

**An Examination of Unexpected Audit Fees as an Indicator of Distressed Clients'  
Business Risk**

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**ABSTRACT:** This study investigates whether audit fee disclosures provide information about financially distressed clients' business risk. Drawing on the Simunic (1980) audit pricing framework and prior research on the effect of client business risk on audit scope and pricing, the study hypothesizes an inverse association between unexpected audit fees and distressed clients' future operating performance. As predicted, results reveal a statistically and economically significant inverse relation between unexpected audit fees and one-year-ahead return on assets. Additional analysis reveals that the relation (1) is evident using two-year-ahead return on assets, (2) is driven by unexpectedly high fees, (3) is primarily concentrated in the small client sector of the audit market, and (4) is robust to additional controls for client-size effects. Collectively, the study's findings offer initial empirical evidence suggesting that disclosed audit fees are informative about distressed clients' business risk.

**Keywords:** audit fees, client business risk, earnings, financial distress

**Data Availability:** Data are available from the public sources identified in the text.

# **An Examination of Unexpected Audit Fees as an Indicator of Distressed Clients' Business Risk**

## **I. INTRODUCTION**

The risk that an audit client's economic condition will deteriorate in the future (i.e., client business risk) is a critical risk assessed by the auditor (Johnstone 2000). This risk can impact the reliability of the financial statements (i.e., audit risk) and the auditor's expected losses (i.e., auditor business risk).<sup>1</sup> Consistent with these engagement concerns, prior theoretical and empirical research finds that the auditor's assessment of client business risk plays an important role in audit pricing (e.g., Simunic 1980; Pratt and Stice 1994). The objective of this study is to investigate whether observed audit prices, as revealed by auditor fee disclosures, are informative about financially distressed client firms' business risk. The information revealed by the fee disclosure is examined based on the ability of unexpected audit fees to explain the firms' future operating performance (i.e., return on assets, ROA).<sup>2</sup>

The research is motivated by external stakeholders' demand for information that reduces uncertainty surrounding firms and recent attention placed on disclosed audit fees as a sign of risk. In 2001, the Securities and Exchange Commission (SEC) began requiring registrants to publicly disclose in proxy statements audit and nonaudit fees paid to the external auditor. The SEC alleged that investors and other outside stakeholders would benefit from the new information by allowing outsiders to assess for themselves the risk that client-auditor

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<sup>1</sup> Johnstone (2000) promotes client business risk, audit risk, and auditor business risk as the primary risks assessed by the auditor. Audit risk is formally defined as "the risk that the auditor may unknowingly fail to appropriately modify his or her opinion on financial statements that are materially misstated" (AICPA 1983, AU 312.02). Auditor business risk is formally defined as the risk that an auditor incurs "loss or injury to his or her professional practice from litigation, adverse publicity, or other events arising in connection with financial statements audited and reported on" (AICPA 1983, AU 312.02, footnote 2). The roles of audit risk and auditor business risk, in the context of this study, are discussed more thoroughly later in the paper.

<sup>2</sup> The unexpected audit fee is the portion of the audit fee unexplained by determinants observed around the time the fee is disclosed (e.g., Francis and Wang 2005). The audit fee literature (see Hay et al. [2006] for a recent review) identifies the following categories of fee determinants: client size, audit complexity, risk, and auditor quality.

relationships were being jeopardized by nonaudit fee payments (SEC 2000). Despite the intent of the disclosure, anecdotal accounts suggest outsiders have directed attention to the disclosed audit fee for making risk assessments that extend beyond auditor independence concerns (e.g., Hirsch 2002; Weil 2004; Glass, Lewis & Co. 2005; Mavin 2005). For example, Mavin (2005, FP.10) argued:

Usually, auditors will say nothing about their clients other than whether they've approved the books or not. But there is a way for investors to discern more about what auditors really believe, because audit fees charged to companies are higher when the auditor perceives more risk.

However, the empirical literature lacks evidence to support conjectures that audit fees provide information about the risks surrounding a client firm.<sup>3</sup> Researchers have devoted little attention to the information revealed by the disclosed audit fee.<sup>4</sup> This study provides initial evidence addressing this issue.

Audit pricing theory (i.e., Simunic 1980) provides a basis for characterizing the audit fee as a cost assessment made by auditors that considers clients' business risk. The auditors' skill set and access to inside information should enable them to make assessments of their clients' business risk that are superior to those made by outsiders. Furthermore, auditors have strong incentive to actively seek inside information about client business risk (Bagnoli et al. 2001), and an increased ability to price the risk (e.g., Morgan and Stocken 1998) when the client shows signs of distress. Thus, the audit fee charged to distressed clients is expected to be informative about the client firms' business risk.

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<sup>3</sup> Ashbaugh et al. (2003) examine the market reaction to the initial round of auditor fee disclosures made during 2001 and find a significant inverse relation between one- and two-day cumulative abnormal returns and the magnitude of audit fees. Although the authors do not comment on this specific result (Table 9, Panel C), this finding is consistent with accounts of investors viewing the disclosed audit fee as an indicator of risk and using the information to revise their expectations of the firm's risk-adjusted future cash flows.

<sup>4</sup> Francis and Wang (2005) is a notable exception. The authors examine the effect of initial audit fee disclosures on subsequent period audit fees. They conclude that the initial round of public disclosures revealed inefficiencies in audit pricing that were subsequently reduced.

The study focuses on the unexpected component of the fee because, conceptually, the expected component is not likely to be informative about the client. The analysis is conducted using 7,632 financially distressed firm-year observations covering the period 2000-2004. Following prior studies (e.g., Reynolds and Francis 2000; DeFond et al. 2002), a financially distressed firm-year is defined as a year when a firm reports negative operating earnings or negative operating cash flows. The residual from a cross-sectional audit fee determinants model proxies the unexpected audit fee (e.g., Francis and Wang 2005; Krishnan et al. 2005). Distressed clients' future ROA is examined as an *ex post* proxy for client business risk. This proxy parallels the view of client business risk that characterizes the construct as the risk underlying a client's operating performance (e.g., Johnstone 2000).

Consistent with the hypothesis, results indicate a statistically and economically significant inverse relation between unexpected audit fees and future ROA. Additional analysis reveals that (1) the relation is evident using two-year-ahead return on assets, (2) unexpected audit fee changes are less informative than unexpected audit fee levels, (3) unexpectedly high fees are more informative than unexpectedly low fees, (4) unexpected audit fees are more informative about the business risk of small clients than of large clients, and (5) the results do not appear to be influenced by client size effects. Collectively, the study's findings suggest that audit fee disclosures are informative about financially distressed firms' future operating performance.

The study's results have research and practical implications. From a research perspective, the study contributes to our understanding of the information revealed by the limited number of observable outputs generated by the external audit process. These outputs receive widespread attention from regulators, researchers, and other market participants (Weber and Willenborg 2003). Furthermore, the results contribute to a substantial body of research

examining the relation between risk and audit fees. Rather than examining whether risk factors influence the auditor's pricing decision (e.g., Simunic 1980; Beatty 1993; Hill et al. 1994; Pratt and Stice 1994; Houston et al. 1999, 2005; Lyon and Maher 2005), this study takes an opposite approach by providing evidence about whether the observed price is informative about a specific client risk.

From a practical perspective, this research has the potential to affect how stakeholders (e.g., investors and creditors) evaluate a distressed firm's audit fee proxy disclosure and/or business risk. Ertimur (2005) shows that as firms' financial condition deteriorates, information asymmetry between firm insiders and outsiders increases. This finding is consistent with prior evidence documenting that as firms become distressed, financial statements become less value relevant (e.g., Barth et al. 1998) and less reliable (e.g., Kinney and McDaniel 1989) and management earnings forecasts become more biased (e.g., Rogers and Stocken 2005). Thus, there appears to be increased need for information that helps reduce uncertainties about the future prospects of distressed firms. This study provides evidence on the potential for audit fee disclosures to help meet this need.

The remainder of the paper is organized as follows. The next section provides background information and develops the formal hypothesis. The third section describes the study's research design. The fourth section presents the results. The final section concludes with a discussion of the study's findings, implications, and limitations, as well as potential avenues for future research.

## II. BACKGROUND AND HYPOTHESIS DEVELOPMENT

### Audit Pricing Theory

Simunic (1980) provides a framework for explaining how auditor risk judgments enter into the audit pricing decision. Assuming competitive markets, the audit fee billed to a client represents the auditor's total expected cost of providing assurance to stakeholders that management's financial statements adhere to Generally Accepted Accounting Principles (GAAP). The auditor's cost function is formally described by Simunic (1980, 165) as follows:

$$E(c) = cq + E(d|a,q)*E(\theta) \quad (1)$$

where,

- $E(c)$  = the auditor's total expected cost for conducting the audit (i.e., audit fee);
- $c$  = the per-unit factor cost of audit resources to the auditor, including all opportunity costs and, therefore, a provision for a normal profit;
- $q$  = the quantity of resources invested by the auditor in performing the audit;
- $a$  = the quantity of resources invested by the auditee in operating the internal accounting system;
- $E(d|a,q)$  = the expected present value of possible future losses that may be attributed to the audited financial statements, given  $a$  and  $q$ ; and
- $E(\theta)$  = the expected likelihood the future losses will become the responsibility of the auditor.

Conceptually, the auditor's total expected cost,  $E(c)$ , is comprised of two elements: (1) the cost of resources invested in the audit ( $cq$ ) and (2) any expected cost arising from, for example, potential losses due to future litigation and/or reputational damage ( $E(d|a,q)*E(\theta)$ ).

Pratt and Stice (1994) describe the auditor's implementation of this pricing model as a three-step process. First, the auditor assesses the likelihood of incurring a future loss, given  $a$ , and the amount of the potential loss,  $E(d|a)*E(\theta)$ . Second, the auditor invests in auditing,  $q$ , until the marginal benefit of the reduction in  $E(d|a,q)*E(\theta)$  equals the marginal cost of the additional audit investment. Third, the auditor chooses a fee,  $E(c)$ , that covers the cost of the

audit investment,  $cq$ , and the expected value of possible future losses,  $E(d|a,q)*E(\theta)$ . Pratt and Stice (1994) emphasize that the auditor's professional judgment plays a critical role in the decisions made throughout this process (i.e., in assessing  $E(d|a)*E(\theta)$  and choosing  $q$  and  $E(c)$ ).

