In Table 17, I explore why auditors' alterations of substantive audit procedures are not effective in the presence of high control risk. In additional analyses, I further disaggregate the sample in Table 17 to determine whether these explanatory variables vary by account. Table 19 presents the results of estimating model (4) separately by account grouping. Samples are limited to observations with high control risk within the specific accounts and the dependent variable takes on a value of one if there is a misstatement within the account. For certain account groupings, some variables are dropped in the models because they perfectly predict the dependent variable. The model examining pensions/OPEB cannot run due to too many variables

perfectly predicting the dependent variable. The results reveal some important findings. First, I find that for all accounts examined, with the exception of accounts/loans receivable, investments and cash issues, that late discovery of the internal control weakness (LateDisclose) increases the likelihood of an account-level failure. I find that smaller auditors misaligned with larger companies (Mismatch_SmallAUD) increase the likelihood of an account-level audit failure only for revenue, accounts/loans receivable, investments and cash issues, and acquisition, merger, disposal or reorganization issues. I find that entity-level control weaknesses (EntityICweak) increase the likelihood of an account-level audit failure in revenue, inventory and liabilities, payables, reserves and accrual estimate failures. I find that the increased likelihood of an account-level audit failure among companies with more segments (LnSEG) is driven by revenue recognition issues. I find that the decreased likelihood of an account-level audit failure when the auditor's report date is close to the required filing date, and the company files on time (CloseToDeadline), is driven by accounts/loans receivable, investments and cash issues, financial derivatives/hedging issues, and intangible or fixed asset value/diminution issues. I find that company size (LnAssets) increases the likelihood of an account-level audit failure in revenue or liabilities, payables, reserves and accrued liabilities. Although not significant in Table 17, I find that auditor workload compression (AUD_WLC) increases the likelihood of an account-level audit failure in expense related issues and intangible or fixed asset value/diminution issues. In summary, the timing of the internal control discovery appears to impact all accounts, however, other reasons explaining why auditors respond ineffectively to an assessment of high control risk varies somewhat by account.

[Insert Table 19 Here]

VII. CONCLUDING REMARKS

In this study, I examine whether auditors' response to high control risk (i.e., the adjustment to detection risk accomplished by altering the nature, timing, and extent of substantive audit procedures) is effective in maintaining a consistent, low level of audit risk at the account level. Additionally, I examine whether the effectiveness of the auditor's response to an assessment of high control risk to maintain a consistent level of audit risk varies as auditor effort increases. The results of this study provide insight into the effectiveness of the audit risk model at the account level and help further reconcile findings from prior research. The results indicate that, in many cases, the presence of high control risk within a particular account does not result in a future restatement of the account. However, relative to companies with low control risk within the particular account, there is an increased incidence of account-level misstatements when control risk within that particular account is high, suggesting that auditors do not maintain a consistent level of audit risk at the account level in the presence of high control risk (i.e., inadequate auditing of the particular financial statement account with an assessment of high control risk). The results highlight areas of the audit where there is a greater risk of an ineffective response to high control risk at the account level, specifically, in accounts related to more frequent or recurring non-routine processes. I find that additional auditor effort does mitigate the likelihood of an ineffective response to high control risk in a meaningful way for account groupings that appear more routine or core to the on-going operations of the business (i.e., revenue; inventory and cost of sales; expense related issues; liabilities, payables, reserves and accrual estimate failures) or are less frequent non-routine processes (intangible or fixed asset value/diminution issues; and acquisition, merger, disposal or reorganization issues).

In additional analysis, I explore why auditors do not effectively respond to high control risk at the account level. The results suggest that client complexity, auditor-client misalignments

for small auditors (presumably due to a lack of expertise or necessary resources), the presence of an entity-level internal control weakness, and the timing of internal control weakness reporting (and presumably discovery) increase the likelihood of an ineffective response to high control risk at the account level. Further analyses reveal that the timing of internal control weakness reporting increases the likelihood of an account-level audit failure for almost all accounts, while other reasons, such as client complexity, auditor-client misalignments, entity-level control risk, and auditor workload compression, vary by account.

Overall, the results of this study highlight areas of the audit where auditors can improve the link between account-level risk assessments and the design, performance and evaluation of substantive audit tests as well as circumstances that may increase the risk of a failure in the audit risk model at the account level.

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**APPENDIX A
VARIABLE DEFINITIONS**

Variable	Definition
ACCEL	An indicator variable set equal to one if the company is categorized as an accelerated or large accelerated filer, and zero otherwise;
AuditFeeAdj	Auditor effort related to the internal control weakness, estimated by subtracting the estimated benchmark log of audit fees from actual log of audit fees and dividing this measure by the number of internal control material weaknesses present, where the benchmark log of audit fees is estimated by saving the parameter estimates from equation (2)
AUD_WLC	Relative level of workload compression of an auditor office during the fiscal year-end month of a client, measured as audit fees charged to clients with the same fiscal year-end month in each office divided by the sum of total office audit fees during the fiscal year;
BigN	An indicator variable set equal to one if the auditor is from the Big 4, and zero otherwise;
Busy	An indicator variable set equal to one if the company's fiscal year ends in December or January, and zero otherwise;
ChgDeadline	An indicator set equal to one if the required filing deadline changed during the year, and zero otherwise;
CloseToDeadline	An indicator set equal to one if the audit report date is within three days of the required filing deadline, and zero otherwise;
COUNT_ICMW	The number of material weaknesses in internal control present
Delay	The number of consecutive days from the company's fiscal year-end to the date the 10-K is filed;
EntityICweak	An indicator if variable set equal to one if there is a control environment weakness (e.g., senior management competency, tone, reliability issues, accounting documentation, policy and/or procedures, accounting personnel resources, competency or training, information technology, software, security and access issues, segregation of duties/design of controls, or journal entry control issues);
FIN	Debt and equity issuances during year t divided by total assets;
FOROPS	An indicator variable set equal to one if the company has foreign operations, and zero otherwise;
GC	An indicator variable set equal to one if the company received a going concern modification to the auditor's report, and zero otherwise;

(Continued on next page)

HighCR_acctspecific	An indicator if control risk is high within a specific account (as outlined in Appendix B), where high control risk is measured as the disclosure of a 404 material weakness and/or a 302 material weakness within the specific account grouping during year t, and zero otherwise;
HighCR_otheracct	An indicator variable set equal to one if control risk is high within account groupings other than the account being examined (as outlined in Appendix B), where high control risk is measured as the disclosure of a 404 material weakness and/or a 302 material weakness within the specific account grouping during year t, and zero otherwise;
ICMW	An indicator variables set equal to one if a material weakness in internal control is present, and zero otherwise
ICWeak_Acct	An indicator if control risk is high (404 material weakness and/or 302 material weakness) in any of the account/class of transactions groupings (outlined in Appendix B) during year t, and zero otherwise;
INVREC	Inventory and receivables divided by total assets;
LateDisclose	An indicator variable set equal to one if an account level material weakness was disclosed under Section 404 in the annual report, but no Section 302 disclosure was made for that particular account in any of the interim quarterly filings during the year, and zero otherwise;
LEV	Long-term debt plus the current portion of long-term debt divided by total assets;
LnAFEE	The natural log of audit fees;
LnAssets	The natural log of total assets;
LnSEG	The natural log of the number operating segments;
Loss	An indicator variable set equal to one if net income is less than zero, and zero otherwise;
Mismatch_LargeAUD	An indicator variable set equal to one if the company is misaligned with a large auditor based on the methodology in Shu (2000), where a large auditor is defined as a Big N auditor (PWC, KPMG, Deloitte, and Ernst & Young), and zero otherwise;
Mismatch_SmallAUD	An indicator variable set equal to one if the company is misaligned with a small auditor based on the methodology in Shu (2000), where a small auditor is defined as an auditor other than a Big N auditor, and zero otherwise;
Misstate	An indicator if there was a misstatement in year t, and zero otherwise;
Misstate_acctspecific	An indicator if the specific account grouping was misstated in year t, and zero otherwise;

(Continued on next page)

MTB	The market-to-book ratio, calculated as the market value of equity divided by the book value of equity;
M&A	An indicator variable set equal to one if the company is involved in a merger or acquisition during the year, and zero otherwise;
OfficeImport	The ratio of total company fees to the sum of total fees of all public clients of the auditor office issuing the audit report;
OfficeSize	The natural log of the sum of total fees of all public clients of the auditor office issuing the audit report;
RESTATE	An indicator variable set equal to one if a restatement was announced during the fiscal year, and zero otherwise;
Restructure	An indicator variable set equal to one if the company is involved in restructuring activity during the year, and zero otherwise;
ROA	Return on assets measured as net income divided by total assets;
Specialist	An indicator variable set equal to one if the auditor is an industry specialist (audit fee market share in the 2-digit SIC code exceeds 30% at the national level), and zero otherwise;
StdROA	The standard deviation of return on assets over the prior five years, where return on assets is net income divided by total assets;
Tenure	The number of consecutive years to date of the auditor-client relationship;

APPENDIX B
ACCOUNT/CLASS OF TRANSACTIONS GROUPINGS

The table below outlines the account/class of transaction groupings for both internal control weaknesses and restatements. Groupings are based on the categorization in Audit Analytics

Internal Control Weakness		Restatement	
AA key	Category	AA key	Category
39	Revenue recognition issues	6	Revenue recognition issues
32	Inventory, vendor and cost of sales issues	20	Inventory, vendor and cost of sales issues
29, 14, 28	Expense recording (payroll, SG&A) issues, capitalization of expenditures issues, depreciation, depletion or amortization issues	7, 23, 1	Expense recording (payroll, SG&A) issues, capitalization of expenditures issues, depreciation, depletion or amortization issues
15	Accounts/loans receivable, investments & cash issues	14	Accounts/loans receivable, investments & cash issues
3, 73	Lease, FAS 5, legal, contingency & commitment issues (including lease, leasehold & FAS 13 (98) subcategory)	21, 42	Lease, FAS 5, legal, contingency & commitment issues (including lease, leasehold & FAS 13 (98) subcategory)
27	Deferred, stock-based and/or executive comp issues	17, 48	Deferred, stock-based and/or executive comp issues (including deferred, stock-based options backdating only subcategory)
30	Financial derivatives/hedging (FAS 133) accounting issues	8	Financial derivatives/hedging (FAS 133) accounting issues
33	Liabilities, payables, reserves and accrual estimate failures	12	Liabilities, payables, reserves and accrual estimate failures
41	Tax expense/benefit/deferral/other (FAS 109) issues	18	Tax expense/benefit/deferral/other (FAS 109) issues
47	Debt, quasi-debt, warrants & equity security issues	4	Debt, quasi-debt, warrants & equity security issues
80	Pension and other post-retirement benefit issues	69	Pension and other post-retirement benefit issues
16	Property, plant & equipment, intangible or fixed asset (value/diminution) issue	3, 46	Property, plant & equipment, intangible or fixed asset (value/diminution) issue (including intangible assets, goodwill only subcategory)
35	Acquisition, merger, disposal or reorganization issues	10, 45	Acquisition, merger, disposal or reorganization issues (including acquisitions, mergers, only subcategory)

APPENDIX C
COMPANY-SPECIFIC INTERNAL CONTROL DISCLOSURES

Example 1:

“The Company did not have effective controls and procedures designed to provide reasonable assurance that stock-based compensation related to grants of stock-based awards was accurately and properly recorded in the general ledger and financial statements. As a result of this material weakness, material adjustments were necessary to present the accompanying consolidated financial statements in accordance with generally accepted accounting principles. These adjustments had the effect of materially increasing stock-based compensation and decreasing additional paid-in capital. Inadequate resources and technical accounting expertise. The Company’s resources and level of technical accounting expertise within the accounting function were insufficient to properly evaluate and account for non-routine or complex transactions. Consequently, the Company’s controls over the selection and application of accounting policies in accordance with generally accepted accounting principles were inadequate and constitute a material weakness in the design of internal control over financial reporting.

Audit Analytics coded internal control material weaknesses in the following categories:
AA key 32: Deferred, stock-based and/or executive comp issues

Example 2:

“As of November 30, 2004, the Company did not maintain effective control over the valuation of certain inventory and cost of goods sold. Specifically, the Company did not have effective supervisory and review controls over the valuation of certain inventory and application of production variances. This control deficiency resulted in audit adjustments to the fourth quarter 2004 financial statements. Additionally, this control deficiency could result in a misstatement of inventory and cost of goods sold that would result in a material misstatement to annual or interim financial statements that would not be prevented or detected if left unremediated. Accordingly, management determined that this control deficiency constitutes a material weakness.”

Audit Analytics coded internal control material weaknesses in the following categories:
AA key 32: Inventory, vendor and cost of sales issues

(Continued on next page)

Example 3:

“Management has concluded that our internal controls over financial reporting were not effective as of December 31, 2008 due to the following: Entity level controls, The Company’s activity level controls are ineffective relating to certain accounts, revenue recognition, purchasing, accounts payable, inventory, and financial closing. Ineffective internal controls relating to these accounts may affect the financial statements and will directly affect the nature and timing of other auditing procedures for certain activities.”

Audit Analytics coded internal control material weaknesses in the following categories:

AA key 32: Inventory, vendor and cost of sales issues

AA key 33: Liabilities, payables, reserves and accrual estimate failures

AA key 39: Revenue recognition issues

Example 4 (interim disclosure only):

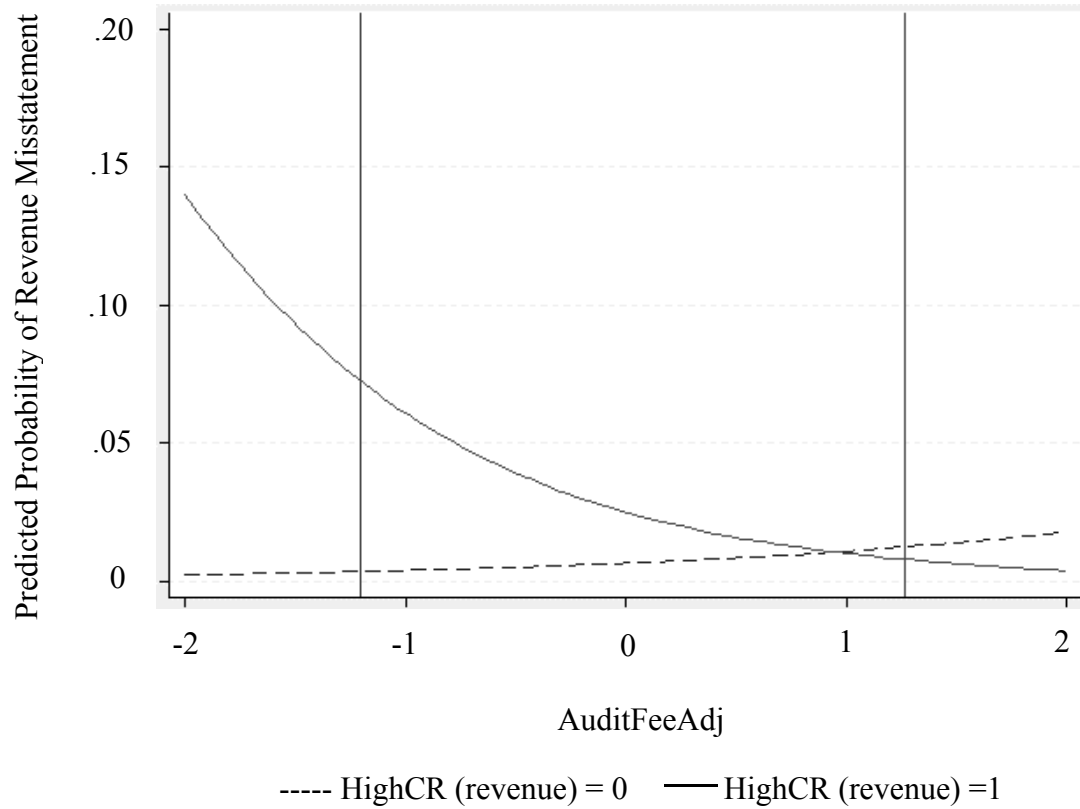
“Management, through documentation, testing and assessment of our internal control over financial reporting pursuant to the rules promulgated by the Securities and Exchange Commission under Section 404 of the Sarbanes-Oxley Act of 2002 and Item 308 of Regulation S-K, has concluded that our internal control over financial reporting had a material weakness in accounting for income taxes as of March 31, 2008.”