### **Client Business Risk**

The audit literature (e.g., Pratt and Stice 1994; Simunic and Stein 1996; Morgan and Stocken 1998; Houston et al. 1999, 2005; Barron et al. 2001; Bell et al. 2001; Seetharaman et al. 2002; Lyon and Maher 2005; Venkataraman et al. 2005) explains that client business risk can impact audit costs and, therefore, audit fees through one or both of the following mediating risk factors: (1) the auditor's risk of issuing an unqualified opinion on materially misstated financial statements (i.e., audit risk, AICPA [1983]), and (2) the auditor's own business risk.<sup>5</sup> In the context of Simunic's (1980) audit pricing model, both factors can impact audit fees via their effect on the audit investment (i.e.,  $cq$ ) and/or price premiums covering the auditor's expected future losses (i.e.,  $E(d|a,q)*E(\theta)$ ).

Client business risk is an important determinant of whether financial statements contain material misstatements due to error or fraud (AICPA 1983, 1997a). Client firms exposed to heightened business risk are at greater risk of lacking the resources necessary for preparing reliable reports and face pressure to intentionally bias the reports to conceal declining performance. Therefore, heightened risk of material misstatements motivates the auditor to conduct more costly audit procedures to achieve an acceptable level of audit risk and to charge a fee premium if the additional audit investment is insufficient to cover residual costs.<sup>6</sup>

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<sup>5</sup> Audit risk and auditor business risk share many of the same subordinate characteristics and, therefore, each is strongly dependent on the other. See Jubb et al. (1996) for a detailed discussion of the complex relations among audit risk, client business risk, and auditor business risk constructs.

<sup>6</sup> See Houston et al. (1999) for a detailed discussion of the linkage between the audit risk model (AICPA 1983) and Simunic's (1980) audit pricing model.

Client business risk also can impact the auditor's own business risk for reasons less directly linked to whether the audited financial statements are materially misstated. For example, when clients' economic conditions worsen, auditors' "deep pockets" provide incentive for capital providers to bring suits against auditors in an attempt to recover losses (Wallace 1985). Regardless of case merits, the auditor incurs direct defense or settlement costs and a potential loss of reputation due to allegations of wrongdoing (Palmrose 1991). This exposure motivates the auditor to conduct more costly audit testing, resulting in a more defensible audit, and/or charge an additional premium to cover the higher expected costs associated with potential litigation and reputational declines.<sup>7</sup>

Prior research examining the determinants of audit fees has consistently provided evidence of a positive relation between observed and expected deterioration in client firms' economic condition and audit fees. For example, recent evidence (e.g., Whisenant et al. 2003; Francis and Wang 2005; Krishnan et al. 2005) shows that audit fees are positively (negatively) associated with concurrently observed debt levels, losses, and market volatility (liquidity ratios, returns on assets, and market returns). However, the literature lacks evidence about whether audit fees reveal information about client business risk, over and above the information revealed by publicly-observed client business risk factors identified previously.

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<sup>7</sup> While research generally supports a positive relation between client business risk and audit fees, there is some debate over two related issues. The first issue relates to whether the higher fees charged to riskier firms are due to more costly audit procedures and/or fee premiums (e.g., Simunic and Stein 1996; Bell et al. 2001). This debate does not impact the current study. The current study requires only that higher fees be associated with riskier clients, regardless of the underlying cause(s). Second, there is debate over whether audit programs (Mock and Wright 1999) and audit fees (Morgan and Stocken 1998; Bell et al. 2001) *fully* reflect the risks and costs, respectively, of a specific engagement. Simunic and Stein (1996, 120) explain that at the engagement level "an auditor has a strong incentive to try to minimize actual losses and to incorporate expected losses into the fee." However, to some extent, client business risk is managed at a portfolio level that periodically rebalances risk via the client acceptance/continuance decision (Johnstone and Bedard 2004) and that allows for cross-subsidizing fees charged to high risk clients with fees charged to low risk clients (Morgan and Stocken 1998). This debate does impact the current study by suggesting engagement-level pricing may not be informative about a client. As discussed later in the paper, the study focuses on firms that show signs of distress, which should help minimize the disparity between current-period audit fees and the auditor's total expected cost of providing the services.

## Hypothesis

Using the Simunic (1980) audit pricing framework and existing evidence that client business risk impacts audit pricing, this study predicts an inverse relation between unexpected audit fees and financially distressed clients' future ROA. If outsiders and auditors possessed identical skill sets and were privy to identical information sets for estimating the parameters of Model (1), there would be no basis to conjecture that an audit fee is informative about a client firm's business risk. However, this study posits that auditor expertise in assessing audit-relevant risks is greater than that of outsiders. Furthermore, the judgments and decisions Pratt and Stice (1994) describe as underlying the audit pricing decision (i.e., assessing  $E(d|a)*E(\theta)$  and choosing  $q$  and  $E(c)$ ) are made with the benefit of access to inside information.<sup>8</sup> Professional audit standards (i.e., AICPA 1988) require that the auditor be granted sufficient access to client records, documents, and other sources of evidence to form an opinion on whether the financial statements are presented fairly. This evidence is gathered throughout the engagement using various procedures.<sup>9</sup> Thus, informed assessments of client business risk should be embedded in the observed audit fee.

When a client is financially distressed, the amount of embedded information in the audit fee about client business risk is likely greater than when the client is financially sound. The auditor should face greater incentive to actively gather inside information about the true business risk of the client firm when potential client business risk is more salient. Furthermore, the disparity between current-period audit fees and current-period audit costs should be reduced

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<sup>8</sup> The demand for auditing can be explained by the auditor's access to and expert processing of information unknown to outsiders (e.g., Wallace 1985; Watts and Zimmerman 1986).

<sup>9</sup> For example, during the client acceptance or continuance phase of an audit engagement, the auditor makes inquiries of the predecessor auditor (AICPA 1997b) or can draw on knowledge acquired through past experience with the client. During subsequent phases, the auditor can inspect internal budgets and financial forecasts, and make inquiries of client personnel and other parties with inside information about the client.

when the client is financially distressed. Client bargaining power over the audit fee is a decreasing function of the client's business risk (e.g., Morgan and Stocken 1998), and a rational auditor would be less likely to implement a multi-period pricing strategy that recovers current costs in future periods (Sankaraguruswamy and Whisenant 2004).<sup>10</sup> Thus, when a client firm is financially distressed, the audit fee is expected to be informative about the client's business risk and, therefore, an indicator of the firm's future economic condition.

Recent audit fee studies (e.g., Francis and Wang 2005; Krishnan et al. 2005) emphasize that the audit fee is comprised of expected and unexpected components. Because the expected fee is based, in part, on observed fee determinants linked to client business risk, the study focuses attention on the information revealed by the unexpected fee. The expected fee cannot be reasonably attributed to inside information or differences in risk assessment skill sets between auditors and client firm outsiders.<sup>11</sup>

The client business risk proxy is based on the client firm's future earnings. Earnings is widely studied as a summary measure of firms' operating performance (Barber and Lyon 1996). In audit contexts, lower earnings translates into higher risk (e.g., Johnstone 2000). This study examines return on assets as a proxy for operating performance. The measure captures both operating effectiveness and efficiency and is independent of the firm's capital structure.<sup>12</sup>

Higher *ex ante* client business risk is assumed to translate into lower future ROA, *ceteris*

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<sup>10</sup> The justifications for focusing on apparently distressed firms are consistent with the multi-period models of auditor behavior presented by Bagnoli et al. (2001) and Morgan and Stocken (1998). Bagnoli et al. (2001) show that when outside information indicates heightened risk, the auditor's incentive to gather inside information increases. As inside information is gathered by the auditor, the information asymmetry between the auditor and firm outsiders increases. Morgan and Stocken (1998) show that the extent of information asymmetry between the auditor and firm outsiders is positively related to the auditor's ability to price the risks revealed by the inside information.

<sup>11</sup> Methodologically, by focusing on the unexpected audit fee, the potential correlated omitted variables problem is addressed to the extent that the relatively comprehensive audit fee model estimated in this study (as specified in the next section of the paper) does not exclude observable fee determinants linked to client business risk.

<sup>12</sup> Future operating cash flow (deflated by beginning of period assets) also was examined as a client business risk proxy. Hypothesis testing based on this proxy yields qualitatively similar results to those reported throughout the paper. This finding is expected given strong positive correlation between the earnings and the cash flow measures (Pearson correlation equals 0.905).

*paribus*. Thus, the study predicts an inverse relation between unexpected audit fees and subsequent (i.e., one-year-ahead) ROA for client firms exhibiting signs of financial distress.

Stated formally:

**H:** Unexpected audit fees are inversely associated with the future ROA of financially distressed client firms, *ceteris paribus*.

### III. RESEARCH DESIGN

#### Model Specifications

The study uses a two-stage approach to test the hypothesis. The first stage estimates unexpected audit fees using a cross-sectional audit fee model. The second stage examines the relation between the residual from the first model (a proxy for the unexpected fee) and the future ROA of the firms, controlling for previously identified business risk indicators.

#### *Regression Model for Isolating Unexpected Audit Fees*

To separate audit fees into expected and unexpected components, the methodology follows recent studies (e.g., Francis and Wang 2005; Krishnan et al. 2005) by estimating a cross-sectional audit fee determinants model. The model below is adapted from models estimated in recent prior studies (e.g., DeFond et al. 2002; Whisenant et al. 2003; Francis and Wang 2005; Krishnan et al. 2005), with an emphasis on controlling for fee determinants associated with the financial strength of the firm:<sup>13</sup>

$$\begin{aligned} \log AUDFEE_{it} = & \beta_0 + \beta_1 \log ASSETS_{it} + \beta_2 INVREC_{it} + \beta_3 SEGS_{it} + \beta_4 FOREIGN_{it} + \\ & \beta_5 LAG_{it} + \beta_6 GROWTH_{it} + \beta_7 MERGER_{it} + \beta_8 SPECIAL_{it} + \\ & \beta_9 BIGN_{it} + \beta_{10} INITIALYR_{it} + \beta_{11} GCO_{it} + \beta_{12} ZFC_{it} + \beta_{13} BTM_{it} + \end{aligned} \quad (2)$$

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<sup>13</sup> Differences in audit fee models exist across studies and are based largely on differing research objectives (see Hay et al. [2006] for a recent review). Mayhew (2005, 163) loosely characterizes fee models estimated in recent studies as either employing the “Australian” approach (e.g., Francis and Wang [2005], which incorporates 13 firm-specific determinants and industry fixed effects) or the “Kitchen Sink” approach (e.g., Whisenant et al. [2003], which incorporates 23 firm-specific determinants and industry fixed effects). The former approach, which Mayhew (2005) strongly endorses based on its relative explanatory power, incorporates a more parsimonious set of potential fee determinants. The model presented in this study falls between the two ends of the spectrum.

$$\beta_{14} IPO_{it} + \beta_{15} RETURN_{it} + \beta_{16} VOLATLTY_{it} + \beta_j INDUSTRY_{it} + \varepsilon_{it}$$

where,

- $logAUDFEE_t$  = natural log of total audit fees;  
 $logASSETS_t$  = natural log of total assets (#6);  
 $INVREC_t$  = total inventory (#3) plus total accounts receivable (#2) divided by total assets (#6);  
 $SEGS_t$  = total number of Compustat business segments;  
 $FOREIGN_t$  = indicator variable equal to one if the firm has foreign operations (#150), otherwise zero;  
 $LAG_t$  = number of days between current fiscal year-end and Compustat quarterly earnings announcement date;  
 $GROWTH_t$  = one-year sales (#12) growth rate;  
 $MERGER_t$  = indicator variable equal to one if the firm was involved in merger activity during fiscal year (footnote code #1), otherwise zero;  
 $SPECIAL_t$  = absolute value of negative special items (#17) divided by total assets (#6), otherwise zero;  
 $BIGN_t$  = indicator variable equal to one if the auditor is a member of the Big5/4 (#149), otherwise zero;  
 $INITIALYR_t$  = indicator variable equal to one if the length of the auditor-client relationship is less than or equal to two years (#149), otherwise zero;  
 $GCO_t$  = indicator variable equal to one if the firm received a going concern audit opinion, otherwise zero;  
 $ZFC_t$  = Zmijewski's (1984) financial distress score;  
 $BTM_t$  = book-to-market ratio as of the end of current fiscal year;  
 $IPO_t$  = indicator variable equal to one if the firm had an IPO over the previous three years, measured as less than or equal to three years of total assets (#6) reported by Compustat, otherwise zero;  
 $RETURN_t$  = stock return over current fiscal year;  
 $VOLATLTY_t$  = stock volatility, measured as the standard deviation of monthly stock returns over fiscal year;  
 $INDUSTRY_t$  = vector of indicator variables based on SIC codes; and  
 $\varepsilon_t$  = error.<sup>14</sup>

The model includes  $logASSETS_t$  because firm size is the primary driver of audit fees (Hay et al. 2006).  $INVREC_t$ ,  $SEGS_t$ ,  $FOREIGN_t$ ,  $LAG_t$ ,  $GROWTH_t$ ,  $MERGER_t$ , and  $SPECIAL_t$  are included to control for the complexity of the audit.  $BIGN_t$  controls for the fee premium earned by Big5/4 auditors (e.g., Palmrose 1986).  $INITIALYR_t$  controls for the lower fees charged during the initial years of an audit engagement that result from the competitive practice of lowballing (e.g.,

<sup>14</sup> Firm subscripts,  $i$ , are subsequently dropped, while time subscripts,  $t$ , are maintained throughout for clarity. Compustat annual data item numbers are noted in parentheses where applicable.

Sankaraguruswamy and Whisenant 2004). The remaining variables,  $ZFC_t$ ,  $BTM_t$ ,  $IPO_t$ ,  $RETURN_t$ , and  $VOLATLTY_t$  control for the higher fees charged to riskier firms.<sup>15</sup> Other than  $INITIALYR_t$ ,  $BTM_t$ , and  $RETURN_t$ , the variables are expected to have a positive effect on  $logAUDFEE_t$ . Finally,  $INDUSTRY_t$ , a vector of indicator variables based on the 14 groupings used by Frankel et al. (2002) and Whisenant et al. (2003), is included to control for industry fixed effects. The fitted (residual) value from this model represents the expected (unexpected) audit fee. A negative residual suggests a lower-than-expected fee, while a positive residual suggests a higher-than-expected fee.

The model is estimated for each sample year to allow the intercept and slope coefficients to vary through time. Recent findings (e.g., Francis and Wang 2005) indicate that audit fees increased over the sample period, likely due to factors that increased auditor business risk and/or increased audit workloads (e.g., the implementation of SAS 99, the Enron-Andersen events, and the passage of the Sarbanes-Oxley Act of 2002). Furthermore, the same factors may have impacted the relation between individual fee determinants and audit fees, although the possibility has not been formally studied.

### ***Regression Model for Hypothesis Testing***

The following regression model is estimated to formally test the association between unexpected audit fees and one-year-ahead ROA:

$$ROA_{it+1} = \beta_0 + \beta_1 UNEXPFEE_{it} + \beta_2 ROA_{it} + \beta_3 ZFC_{it} + \beta_4 logASSETS_{it} + \beta_5 RETURN_{it} + \beta_6 VOLATLTY_{it} + \beta_7 GCO_{it} + \beta_j INDUSTRY_{it} + \beta_k YEAR + \varepsilon_{it} \quad (3)$$

where,

$$ROA_{t+1} = \text{one-year-ahead ROA};$$

$$ROA_t = \text{return on assets, measured as operating income after depreciation (\#178)}$$

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<sup>15</sup> The Zmijewski (1984) model used to compute  $ZFC$  includes the following components: (1) return on assets, (2) total debt to total assets, and (3) current assets to current liabilities.

divided by beginning of period assets (#6); and  
 $UNEXPFEE_t$  = unexpected audit fee proxied by the residual from Model (2).

The remaining variables are as previously defined. The test variable of interest is  $UNEXPFEE_t$ .

A significantly negative coefficient (i.e.,  $\beta_1$ ) will support the hypothesis.

$ROA_t$ ,  $ZFC_t$ ,  $\log ASSETS_t$ ,  $RETURN_t$ ,  $VOLATLTY_t$ , and  $GCO_t$  are control variables.

Profitability measures are persistent (e.g., Fama and French 2000), making current profitability a primary determinant of future profitability. Therefore,  $ROA_t$  is included to control for current-period profitability. Cross-sectional differences in the financial condition of the firms are controlled for by  $ZFC_t$ . The coefficients from the Zmijewski (1984) weighted probit model are used to compute ZFC because the model is robust across industries (Grice and Dugan 2001) and is used in recent audit fee studies (e.g., DeFond et al. 2002; Whisenant et al. 2003). Greater financial distress levels are represented by higher ZFC values, thus a negative relation between  $ZFC_t$  and  $ROA_{t+1}$  is expected.  $\log ASSETS_t$  is included to control for firm size, but no sign is predicted. Market-based variables can capture public information not yet disclosed in annual financial statements. Therefore, the model controls for the firm's market return,  $RETURN_t$ , and volatility,  $VOLATLTY_t$ , over the preceding fiscal year.  $RETURN_t$  is expected to be positively related to  $ROA_{t+1}$ , while  $VOLATLTY_t$  is expected to be inversely related to  $ROA_{t+1}$ . The study controls for the presence of a going concern modified audit opinion,  $GCO_t$ . Prior studies (e.g., Hopwood et al. 1989) show that these opinions offer incremental information for assessing a firm's future economic condition. Finally, the model controls for the possibility of industry and year fixed effects.

## IV. RESULTS

### Sample Selection and Description

The sample is comprised of all distressed firm-years with the necessary financial and audit fee data included on the 2006 Compustat tapes. Following prior research (i.e., Reynolds and Francis 2000; DeFond et al. 2002), a distressed firm year is defined as a year when the firm reports an operating loss or negative operating cash flow.<sup>16</sup> The study's focus on audit fees and subsequent earnings limit the sample to the five-year period beginning with fiscal year 2000 observations (disclosures of audit fees paid during the most recent fiscal year are required in proxy statements filed on or after February 5, 2001). Table 1 presents descriptive statistics for the primary variables used in the analysis. To reduce the potential effects of extreme observations, each of the unbounded continuous variables is winsorized at the 1st and 99th percentile of its respective distribution.

[Insert Table 1]

### Estimation of Audit Fee Model

Appendix A reports the estimation results for the cross-sectional audit fee determinants model (Model [2]). The yearly results indicate that the models are highly significant ( $p < 0.0001$  in all cases) and explain between 67 and 77 percent of the variation in  $\log AUDITFEE_t$ . The estimated coefficients for  $\log ASSETS_t$ ,  $INVREC_t$ ,  $SEGS_t$ ,  $FOREIGN_t$ ,  $LAG_t$ ,  $SPECIAL_t$ ,  $BIGN_t$ ,  $GCO_t$ ,  $ZFC_t$ ,  $BTM_t$ , and  $VOLATLTY_t$  are, in general, significant and the signs are consistent with expectations.

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<sup>16</sup> Sensitivity analysis (untabulated) examined whether temporary declines in performance impacted the reported results by limiting the analysis to firms that report an operating loss or negative operating cash flow for two consecutive years. Results based on this alternative distress criterion were qualitatively similar to those reported.

A review of the parameter estimates identifies apparent changes in audit pricing for distressed client firms over the sample period. For example, the BigN fee premium steadily increased. Furthermore, auditors priced new engagements similar to continuing engagements through 2002. However, beginning in 2003, auditors began to charge premiums on new engagements. These findings support the research design choice to estimate the audit fee model by year.<sup>17</sup>

### Correlations

Table 2 reports correlations among the dependent, independent, and control variables examined in the multiple regression analysis. Consistent with the hypothesis that unexpected audit fees contain information about distressed firms' future ROA, the results show a significant negative correlation between  $ROA_{t+1}$  and  $UNEXPFEET$  ( $p < 0.01$ ).<sup>18</sup> As expected, the Pearson correlations between  $UNEXPFEET$  and the control variables are insignificant ( $p > 0.10$  in all cases), with the exception of the correlation between  $UNEXPFEET$  and  $ROA_t$  ( $p < 0.01$ ). The audit fee model (i.e., Model [2]) does not include current ROA because current ROA is a component of the ZFC distress score, as evidenced by the relatively large correlation between  $ZFC_t$  and  $ROA_t$  (Pearson  $\rho = -0.49$ ,  $p < 0.01$ ).<sup>19</sup> In general, the correlations among the independent and control variables are not sufficiently large to raise concerns about collinearity. Furthermore, the largest VIF equals 1.504, well below the threshold of concern recommended by Neter et al. (1996).