Audit Analytics coded internal control material weaknesses in the following categories:

AA key 41: Tax expense/benefit/deferral/other (FAS 109) issues

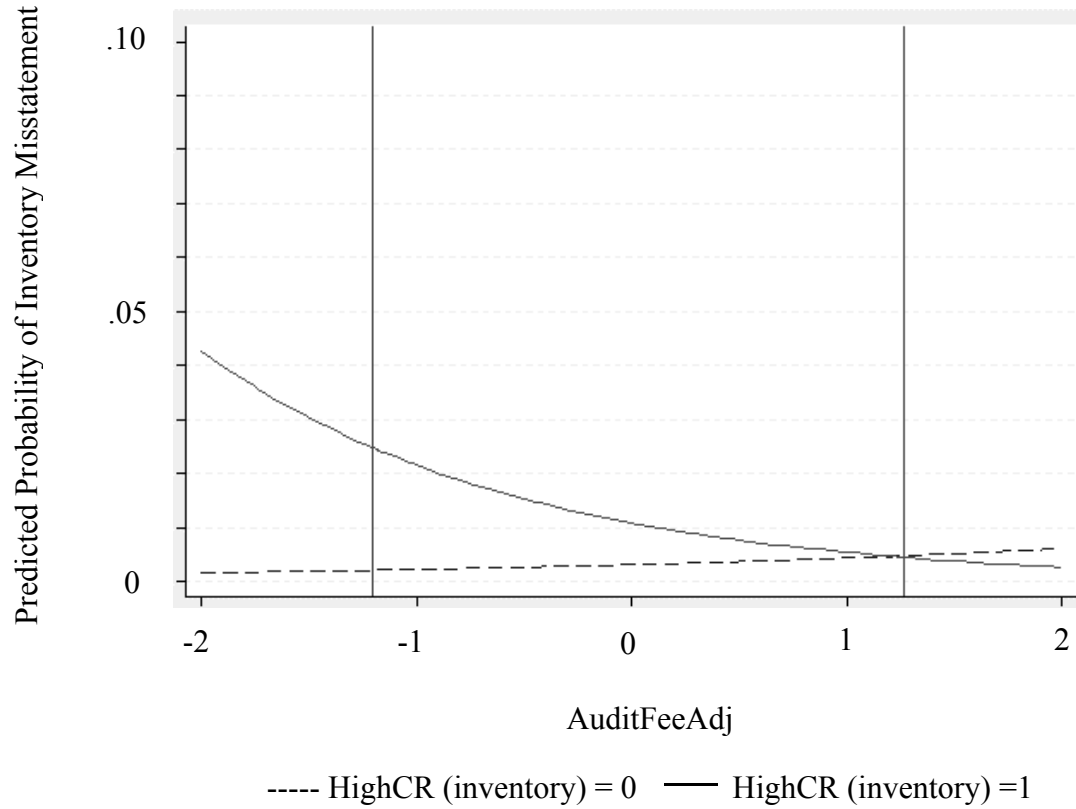
Figures 1a – 1f
Graphs of Interaction Effects against Predicted Probabilities of Misstatement

Figure 1a: Revenue



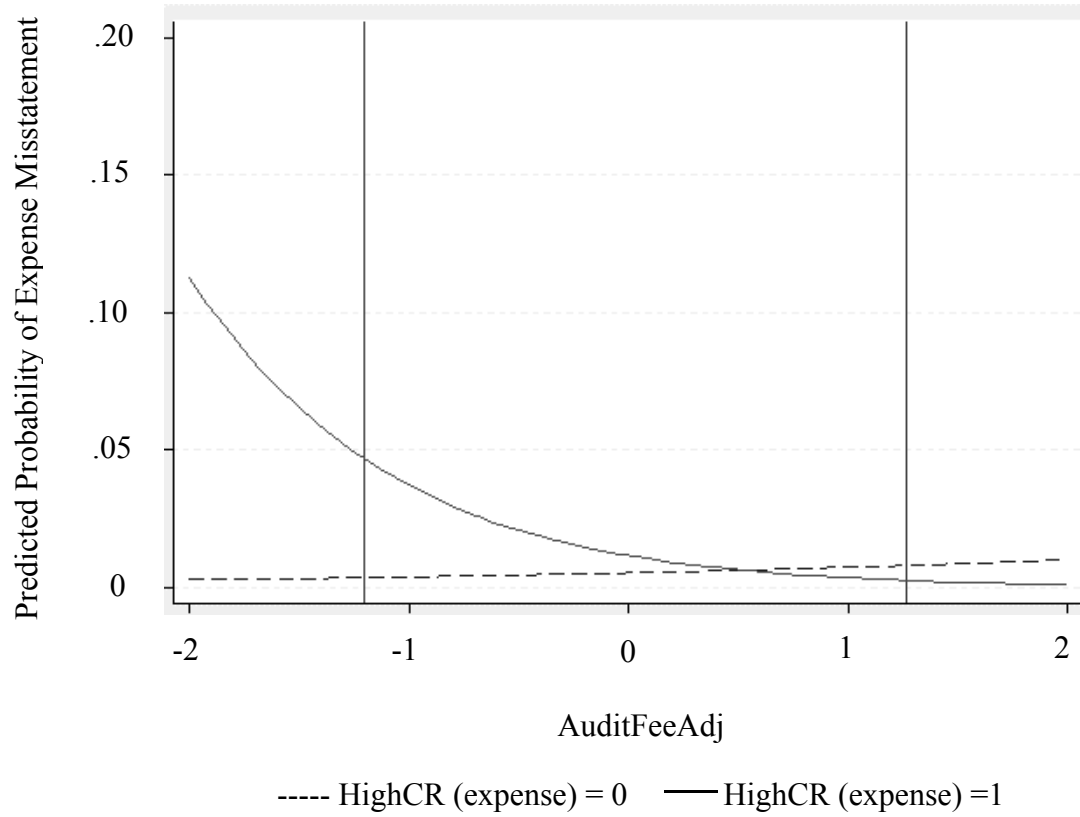
Figures 1a – 1f
Graphs of Interaction Effects against Predicted Probabilities of Misstatement

Figure 1b: Inventory



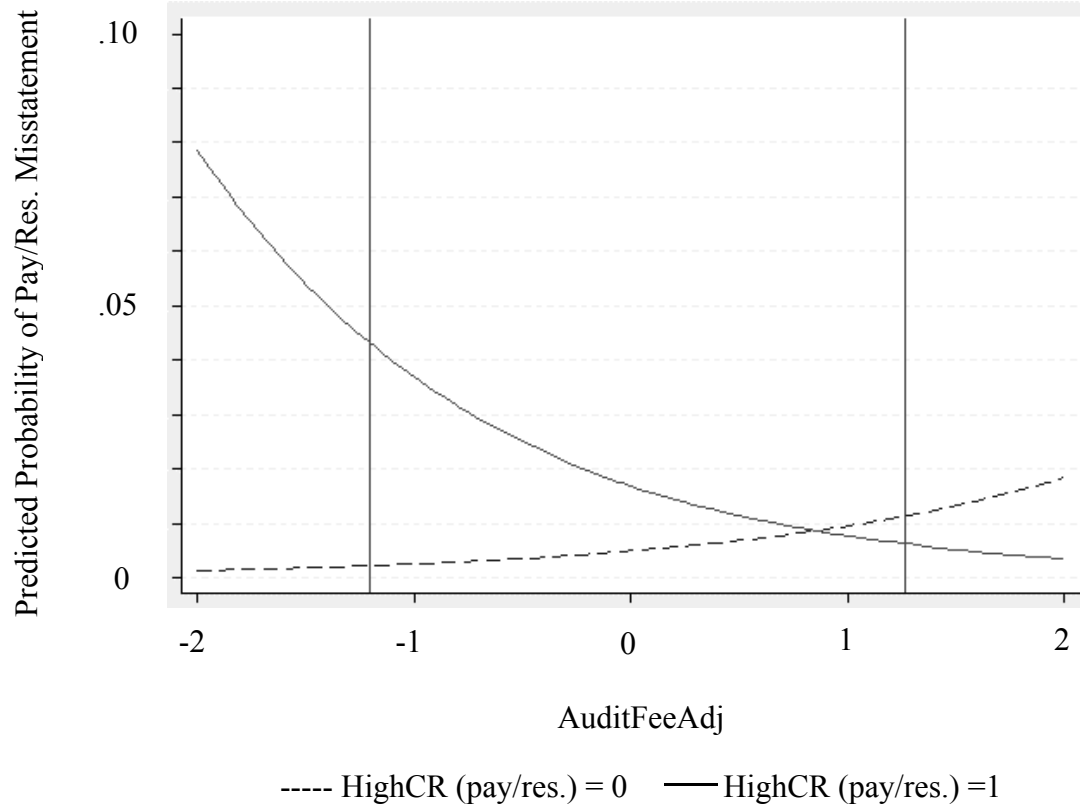
Figures 1a – 1f
Graphs of Interaction Effects against Predicted Probabilities of Misstatement

Figure 1c: Expense



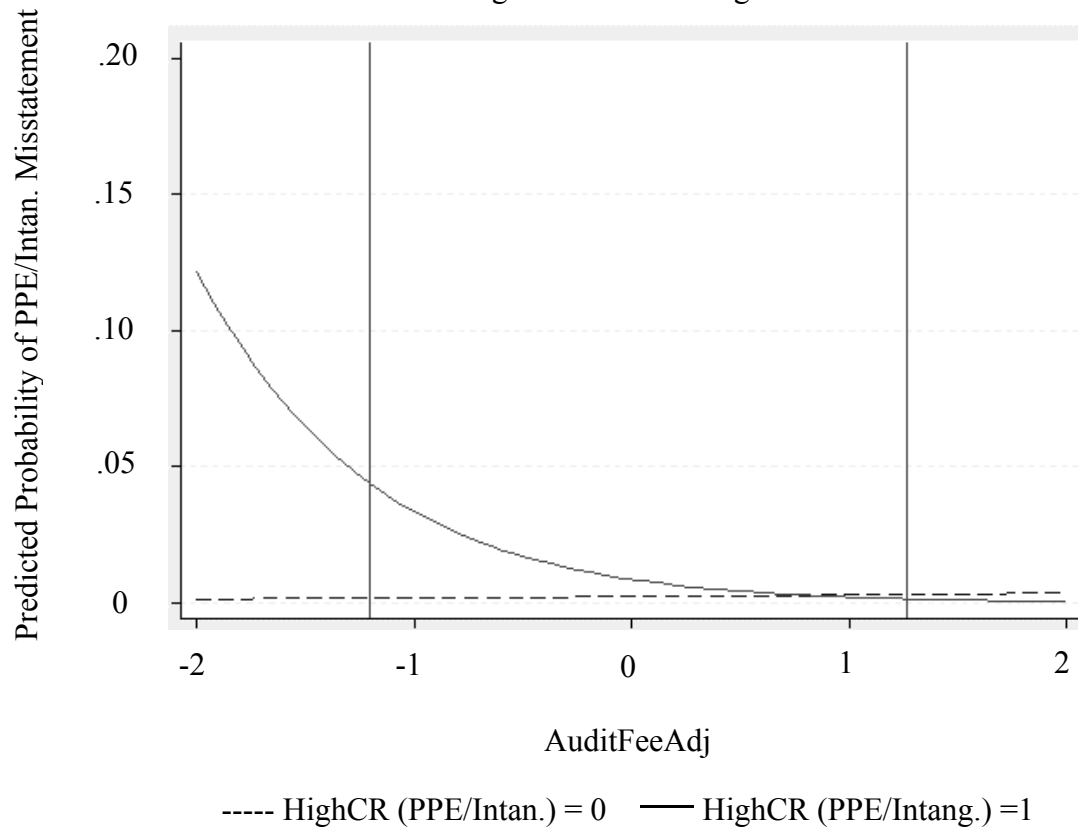
Figures 1a – 1f
Graphs of Interaction Effects against Predicted Probabilities of Misstatement

Figure 1d: Payables/Reserves



Figures 1a – 1f
Graphs of Interaction Effects against Predicted Probabilities of Misstatement

Figure 1e: PPE/Intangibles



Figures 1a – 1f
Graphs of Interaction Effects against Predicted Probabilities of Misstatement

Figure 1f: M&A, Purchase Acct

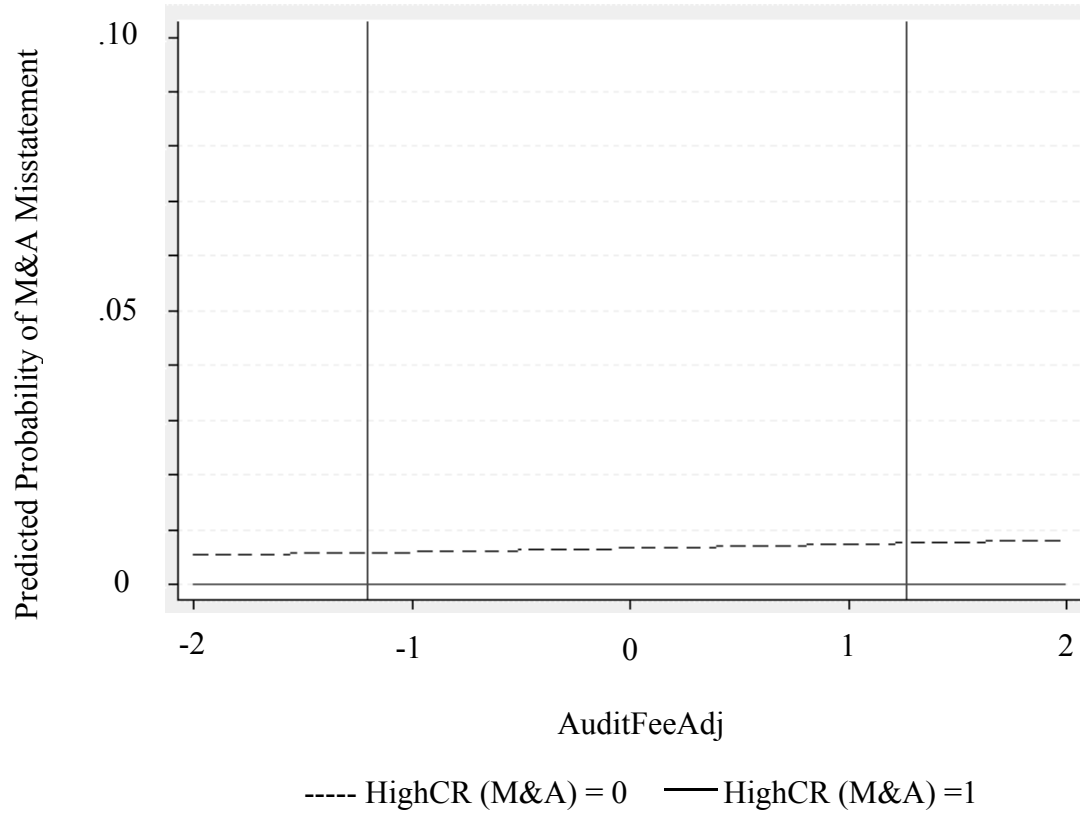


Table 1
Sample Selection and Composition

												N	
Sample												22,253	
Observations with an auditor's opinion on internal controls and necessary data after Audit Analytics and Compustat merge (2004-2009)												22,253	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Sample	22,253	22,253	22,253	22,253	22,253	22,253	22,253	22,253	22,253	22,253	22,253	22,253	22,253
Less observations with '0' or missing Compustat variables:													
REVT	(384)												
INVT and COGS		(388)											
CHE				(153)									
DCLO and XRENT					(3,920)								
STKCO and OPTFVGR and OPTPRCEY						(1,249)							
CIDERGL and HEDGEGL							(14,406)						
AP and XACC								(444)					
XPR and CIPEN and PNCA and PRCA										(4,240)			
PPENT and INTAN											(860)		
AQP													(20,038)
Final Samples by Account Grouping	21,869	21,865	22,253	22,100	18,333	21,004	7,847	21,809	22,253	22,253	18,013	21,393	2,215

Table columns represent the following account-specific groupings:

- | | |
|--|--|
| (1) Revenue recognition issues | (8) Liabilities, payables, reserves and accrual estimate failures |
| (2) Inventory and cost of sales issues | (9) Tax expense/benefit/deferral/other issues |
| (3) Expense recording issues | (10) Debt, quasi-debt, warrants and equity security issues |
| (4) Accounts/loans receivable, investments and cash issues | (11) Pension and other post-employment benefit issues |
| (5) Lease related issues | (12) Value/diminution issues related to intangible or fixed assets |
| (6) Deferred, stock-based and/or executive compensation issues | (13) Acquisition, merger, disposal or reorganization issues |
| (7) Derivatives/hedging issues | |

(Continued on next page)

Table 1 cont'd
Misstatements and ICM weakness by Account/ Class of Transaction Grouping

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	Total Obs.
N	21,869	21,865	22,253	22,100	18,333	21,004	7,847	21,809	22,253	22,253	18,013	21,393	2,215	22,253
(1) ICM weakness (302 or 404)	918	786	670	865	421	496	255	898	1,036	282	73	660	429	2,606
(2) Misstatements	208	108	201	132	91	307	84	174	272	91	40	96	128	1,346
(3) Misstatements with a related ICM weakness	43	22	26	22	22	44	24	31	56	11	1	18	13	240
Account level misstatements with assessed ICM weakness (Row (3) / Row (1))	4.7%	2.8%	4.0%	2.7%	5.5%	9.4%	10.3%	3.6%	5.6%	4.2%	1.5%	2.8%	3.2%	9.2%
Account level misstatements without assessed ICM weakness (Row (2) - (3)) / (N - Row (1))	0.8%	0.4%	0.8%	0.5%	0.4%	1.3%	0.8%	0.7%	1.0%	0.4%	0.2%	0.4%	6.4%	5.6%

Table columns represent the following account-specific groupings:

- | | |
|--|--|
| (1) Revenue recognition issues | (8) Liabilities, payables, reserves and accrual estimate failures |
| (2) Inventory and cost of sales issues | (9) Tax expense/benefit/deferral/other issues |
| (3) Expense recording issues | (10) Debt, quasi-debt, warrants and equity security issues |
| (4) Accounts/loans receivable, investments and cash issues | (11) Pension and other post-employment benefit issues |
| (5) Lease related issues | (12) Value/diminution issues related to intangible or fixed assets |
| (6) Deferred, stock-based and/or executive compensation issues | (13) Acquisition, merger, disposal or reorganization issues |
| (7) Derivatives/hedging issues | |

Table 2
Descriptive Statistics

Variable	N	Mean	St. Dev.	25th Percentile	Median	75th Percentile
Misstate	22,253	0.060	0.238	0.000	0.000	0.000
ICWeak_Acct	22,253	0.123	0.329	0.000	0.000	0.000
AuditFeeAdj	22,253	0.031	0.618	-0.371	0.028	0.426
LnAssets	22,253	7.004	1.977	5.650	6.896	8.185
LEV	22,253	0.568	0.384	0.342	0.552	0.766
MTB	22,253	6.658	321.558	1.215	1.918	3.192
FIN	22,253	0.155	0.500	0.007	0.039	0.162
Loss	22,253	0.271	0.444	0.000	0.000	1.000
StdROA	22,253	0.126	1.194	0.012	0.031	0.087
LnSEG	22,253	0.216	0.713	0.000	0.000	0.000
FOROPS	22,253	0.283	0.450	0.000	0.000	1.000
M&A	22,253	0.078	0.268	0.000	0.000	0.000
Restructure	22,253	0.261	0.439	0.000	0.000	1.000
EntityICweak	22,253	0.084	0.278	0.000	0.000	0.000
BigN	22,253	0.815	0.388	1.000	1.000	1.000
Specialist	22,253	0.235	0.424	0.000	0.000	0.000

**Table 3
Correlations**

Sample (N=22,253)

Variables	Misstate	ICWeak_Acct	AuditFeeAdj	LnAssets	LEV	MTB	FIN	Loss	StdROA	LnSEG	FOROPS	M&A	Restructure	EntityICweak	BigN	Specialist
Misstate		0.196	0.038	-0.028	-0.002	-0.003	0.015	0.009	0.001	0.010	-0.015	-0.011	0.026	0.193	0.016	0.008
ICWeak_Acct	0.196		0.138	-0.119	0.017	-0.005	0.015	0.143	0.029	-0.010	0.042	-0.008	0.068	0.739	-0.075	-0.021
AuditFeeAdj	0.038	0.144		0.082	0.009	-0.003	-0.004	-0.024	0.005	-0.006	0.067	-0.007	0.001	0.092	0.008	0.004
LnAssets	-0.031	-0.128	0.030		0.246	-0.010	-0.072	-0.301	-0.114	0.208	0.076	0.108	0.105	-0.108	0.300	0.158
LEV	-0.010	-0.009	-0.022	0.467		0.005	0.123	0.041	0.025	0.029	-0.101	0.021	0.032	0.023	-0.026	0.013
MTB	0.027	-0.026	0.063	-0.125	-0.192		0.001	-0.008	0.005	-0.004	-0.008	-0.004	-0.009	-0.004	-0.020	-0.006
FIN	0.041	0.009	0.001	0.029	0.115	0.087		0.075	0.050	-0.007	-0.039	0.001	-0.030	0.015	-0.023	-0.021
Loss	0.009	0.143	-0.021	-0.307	-0.012	-0.174	0.089		0.083	-0.055	0.028	-0.003	0.138	0.133	-0.071	-0.033
StdROA	0.039	0.141	0.150	-0.528	-0.385	0.119	0.042	0.474		-0.014	-0.001	-0.002	-0.006	0.030	-0.046	-0.020
LnSEG	0.014	-0.003	0.001	0.192	0.050	-0.002	0.029	-0.054	-0.032		0.114	0.009	0.061	-0.012	0.109	0.083
FOROPS	-0.015	0.042	0.072	0.064	-0.140	0.021	-0.021	0.028	0.146	0.111		0.032	0.193	0.037	0.119	0.042
M&A	-0.011	-0.008	-0.010	0.105	0.039	-0.037	0.022	-0.003	-0.031	0.013	0.032		0.103	-0.015	0.028	-0.005
Restructure	0.026	0.068	0.003	0.100	0.030	-0.052	-0.033	0.138	0.148	0.062	0.193	0.103		0.038	0.143	0.045
EntityICweak	0.193	0.739	0.102	-0.115	0.000	-0.015	0.021	0.133	0.117	-0.006	0.037	-0.015	0.038		-0.073	-0.027
BigN	0.016	-0.075	0.007	0.295	-0.015	0.065	0.021	-0.071	0.016	0.107	0.119	0.028	0.143	-0.073		0.263
Specialist	0.008	-0.021	0.002	0.161	0.030	0.012	0.016	-0.033	-0.022	0.078	0.042	-0.005	0.045	-0.027	0.263	

Bolded correlations are significant at the 1 percent level. Pearson correlations are above the diagonal and Spearman correlations are below the diagonal. All variables are defined in Appendix A.

Table 4
Correlations between Excess Audit Fees and High Control Risk by Account

HighCR_acctspecific	N	Pearson Correlations	Spearman Correlations
		AuditFeeAdj	AuditFeeAdj
Revenue recognition issues	21,869	0.109***	0.116***
Inventory and cost of sales issues	21,865	0.086***	0.094***
Expense recording issues	22,253	0.067***	0.073***
Accounts/loans receivable, investments and cash issues	22,100	0.083***	0.086***
Lease related issues	18,333	0.048***	0.046***
Deferred, stock-based and/or executive compensation issues	21,004	0.061***	0.067***
Derivatives/hedging issues	7,847	0.032***	0.031***
Liabilities, payables, reserves and accrual estimate failures	21,809	0.102***	0.106***
Tax expense/benefit/deferral/other issues	22,253	0.098***	0.105***
Debt, quasi-debt, warrants and equity security issues	22,253	0.029***	0.031***
Pension and other post-employment benefit issues	18,013	0.020***	0.022***
Value/diminution issues related to intangible or fixed assets	21,393	0.067***	0.070***
Acquisition, merger, disposal or reorganization issues	2,215	0.169***	0.178***

This table presents the Pearson and Spearman correlations between AuditFeeAdj and high control risk within specific account groupings. *, **, *** denotes statistical significance at the 10%, 5% and 1% levels, respectively.

Table 5
The Effectiveness of Auditors' Response to High Control Risk

		DV=Misstate_acctspecific				
Variable		(1) Revenue	(2) Inventory	(3) Expense	(4) Invest./Cash	(5) Lease
Intercept	?	-4.493*** ($<.001$)	-5.431*** ($<.001$)	-3.850*** ($<.001$)	-5.048*** ($<.001$)	-4.415*** ($<.001$)
HighCR_acctspecific	?	1.031*** ($<.001$)	1.041*** (.002)	0.528* (.080)	0.662* (.073)	1.807*** ($<.001$)
LnAssets	?	-0.079 (.233)	-0.237*** (.006)	-0.124* (.059)	0.073 (.333)	-0.056 (.476)
LEV	?	0.049 (.789)	0.383* (.054)	0.042 (.637)	0.096 (.444)	0.387 (.301)
MTB	?	0.000 (.628)	-0.001 (.313)	-0.002** (.016)	0.000 (.757)	0.000 (.926)
FIN	?	0.055 (.183)	0.081 (.274)	0.082* (.051)	0.048 (.294)	0.071* (.086)
Loss	?	-0.172 (.403)	-0.083 (.765)	0.343* (.082)	0.145 (.578)	0.126 (.712)
StdROA	?	-0.120 (.594)	-1.901* (.051)	-0.129 (.419)	0.008 (.755)	-2.396* (.074)
LnSEG	?	0.175 (.174)	0.024 (.910)	0.101 (.459)	0.116 (.424)	0.181 (.265)
FOROPS	?	-0.357 (.115)	0.004 (.989)	-0.284 (.219)	-0.351 (.227)	-0.375 (.327)
M&A	?	0.015 (.960)	0.454 (.187)	0.032 (.923)	-0.001 (.998)	0.517 (.251)
Restructure	?	0.551*** (.004)	0.416 (.163)	0.227 (.269)	0.443* (.098)	-0.140 (.658)
BigN	?	0.565** (.049)	1.041** (.019)	0.241 (.444)	0.034 (.927)	0.822 (.186)
Specialist	?	-0.010 (.966)	-0.170 (.613)	0.264 (.230)	-0.040 (.873)	0.474 (.131)
EntityICweak	?	0.834*** (.001)	0.224 (.435)	0.347 (.204)	0.246 (.397)	0.210 (.629)
HighCR_otheraccts	?	-0.227 (.419)	0.403 (.276)	0.575** (.031)	0.731** (.030)	0.050 (.910)
Industry FE		Included	Included	Included	Included	Included
Year FE		Included	Included	Included	Included	Included
N		21,869	21,865	22,253	22,100	18,333
Area under ROC curve		0.766	0.793	0.784	0.761	0.842

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Table 5 cont'd
The Effectiveness of Auditors' Response to High Control Risk

Variable		DV=Misstate_acctspecific			
		(6) Stock Comp	(7) Derivatives	(8) Pay./Reserves	(9) Tax
Intercept	?	-3.415*** ($<.001$)	-3.037*** (.004)	-4.256*** ($<.001$)	-4.532*** ($<.001$)
HighCR_acctspecific	?	1.652*** ($<.001$)	1.991*** ($<.001$)	0.919*** (.002)	1.408*** ($<.001$)
LnAssets	?	-0.026 (.708)	-0.145 (.214)	-0.067 (.440)	0.068 (.251)
LEV	?	-0.995 (.128)	2.159*** ($<.001$)	0.084 (.761)	0.013 (.906)
MTB	?	0.000 (.833)	-0.001 (.202)	-0.001 (.402)	0.000 (.535)
FIN	?	-0.017 (.847)	-0.130 (.551)	-0.334 (.373)	0.091** (.014)
Loss	?	0.073 (.681)	-0.304 (.501)	-0.198 (.428)	0.004 (.984)
StdROA	?	0.019 (.257)	-7.850 (.139)	-1.708** (.024)	-0.037 (.655)
LnSEG	?	0.089 (.502)	0.050 (.782)	-0.122 (.404)	-0.078 (.569)
FOROPS	?	0.160 (.378)	0.623* (.085)	-0.146 (.610)	-0.085 (.668)
M&A	?	0.003 (.990)	-0.426 (.390)	-0.068 (.844)	-0.550* (.094)
Restructure	?	0.095 (.563)	0.206 (.613)	0.583** (.010)	0.315* (.058)
BigN	?	0.638** (.012)	-0.653 (.155)	0.282 (.421)	-0.269 (.338)
Specialist	?	-0.498** (.016)	0.605** (.046)	0.075 (.757)	0.387** (.048)
EntityICweak	?	0.531* (.063)	0.803* (.099)	0.476 (.157)	0.266 (.328)
HighCR_otheraccts	?	-0.293 (.359)	-0.612 (.220)	0.314 (.395)	-0.238 (.360)
Industry FE		Included	Included	Included	Included
Year FE		Included	Included	Included	Included
N		21,004	7,847	21,809	22,253
Area under ROC curve		0.833	0.846	0.793	0.779