[Insert Table 2]

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<sup>17</sup> Given the apparent changes in audit pricing over the sample period, sensitivity analysis also tested for changes in the amount of information revealed by the unexpected audit fee over the period. The results do not indicate persistent shifts in the amount of information revealed by the unexpected audit fee during the five-year period.

<sup>18</sup> All reported p-values denote two-tailed significance levels.

<sup>19</sup> Untabulated results confirm that when  $ROA$  is included in the fee model, the (Pearson) correlation between  $UNEXPFEET$  and  $ROA$  becomes insignificant ( $p = 0.971$ ) and the inferences regarding  $UNEXPFEET$  are unaffected.

### Estimation of Future ROA Model

Table 3 reports the estimation results for the regression model explaining future ROA (i.e., Model [3]). After controlling for current period ROA and other distress-related factors, the multivariate results indicate a significant negative association between  $UNEXPFEE_t$  and  $ROA_{t+1}$  ( $p < 0.001$ ). This result provides further support for the hypothesis that unexpected audit fees contain information about distressed firms' future operating performance. The control variable results indicate significant coefficients for  $ROA_t$  ( $p < 0.001$ ),  $ZFC_t$  ( $p < 0.001$ ), and  $GCO_t$  ( $p < 0.059$ ) with signs in the expected direction. Furthermore, the results reveal a significant positive  $logASSETS_t$  coefficient ( $p < 0.001$ ).

To assess the economic magnitude of the relation between  $UNEXPFEE_t$  and  $ROA_{t+1}$  indicated by the multiple regression results, the  $UNEXPFEE_t$  coefficient is examined further. The estimated  $UNEXPFEE_t$  coefficient suggests that a change in  $UNEXPFEE_t$  equal to its interquartile range reported in Table 1 (0.722, where  $Q1 = -0.356$  and  $Q3 = 0.366$ ) corresponds to an approximate 4 percent decrease in one-year-ahead ROA, *ceteris paribus*. Thus, an economically meaningful amount of information appears to be revealed by the unexpected audit fee about the future operating performance of distressed client firms. To assess this finding relative to other outputs of the audit process, the economic magnitude of the relation between  $GCO_t$  and future ROA also is examined. The  $GCO_t$  estimated coefficient indicates that a going concern audit opinion is associated with a one-year-ahead ROA that is approximately 5 percent lower than the one-year-ahead ROA associated with a clean opinion, *ceteris paribus*. Thus, the amount of information revealed by the unexpected audit fee appears comparable to that revealed by a going concern audit opinion in this context.

[Insert Table 3]

### **Additional Analysis**

Five tests are conducted to better assess the primary results. Specifically, the study examines (1) alternative, longer, horizons for assessing future earnings, (2) an alternative audit fee measure based on unexpected fee changes, (3) alternative fee measures that allow for separate analysis of unexpectedly high and unexpectedly low audit fees, (4) interaction terms that allow the fee-future ROA relation to vary based on auditor business risk factors, and (5) two alternative models designed to assess the effect of client-size (i.e., scale) effects on the inferences derived from the primary results.

#### ***Alternative Future ROA Horizons***

Using a one-year horizon to assess future operating performance, results indicated a statistically and economically significant relation between  $UNEXPFEE_t$  and  $ROA_{t+1}$ . To assess the strength of these results over longer horizons, sensitivity analysis examined two- and three-year horizons. Table 4 reports the results of this analysis.

Using a two-year horizon to assess future ROA, the results continue to indicate a statistically significant negative  $UNEXPFEE_t$  coefficient ( $p = 0.061$ ). However, the economic magnitude of this relation is approximately one-half the magnitude found using a one-year horizon ( $UNEXPFEE_t$  coefficient equals -0.024 using a two-year horizon and -0.052 using a one-year horizon). Using a three-year horizon, the  $UNEXPFEE_t$  coefficient becomes insignificant ( $p = 0.798$ ). Thus, results indicate that unexpected audit fees do not reveal information about distressed firms' future performance beyond a two-year horizon.

[Insert Table 4]

### *Unexpected Audit Fee Changes*

There is a lack of theoretical guidance explaining how audit fees should be analyzed to most effectively extract information about the client firm. An alternative approach to the one used in the original analysis is to examine unexpected audit fee *changes*. A benefit to this approach is that it controls for unobserved client factors that impact audit fees yet remain fixed over relatively short time periods (e.g., internal audit effectiveness, Felix et al. [2001]). However, a potentially important problem with this approach is that an audit fee's ability to convey information about client business risk could actually be reduced. Ferguson et al. (2005) find that audit fees are "sticky." That is, audit fees do not respond to changes in client firm characteristics as quickly as theoretically predicted by traditional audit fee determinants models. Therefore, rapid changes in a client firm's business risk may not be fully reflected in observed changes in the audit fee.

To assess unexpected audit fee changes, the approach used by Ferguson et al. (2005) and Francis et al. (2005) was followed. Model (2) was revised to explain changes in (log) audit fees ( $\log AUDTFEE\Delta$ ) from year  $t-1$  to  $t$  as a function of changes in fee determinants over the same period and to exclude the industry fixed effects. The fitted (residual) value from this model is used to represent the expected (unexpected) fee change.

Appendix B reports the estimation results for the cross-sectional audit fee changes model. The models are highly significant ( $p < 0.001$  in all cases). Consistent with prior findings (i.e., Ferguson et al. 2005; Francis et al. 2005), the Adj.  $R^2$ s are considerably smaller than the Adj.  $R^2$ s for the models explaining fee levels.

As shown in Table 5, the results indicate a statistically significant negative  $UNEXPFEED_t$  coefficient ( $p = 0.034$ ). Regarding the economic magnitude of this relation, a change in

$UNEXPFEE\Delta_t$  equal to its interquartile range (0.430, where  $Q1 = -0.224$  and  $Q3 = 0.206$ ) results in slightly more than a 1 percent change in future ROA, *ceteris paribus*. Thus, the information embedded in unexpected audit fee changes is smaller in economic magnitude than that embedded in unexpected audit fee levels. Furthermore, simultaneous analysis (untabulated) of  $UNEXPFEE_t$  and  $UNEXPFEE\Delta_t$  reveals that  $UNEXPFEE\Delta_t$  offers no incremental explanatory power over and above  $UNEXPFEE_t$ .

[Insert Table 5]

### ***“Unexpectedly Low” Versus “Unexpectedly High” Audit Fees***

The primary analysis tested for a linear relationship between  $UNEXPFEE_t$  and  $ROA_{t+1}$ . However, the amount of incremental information revealed by “unexpectedly low” audit fees may differ from that revealed by “unexpectedly high” audit fees. Ferguson et al. (2005) find that auditors appear to increase (decrease) fees more (less) quickly in response to changes in firm characteristics. This finding suggests “unexpectedly high (low)” fees may contain more (less) timely information about the firm. To assess this possibility, Model (2) is augmented to allow the  $UNEXPFEE_t$  coefficient to vary based on the sign of  $UNEXPFEE_t$ . Specifically, the revised model includes  $UNEXPFEE\_LOW_t$  and  $UNEXPFEE\_HIGH_t$  in lieu of  $UNEXPFEE_t$ , where  $UNEXPFEE\_LOW_t$  equals  $UNEXPFEE_t$  if  $UNEXPFEE_t < 0$ , otherwise zero, and, similarly,  $UNEXPFEE\_HIGH_t$  equals  $UNEXPFEE_t$  if  $UNEXPFEE_t \geq 0$ , otherwise zero. Consistent with the original hypothesis, the coefficients for  $UNEXPFEE\_LOW_t$  and  $UNEXPFEE\_HIGH_t$  are expected to be negative.

Table 6 reports the estimation results of the revised model. The  $UNEXPFEE\_HIGH_t$  coefficient is negative and statistically significant ( $p < 0.001$ ), while the  $UNEXPFEE\_LOW_t$  coefficient is insignificant ( $p = 0.754$ ). Thus, the information about distressed clients’ future

performance embedded in unexpected audit fees appears to be concentrated in the unexpectedly high fees. This finding is consistent with the Ferguson et al. (2005) results suggesting audits fees are adjusted upward more quickly to changes in client characteristics than downward.

[Insert Table 6]

### ***Auditor Business Risk Interactions***

The audit fee effects possibly vary based on factors expected to contribute to the auditor's own business risk. Under conditions that lead to heightened auditor business risk, the audit fee-future ROA relation is likely to be stronger. When the auditor is faced with heightened business risk and the auditor discovers greater client business risk than public information suggests, the auditor should face greater incentive to invest more resources in the audit,  $cq$ , and charge a larger premium to cover larger expected future losses,  $E(d|a,q)*E(\theta)$ , than when the auditor is not faced with heightened business risk.

The study examines three conditions that likely impact the magnitude of the potential loss,  $E(d|a,q)$ , and/or the likelihood of the auditor incurring a future loss,  $E(\theta)$ : (1) client size, (2) auditor size, and (3) industry-based litigation exposure. Future losses incurred by auditors are directly related to the magnitude of future losses incurred by clients (Simunic 1980), and the dollar value of losses incurred by larger clients is, on average, larger than the dollar value of losses incurred by smaller clients. Larger auditors have “deeper pockets” from which client firm stakeholders can potentially recover losses through litigation (Palmrose 1988) and have greater reputational capital to lose when faced with allegations of wrongdoing (DeAngelo 1981). Auditors are more likely to be concerned about litigation when clients operate in a litigious environment (Seetharaman et al. 2002). Therefore, the study examines whether the audit fee-

future ROA relation is stronger for (1) large clients, (2) BigN auditors, and (3) clients operating in litigious industries.

Model (3) is augmented to include interaction terms that allow the  $UNEXPFEE_t$  coefficient to vary across conditions related to the three factors. To assess the large client condition,  $LARGE_t$  is included in the model, where  $LARGE_t$  is an indicator variable equal to one if  $\log ASSETS_t \geq$  sample median, otherwise zero. To assess the auditor size interaction,  $BIGN_t$  is included in the model, where  $BIGN_t$  is as previously defined. To assess the litigious industry interaction,  $LITIND_t$  is included in the model, where  $LITIND_t$  is an indicator variable equal to one if the client operates in a litigious industry identified by Francis et al. (1994) (biotech firms, SIC codes 2833-2836, 8731-8734; computers, SIC codes 3570-3577, 7370-7374; electronics, SIC codes 3600-3674; and retailing, SIC codes 5200-5961), otherwise zero.<sup>20</sup> Positive interaction term coefficients (i.e., coefficients for  $UNEXPFEE_t * LARGE_t$ ,  $UNEXPFEE_t * BIGN_t$ , and  $UNEXPFEE_t * LITIND_t$ ) will suggest audit fees are more informative about client firms' business risk under conditions that expose auditors to heightened business risk.