(Continued on next page)

Table 5 cont'd
The Effectiveness of Auditors' Response to High Control Risk

Variable		DV=Misstate_acctspecific			
		(10) Debt/Equity	(11) Pension/ OPEB	(12) Valuation PPE/Intan.	(13) M&A/ Purchase Acct
Intercept	?	-3.994*** (.001)	-20.724*** (.001)	-4.542*** (.001)	0.573 (.451)
HighCR_acctspecific	?	1.321*** (.002)	0.061 (.956)	1.275*** (.002)	-1.863*** (.001)
LnAssets	?	-0.095 (.297)	0.162 (.283)	-0.116 (.225)	-0.200** (.037)
LEV	?	0.293* (.053)	0.582 (.201)	-0.056 (.728)	-1.170** (.028)
MTB	?	-0.002** (.026)	0.000 (.921)	0.000 (.949)	0.003 (.655)
FIN	?	0.088** (.014)	-0.982 (.552)	0.004 (.965)	-0.306 (.479)
Loss	?	1.033*** (.003)	0.617 (.175)	0.081 (.794)	-0.227 (.439)
StdROA	?	-0.445 (.198)	-0.993 (.614)	0.003 (.951)	-0.022 (.472)
LnSEG	?	0.273 (.113)	-0.067 (.821)	0.371** (.024)	0.135 (.388)
FOROPS	?	-0.190 (.575)	0.435 (.295)	-0.394 (.249)	0.148 (.627)
M&A	?	0.207 (.663)	-0.197 (.786)	0.231 (.682)	
Restructure	?	-0.554* (.096)	0.181 (.686)	0.320 (.292)	-0.021 (.935)
BigN	?	-0.530* (.086)	0.790 (.477)	0.440 (.274)	0.312 (.387)
Specialist	?	-0.155 (.628)	0.977** (.046)	0.551* (.073)	0.685** (.019)
EntityICweak	?	0.945** (.038)	0.242 (.676)	0.482 (.323)	1.031*** (.007)
HighCR_otheraccts	?	-0.002 (.996)	0.933 (.140)	0.254 (.632)	-0.272 (.474)
Industry FE		Included	Included	Included	Included
Year FE		Included	Included	Included	Included
N		22,253	18,013	21,393	2,215
Area under ROC curve		0.836	0.897	0.801	0.793

This table presents regression results from estimating Model (1) separately by account grouping, in which the dependent variable takes on a value of one if a misstatement within the specific account grouping exists. P-values are two-tailed and are reported below the coefficient

estimates. *, **, *** denotes statistical significance at the 10%, 5% and 1% levels, respectively. Standard errors are clustered by company. All variables are defined in Appendix A.

Table 6
Estimating Excess Audit Fees

Variables	2004 DV= LnAFEE	2005 DV= LnAFEE	2006 DV= LnAFEE
Intercept	-4.221*** ($<.001$)	-4.082*** ($<.001$)	-3.983*** ($<.001$)
LnAssets	0.404*** ($<.001$)	0.407*** ($<.001$)	0.409*** ($<.001$)
LnSEG	0.148*** ($<.001$)	0.150*** ($<.001$)	0.121*** ($<.001$)
FOROPS	0.117*** ($<.001$)	0.095*** ($<.001$)	0.120*** ($<.001$)
ROA	-0.002*** ($<.001$)	-0.001*** ($<.001$)	-0.002*** ($<.001$)
Loss	0.096*** ($<.001$)	0.086*** ($<.001$)	0.122*** ($<.001$)
INVREC	-0.400*** ($<.001$)	-0.442*** ($<.001$)	-0.422*** ($<.001$)
LEV	0.000*** (.009)	0.000 (.169)	0.001*** ($<.001$)
Delay	-0.000** (.018)	-0.000** (.031)	-0.001*** ($<.001$)
Busy	0.093*** ($<.001$)	0.022 (.314)	0.019 (.377)
GC	0.478*** ($<.001$)	0.368*** ($<.001$)	0.348*** ($<.001$)
BigN	0.467*** ($<.001$)	0.525*** ($<.001$)	0.495*** ($<.001$)
RESTATE	-0.207 (.255)	0.136*** ($<.001$)	0.056 (.155)
ACCEL	0.569*** ($<.001$)	0.436*** ($<.001$)	0.395*** ($<.001$)
MTB	-0.000 (.242)	0.000 (.185)	0.000 (.525)
Specialist	0.040* (.097)	0.057** (.027)	0.131*** ($<.001$)
Restructure	0.404*** ($<.001$)	0.411*** ($<.001$)	0.388*** ($<.001$)
M&A	0.060 (.214)	0.022 (.642)	0.051 (.225)
StdROA	0.000 (.857)	0.000* (.094)	0.000 (.626)
Industry FE	Included	Included	Included

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N	6,282	5,709	5,518
Adj. R ²	0.815	0.821	0.827

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Table 6 cont'd
Estimating Excess Audit Fees

Variables	2007 DV= LnAFEE	2008 DV= LnAFEE	2009 DV= LnAFEE
Intercept	-3.873*** ($<.001$)	-3.787*** ($<.001$)	-3.663*** ($<.001$)
LnAssets	0.422*** ($<.001$)	0.403*** ($<.001$)	0.401*** ($<.001$)
LnSEG	0.097*** ($<.001$)	0.113*** ($<.001$)	0.105*** ($<.001$)
FOROPS	0.166*** ($<.001$)	0.202*** ($<.001$)	0.153*** ($<.001$)
ROA	-0.003*** (.002)	0.003*** ($<.001$)	-0.009*** ($<.001$)
Loss	0.131*** ($<.001$)	0.140*** ($<.001$)	0.048** (.019)
INVREC	-0.476*** ($<.001$)	-0.470*** ($<.001$)	-0.477*** ($<.001$)
LEV	-0.000 (.857)	0.004*** ($<.001$)	-0.001* (.069)
Delay	-0.001*** ($<.001$)	-0.001*** ($<.001$)	-0.001*** ($<.001$)
Busy	-0.016 (.476)	-0.028 (.192)	-0.033 (.122)
GC	0.319*** ($<.001$)	0.238*** ($<.001$)	0.212*** ($<.001$)
BigN	0.498*** ($<.001$)	0.491*** ($<.001$)	0.468*** ($<.001$)
RESTATE	0.047 (.326)	0.032 (.562)	-0.030 (.626)
ACCEL	0.289*** ($<.001$)	0.316*** ($<.001$)	0.239*** ($<.001$)
MTB	0.000 (.442)	-0.000 (.546)	0.000 (.169)
Specialist	0.085*** (.002)	0.054** (.032)	0.068*** (.007)
Restructure	0.327*** ($<.001$)	0.349*** ($<.001$)	0.361*** ($<.001$)
M&A	-0.023 (.566)	0.108*** (.004)	0.108*** ($<.001$)
StdROA	0.002** (.018)	-0.001 (.213)	0.002*** (.003)
Industry FE	Included	Included	Included

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N	5,294	5,106	4,960
Adj. R ²	0.816	0.824	0.826

This table presents regression results from estimating Model (2) separately by year. The parameter estimates are saved and applied to the sample observations to determine a benchmark audit fee assuming no internal control weaknesses. This benchmark audit fee is subtracted from actual audit fees to determine the excess audit fee adjustment related to internal control weaknesses. P-values are two-tailed and are reported below the coefficient estimates. *, **, *** denotes statistical significance at the 10%, 5% and 1% levels, respectively. Standard errors are clustered by company. All variables are defined in Appendix A.

Table 7
The Effectiveness of Auditors' Response to High Control Risk: Incorporating Auditor Effort

		DV=Misstate_acctspecific				
Variable		(1) Revenue	(2) Inventory	(3) Expense	(4) Invest./Cash	(5) Lease
Intercept	?	-4.454*** (.001)	-5.346*** (.001)	-3.880*** (.001)	-5.069*** (.001)	-4.462*** (.001)
HighCR_acctspecific	?	1.340*** (.001)	1.242*** (.001)	0.798*** (.009)	0.596 (.131)	1.961*** (.001)
AuditFeeAdj	?	0.501*** (.006)	0.327 (.243)	0.317** (.039)	-0.080 (.670)	0.194 (.424)
HighCR_acctspecific						
*AuditFeeAdj	?	-1.423*** (.001)	-1.068** (.027)	-1.507*** (.001)	0.245 (.525)	-0.618 (.238)
LnAssets	?	-0.099 (.127)	-0.252*** (.006)	-0.124** (.048)	0.076 (.327)	-0.059 (.459)
LEV	?	0.072 (.685)	0.377* (.065)	0.037 (.683)	0.096 (.454)	0.391 (.296)
MTB	?	0.000 (.636)	-0.001 (.291)	-0.001** (.040)	0.000 (.757)	0.000 (.926)
FIN	?	0.036 (.389)	0.068 (.357)	0.072 (.101)	0.050 (.278)	0.064 (.131)
Loss	?	-0.162 (.430)	-0.072 (.798)	0.367* (.062)	0.146 (.574)	0.143 (.675)
StdROA	?	-0.184 (.525)	-2.008** (.047)	-0.152 (.368)	0.008 (.734)	-2.490* (.066)
LnSEG	?	0.188 (.149)	0.031 (.885)	0.107 (.438)	0.115 (.430)	0.186 (.267)
FOROPS	?	-0.372* (.092)	0.001 (.998)	-0.319 (.166)	-0.348 (.228)	-0.393 (.308)
M&A	?	0.046 (.883)	0.482 (.167)	0.045 (.892)	0.000 (.999)	0.518 (.248)
Restructure	?	0.569*** (.003)	0.427 (.165)	0.217 (.287)	0.443* (.098)	-0.140 (.657)
BigN	?	0.605** (.034)	1.043** (.021)	0.240 (.441)	0.036 (.922)	0.840 (.180)
Specialist	?	0.003 (.991)	-0.158 (.634)	0.273 (.214)	-0.043 (.865)	0.476 (.126)
EntityICweak	?	0.763*** (.001)	0.220 (.445)	0.361 (.178)	0.264 (.376)	0.201 (.640)
HighCR_otheraccts	?	-0.247 (.360)	0.353 (.314)	0.491* (.067)	0.733** (.034)	0.023 (.958)
Industry FE		Included	Included	Included	Included	Included
Year FE		Included	Included	Included	Included	Included

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N	21,869	21,865	22,253	22,100	18,333
Area under ROC curve	0.777	0.795	0.788	0.761	0.843

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Table 7 cont'd
The Effectiveness of Auditors' Response to High Control Risk: Incorporating Auditor Effort

Variable		DV=Misstate_acctspecific			
		(6) Stock Comp	(7) Derivatives	(8) Pay./Reserves	(9) Tax
Intercept	?	-3.412*** ($<.001$)	-3.003*** (.005)	-4.127*** ($<.001$)	-4.435*** ($<.001$)
HighCR_acctspecific	?	1.758*** ($<.001$)	1.976*** ($<.001$)	1.296*** ($<.001$)	1.539*** ($<.001$)
AuditFeeAdj	?	0.346** (.011)	-0.044 (.876)	0.668*** ($<.001$)	0.403** (.012)
HighCR_acctspecific *AuditFeeAdj	?	-0.517 (.233)	0.284 (.563)	-1.471*** (.001)	-0.601* (.063)
LnAssets	?	-0.037 (.584)	-0.150 (.195)	-0.103 (.232)	0.050 (.382)
LEV	?	-1.002 (.126)	2.170*** ($<.001$)	0.117 (.664)	0.014 (.898)
MTB	?	0.000 (.774)	-0.001 (.202)	-0.001 (.297)	0.000 (.518)
FIN	?	-0.024 (.752)	-0.134 (.544)	-0.352 (.366)	0.076* (.064)
Loss	?	0.080 (.654)	-0.306 (.503)	-0.184 (.458)	0.007 (.975)
StdROA	?	0.017 (.422)	-7.952 (.144)	-2.021** (.014)	-0.054 (.619)
LnSEG	?	0.107 (.417)	0.051 (.782)	-0.094 (.528)	-0.066 (.633)
FOROPS	?	0.139 (.438)	0.626* (.087)	-0.192 (.491)	-0.117 (.556)
M&A	?	0.019 (.942)	-0.426 (.394)	-0.045 (.898)	-0.544* (.098)
Restructure	?	0.119 (.464)	0.207 (.609)	0.611*** (.007)	0.340** (.038)
BigN	?	0.668*** (.008)	-0.648 (.159)	0.333 (.339)	-0.247 (.382)
Specialist	?	-0.498** (.016)	0.614** (.043)	0.094 (.699)	0.391** (.047)
EntityICweak	?	0.514* (.064)	0.792* (.092)	0.419 (.203)	0.247 (.356)
HighCR_otheraccts	?	-0.339 (.274)	-0.629 (.222)	0.226 (.528)	-0.280 (.276)
Industry FE		Included	Included	Included	Included
Year FE		Included	Included	Included	Included

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N	21,004	7,847	21,809	22,253
Area under ROC curve	0.837	0.845	0.809	0.783

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Table 7 cont'd
The Effectiveness of Auditors' Response to High Control Risk: Incorporating Auditor Effort

Variable		DV=Misstate_acctspecific			
		(10) Debt/Equity	(11) Pension/ OPEB	(12) Valuation PPE/Intan.	(13) M&A/ Purchase Acct
Intercept	?	-4.169*** (.001)	-20.728*** (.001)	-4.548*** (.001)	0.468 (.536)
HighCR_acctspecific	?	1.380*** (.001)	0.133 (.904)	1.548*** (.001)	-1.504*** (.001)
AuditFeeAdj	?	-0.339 (.184)	-0.047 (.875)	0.256 (.266)	0.851*** (.001)
HighCR_acctspecific					
*AuditFeeAdj	?	-0.871 (.235)	-0.515 (.618)	-1.669*** (.004)	-2.005*** (.002)
LnAssets	?	-0.083 (.312)	0.169 (.294)	-0.118 (.207)	-0.231*** (.006)
LEV	?	0.281** (.025)	0.588 (.189)	-0.058 (.720)	-0.937* (.088)
MTB	?	-0.002** (.036)	0.000 (.878)	0.000 (.931)	0.001 (.810)
FIN	?	0.105*** (.005)	-0.979 (.554)	0.005 (.953)	-0.226 (.581)
Loss	?	1.027*** (.004)	0.617 (.177)	0.092 (.764)	-0.294 (.301)
StdROA	?	-0.392 (.140)	-1.003 (.608)	0.002 (.979)	-0.038 (.238)
LnSEG	?	0.257 (.129)	-0.073 (.816)	0.387** (.018)	0.137 (.407)
FOROPS	?	-0.144 (.673)	0.441 (.295)	-0.382 (.265)	0.152 (.622)
M&A	?	0.213 (.654)	-0.206 (.779)	0.248 (.660)	
Restructure	?	-0.581* (.083)	0.174 (.701)	0.316 (.287)	0.082 (.749)
BigN	?	-0.551* (.081)	0.770 (.489)	0.424 (.284)	0.371 (.299)
Specialist	?	-0.126 (.694)	0.978** (.046)	0.546* (.078)	0.620** (.038)
EntityICweak	?	0.998** (.023)	0.240 (.675)	0.381 (.394)	1.022*** (.008)
HighCR_otheraccts	?	0.056 (.908)	0.949 (.144)	0.301 (.524)	-0.321 (.398)
Industry FE		Included	Included	Included	Included

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Year FE	Included	Included	Included	Included
N	22,253	18,013	21,393	2,215
Area under ROC curve	0.839	0.897	0.800	0.816

This table presents regression results from estimating Model (3) separately by account grouping, in which the dependent variable takes on a value of one if a misstatement within the specific account grouping exists. P-values are two-tailed and are reported below the coefficient estimates. *, **, *** denotes statistical significance at the 10%, 5% and 1% levels, respectively. Standard errors are clustered by company. All variables are defined in Appendix A.

Table 8
Analysis of the Interaction Effect

This table presents the certain statistics produced by the INTEFF command in STATA to analyze the true interaction effect in a logistic regression model

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Mean interaction effect	-0.036	-0.014	-0.026	0.002	-0.014	-0.013	0.014	-0.027	-0.012	-0.020	-0.002	-0.034	-0.094
Mean z-statistic	-1.619	-1.172	-1.471	0.586	-0.704	-0.532	0.511	-1.408	-0.879	-1.039	-0.388	-1.270	-1.786
Minimum interaction effect	-0.261	-0.176	-0.308	0.000	-0.119	-0.084	0.000	-0.279	-0.128	-0.289	-0.114	-0.381	-0.431
Maximum interaction effect	-0.000	-0.000	-0.000	0.031	0.000	-0.000	0.065	-0.000	-0.000	0.000	0.000	-0.000	-0.001
Minimum z-statistic	-3.187	-2.304	-3.038	0.132	-1.718	-1.154	0.022	-2.676	-1.769	-2.262	-0.674	-4.521	-5.564
Maximum z-statistic	-0.074	-0.025	-0.032	0.840	-0.024	-0.020	0.925	-0.031	-0.051	-0.029	-0.011	-0.134	-0.153
Proportion of z-statistics in significant range (p-value<0.10)	67.3%	23.8%	63.4%	0.0%	0.5%	0.0%	0.0%	52.2%	3.1%	12.7%	0.0%	37.9%	63.3%

Table columns represent the following account-specific groupings:

- | | |
|--|--|
| (1) Revenue recognition issues | (8) Liabilities, payables, reserves and accrual estimate failures |
| (2) Inventory and cost of sales issues | (9) Tax expense/benefit/deferral/other issues |
| (3) Expense recording issues | (10) Debt, quasi-debt, warrants and equity security issues |
| (4) Accounts/loans receivable, investments and cash issues | (11) Pension and other post-employment benefit issues |
| (5) Lease related issues | (12) Value/diminution issues related to intangible or fixed assets |
| (6) Deferred, stock-based and/or executive compensation issues | (13) Acquisition, merger, disposal or reorganization issues |
| (7) Derivatives/hedging issues | |

Table 9
The Impact of Auditor Effort on the Effectiveness of Auditors’
Response to High Control Risk

Account groupings where true interaction effect is significant

Account Grouping	Level of AuditFeeAdj¹	Marginal Effect of HighCR_acctspecific	z-statistic	p-value
Revenue	Very Low	0.0086***	3.20	0.001
	Low	0.0080***	3.83	0.000
	Mean	0.0062***	3.81	0.000
	High	0.0026	1.33	0.182
	Very High	-0.0037	-0.86	0.392
Inventory	Very Low	0.0033**	2.55	0.011
	Low	0.0029***	3.08	0.002
	Mean	0.0023***	3.05	0.002
	High	0.0012	1.35	0.177
	Very High	-0.0003	-0.14	0.885
Expense	Very Low	0.0046**	2.16	0.031
	Low	0.0035**	2.33	0.020
	Mean	0.0018**	2.09	0.036
	High	-0.0005	-0.48	0.630
	Very High	-0.0038	-1.46	0.144
Liabilities, Reserves, Accruals	Very Low	0.0039***	2.65	0.008
	Low	0.0040***	3.25	0.001
	Mean	0.0034***	3.39	0.001
	High	0.0013	0.93	0.352
	Very High	-0.0032	-0.89	0.374
Intangible/ Fixed Asset Valuation	Very Low	0.0063***	2.72	0.006
	Low	0.0051***	3.36	0.001
	Mean	0.0034***	2.80	0.005
	High	0.0012	0.79	0.431
	Very High	-0.0017	-0.67	0.505
M&A/ Purchase Acct	Very Low	0.0097	0.73	0.464
	Low	-0.0100	-0.89	0.374
	Mean	-0.0425***	-2.95	0.003
	High	-0.0932***	-3.49	0.000
	Very High	-0.1691***	-3.03	0.002

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For the account/ class of transactions groupings where the interaction term is significant, the table above presents the impact of high account-specific control risk on account-specific misstatements at various levels of auditor effort. Specifically, presented below are the marginal effects of HighCR_acctspecific at various levels of AuditFeeAdj, holding fixed the value of all model variables (except AuditFeeAdj) at their sample mean.

1 – The mean is the sample mean value of AuditFeeAdj. Very low (very high) represents two standard deviations below (above) the mean, and low (high) represents one standard deviation below (above) the mean. *, **, *** denotes statistical significance at the 10%, 5% and 1% levels, respectively.

Table 10
The Effectiveness of Auditors' Response to High Control Risk Using Distribution of Auditor Effort for Companies with Internal Control Weaknesses

Account groupings where true interaction effect is significant

Account Grouping	Level of AuditFeeAdj¹	Marginal Effect of HighCR_acctspecific	z-statistic	p-value
Revenue	Very Low	0.0083***	3.57	0.000
	Low	0.0073***	4.00	0.000
	Mean	0.0051***	3.22	0.001
	High	0.0012	0.49	0.626
	Very High	-0.0053	-1.04	0.299
Inventory	Very Low	0.0031***	2.86	0.004
	Low	0.0027***	3.21	0.001
	Mean	0.0019***	2.60	0.009
	High	0.0009	0.78	0.433
	Very High	-0.0006	-0.29	0.771
Expense	Very Low	0.0040**	2.27	0.023
	Low	0.0028**	2.35	0.019
	Mean	0.0010	1.34	0.182
	High	-0.0013	-0.96	0.339
	Very High	-0.0045	-1.51	0.131
Liabilities, Reserves, Accruals	Very Low	0.0040***	3.00	0.003
	Low	0.0038***	3.49	0.000
	Mean	0.0028***	2.74	0.006
	High	0.0004	0.20	0.839
	Very High	-0.0044	-1.04	0.297
Intangible/ Fixed Asset Valuation	Very Low	0.0057***	3.11	0.002
	Low	0.0044***	3.36	0.001
	Mean	0.0027**	2.10	0.036
	High	0.0005	0.28	0.781
	Very High	-0.0023	-0.82	0.413
M&A/ Purchase Acct	Very Low	0.0031	0.25	0.800
	Low	-0.0203*	-1.74	0.081
	Mean	-0.0574***	-3.33	0.001
	High	-0.1138***	-3.40	0.001
	Very High	-0.1961***	-2.87	0.004

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For the account/ class of transactions groupings where the interaction term is significant, the table above presents the impact of high account-specific control risk on account-specific misstatements at various levels of auditor effort. Specifically, presented below are the marginal effects of HighCR_acctspecific at various levels of AuditFeeAdj, holding fixed the value of all model variables (except AuditFeeAdj) at their sample mean.

1 – The mean is the mean value of AuditFeeAdj for company-year observations with a material weakness in internal control. Very low (very high) represents two standard deviations below (above) the mean, and low (high) represents one standard deviation below (above) the mean. *, **, *** denotes statistical significance at the 10%, 5% and 1% levels, respectively.

Table 11
The Effect of Internal Control Weaknesses on Audit Fees

Variable	DV= LnAFEE	DV= LnAFEE	DV= LnAFEE	DV= LnAFEE
Intercept	-3.772*** (<0.001)	-3.800*** (<0.001)	-3.734*** (<0.001)	-3.758*** (<0.001)
ICMW		0.388*** (<0.001)		0.191*** (<0.001)
COUNT_ICMW			0.127*** (<0.001)	0.093*** (<0.001)
LnAssets	0.438*** (<0.001)	0.441*** (<0.001)	0.440*** (<0.001)	0.440*** (<0.001)
LnSEG	0.096*** (<0.001)	0.095*** (<0.001)	0.092*** (<0.001)	0.093*** (<0.001)
FOROPS	0.217*** (<0.001)	0.212*** (<0.001)	0.218*** (<0.001)	0.215*** (<0.001)
ROA	0.001 (0.938)	0.000 (0.989)	-0.001 (0.937)	-0.001 (0.947)
Loss	0.128*** (<0.001)	0.106*** (<0.001)	0.106*** (<0.001)	0.101*** (<0.001)
INVREC	-0.526*** (<0.001)	-0.532*** (<0.001)	-0.530*** (<0.001)	-0.532*** (<0.001)
LEV	0.051** (0.015)	0.044** (0.035)	0.036* (0.085)	0.036* (0.080)
Delay	0.001*** (<0.001)	0.000 (0.227)	0.000 (0.137)	0.000 (0.146)
Busy	-0.055*** (0.009)	-0.048** (0.020)	-0.045** (0.027)	-0.044** (0.030)
GC	0.162*** (<0.001)	0.126*** (0.001)	0.127*** (0.001)	0.119*** (0.001)
BigN	0.435*** (<0.001)	0.450*** (<0.001)	0.445*** (<0.001)	0.449*** (<0.001)

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RESTATE	0.217*** (<0.001)	0.114*** (<0.001)	0.143*** (<0.001)	0.112*** (<0.001)
MTB	0.000*** (<0.001)	0.000*** (<0.001)	0.000*** (<0.001)	0.000*** (<0.001)
Specialist	0.072*** (<0.001)	0.074*** (<0.001)	0.073*** (<0.001)	0.074*** (<0.001)
Restructure	0.343*** (<0.001)	0.335*** (<0.001)	0.336*** (<0.001)	0.334*** (<0.001)
M&A	0.039** (0.043)	0.038** (0.047)	0.038** (0.048)	0.038** (0.049)
StdROA	0.007 (0.482)	0.007 (0.482)	0.007 (0.484)	0.007 (0.484)
Industry FE	Included	Included	Included	Included
Year FE	Included	Included	Included	Included
N	22,253	22,253	22,253	22,253
Adj. R ²	0.714	0.721	0.722	0.723

This table presents regression results estimating the effect of a material weakness in internal control, as well as the effect of multiple material weaknesses in internal control, on audit fees. P-values are two-tailed and are reported below the coefficient estimates. *, **, *** denotes statistical significance at the 10%, 5% and 1% levels, respectively. Standard errors are clustered by company. All variables are defined in Appendix A.

Table 12
The Effectiveness of Auditors' Response to High Control Risk When Only One Account-Level Material Weakness in Internal Controls Is Present

Variable	DV=Misstate_acctspecific				
	(1) Revenue	(2) Inventory	(3) Invest/ Cash	(4) Stock Comp	(5) Derivatives
Intercept	? -4.193*** ($<.001$)	-6.316*** ($<.001$)	-4.939*** ($<.001$)	-3.352*** ($<.001$)	-2.942** (.023)
HighCR_acctspecific	? 1.640*** ($<.001$)	0.569 (.557)	2.101*** (.005)	2.742*** ($<.001$)	2.140*** ($<.001$)
LnAssets	? -0.147* (.057)	-0.290*** (.005)	0.061 (.474)	-0.031 (.704)	-0.165 (.251)
LEV	? 0.015 (.959)	0.426** (.035)	0.113 (.493)	-1.026 (.223)	2.311*** ($<.001$)
MTB	? -0.000 (.410)	-0.002*** (.009)	-0.000 (.808)	-0.001 (.613)	-0.001 (.483)
FIN	? 0.020 (.806)	0.088 (.344)	0.065* (.051)	0.004 (.932)	-0.067 (.585)
Loss	? -0.181 (.460)	0.021 (.951)	0.173 (.573)	-0.005 (.980)	-0.484 (.399)
StdROA	? -0.356 (.406)	-2.050* (.096)	-0.023 (.625)	0.024 (.118)	-12.266* (.090)
LnSEG	? 0.155 (.305)	0.148 (.520)	0.195 (.214)	0.043 (.790)	0.080 (.696)
FOROPS	? -0.332 (.216)	0.125 (.698)	-0.024 (.939)	0.290 (.147)	0.651 (.110)
M&A	? 0.214 (.521)	0.753** (.024)	-0.045 (.919)	-0.169 (.595)	-0.711 (.217)
Restructure	? 0.642*** (.006)	0.558 (.110)	0.289 (.359)	0.139 (.461)	0.410 (.363)
BigN	? 0.604* (.099)	1.571** (.013)	0.131 (.712)	0.734** (.029)	-0.559 (.269)
Specialist	? 0.046 (.861)	-0.050 (.896)	-0.106 (.722)	-0.459** (.039)	0.514 (.132)
EntityICweak	? 0.534 (.126)	0.353 (.354)	-0.367 (.389)	0.164 (.708)	1.265** (.015)
Industry FE	Included	Included	Included	Included	Included
Year FE	Included	Included	Included	Included	Included
N	20,139	20,130	20,347	19,309	7,368
Area under ROC curve	0.761	0.796	0.735	0.827	0.849

(Continued on next page)

Table 12 cont'd
The Effectiveness of Auditors' Response to High Control Risk When Only One Account-Level Material Weakness in Internal Controls Is Present