Table 7 reports the results of this analysis. Counter to expectations, the  $UNEXPFEE_t * LARGE_t$  interaction is positive and statistically significant ( $p < 0.001$ ). In addition, the  $UNEXPFEE_t * BIGN_t$  interaction is unexpectedly positive and marginally significant ( $p = 0.108$ ). One explanation for these findings is that the small client market is a more competitive audit market than the large client market (e.g., Ghosh and Lustgarten 2006). Furthermore, the small client market is less dominated by BigN auditors. Thus,  $LARGE_t$  and  $BIGN_t$  may be capturing degrees of market competitiveness associated with client size. Audit fees set in a competitive market should better reflect the expected cost of the audit than audit fees set in a

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<sup>20</sup> The Francis et al. (1994) industry groupings of high litigation risk firms have been used in recent audit studies (e.g., Frankel et al. 2002; Cahan and Zhang 2006).

noncompetitive market (Simunic 1980), resulting in a more informative indicator of future client performance. With respect to the  $UNEXP_{FEE_t} * LITIND_t$  interaction, the coefficient is unexpectedly positive, but insignificant at conventional two-tail significance levels ( $p = 0.137$ ). Collectively, these findings suggest that auditor business risk does not influence the informativeness of unexpected audit fees. Rather, the informativeness of the unexpected fee appears to be influenced by the degree of market competitiveness.<sup>21</sup>

[Insert Table 7]

### ***Client Size Effects***

As highlighted previously, client size is a primary determinant of audit fees. Furthermore, the results show that client size is an important determinant of distressed clients' future return on assets. The reported results control for client size in three ways. First, the dependent variable (i.e., one-year-ahead ROA) is derived by deflating future earnings by beginning of period total assets. Second, similar to prior research, the estimation procedure used to derive  $UNEXP_{FEE_t}$  is designed to remove the effect of client size on audit fees by estimating the audit fee model using the log transformation of audit fees as the dependent variable and the log transformation of total assets as an explanatory variable. Third, the logarithm of total assets also is included as a control variable in the model that examines the fee-future performance relation (i.e., Model [3]). Nevertheless, it is important to assess whether the findings are influenced by client size (i.e., scale) effects. The results of two tests designed to address this issue are reported in Table 8.

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<sup>21</sup> Untabulated analysis also explored the possibility of a three-way interaction between  $UNEXP_{FEE}$ ,  $LARGE$ , and  $BIGN$  to better understand the client and auditor size effects. The results indicate that the interaction term is insignificant ( $p = 0.754$ ). Furthermore, the two-way interaction between  $UNEXP_{FEE}$  and  $LARGE$  remained significant ( $p = 0.082$ ), while the two-way interaction between  $UNEXP_{FEE}$  and  $BIGN$  became insignificant ( $p = 0.536$ ). Thus, the reported results appear to be driven by client size rather than auditor size effects.

The first test models future *changes* in ROA. Current ROA and current changes in ROA are included to control for mean reversion and short-term serial correlation in operating performance changes, respectively. Consistent with the primary findings, the results indicate a significant negative  $UNEXPFEE_t$  coefficient ( $p \leq 0.001$ ).

The second test models future ROA as a function of  $UNEXPFEE_t$ , similar to Model (3). However,  $UNEXPFEE_t$  is based on an estimation of Model (2) that models audit fees separately for large and small clients, where large (small) clients are those firms above (below) the sample median, and separately for each year of the sample period. This approach allows the auditor's pricing function to differ between the two classes of clients and to vary through time. The results of this regression are nearly identical to the previously reported results. Specifically, the  $UNEXPFEE_t$  coefficient is negative and significant ( $p \leq 0.001$ ). Furthermore, the magnitude of the coefficient is relatively unchanged (-0.051 versus -0.052 as reported in Table 3). The results of these tests collectively suggest that the primary findings are not spuriously driven by client size effects.

[Insert Table 8]

## V. DISCUSSION

This study provides initial empirical evidence on the information revealed by audit fee disclosures about the business risk of financially distressed client firms. The informativeness of the audit fee disclosure is examined by investigating the association between the unexpected portion of the audit fee and the firms' future ROA. In doing so, the study assumes an inverse association between client business risk and future operating performance. As predicted, the results reveal a statistically and economically significant inverse relation between unexpected audit fees and one-year-ahead ROA. Further analysis reveals that the relation (1) is evident

using two-year-ahead ROA, (2) is driven by unexpectedly high audit fees, (3) is primarily concentrated in the small client sector of the audit market, and (4) is robust to tests of client size effects.

From a research perspective, the study is the first to examine whether publicly-disclosed audit fees reveal information about the risks surrounding client firms. The study's findings contribute to two lines of research. The first line of research examines client information revealed by the limited number of observable outputs of the external audit process. For example, prior studies have examined client information revealed by audit opinions (e.g., Hopwood et al. 1989; Weber and Willenborg 2003), auditor appointments (e.g., Barton 2005), and auditor resignations/dismissals (e.g., Shu 2000; Hackenbrack and Hogan 2002). These outputs receive widespread attention from regulators, researchers, and other market participants (Weber and Willenborg 2003). This study improves understanding of the information revealed by the disclosed audit fee. The second line of research is an extensive body of literature that focuses specifically on the association between audit pricing and various risk constructs (e.g., Pratt and Stice 1994; Simunic and Stein 1996; Morgan and Stocken 1998; Houston et al. 1999, 2005; Barron et al. 2001; Bell et al. 2001; Seetharaman et al. 2002; Lyon and Maher 2005; Venkataraman et al. 2005) by providing evidence about whether the audit price reveals information about a client firm's business risk, over and above that revealed by other risk indicators.

From a practical perspective, the study's results can potentially affect how audit fee proxy disclosures are evaluated. A number of anecdotal accounts suggest that, at times, audit fees are viewed as a sign of risk (e.g., Hirsch 2002; Weil 2004; Mavin 2005). However, there has been no research to date devoted specifically to assessing whether audit fees are informative

about the risks surrounding client firms. This study addresses this issue in the context of distressed client firms. Financial distress “place[s] the firm in a temporary position” (Joos and Plesko 2005, 848) and triggers heightened demand for information useful for assessing the firm’s future. However, financial statements and other traditional sources of information useful for assessing the future prospects of firms appear to be less value relevant (e.g., Barth et al. 1998) and reliable (e.g., Kinney and McDaniel 1989; Rogers and Stocken 2005) when firms are distressed.

The results should be considered in the context of the study’s limitations. First, the possibility exists that the audit fee model estimated in the study is misspecified in a way that impacts the results. For example, although a comprehensive set of variables found previously to determine audit fees are included in Model (2), the possibility exists that an observable fee determinant correlated with the future economic condition of the firm is omitted from the model. Second, client business risk is a latent construct that requires an empirical proxy to analyze. Return on assets was deemed appropriate because it is commonly used across contexts as an important indicator of firm performance. However, caution should be exercised in generalizing the study’s results to other client business risk settings. Third, measurement error in the variables may affect the results. For example, to the extent that the SEC auditor fee disclosure rules are inconsistently applied across sample firms, the audit fee variables will suffer from measurement error that could impact the results (Dickins and Higgs 2005).

The potential for audit fees to convey information about the client firm is a largely unexplored area. Therefore, a number of issues arise for future research consideration. For example, future research could extend the current study to alternative settings and seek more effective methods for extracting information from audit fee disclosures about the client firm’s

business risk. Additionally, future research could begin conducting more comprehensive analysis of how, if at all, market participants incorporate audit fee information into their assessments of the firm. To date, research has primarily focused on assessments of nonaudit fees, with only a small number of nonaudit fee studies devoting limited attention to audit fees (e.g., Frankel et al. 2002; Ashbaugh et al. 2003; Krishnan et al. 2005; Mishra et al. 2005).

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**Table 1**  
**Descriptive Statistics**

<b>Variable</b>	<b>n</b>	<b>Min.</b>	<b>Q1</b>	<b>Mean</b>	<b>Med.</b>	<b>SD</b>	<b>Q3</b>	<b>Max.</b>
<i>UNEXPFEET<sub>t</sub></i>	7,632	-1.646	-0.356	0.007	-0.004	0.541	0.366	1.508
<i>UNEXPFEETA<sub>t</sub></i>	5,028	-1.124	-0.224	0.005	-0.028	0.398	0.206	1.396
<i>ROA<sub>t+1</sub></i>	7,632	-8.503	-0.254	-0.229	-0.056	0.669	0.035	0.389
<i>ROA<sub>t</sub></i>	7,632	-10.672	-0.284	-0.278	-0.087	0.777	0.007	0.299
<i>ZFC<sub>t</sub></i>	7,632	-5.035	-3.300	-0.746	-2.178	6.305	-0.567	69.679
<i>logASSETS<sub>t</sub></i>	7,632	11.864	16.804	18.237	18.152	2.117	19.582	25.028
<i>RETURN<sub>t</sub></i>	7,632	-0.979	-0.544	0.150	-0.166	1.261	0.350	10.764
<i>VOLATLTY<sub>t</sub></i>	7,632	0.027	0.152	0.272	0.223	0.204	0.326	2.674
<i>GCO<sub>t</sub></i>	7,632	0.000	0.000	0.111	0.000	0.314	0.000	1.000
<i>LARGE<sub>t</sub></i>	7,632	0.000	0.000	0.505	1.000	0.500	1.000	1.000
<i>BIGN<sub>t</sub></i>	7,632	0.000	1.000	0.753	1.000	0.431	1.000	1.000
<i>LITIND<sub>t</sub></i>	7,632	0.000	0.000	0.492	0.000	0.500	1.000	1.000

This table reports descriptive statistics for the primary variables used in the analysis. The sample is comprised of all available distressed observations.