Variable		DV=Misstate_acctspecific			
		(6) Pay/Reserves	(7) Tax	(8) Debt/Equity	(9) Valuation PPE/Intan.
Intercept	?	-3.830*** ($<.001$)	-4.398*** ($<.001$)	-3.823*** ($<.001$)	-4.086*** ($<.001$)
HighCR_acctspecific	?	2.520*** ($<.001$)	1.407*** (.003)	2.974*** ($<.001$)	3.023*** ($<.001$)
LnAssets	?	-0.109 (.253)	0.055 (.435)	-0.122 (.215)	-0.293** (.030)
LEV	?	0.233 (.391)	0.087 (.532)	0.275 (.104)	0.100 (.785)
MTB	?	-0.002** (.037)	-0.001 (.227)	-0.001 (.161)	-0.000 (.932)
FIN	?	-0.510 (.154)	0.090** (.018)	0.082** (.024)	-0.344 (.477)
Loss	?	-0.406 (.229)	-0.008 (.974)	1.338*** ($<.001$)	0.091 (.798)
StdROA	?	-1.553* (.094)	-0.144 (.634)	-0.387 (.334)	-0.099 (.677)
LnSEG	?	-0.170 (.312)	-0.124 (.477)	0.440** (.011)	0.514*** (.003)
FOROPS	?	-0.094 (.783)	-0.068 (.758)	-0.111 (.748)	-0.086 (.817)
M&A	?	-0.021 (.958)	-0.959** (.041)	-0.020 (.975)	0.426 (.425)
Restructure	?	0.715*** (.005)	0.240 (.220)	-0.403 (.287)	0.384 (.286)
BigN	?	0.212 (.566)	-0.529* (.083)	-0.728** (.044)	0.643 (.187)
Specialist	?	0.047 (.864)	0.517** (.019)	-0.086 (.823)	0.500 (.152)
EntityICweak	?	0.190 (.723)	0.444 (.364)	0.395 (.494)	0.012 (.984)
Industry FE		Included	Included	Included	Included
Year FE		Included	Included	Included	Included
N		20,065	20,493	20,493	19,665
Area under ROC curve		0.791	0.771	0.827	0.793

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Table 12 cont'd
The Effectiveness of Auditors' Response to High Control Risk When Only One Account-Level Material Weakness in Internal Controls Is Present

Variable	?	(10) M&A/ Purchase Acct
Intercept	?	0.702 (.396)
HighCR_acctspecific	?	-1.420 (.199)
LnAssets	?	-0.273** (.014)
LEV	?	-1.167** (.043)
MTB	?	0.002 (.789)
FIN	?	-0.474 (.432)
Loss	?	-0.070 (.836)
StdROA	?	-0.077 (.104)
LnSEG	?	0.116 (.534)
FOROPS	?	0.354 (.293)
M&A	?	
Restructure	?	-0.020 (.946)
BigN	?	0.688 (.108)
Specialist	?	0.582* (.086)
EntityICweak	?	1.164 (.130)
Industry FE		Included
Year FE		Included
N		1,749
Area under ROC curve		0.787

This table presents regression results from estimating Model (1) separately by account grouping, in which the dependent variable takes on a value of one if a misstatement within the specific account grouping exists. Samples are limited to only one account-level material weakness in internal controls, and as such, HighCR_otheraccts is excluded from the model. I do not include

the results when the dependent variable is an expense related misstatement, a lease related misstatement, or a pension/OPEB related misstatement because high control risk within those particular accounts perfectly predicts the dependent variable (i.e., none of the observations with high control risk within the particular account have a misstatement within the same account). P-values are two-tailed and are reported below the coefficient estimates. *, **, *** denotes statistical significance at the 10%, 5% and 1% levels, respectively. Standard errors are clustered by company. All variables are defined in Appendix A.

Table 13
The Effectiveness of Auditors' Response to High Control Risk When Only One Account-Level Material Weakness in Internal Controls Is Present: Incorporating Auditor Effort

Variable	DV=Misstate_acctspecific				
	(1) Revenue	(2) Inventory	(3) Invest/ Cash	(4) Stock Comp	(5) Derivatives
Intercept	? -4.166*** ($<.001$)	-6.273*** ($<.001$)	-4.948*** ($<.001$)	-3.368*** ($<.001$)	-2.783** (.023)
HighCR_acctspecific	? 1.804*** ($<.001$)	0.475 (.626)	1.913** (.010)	2.865*** ($<.001$)	2.261*** ($<.001$)
AuditFeeAdj	? 0.526*** (.005)	0.310 (.293)	-0.012 (.949)	0.316** (.031)	-0.077 (.807)
HighCR_acctspecific *AuditFeeAdj	? -1.506** (.034)	0.494 (.262)	1.381** (.049)	-1.034** (.022)	1.230* (.053)
LnAssets	? -0.169** (.021)	-0.309*** (.005)	0.064 (.459)	-0.043 (.600)	-0.190 (.155)
LEV	? 0.020 (.947)	0.396* (.067)	0.106 (.530)	-1.005 (.233)	2.375*** ($<.001$)
MTB	? -0.000 (.443)	-0.002*** (.009)	-0.000 (.806)	-0.001 (.524)	-0.001 (.467)
FIN	? 0.008 (.898)	0.077 (.381)	0.063* (.066)	-0.009 (.861)	-0.068 (.566)
Loss	? -0.147 (.548)	0.045 (.891)	0.164 (.595)	-0.004 (.987)	-0.518 (.377)
StdROA	? -0.552 (.287)	-2.192* (.077)	-0.023 (.630)	0.024 (.203)	-13.520* (.091)
LnSEG	? 0.183 (.227)	0.165 (.479)	0.196 (.214)	0.059 (.711)	0.090 (.655)
FOROPS	? -0.365 (.163)	0.115 (.717)	-0.021 (.947)	0.270 (.173)	0.688* (.096)
M&A	? 0.220 (.517)	0.781** (.022)	-0.032 (.942)	-0.165 (.607)	-0.717 (.205)
Restructure	? 0.687*** (.004)	0.599* (.098)	0.298 (.347)	0.165 (.379)	0.424 (.335)
BigN	? 0.668* (.064)	1.643** (.011)	0.129 (.716)	0.766** (.024)	-0.513 (.307)
Specialist	? 0.054 (.838)	-0.039 (.919)	-0.102 (.730)	-0.459** (.038)	0.551 (.106)
EntityICweak	? 0.459 (.184)	0.328 (.381)	-0.346 (.419)	0.167 (.697)	0.994* (.088)
Industry FE	Included	Included	Included	Included	Included
Year FE	Included	Included	Included	Included	Included

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N	20,139	20,130	20,347	19,309	7,368
Area under ROC curve	0.770	0.797	0.736	0.832	0.849

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Table 13 cont'd
The Effectiveness of Auditors' Response to High Control Risk When Only One Account-Level Material Weakness in Internal Controls Is Present: Incorporating Auditor Effort

Variable	DV=Misstate_acctspecific			
	(6) Pay/Reserves	(7) Tax	(8) Debt/Equity	(9) Valuation PPE/Intan.
Intercept	? -3.604*** (.001)	-4.256*** (.001)	-3.862*** (.001)	-4.065*** (.001)
HighCR_acctspecific	? 3.336*** (.001)	1.475*** (.002)	2.964*** (.001)	2.541* (.062)
AuditFeeAdj	? 0.763*** (.001)	0.417** (.014)	-0.337 (.240)	0.246 (.351)
HighCR_acctspecific *AuditFeeAdj	? -2.796*** (.003)	-0.504 (.238)	-0.551 (.714)	-4.235** (.042)
LnAssets	? -0.159* (.085)	0.029 (.666)	-0.125 (.208)	-0.236** (.028)
LEV	? 0.277 (.298)	0.097 (.543)	0.275* (.083)	0.046 (.905)
MTB	? -0.001** (.035)	-0.001 (.205)	-0.001 (.167)	-0.000 (.897)
FIN	? -0.555 (.132)	0.074* (.076)	0.097** (.014)	-0.287 (.539)
Loss	? -0.359 (.277)	0.004 (.988)	1.334*** (.001)	0.164 (.643)
StdROA	? -2.183** (.038)	-0.229 (.560)	-0.355 (.333)	-0.141 (.681)
LnSEG	? -0.126 (.460)	-0.108 (.535)	0.429** (.013)	0.502*** (.006)
FOROPS	? -0.189 (.570)	-0.110 (.619)	-0.067 (.850)	-0.142 (.714)
M&A	? 0.002 (.997)	-0.949** (.044)	-0.019 (.977)	0.434 (.414)
Restructure	? 0.775*** (.002)	0.275 (.156)	-0.422 (.267)	0.338 (.342)
BigN	? 0.255 (.487)	-0.491 (.111)	-0.740** (.047)	0.591 (.213)
Specialist	? 0.064 (.818)	0.523** (.018)	-0.073 (.849)	0.534 (.133)
EntityICweak	? 0.112 (.830)	0.424 (.366)	0.397 (.501)	-0.076 (.911)
Industry FE	Included	Included	Included	Included
Year FE	Included	Included	Included	Included

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N	20,065	20,493	20,493	19,665
Area under ROC curve	0.810	0.778	0.833	0.793

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Table 13 cont'd
The Effectiveness of Auditors' Response to High Control Risk When Only One Account-Level Material Weakness in Internal Controls Is Present: Incorporating Auditor Effort

		DV=Misstate_acctspecific
Variable	?	(10) M&A/ Purchase Acct
Intercept	?	0.629 (.481)
HighCR_acctspecific	?	-0.838 (.410)
AuditFeeAdj	?	0.920*** (<.001)
HighCR_acctspecific *AuditFeeAdj	?	-2.151** (.027)
LnAssets	?	-0.310*** (.001)
LEV	?	-0.977 (.107)
MTB	?	-0.001 (.920)
FIN	?	-0.358 (.554)
Loss	?	-0.071 (.828)
StdROA	?	-0.262 (.697)
LnSEG	?	0.111 (.579)
FOROPS	?	0.343 (.305)
M&A	?	
Restructure	?	0.112 (.710)
BigN	?	0.746* (.077)
Specialist	?	0.512 (.142)
EntityICweak	?	1.011 (.152)
Industry FE		Included
Year FE		Included

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N	1,749
Area under ROC curve	0.820

This table presents regression results from estimating Model (3) separately by account grouping, in which the dependent variable takes on a value of one if a misstatement within the specific account grouping exists. Samples are limited to only one account-level material weakness in internal controls, and as such, HighCR_otheraccts is excluded from the model. I do not include the results when the dependent variable is an expense related misstatement, a lease related misstatement, or a pension/OPEB related misstatement because high control risk within those particular accounts perfectly predicts the dependent variable (i.e., none of the observations with high control risk within the particular account have a misstatement within the same account). P-values are two-tailed and are reported below the coefficient estimates. *, **, *** denotes statistical significance at the 10%, 5% and 1% levels, respectively. Standard errors are clustered by company. All variables are defined in Appendix A.

Table 14
The Effectiveness of Auditors' Response to High Control Risk: Censoring Low Auditor Effort for Companies with Account-Level Internal Control Weaknesses

		DV=Misstate_acctspecific				
Variable		(1) Revenue	(2) Inventory	(3) Expense	(4) Invest./Cash	(5) Lease
Intercept	?	-4.464*** ($<.001$)	-5.366*** ($<.001$)	-3.881*** ($<.001$)	-5.073*** ($<.001$)	-4.449*** ($<.001$)
HighCR_acctspecific	?	1.294*** ($<.001$)	1.210*** ($<.001$)	0.769** (.012)	0.593 (.133)	1.936*** ($<.001$)
AuditFeeAdj	?	0.501*** (.006)	0.247 (.394)	0.289* (.074)	-0.099 (.610)	0.150 (.544)
HighCR_acctspecific						
*AuditFeeAdj	?	-1.234*** (.001)	-0.905** (.032)	-1.344*** (.002)	0.245 (.511)	-0.533 (.278)
LnAssets	?	-0.099 (.128)	-0.247*** (.007)	-0.124** (.049)	0.076 (.325)	-0.058 (.467)
LEV	?	0.076 (.667)	0.384* (.056)	0.036 (.690)	0.095 (.458)	0.392 (.294)
MTB	?	-0.000 (.631)	-0.001 (.301)	-0.001** (.044)	-0.000 (.757)	0.000 (.925)
FIN	?	0.036 (.387)	0.070 (.352)	0.073* (.097)	0.051 (.276)	0.065 (.124)
Loss	?	-0.159 (.436)	-0.076 (.789)	0.366* (.063)	0.145 (.577)	0.140 (.680)
StdROA	?	-0.179 (.530)	-1.965** (.047)	-0.146 (.380)	0.008 (.733)	-2.454* (.067)
LnSEG	?	0.187 (.149)	0.028 (.897)	0.106 (.441)	0.115 (.431)	0.183 (.273)
FOROPS	?	-0.369* (.096)	0.003 (.991)	-0.313 (.174)	-0.347 (.230)	-0.386 (.316)
M&A	?	0.039 (.900)	0.476 (.172)	0.043 (.896)	-0.001 (.999)	0.519 (.248)
Restructure	?	0.568*** (.003)	0.416 (.173)	0.216 (.291)	0.443* (.099)	-0.145 (.645)
BigN	?	0.610** (.033)	1.035** (.022)	0.242 (.439)	0.036 (.923)	0.833 (.184)
Specialist	?	0.001 (.998)	-0.162 (.626)	0.271 (.218)	-0.042 (.868)	0.475 (.126)
EntityICweak	?	0.764*** (.001)	0.226 (.428)	0.373 (.165)	0.262 (.380)	0.211 (.624)
HighCR_otheraccts	?	-0.274 (.299)	0.347 (.318)	0.464* (.091)	0.749** (.033)	0.014 (.974)
Industry FE		Included	Included	Included	Included	Included
Year FE		Included	Included	Included	Included	Included

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N	21,869	21,865	22,253	22,100	18,333
Area under ROC curve	0.777	0.794	0.788	0.761	0.842

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Table 14 cont'd

The Effectiveness of Auditors' Response to High Control Risk: Censoring Low Auditor Effort for Companies with Account-Level Internal Control Weaknesses

Variable		DV=Misstate_acctspecific			
		(6) Stock Comp	(7) Derivatives	(8) Pay./Reserves	(9) Tax
Intercept	?	-3.418*** ($<.001$)	-3.013*** (.005)	-4.140*** ($<.001$)	-4.438*** ($<.001$)
HighCR_acctspecific	?	1.721*** ($<.001$)	1.984*** ($<.001$)	1.263*** ($<.001$)	1.473*** ($<.001$)
AuditFeeAdj	?	0.351** (.011)	-0.058 (.836)	0.690*** ($<.001$)	0.399** (.014)
HighCR_acctspecific *AuditFeeAdj	?	-0.403 (.298)	0.274 (.550)	-1.293*** ($<.001$)	-0.457* (.093)
LnAssets	?	-0.038 (.577)	-0.148 (.198)	-0.104 (.226)	0.050 (.384)
LEV	?	-0.991 (.129)	2.168*** ($<.001$)	0.122 (.648)	0.014 (.896)
MTB	?	-0.000 (.772)	-0.001 (.206)	-0.001 (.284)	-0.000 (.510)
FIN	?	-0.024 (.749)	-0.134 (.542)	-0.352 (.363)	0.076* (.064)
Loss	?	0.080 (.653)	-0.305 (.502)	-0.178 (.472)	0.009 (.966)
StdROA	?	0.017 (.416)	-7.933 (.145)	-2.005** (.014)	-0.054 (.620)
LnSEG	?	0.106 (.421)	0.050 (.783)	-0.092 (.537)	-0.065 (.639)
FOROPS	?	0.141 (.431)	0.627* (.086)	-0.190 (.495)	-0.116 (.562)
M&A	?	0.018 (.944)	-0.428 (.392)	-0.041 (.907)	-0.545* (.098)
Restructure	?	0.119 (.467)	0.205 (.613)	0.610*** (.007)	0.342** (.037)
BigN	?	0.672*** (.008)	-0.648 (.159)	0.339 (.328)	-0.244 (.388)
Specialist	?	-0.498** (.016)	0.615** (.042)	0.091 (.708)	0.387** (.049)
EntityICweak	?	0.523* (.056)	0.793 (.103)	0.439 (.175)	0.246 (.349)
HighCR_otheraccts	?	-0.365 (.234)	-0.627 (.227)	0.154 (.663)	-0.288 (.255)
Industry FE		Included	Included	Included	Included
Year FE		Included	Included	Included	Included

(Continued on next page)

N	21,004	7,847	21,809	22,253
Area under ROC curve	0.836	0.845	0.808	0.784

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Table 14 cont'd

The Effectiveness of Auditors' Response to High Control Risk: Censoring Low Auditor Effort for Companies with Account-Level Internal Control Weaknesses

Variable		DV=Misstate_acctspecific			
		(10) Debt/Equity	(11) Pension/ OPEB	(12) Valuation PPE/Intan.	(13) M&A/ Purchase Acct
Intercept	?	-4.146*** (.001)	-20.637*** (.001)	-4.547*** (.001)	0.387 (.599)
HighCR_acctspecific	?	1.414*** (.001)	0.168 (.879)	1.520*** (.001)	-1.562*** (.001)
AuditFeeAdj	?	-0.287 (.286)	0.074 (.800)	0.211 (.370)	0.970*** (.001)
HighCR_acctspecific *AuditFeeAdj	?	-1.085 (.148)	-0.555 (.581)	-1.520*** (.005)	-1.651*** (.002)
LnAssets	?	-0.084 (.311)	0.154 (.341)	-0.117 (.214)	-0.233*** (.004)
LEV	?	0.280** (.027)	0.577 (.201)	-0.057 (.722)	-0.899* (.093)
MTB	?	-0.002** (.037)	0.000 (.956)	-0.000 (.930)	0.001 (.834)
FIN	?	0.103*** (.006)	-0.977 (.554)	0.006 (.941)	-0.225 (.585)
Loss	?	1.026*** (.004)	0.622 (.177)	0.092 (.761)	-0.295 (.294)
StdROA	?	-0.399 (.140)	-0.988 (.616)	0.003 (.960)	-0.037 (.247)
LnSEG	?	0.259 (.126)	-0.060 (.848)	0.386** (.019)	0.133 (.420)
FOROPS	?	-0.154 (.650)	0.435 (.302)	-0.378 (.271)	0.136 (.655)
M&A	?	0.212 (.657)	-0.186 (.799)	0.246 (.663)	
Restructure	?	-0.580* (.085)	0.191 (.670)	0.314 (.292)	0.106 (.680)
BigN	?	-0.522* (.079)	0.810 (.464)	0.424 (.286)	0.407 (.248)
Specialist	?	-0.123 (.702)	0.981** (.046)	0.543* (.079)	0.610** (.042)
EntityICweak	?	0.984** (.026)	0.249 (.664)	0.392 (.381)	1.045*** (.005)
HighCR_otheraccts	?	0.079 (.875)	0.903 (.166)	0.283 (.553)	-0.447 (.229)
Industry FE		Included	Included	Included	Included

(Continued on next page)

Year FE	Included	Included	Included	Included
N	22,253	18,013	21,393	2,215
Area under ROC curve	0.839	0.897	0.800	0.818

This table presents regression results from estimating Model (3) separately by account grouping, in which the dependent variable takes on a value of one if a misstatement within the specific account grouping exists. P-values are two-tailed and are reported below the coefficient estimates. *, **, *** denotes statistical significance at the 10%, 5% and 1% levels, respectively. Standard errors are clustered by company. All variables are defined in Appendix A.

Table 15
The Effectiveness of Auditors' Response to High Control Risk: Excluding Companies with Internal Control Weaknesses and Low Auditor Effort

Variable	DV=Misstate_acctspecific				
	(1) Revenue	(2) Inventory	(3) Expense	(4) Invest./Cash	(5) Lease
Intercept	? -4.473*** (.001)	-5.251*** (.001)	-3.909*** (.001)	-5.285*** (.001)	-4.271*** (.001)
HighCR_acctspecific	? 0.750*** (.007)	0.726* (.076)	0.009 (.979)	0.685* (.068)	1.408*** (.003)
LnAssets	? -0.095 (.188)	-0.257*** (.004)	-0.123* (.067)	0.092 (.231)	-0.77 (.346)
LEV	? 0.183 (.322)	0.428** (.018)	0.029 (.751)	0.125 (.194)	0.413 (.295)
MTB	? -0.001 (.704)	-0.001 (.288)	-0.002*** (.007)	-0.000 (.778)	0.000 (.928)
FIN	? 0.057 (.205)	0.088 (.219)	0.087** (.046)	0.062 (.118)	0.086* (.052)
Loss	? -0.161 (.428)	-0.103 (.722)	0.435** (.038)	0.235 (.390)	0.295 (.391)
StdROA	? -0.676* (.082)	-2.225** (.049)	-0.124 (.445)	0.003 (.917)	-3.504* (.055)
LnSEG	? 0.138 (.297)	0.053 (.801)	0.118 (.402)	0.109 (.474)	0.184 (.283)
FOROPS	? -0.244 (.288)	0.100 (.728)	-0.320 (.188)	-0.251 (.389)	-0.298 (.444)
M&A	? 0.133 (.668)	0.495 (.148)	0.134 (.686)	-0.030 (.941)	0.375 (.451)
Restructure	? 0.631*** (.002)	0.427 (.169)	0.237 (.241)	0.317 (.243)	-0.154 (.646)
BigN	? 0.581* (.060)	0.980** (.024)	0.273 (.373)	0.120 (.731)	0.827 (.186)
Specialist	? -0.004 (.987)	-0.194 (.576)	0.239 (.295)	-0.167 (.528)	0.418 (.205)
EntityICweak	? 0.866*** (.001)	0.097 (.781)	0.605* (.066)	0.043 (.903)	0.131 (.789)
HighCR_otheraccts	? -0.081 (.793)	0.762* (.084)	0.555* (.097)	0.901** (.023)	0.337 (.481)
Industry FE	Included	Included	Included	Included	Included
Year FE	Included	Included	Included	Included	Included
N	21,209	21,200	21,566	21,417	17,795
Area under ROC curve	0.767	0.792	0.786	0.753	0.837

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Table 15 cont'd
The Effectiveness of Auditors' Response to High Control Risk: Excluding Companies with Internal Control Weaknesses and Low Auditor Effort

Variable		DV=Misstate_acctspecific			
		(6) Stock Comp	(7) Derivatives	(8) Pay./Reserves	(9) Tax
Intercept	?	-3.457*** ($<.001$)	-2.774** (.014)	-4.298*** ($<.001$)	-4.513*** ($<.001$)
HighCR_acctspecific	?	1.288*** ($<.001$)	2.074*** (.001)	0.673* (.076)	1.194*** ($<.001$)
LnAssets	?	-0.015 (.839)	-0.181 (.157)	-0.084 (.355)	0.062 (.320)
LEV	?	-1.023 (.142)	2.129*** ($<.001$)	0.212 (.376)	0.030 (.736)
MTB	?	-0.001 (.580)	-0.002* (.058)	-0.001 (.508)	-0.000 (.545)
FIN	?	0.005 (.938)	-0.034 (.857)	-0.433 (.263)	0.090** (.017)
Loss	?	0.094 (.607)	-0.158 (.730)	-0.192 (.475)	0.036 (.875)
StdROA	?	0.018 (.376)	-7.836 (.155)	-1.784** (.035)	-0.037 (.660)
LnSEG	?	0.080 (.563)	0.039 (.832)	-0.117 (.451)	-0.061 (.671)
FOROPS	?	0.164 (.379)	0.723** (.044)	-0.097 (.744)	-0.118 (.574)
M&A	?	-0.091 (.752)	-0.964 (.182)	-0.036 (.921)	-0.658* (.076)
Restructure	?	0.051 (.770)	0.219 (.594)	0.545** (.019)	0.333* (.056)
BigN	?	0.617** (.019)	-0.724 (.121)	0.471 (.157)	-0.337 (.235)
Specialist	?	-0.463** (.029)	0.753** (.020)	0.104 (.683)	0.404** (.049)
EntityICweak	?	0.400 (.239)	0.975* (.079)	0.576 (.172)	0.401 (.207)
HighCR_otheraccts	?	0.082 (.828)	-0.907 (.142)	0.301 (.517)	-0.231 (.461)
Industry FE		Included	Included	Included	Included
Year FE		Included	Included	Included	Included
N		20,363	7,647	21,134	21,566
Area under ROC curve		0.801	0.837	0.793	0.773

(Continued on next page)

Table 15 cont'd
The Effectiveness of Auditors' Response to High Control Risk: Excluding Companies with Internal Control Weaknesses and Low Auditor Effort

Variable		DV=Misstate_acctspecific			
		(10) Debt/Equity	(11) Pension/ OPEB	(12) Valuation PPE/Intan.	(13) M&A/ Purchase Acct
Intercept	?	-4.125*** ($<.001$)	-20.687*** ($<.001$)	-4.660*** ($<.001$)	0.493 (.543)
HighCR_acctspecific	?	1.051* (.054)	0.044 (.970)	0.591 (.202)	-2.302*** ($<.001$)
LnAssets	?	-0.056 (.517)	0.152 (.326)	-0.116 (.242)	-0.211** (.035)
LEV	?	0.261* (.053)	0.579 (.164)	-0.145 (.626)	-1.005* (.079)
MTB	?	-0.002* (.074)	0.000 (.830)	-0.000 (.622)	0.002 (.780)
FIN	?	0.086** (.014)	-1.090 (.551)	0.040 (.453)	-0.344 (.487)
Loss	?	1.178*** ($<.001$)	0.742 (.106)	0.114 (.730)	-0.346 (.278)
StdROA	?	-0.344 (.235)	-1.097 (.634)	-0.023 (.836)	-0.028 (.375)
LnSEG	?	0.297* (.078)	-0.035 (.908)	0.365** (.034)	0.054 (.759)
FOROPS	?	-0.195 (.556)	0.300 (.491)	-0.356 (.319)	0.174 (.591)
M&A	?	-0.228 (.714)	-0.023 (.975)	0.339 (.548)	
Restructure	?	-0.534 (.121)	0.356 (.435)	0.372 (.220)	0.059 (.823)
BigN	?	-0.688** (.033)	0.844 (.441)	0.486 (.239)	0.306 (.428)
Specialist	?	-0.106 (.750)	0.911* (.073)	0.689** (.029)	0.772** (.012)
EntityICweak	?	1.005** (.036)	0.493 (.425)	0.176 (.665)	1.025** (.047)
HighCR_otheraccts	?	-0.185 (.726)	0.767 (.268)	0.901** (.032)	-0.127 (.802)
Industry FE		Included	Included	Included	Included
Year FE		Included	Included	Included	Included
N		21,566	17,490	20,733	2,066
Area under ROC curve		0.825	0.897	0.797	0.803

This table presents regression results from estimating Model (1) separately by account grouping, in which the dependent variable takes on a value of one if a misstatement within the specific

account grouping exists. P-values are two-tailed and are reported below the coefficient estimates. *, **, *** denotes statistical significance at the 10%, 5% and 1% levels, respectively. Standard errors are clustered by company. All variables are defined in Appendix A.

Table 16
The Effectiveness of Auditors' Response to High Control Risk: Excluding Companies with Internal Control Weaknesses and Low Auditor Effort

		DV=Misstate_acctspecific				
Variable		(1) Revenue	(2) Inventory	(3) Expense	(4) Invest./Cash	(5) Lease
Intercept	?	-4.392*** ($<.001$)	-5.149*** ($<.001$)	-3.890*** ($<.001$)	-5.323*** ($<.001$)	-4.285 ($<.001$)
HighCR_acctspecific	?	1.300*** ($<.001$)	1.298*** (.007)	0.563 (.215)	0.654 (.156)	1.723** (.010)
AuditFeeAdj	?	0.518*** (.005)	0.225 (.429)	0.268 (.103)	-0.112 (.567)	0.132 (.596)
HighCR_acctspecific						
*AuditFeeAdj	?	-1.434*** (.009)	-1.677** (.023)	-1.630* (.064)	0.069 (.900)	-0.736 (.465)
LnAssets	?	-0.119* (.091)	-0.271*** (.004)	-0.128* (.053)	0.096 (.226)	-0.079 (.343)
LEV	?	0.200 (.302)	0.429** (.021)	0.035 (.704)	0.126 (.202)	0.396 (.330)
MTB	?	-0.001 (.755)	-0.001 (.351)	-0.002** (.015)	-0.000 (.779)	0.000 (.931)
FIN	?	0.038 (.386)	0.078 (.285)	0.076* (.096)	0.066 (.105)	0.081* (.074)
Loss	?	-0.157 (.444)	-0.112 (.707)	0.440** (.036)	0.234 (.391)	0.296 (.386)
StdROA	?	-0.841* (.053)	-2.342** (.043)	-0.154 (.401)	0.004 (.890)	-3.581* (.051)
LnSEG	?	0.156 (.245)	0.054 (.801)	0.124 (.381)	0.106 (.488)	0.187 (.291)
FOROPS	?	-0.278 (.220)	0.106 (.711)	-0.346 (.151)	-0.241 (.407)	-0.318 (.419)
M&A	?	0.159 (.609)	0.503 (.148)	0.139 (.674)	-0.034 (.934)	0.382 (.443)
Restructure	?	0.658*** (.001)	0.434 (.173)	0.248 (.219)	0.313 (.251)	-0.138 (.682)
BigN	?	0.618** (.044)	0.967** (.031)	0.266 (.383)	0.124 (.723)	0.830 (.189)
Specialist	?	0.007 (.978)	-0.187 (.585)	0.254 (.268)	-0.165 (.531)	0.427 (.189)
EntityICweak	?	0.761*** (.003)	0.030 (.932)	0.574* (.084)	0.035 (.924)	0.077 (.882)
HighCR_otheraccts	?	-0.206 (.486)	0.689 (.113)	0.454 (.181)	0.962** (.021)	0.327 (.497)
Industry FE		Included	Included	Included	Included	Included
Year FE		Included	Included	Included	Included	Included

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N	21,209	21,200	21,566	21,417	17,795
Area under ROC curve	0.778	0.794	0.790	0.754	0.837

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Table 16 cont'd
The Effectiveness of Auditors' Response to High Control Risk: Excluding Companies with Internal Control Weaknesses and Low Auditor Effort