The variables are defined as follows:

- UNEXPFEET<sub>t</sub>* = the residual value from an audit fee determinants model (reported in Appendix A);
- UNEXPFEETA<sub>t</sub>* = the residual value from an audit fee change determinants model (reported in Appendix B);
- ROA<sub>t+1</sub>* = one-year-ahead *ROA<sub>t</sub>*;
- ROA<sub>t</sub>* = return on assets, measured as operating income after depreciation (#178) divided by beginning of period assets (#6);
- ZFC<sub>t</sub>* = Zmijewski's (1984) financial distress score;
- logASSETS<sub>t</sub>* = natural log of actual total assets (#6);

**Table 1 (continued)**

$RETURN_t$	=	stock return over current fiscal year; and
$VOLATLTY_t$	=	stock volatility, measured as the standard deviation of monthly stock returns over fiscal year.
$GCO_t$	=	indicator variable equal to one if the firm received a going concern audit opinion, otherwise zero;
$LARGE_t$	=	indicator variable equal to one if $logASSETS_t \geq$ sample median, otherwise zero;
$BIGN_t$	=	indicator variable equal to one if the auditor is a member of the Big5/4 (#149), otherwise zero; and
$LITIND_t$	=	indicator variable equal to one if client operates in a litigious industry identified by Francis et al. (1994) (biotech firms, SIC codes 2833-2836, 8731-8734; computers, SIC codes 3570-3577, 7370-7374; electronics, SIC codes 3600-3674; and retailing, SIC codes 5200-5961), otherwise zero.

**Table 2**  
**Correlations**

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) $ROA_{t+1}$		-0.06 ( $< 0.01$ )	0.68 ( $< 0.01$ )	-0.69 ( $< 0.01$ )	0.45 ( $< 0.01$ )	-0.04 ( $< 0.01$ )	-0.21 ( $< 0.01$ )	-0.32 ( $< 0.01$ )
(2) $UNEXPFEET_t$	-0.05 ( $< 0.01$ )		-0.04 ( $< 0.01$ )	0.01 (0.40)	0.00 (0.79)	0.00 (0.80)	0.00 (0.83)	0.01 (0.49)
(3) $ROA_t$	0.78 ( $< 0.01$ )	-0.07 ( $< 0.01$ )		-0.49 ( $< 0.01$ )	0.38 ( $< 0.01$ )	-0.09 ( $< 0.01$ )	-0.23 ( $< 0.01$ )	-0.26 ( $< 0.01$ )
(4) $ZFC_t$	-0.28 ( $< 0.01$ )	0.07 ( $< 0.01$ )	-0.34 ( $< 0.01$ )		-0.33 ( $< 0.01$ )	-0.03 ( $< 0.01$ )	0.20 ( $< 0.01$ )	0.36 ( $< 0.01$ )
(5) $\log ASSETS_t$	0.45 ( $< 0.01$ )	-0.02 (0.04)	0.51 ( $< 0.01$ )	-0.17 ( $< 0.01$ )		-0.07 ( $< 0.01$ )	-0.23 ( $< 0.01$ )	-0.31 ( $< 0.01$ )
(6) $RETURN_t$	0.16 ( $< 0.01$ )	-0.01 (0.55)	0.14 ( $< 0.01$ )	-0.21 ( $< 0.01$ )	-0.02 (0.09)		0.31 ( $< 0.01$ )	-0.04 ( $< 0.01$ )
(7) $VOLATLTY_t$	-0.31 ( $< 0.01$ )	0.03 (0.01)	-0.38 ( $< 0.01$ )	0.24 ( $< 0.01$ )	-0.27 ( $< 0.01$ )	-0.08 ( $< 0.01$ )		0.19 ( $< 0.01$ )
(8) $GCO_t$	-0.23 ( $< 0.01$ )	0.01 (0.36)	-0.25 ( $< 0.01$ )	0.31 ( $< 0.01$ )	-0.30 ( $< 0.01$ )	-0.11 ( $< 0.01$ )	0.20 ( $< 0.01$ )	

Pearson (Spearman) correlations based on 7,632 distressed firm-year observations are reported above (below) the diagonal. Two-tailed significance levels are reported in parentheses below the correlation coefficients.

The variables are defined as follows:

- $ROA_{t+1}$  = one-year-ahead  $ROA$ ;
- $UNEXPFEET_t$  = the residual value from an audit fee determinants model (reported in Appendix A);
- $ROA_t$  = return on assets, measured as operating income after depreciation (#178) divided by beginning of period assets (#6);
- $ZFC_t$  = Zmijewski's (1984) financial distress score;
- $\log ASSETS_t$  = natural log of actual total assets (#6);
- $RETURN_t$  = stock return over current fiscal year;
- $VOLATLTY_t$  = stock volatility, measured as the standard deviation of monthly stock returns over fiscal year; and
- $GCO_t$  = indicator variable equal to one if the firm received a going concern audit opinion, otherwise zero.

**Table 3**  
**Primary Regression Results**

Variable	Pred.	Coeff.	t-stat.	p-value
Intercept		-1.050	-10.766	< 0.001
$UNEXPFEET_t$	H: (-)	-0.052	-4.153	< 0.001
$ROA_t$	(+)	0.288	8.125	< 0.001
$ZFC_t$	(-)	-0.048	-10.743	< 0.001
$\log ASSETS_t$	(?)	0.052	13.340	< 0.001
$RETURN_t$	(+)	-0.003	-0.302	0.763
$VOLATLTY_t$	(-)	0.013	0.283	0.777
$GCO_t$	(-)	-0.049	-1.892	0.059

n = 7,632  
Adj. R<sup>2</sup> = 65.11%

This table reports the results of a regression model explaining  $ROA_{t+1}$ . The sample is comprised of all available distressed firm-year observations. Test statistics are based on coefficient standard errors that are heteroscedasticity-consistent and adjusted for residual correlation at the firm level. P-values denote two-tailed significance levels. Estimated coefficients for year (based on the five years covered by the analysis) and industry (based on 14 classifications) indicator variables are not reported.

The variables are defined as follows:

- $ROA_{t+1}$  = one-year-ahead  $ROA$ ;
- $UNEXPFEET_t$  = the residual value from an audit fee determinants model (reported in Appendix A);
- $ROA_t$  = return on assets, measured as operating income after depreciation (#178) divided by beginning of period assets (#6);
- $ZFC_t$  = Zmijewski's (1984) financial distress score;
- $\log ASSETS_t$  = natural log of actual total assets (#6);
- $RETURN_t$  = stock return over current fiscal year;
- $VOLATLTY_t$  = stock volatility, measured as the standard deviation of monthly stock returns over fiscal year; and
- $GCO_t$  = indicator variable equal to one if the firm received a going concern audit opinion, otherwise zero.

**Table 4**  
**Alternative Horizons**

Variable	Two-year Horizon				Three-year Horizon		
	Pred.	Coeff.	t-stat.	p-value	Coeff.	t-stat.	p-value
Intercept		-1.410	-9.553	< 0.001	-1.280	-8.742	< 0.001
$UNEXPFEET_t$	H: (-)	-0.024	-1.876	0.061	-0.003	-0.256	0.798
$ROA_t$	(+)	0.167	5.707	< 0.001	0.246	7.100	< 0.001
$ZFC_t$	(-)	-0.016	-4.734	< 0.001	-0.021	-5.366	< 0.001
$logASSETS_t$	(?)	0.069	12.237	< 0.001	0.057	11.575	< 0.001
$RETURN_t$	(+)	-0.006	-0.855	0.393	0.018	2.492	0.013
$VOLATLTY_t$	(-)	-0.015	-0.365	0.715	-0.026	-0.572	0.567
$GCO_t$	(-)	-0.109	-2.893	< 0.001	-0.073	-1.886	0.059
n		5,660			3,760		
Adj. R <sup>2</sup>		43.86%			39.18%		

This table reports the results of regression models explaining  $ROA_{t+2}$  and  $ROA_{t+3}$ . The sample is comprised of all available distressed firm-year observations. Test statistics are based on coefficient standard errors that are heteroscedasticity-consistent and adjusted for residual correlation at the firm level. P-values denote two-tailed significance levels. Estimated coefficients for year (based on the four years covered by the  $ROA_{t+2}$  analysis and the three years covered by the  $ROA_{t+3}$  analysis) and industry (based on 14 classifications) indicator variables are not reported.

The variables are defined as follows:

- $ROA_{t+2}$  = two-year-ahead  $ROA$ ;
- $ROA_{t+3}$  = three-year-ahead  $ROA$ ;
- $UNEXPFEET_t$  = the residual value from an audit fee determinants model (reported in Appendix A);
- $ROA_t$  = return on assets, measured as operating income after depreciation (#178) divided by beginning of period assets (#6);
- $ZFC_t$  = Zmijewski's (1984) financial distress score;
- $logASSETS_t$  = natural log of actual total assets (#6);
- $RETURN_t$  = stock return over current fiscal year;
- $VOLATLTY_t$  = stock volatility, measured as the standard deviation of monthly stock returns over fiscal year; and
- $GCO_t$  = indicator variable equal to one if the firm received a going concern audit opinion, otherwise zero.

**Table 5**  
**Unexpected Audit Fee Changes**

Variable	Pred.	Coeff.	t-stat.	p-value
Intercept		-0.951	-10.412	< 0.001
$UNEXPFEED_t$	H: (-)	-0.028	-2.125	0.034
$ROA_t$	(+)	0.305	6.342	< 0.001
$ZFC_t$	(-)	-0.045	-7.957	< 0.001
$\log ASSETS_t$	(?)	0.047	10.906	< 0.001
$RETURN_t$	(+)	-0.001	-0.204	0.839
$VOLATLTY_t$	(-)	-0.042	-0.784	0.433
$GCO_t$	(-)	-0.065	-2.272	0.023

n = 5,028  
Adj. R<sup>2</sup> = 66.10%

This table reports the results of a regression model explaining  $ROA_{t+1}$ . The sample is comprised of all available distressed firm-year observations. Test statistics are based on coefficient standard errors that are heteroscedasticity-consistent and adjusted for residual correlation at the firm level. P-values denote two-tailed significance levels. Estimated coefficients for year (based on the four years covered by the analysis) and industry (based on 14 classifications) indicator variables are not reported.

The variables are defined as follows:

- $ROA_{t+1}$  = owo-year-ahead  $ROA$ ;
- $UNEXPFEED_t$  = the residual value from an audit fee change determinants model (reported in Appendix B);
- $ROA_t$  = return on assets, measured as operating income after depreciation (#178) divided by beginning of period assets (#6);
- $ZFC_t$  = Zmijewski's (1984) financial distress score;
- $\log ASSETS_t$  = natural log of actual total assets (#6);
- $RETURN_t$  = stock return over current fiscal year;
- $VOLATLTY_t$  = stock volatility, measured as the standard deviation of monthly stock returns over fiscal year; and
- $GCO_t$  = indicator variable equal to one if the firm received a going concern audit opinion, otherwise zero.

**Table 6**  
**“Unexpectedly Low” Versus “Unexpectedly High” Audit Fees**

Variable	Pred.	Coeff.	t-stat.	p-value
Intercept		-1.045	-10.755	< 0.001
<i>UNEXPFEE_LOW<sub>t</sub></i>	H: (-)	-0.008	-0.313	0.754
<i>UNEXPFEE_HIGH<sub>t</sub></i>	H: (-)	-0.094	-4.791	< 0.001
<i>ROA<sub>t</sub></i>	(+)	0.288	8.116	< 0.001
<i>ZFC<sub>t</sub></i>	(-)	-0.048	-10.707	< 0.001
<i>logASSETS<sub>t</sub></i>	(?)	0.053	13.320	< 0.001
<i>RETURN<sub>t</sub></i>	(+)	-0.003	-0.299	0.765
<i>VOLATLTY<sub>t</sub></i>	(-)	0.015	0.311	0.756
<i>GCO<sub>t</sub></i>	(-)	-0.050	-1.894	0.058

n = 7,632  
Adj. R<sup>2</sup> = 65.14%

This table reports the results of a regression model explaining  $ROA_{t+1}$ . The sample is comprised of all available distressed firm-year observations. Test statistics are based on coefficient standard errors that are heteroscedasticity-consistent and adjusted for residual correlation at the firm level. P-values denote two-tailed significance levels. Estimated coefficients for year (based on the five years covered by the analysis) and industry (based on 14 classifications) indicator variables are not reported.

The variables are defined as follows:

- $ROA_{t+1}$  = one-year-ahead  $ROA$ ;
- $UNEXPFEE_t$  = the residual value from an audit fee determinants model (reported in Appendix A);
- $UNEXPFEE\_LOW_t$  =  $UNEXPFEE_t$  if  $UNEXPFEE_t < 0$ , otherwise zero;
- $UNEXPFEE\_HIGH_t$  =  $UNEXPFEE_t$  if  $UNEXPFEE_t \geq 0$ , otherwise zero;
- $ROA_t$  = return on assets, measured as operating income after depreciation (#178) divided by beginning of period assets (#6);
- $ZFC_t$  = Zmijewski's (1984) financial distress score;
- $logASSETS_t$  = natural log of actual total assets (#6);
- $RETURN_t$  = stock return over current fiscal year;
- $VOLATLTY_t$  = stock volatility, measured as the standard deviation of monthly stock returns over fiscal year; and
- $GCO_t$  = indicator variable equal to one if the firm received a going concern audit opinion, otherwise zero.

**Table 7**  
**Auditor Business Risk Interactions**

Variable	Client Size Interaction			Auditor Size Interaction			Litigation Risk Interaction			
	Pred.	Coeff.	t-stat.	p-value	Coeff.	t-stat.	p-value	Coeff.	t-stat.	p-value
Intercept		-1.315	-10.689	< 0.001	-1.087	-11.045	< 0.001	-1.062	-10.818	< 0.001
<i>UNEXPFEE<sub>t</sub></i>	H: (-)	-0.094	-3.791	< 0.001	-0.094	-2.632	< 0.001	-0.068	-4.123	< 0.001
<i>LARGE<sub>t</sub></i>	(?)	-0.092	-5.603	< 0.001						
<i>UNEXPFEE<sub>t</sub>*LARGE<sub>t</sub></i>	H: (-)	0.074	2.943	< 0.001						
<i>BIGN<sub>t</sub></i>	(?)				-0.038	-2.343	0.019			
<i>UNEXPFEE<sub>t</sub>*BIGN<sub>t</sub></i>	H: (-)				0.059	1.608	0.108			
<i>LITIND<sub>t</sub></i>	(?)									
<i>UNEXPFEE<sub>t</sub>*LITIND<sub>t</sub></i>	H: (-)							-0.045	-2.121	0.034
<i>ROA<sub>t</sub></i>	(+)	0.285	8.084	< 0.001	0.288	8.092	< 0.001	0.036	1.488	0.137
<i>ZFC<sub>t</sub></i>	(-)	-0.048	-10.716	< 0.001	-0.049	-10.786	< 0.001	0.287	8.110	< 0.001
<i>logASSETS<sub>t</sub></i>	(?)	0.070	11.124	< 0.001	0.056	13.182	< 0.001	-0.049	-10.748	< 0.001
<i>RETURN<sub>t</sub></i>	(+)	-0.004	-0.448	0.654	-0.003	-0.317	0.751	0.053	13.307	< 0.001
<i>VOLATLTY<sub>t</sub></i>	(-)	0.012	0.258	0.797	0.008	0.171	0.865	-0.003	-0.351	0.725
<i>GCO<sub>t</sub></i>	(-)	-0.051	-1.960	0.050	-0.051	-1.942	0.052	0.017	0.372	0.710
n		7,632			7,632			7,632		
Adj. R <sup>2</sup>		65.31%			65.18%			65.15%		

**Table 7 (continued)**

This table reports the results of a regression model explaining  $ROA_{i,t+1}$ . The sample is comprised of all available distressed firm-year observations. Test statistics are based on coefficient standard errors that are heteroscedasticity-consistent and adjusted for residual correlation at the firm level. P-values denote two-tailed significance levels. Estimated coefficients for year (based on the five years covered by the analysis) and industry (based on 14 classifications) indicator variables are not reported.

The variables are defined as follows:

$ROA_{i,t+1}$	=	one-year-ahead $ROA_i$ ;
$UNEXPFEET_i$	=	the residual value from an audit fee determinants model (reported in Appendix A);
$LARGE_i$	=	indicator variable equal to one if $\log ASSETS_i \geq$ sample median, otherwise zero;
$BIGN_i$	=	indicator variable equal to one if the auditor is a member of the Big5/4 (#149), otherwise zero;
$LITIND_i$	=	indicator variable equal to one if client operates in a litigious industry identified by Francis et al. (1994) (biotech firms, SIC codes 2833-2836, 8731-8734; computers, SIC codes 3570-3577, 7370-7374; electronics, SIC codes 3600-3674; and retailing, SIC codes 5200-5961), otherwise zero;
$ROA_i$	=	return on assets, measured as operating income after depreciation (#178) divided by beginning of period assets (#6);
$ZFC_i$	=	Zmijewski's (1984) financial distress score;
$\log ASSETS_i$	=	natural log of actual total assets (#6);
$RETURN_i$	=	stock return over current fiscal year;
$VOLATLTY_i$	=	stock volatility, measured as the standard deviation of monthly stock returns over fiscal year; and
$GCO_i$	=	indicator variable equal to one if the firm received a going concern audit opinion, otherwise zero.

**Table 8**  
**Client Firm Size Effects**

	<b>Test 1</b>				<b>Test 2</b>			
	Regression of future <i>changes</i> in ROA on unexpected audit fees				Regression of future ROA on unexpected audit fees estimated separately for large and small client firms			
<b>Variable</b>	<b>Pred.</b>	<b>Coeff.</b>	<b>t-stat.</b>	<b>p-value</b>	<b>Coeff.</b>	<b>t-stat.</b>	<b>p-value</b>	<b>p-value</b>
Intercept		-0.812	-11.570	< 0.001	-1.050	-10.770	< 0.001	
<i>UNEXPFEET<sub>t</sub></i>	H: (-)	-0.047	-5.070	< 0.001	-0.051	-4.150	< 0.001	
<i>Alt_UNEXPFEET<sub>t</sub></i>	H: (-)				0.288	8.130	< 0.001	
<i>ROA<sub>t</sub></i>	(-/+)	-0.652	-21.250	< 0.001	-0.048	-10.740	< 0.001	
<i>ROAA<sub>t</sub></i>	(+)	0.000	0.010	0.992	0.052	13.340	< 0.001	
<i>ZFC<sub>t</sub></i>	(-)	-0.036	-11.660	< 0.001	-0.003	-0.300	0.763	
<i>logASSETS<sub>t</sub></i>	(?)	0.043	14.240	< 0.001	0.013	0.280	0.777	
<i>RETURN<sub>t</sub></i>	(+)	-0.003	-0.440	0.659	-0.049	-1.890	0.059	
<i>VOLATLTY<sub>t</sub></i>	(-)	-0.010	-0.260	0.792				
<i>GCO<sub>t</sub></i>	(-)	-0.052	-2.360	0.019				
n		7,470			7,632			
Adj. R <sup>2</sup>		55.89%			65.11%			

**Table 8 (continued)**

This table reports the results of two tests designed to assess the potential for spurious inferences caused by client firm size effects. Test 1 estimates a regression model explaining  $ROA_{t+1}$ . Test 2 estimates a regression model explaining  $ROA_{t+1}$ . The sample is comprised of all available distressed firm-year observations. Test statistics are based on coefficient standard errors that are heteroscedasticity-consistent and adjusted for residual correlation at the firm level. P-values denote two-tailed significance levels. Estimated coefficients for year (based on the five years covered by the analysis) and industry (based on 14 classifications) indicator variables are not reported.

The variables are defined as follows:

$ROA_{t+1}$	=	one-year-ahead $ROA$ ;
$ROA_t$	=	return on assets, measured as operating income after depreciation (#178) divided by beginning of period assets (#6);
$ROAA_{t+1}$	=	$ROA_{t+1} - ROA_t$ ;
$ROAA_t$	=	$ROA_t - ROA_{t-1}$ ;
$UNEXPFEET_t$	=	the residual value from an audit fee determinants model (reported in Appendix A);
$Alt\_UNEXPFEET_t$	=	the residual value from an audit fee determinants model (reported in Appendix A) estimated separately for large and small client firms;
$ZFC_t$	=	Zmijewski's (1984) financial distress score;
$logASSETS_t$	=	natural log of actual total assets (#6);
$RETURN_t$	=	stock return over current fiscal year;
$VOLATLTY_t$	=	stock volatility, measured as the standard deviation of monthly stock returns over fiscal year; and
$GCO_t$	=	indicator variable equal to one if the firm received a going concern audit opinion, otherwise zero.