Variable		DV=Misstate_acctspecific			
		(6) Stock Comp	(7) Derivatives	(8) Pay./Reserves	(9) Tax
Intercept	?	-3.486*** (.001)	-2.786** (.013)	-4.148*** (.001)	-4.417*** (.001)
HighCR_acctspecific	?	1.049*** (.002)	1.915*** (.007)	1.297*** (.004)	1.344*** (.001)
AuditFeeAdj	?	0.287** (.044)	-0.077 (.786)	0.721*** (.001)	0.411** (.013)
HighCR_acctspecific					
*AuditFeeAdj	?	0.462 (.280)	0.375 (.585)	-1.413** (.015)	-0.430 (.378)
LnAssets	?	-0.024 (.734)	-0.180 (.146)	-0.123 (.168)	0.043 (.479)
LEV	?	-1.013 (.147)	2.127*** (.001)	0.246 (.296)	0.030 (.734)
MTB	?	-0.001 (.528)	-0.002* (.060)	-0.001 (.348)	-0.000 (.524)
FIN	?	-0.003 (.959)	-0.037 (.840)	-0.460 (.246)	0.074* (.075)
Loss	?	0.114 (.532)	-0.163 (.726)	-0.167 (.524)	0.045 (.841)
StdROA	?	0.016 (.516)	-7.791 (.161)	-2.199** (.019)	-0.057 (.611)
LnSEG	?	0.094 (.494)	0.038 (.837)	-0.084 (.591)	-0.048 (.740)
FOROPS	?	0.142 (.439)	0.736** (.042)	-0.160 (.580)	-0.155 (.461)
M&A	?	-0.083 (.774)	-0.970 (.183)	-0.022 (.952)	-0.646* (.082)
Restructure	?	0.078 (.646)	0.219 (.593)	0.592** (.011)	0.359** (.036)
BigN	?	0.667** (.011)	-0.719 (.122)	0.499 (.133)	-0.306 (.287)
Specialist	?	-0.459** (.029)	0.747** (.021)	0.121 (.637)	0.409** (.047)
EntityICweak	?	0.436 (.169)	0.994* (.066)	0.488 (.239)	0.370 (.229)
HighCR_otheraccts	?	-0.041 (.908)	-0.881 (.149)	0.063 (.886)	-0.341 (.255)
Industry FE		Included	Included	Included	Included
Year FE		Included	Included	Included	Included

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N	20,363	7,647	21,134	21,566
Area under ROC curve	0.804	0.837	0.809	0.778

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Table 16 cont'd
The Effectiveness of Auditors' Response to High Control Risk: Excluding Companies with Internal Control Weaknesses and Low Auditor Effort

Variable		DV=Misstate_acctspecific			
		(10) Debt/Equity	(11) Pension/ OPEB	(12) Valuation PPE/Intan.	(13) M&A/ Purchase Acct
Intercept	?	-4.221*** (.001)	-20.616*** (.001)	-4.628*** (.001)	0.257 (.735)
HighCR_acctspecific	?	0.688 (.321)	0.885 (.578)	1.213** (.019)	-1.614*** (.009)
AuditFeeAdj	?	-0.299 (.271)	0.120 (.692)	0.153 (.529)	1.008*** (.001)
HighCR_acctspecific *AuditFeeAdj	?	0.945 (.299)	-3.906 (.228)	-1.906* (.052)	-1.617* (.066)
LnAssets	?	-0.050 (.563)	0.139 (.403)	-0.120 (.230)	-0.246*** (.003)
LEV	?	0.262** (.038)	0.567 (.176)	-0.149 (.630)	-0.706 (.208)
MTB	?	-0.002* (.082)	0.000 (.831)	-0.000 (.717)	0.001 (.905)
FIN	?	0.099*** (.007)	-1.043 (.570)	0.033 (.558)	-0.254 (.607)
Loss	?	1.182*** (.001)	0.737 (.121)	0.095 (.774)	-0.412 (.170)
StdROA	?	-0.313 (.230)	-1.119 (.641)	-0.027 (.813)	-0.043 (.213)
LnSEG	?	0.289* (.091)	-0.022 (.943)	0.368** (.033)	0.023 (.878)
FOROPS	?	-0.171 (.612)	0.310 (.487)	-0.347 (.332)	0.159 (.616)
M&A	?	-0.226 (.716)	-0.018 (.981)	0.334 (.554)	
Restructure	?	-0.557 (.109)	0.376 (.408)	0.372 (.216)	0.205 (.435)
BigN	?	-0.689** (.036)	0.862 (.429)	0.461 (.261)	0.411 (.278)
Specialist	?	-0.110 (.740)	0.931* (.072)	0.700** (.027)	0.719** (.021)
EntityICweak	?	1.047** (.037)	0.513 (.404)	0.090 (.822)	0.980** (.039)
HighCR_otheraccts	?	-0.088 (.881)	0.698 (.330)	0.901** (.032)	-0.413 (.380)
Industry FE		Included	Included	Included	Included

(Continued on next page)

Year FE	Included	Included	Included	Included
N	21,566	17,490	20,733	2,066
Area under ROC curve	0.830	0.897	0.795	0.828

This table presents regression results from estimating Model (3) separately by account grouping, in which the dependent variable takes on a value of one if a misstatement within the specific account grouping exists. P-values are two-tailed and are reported below the coefficient estimates. *, **, *** denotes statistical significance at the 10%, 5% and 1% levels, respectively. Standard errors are clustered by company. All variables are defined in Appendix A.

Table 17
Determinants of an Ineffective Response to High Control Risk

Note: The dependent variable equals one if there is a misstatement and internal control weakness within the same account grouping

Pr(Misstate_acctspecific_{it}=1 HighCR_acctspecific_{it}=1)				
Variable	Prediction	Coefficient Estimate	p-value	
Intercept	?	-4.406	0.068	*
LnAssets	?	-0.003	0.948	
OfficeImport	?	0.043	0.925	
LnSEG	+	0.148	0.064	*
M&A	+	-0.181	0.734	
Restructure	+	0.155	0.173	
BigN	-	0.789	0.994	
Specialist	-	0.240	0.913	
Tenure	-	-0.002	0.432	
OfficeSize	?	0.024	0.747	
AUD_WLC	?	-0.372	0.142	
Mismatch_LargeAUD	?	0.012	0.976	
Mismatch_SmallAUD	+	0.467	0.074	*
EntityICweak	+	0.557	0.001	***
LateDisclose	+	1.540	<0.001	***
ChgDeadline	?	-0.038	0.865	
CloseToDeadline	?	-0.355	0.037	**
N		2,585		
N where Misstatement is linked with IC weakness		240		
Pseudo R ²		0.065		
Area under the ROC curve		0.673		

This table presents regression results from estimating Model (4). P-values are two-tailed unless a prediction is made. *, **, *** denotes statistical significance at the 10%, 5% and 1% levels, respectively. Standard errors are clustered by company. All variables are defined in Appendix A.

Table 18
Account Level Audit Failure by Industry and by Year

Panel A: Account Level Audit Failure by Industry

Industry Groupings:

Computers (SIC codes 3570-3579; 3670-3679; 7370-7379)	73
Financial (SIC codes 6000-6999)	30
Durable manufacturers (SIC codes 3000-3999, excluding 3570-3579 and 3670-3679)	26
Retail (SIC codes 5000-5999)	25
Services (SIC codes 7000-8999, excluding 7370-7379)	17
Transportation (SIC codes 4000-4899)	15
Textiles and printing/publishing (SIC codes 2200-2799)	11
Mining and construction (SIC codes 1000-1999)	10
Extractive (SIC codes 1300-1399; 2900-2999)	9
Pharmaceuticals (SIC codes 2830-2836)	7
Utilities (SIC codes 4900-4999)	7
Chemicals (SIC codes 2800-2824; 2840-2899)	6
Food (SIC codes 2000-2111)	4
	240

Panel B: Account Level Audit Failure by Year

2004	71
2005	75
2006	48
2007	25
2008	20
2009	1
	240

Account level audit failures represent company-year observations where control risk was assessed as high and a misstatement existed in the audited account.

Table 19
Determinants of an Ineffective Response to High Control Risk by Account

Variable		DV= Pr(Misstate_acctspecific _{it} =1 HighCR_acctspecific _{it} =1)				
		(1) Revenue	(2) Inventory	(3) Expense	(4) Invest./Cash	(5) Lease
Intercept	?	-3.401 (.473)	3.274 (.667)	-3.824 (.684)	-6.449 (.405)	-3.895 (.703)
LnAssets	?	0.271** (.039)	0.196 (.175)	0.048 (.785)	0.135 (.403)	0.011 (.955)
OfficeImport	?	0.373 (.572)	0.391 (.559)	-2.390 (.244)	0.364 (.762)	-2.822 (.245)
LnSEG	+	0.332** (.039)	-0.220 (.427)	-0.114 (.628)	-0.114 (.634)	0.161 (.307)
M&A	+	-1.045 (.832)	-12.152 (.999)	-0.663 (.727)	-0.662 (.718)	0.082 (.473)
Restructure	+	0.575* (.071)	-0.094 (.574)	0.516 (.189)	0.060 (.450)	-0.380 (.729)
BigN	-	1.742 (.975)	1.273 (.881)	0.241 (.570)	1.784 (.932)	0.867 (.683)
Specialist	-	0.070 (.563)	-0.439 (.259)	0.248 (.675)	0.017 (.511)	0.836 (.931)
Tenure	-	0.020 (.848)	0.054 (.985)	-0.036 (.140)	0.002 (.525)	-0.005 (.437)
OfficeSize	?	-0.177 (.290)	-0.348 (.180)	-0.016 (.958)	0.024 (.928)	-0.008 (.982)
AUD_WLC	?	-0.117 (.842)	-0.082 (.927)	1.232* (.086)	-0.885 (.260)	-0.308 (.686)
Mismatch_LargeAUD	?	0.698 (.422)	1.749 (.131)			
Mismatch_SmallAUD	+	1.157* (.086)	-0.026 (.510)	-0.640 (.681)	1.563** (.036)	0.697 (.305)
EntityICweak	+	2.104*** (.002)	1.196*** (.004)	0.325 (.230)	0.399 (.258)	0.614 (.131)
LateDisclose	+	2.462*** (<.001)	2.647*** (<.001)	1.537*** (.002)	-0.025 (.511)	2.653*** (.001)
ChgDeadline	?	0.223 (.729)	0.621 (.362)	0.563 (.330)	-0.295 (.709)	-0.001 (.999)
CloseToDeadline	?	-0.114 (.788)	-0.500 (.459)	-0.413 (.478)	-1.839* (.075)	0.324 (.568)
N		913	777	596	780	380
Area under ROC curve		0.829	0.812	0.683	0.724	0.763

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Table 19 cont'd
Determinants of an Ineffective Response to High Control Risk by Account

Variable		DV= Pr(Misstate_acctspecific _{it} =1 HighCR_acctspecific _{it} =1)			
		(6) Stock Comp	(7) Derivatives	(8) Pay./Reserves	(9) Tax
Intercept	?	2.921 (.689)	-8.109 (.258)	-4.562 (.493)	-9.594* (.099)
LnAssets	?	-0.210 (.162)	-0.072 (.644)	0.246* (.070)	-0.029 (.821)
OfficeImport	?	-2.210 (.351)	0.889 (.533)	-1.248 (.421)	0.300 (.801)
LnSEG	+	-0.367 (.879)	0.125 (.272)	0.054 (.407)	0.019 (.464)
M&A	+	0.747 (.120)	0.512 (.304)		-0.009 (.506)
Restructure	+	0.293 (.234)	0.305 (.339)	-0.207 (.650)	0.219 (.247)
BigN	-	0.804 (.863)	-0.980 (.235)	0.648 (.708)	0.552 (.837)
Specialist	-	-0.340 (.273)	1.540 (.995)	0.085 (.576)	0.146 (.655)
Tenure	-	0.008 (.610)	0.041 (.932)	0.013 (.739)	0.002 (.548)
OfficeSize	?	-0.121 (.625)	0.185 (.457)	-0.034 (.878)	0.197 (.306)
AUD_WLC	?	-1.305* (.056)	0.068 (.944)	-0.656 (.374)	-0.364 (.543)
Mismatch_LargeAUD	?	0.211 (.764)			
Mismatch_SmallAUD	+	-0.616 (.732)	0.524 (.320)	-0.751 (.665)	-0.581 (.714)
EntityICweak	+	-0.177 (.680)	-0.025 (.515)	0.868** (.039)	0.283 (.210)
LateDisclose	+	1.411** (.039)	3.178*** ($<.001$)	2.070*** ($<.001$)	1.321** (.013)
ChgDeadline	?	-0.021 (.965)	-0.183 (.843)	0.126 (.844)	-0.119 (.776)
CloseToDeadline	?	-0.378 (.401)	-1.717** (.041)	-0.409 (.409)	0.213 (.477)
N		465	222	760	951
Area under ROC curve		0.768	0.824	0.742	0.662

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Table 19 cont'd
Determinants of an Ineffective Response to High Control Risk by Account

Variable		DV= Pr(Misstate_acctspecific _{it} =1 HighCR_acctspecific _{it} =1)		
		(10) Debt/Equity	(11) Valuation PPE/Intan.	(12) M&A/ Purchase Acct
Intercept	?	1.807 (.879)	-23.863* (.061)	-17.134 (.164)
LnAssets	?	-0.146 (.576)	-0.030 (.896)	0.369 (.138)
OfficeImport	?	-0.802 (.799)	-1.070 (.733)	-2.553* (.090)
LnSEG	+		0.218 (.231)	0.089 (.395)
M&A	+		-0.429 (.651)	
Restructure	+	-0.819 (.753)	-0.202 (.644)	0.402 (.299)
BigN	-	0.125 (.555)	0.008 (.503)	-0.172 (.446)
Specialist	-	1.312 (.904)	-0.724 (.166)	1.473 (.984)
Tenure	-	-0.054* (.095)	0.002 (.528)	-0.015 (.379)
OfficeSize	?	-0.162 (.707)	0.639 (.138)	0.323 (.415)
AUD_WLC	?	1.844 (.147)	1.683* (.092)	1.158 (.525)
Mismatch_LargeAUD	?	0.613 (.493)		
Mismatch_SmallAUD	+		0.771 (.240)	2.884*** (.002)
EntityICweak	+	-0.667 (.735)	-0.611 (.812)	-0.578 (.754)
LateDisclose	+	1.939** (.026)	3.665*** ($<.001$)	1.724** (.016)
ChgDeadline	?	-0.402 (.770)	-0.768 (.534)	-1.274 (.375)
CloseToDeadline	?	0.092 (.913)	-1.727* (.074)	-1.033 (.355)
N		210	610	387
Area under ROC curve		0.752	0.831	0.866

This table presents regression results from estimating Model (4) separately by account grouping, in which the dependent variable takes on a value of one if there is a misstatement and internal

control weakness within the same account grouping. Certain variables are dropped in the models because they perfectly predict the dependent variable. The model examining pensions/OPEB cannot run due to too many variables perfectly predicting the dependent variable. P-values are two-tailed unless a prediction is made and are reported below the coefficient estimates. *, **, *** denotes statistical significance at the 10%, 5% and 1% levels, respectively. Standard errors are clustered by company. All variables are defined in Appendix A.