**Appendix A**  
**Estimation of Audit Fee Model**

Variable	Pred.	2000			2001			2002			2003			2004		
		Coeff.	t	p	Coeff.	t	p	Coeff.	t	p	Coeff.	t	p	Coeff.	t	p
Intercept		3.21	10.04	< 0.01	3.37	17.13	< 0.01	3.17	15.21	< 0.01	3.65	16.69	< 0.01	2.51	8.32	< 0.01
<i>logASSETS<sub>t</sub></i>	(+)	0.43	31.84	< 0.01	0.43	52.53	< 0.01	0.45	50.59	< 0.01	0.43	45.30	< 0.01	0.49	38.74	< 0.01
<i>INVREC<sub>t</sub></i>	(+)	0.50	4.69	< 0.01	0.45	6.89	< 0.01	0.37	5.05	< 0.01	0.30	3.93	< 0.01	0.19	2.10	0.04
<i>SEGS<sub>t</sub></i>	(+)	0.06	4.25	< 0.01	0.07	7.65	< 0.01	0.07	6.39	< 0.01	0.08	6.77	< 0.01	0.05	3.75	< 0.01
<i>FOREIGN<sub>t</sub></i>	(+)	0.27	6.20	< 0.01	0.19	6.95	< 0.01	0.20	6.42	< 0.01	0.21	6.42	< 0.01	0.25	6.18	< 0.01
<i>LAG<sub>t</sub></i>	(+)	0.00	4.86	< 0.01	0.00	6.57	< 0.01	0.00	7.34	< 0.01	0.00	3.62	< 0.01	0.00	0.95	0.34
<i>GROWTH<sub>t</sub></i>	(+)	0.00	-0.08	0.94	-0.02	-1.74	0.08	0.01	0.35	0.73	-0.03	-2.15	0.03	-0.01	-1.17	0.24
<i>MERGER<sub>t</sub></i>	(+)	-0.03	-0.71	0.48	0.01	0.36	0.72	0.02	0.47	0.64	0.09	1.93	0.05	0.07	1.28	0.20
<i>SPECIAL<sub>t</sub></i>	(+)	0.50	4.46	< 0.01	0.01	0.23	0.82	0.27	3.54	< 0.01	0.17	1.35	0.18	0.32	1.88	0.06
<i>BIGN<sub>t</sub></i>	(+)	0.14	1.95	0.05	0.21	6.03	< 0.01	0.30	7.93	< 0.01	0.38	9.72	< 0.01	0.51	10.40	< 0.01
<i>INITIALYR<sub>t</sub></i>	(-)	0.06	1.04	0.30	0.01	0.46	0.65	-0.03	-1.15	0.25	0.05	1.45	0.15	0.15	3.16	< 0.01
<i>GCO<sub>t</sub></i>	(+)	0.16	2.19	0.03	0.13	3.35	< 0.01	0.04	0.97	0.33	0.11	2.08	0.04	0.11	2.09	0.04
<i>ZFC<sub>t</sub></i>	(+)	0.02	2.85	< 0.01	0.02	4.94	< 0.01	0.02	6.98	< 0.01	0.02	7.71	< 0.01	0.02	5.15	< 0.01
<i>BTM<sub>t</sub></i>	(-)	-0.03	-2.20	0.03	-0.02	-3.30	< 0.01	-0.01	-2.49	0.01	-0.01	-1.61	0.11	-0.02	-1.64	0.10
<i>IPO<sub>t</sub></i>	(+)	-0.03	-0.47	0.64	0.07	1.03	0.30	-0.01	-0.16	0.88	-0.09	-0.89	0.37	-0.13	-0.94	0.35
<i>RETURN<sub>t</sub></i>	(-)	-0.08	-2.88	< 0.01	-0.01	-0.61	0.54	-0.04	-1.59	0.11	0.01	1.47	0.14	-0.07	-3.57	< 0.01
<i>VOLATLTY<sub>t</sub></i>	(+)	0.19	1.76	0.08	0.52	6.85	< 0.01	0.37	4.26	< 0.01	0.11	1.99	0.05	0.25	1.84	0.07
n		952			2,116			2,072			1,796			1,450		
Adj. R <sup>2</sup>		67.61%			73.02%			75.28%			75.28%			76.93%		
Model F		71.88 (p < 0.0001)			205.40 (p < 0.0001)			226.21 (p < 0.0001)			196.25 (p < 0.0001)			173.53 (p < 0.0001)		

## Appendix A (continued)

This table reports the OLS estimation results for a cross-sectional audit fee determinants model explaining  $\log AUDITFEE_{it}$ . The regression is estimated by year using all available distressed observations. Estimated coefficients for industry (based on 14 classifications) indicator variables are not reported. P-values denote two-tailed significance levels.

The variables are defined as follows:

$\log AUDITFEE_{it}$	=	natural log of actual audit fee;
$UNEXPFE_{it}$	=	the residual value from an audit fee determinants model (reported in Panel A);
$\log ASSETS_{it}$	=	natural log of actual total assets (#6);
$INVREC_{it}$	=	total inventory (#3) plus total accounts receivable (#2) divided by total assets (#6);
$SEGS_{it}$	=	total number of Compustat business segments;
$FOREIGN_{it}$	=	indicator variable equal to one if the firm has foreign operations (#150), otherwise zero;
$LAG_{it}$	=	number of days between current fiscal year-end and Compustat quarterly earnings announcement date;
$GROWTH_{it}$	=	one-year sales (#12) growth rate;
$MERGER_{it}$	=	indicator variable equal to one if the firm was involved in merger activity during fiscal year (footnote code #1), otherwise zero;
$SPECIAL_{it}$	=	absolute value of negative special items (#17) divided by total assets (#6), otherwise zero;
$BIGN_{it}$	=	indicator variable equal to one if the auditor is a member of the Big5/4 (#149), otherwise zero;
$INITIALYR_{it}$	=	indicator variable equal to one if the length of the auditor-client relationship is less than or equal to two years (#149), otherwise zero;
$GCO_{it}$	=	indicator variable equal to one if the firm received a going concern audit opinion, otherwise zero;
$ZFC_{it}$	=	Zmijewski's (1984) financial distress score;
$BTM_{it}$	=	book-to-market ratio as of the end of the current fiscal year;
$IPO_{it}$	=	indicator variable equal to one if the firm had an IPO over the previous three years, measured as less than or equal to three years of total assets (#6) reported by Compustat, otherwise zero;
$RETURN_{it}$	=	stock return over current fiscal year; and
$VOLATLTY_{it}$	=	stock volatility, measured as the standard deviation of monthly stock returns over fiscal year.

**Appendix B**  
**Estimation of Audit Fee Changes Model**

Variable	Pred.	2001			2002			2003			2004		
		Coeff.	t	p	Coeff.	t	p	Coeff.	t	p	Coeff.	t	p
Intercept		0.15	11.41	<0.01	0.25	20.66	<0.01	0.17	13.74	<0.01	0.41	24.01	<0.01
<i>logASSETS<sub>t</sub></i>	(+)	0.22	5.79	<0.01	0.29	9.79	<0.01	0.23	8.35	<0.01	0.17	4.55	<0.01
<i>INVRECA<sub>t</sub></i>	(+)	0.49	3.25	<0.01	-0.07	-0.57	0.57	0.10	0.88	0.38	0.08	0.45	0.65
<i>SEGS<sub>t</sub></i>	(+)	0.06	3.20	<0.01	-0.01	-0.72	0.47	0.05	2.47	0.01	0.00	0.11	0.91
<i>FOREIGNA<sub>t</sub></i>	(+)	0.00	0.10	0.92	0.05	1.26	0.21	0.04	1.04	0.30	0.07	1.27	0.21
<i>LAGA<sub>t</sub></i>	(+)	0.00	3.06	<0.01	0.00	6.72	<0.01	0.00	4.50	<0.01	0.00	5.36	<0.01
<i>GROWTH<sub>t</sub></i>	(+)	0.00	0.50	0.62	0.01	0.72	0.47	-0.01	-0.91	0.36	0.01	0.68	0.50
<i>MERGERA<sub>t</sub></i>	(+)	0.01	0.56	0.57	0.01	0.25	0.80	0.07	2.81	<0.01	0.08	2.21	0.03
<i>SPECIALA<sub>t</sub></i>	(+)	0.12	2.18	0.03	0.06	1.63	0.10	0.15	2.87	<0.01	0.12	1.03	0.30
<i>BIGNA<sub>t</sub></i>	(+)	0.03	0.35	0.72	0.28	6.52	<0.01	0.28	6.13	<0.01	0.27	4.81	<0.01
<i>INITIALYRA<sub>t</sub></i>	(-)	-0.05	-1.35	0.18	0.03	1.16	0.25	-0.03	-1.24	0.22	-0.07	-2.10	0.04
<i>GCOA<sub>t</sub></i>	(+)	-0.01	-0.31	0.76	-0.01	-0.42	0.68	-0.06	-1.81	0.07	0.05	1.13	0.26
<i>ZFCA<sub>t</sub></i>	(+)	0.01	1.45	0.15	0.01	1.91	0.06	0.01	2.52	0.01	0.01	3.62	<0.01
<i>BTMA<sub>t</sub></i>	(-)	0.01	0.71	0.48	-0.01	-2.55	0.01	0.00	0.28	0.78	0.02	1.44	0.15
<i>IPOA<sub>t</sub></i>	(+)	-0.04	-1.02	0.31	0.06	0.97	0.33	0.10	1.19	0.24	0.37	3.02	<0.01
<i>RETURNA<sub>t</sub></i>	(-)	-0.01	-0.69	0.49	-0.03	-2.57	0.01	0.00	-0.03	0.97	-0.01	-1.42	0.15
<i>VOLATLYA<sub>t</sub></i>	(+)	0.00	-0.01	0.99	0.13	2.37	0.02	-0.13	-2.63	<0.01	0.15	2.38	0.02
n		903			1,678			1,586			1,324		
Adj. R <sup>2</sup>		7.37%			12.69%			12.39%			8.24%		
Model F		5.49 (p < 0.0001)			16.23 (p < 0.0001)			15.01 (p < 0.0001)			8.42 (p < 0.0001)		

## Appendix B (continued)

This table reports the OLS estimation results for a cross-sectional audit fee determinants model explaining  $\log AUDITFEE_{i,t}$ . The regression is estimated by year using all available distressed observations. P-values denote two-tailed significance levels.

The variables are defined as follows:

$\log AUDITFEE_{i,t}$	=	$\log AUDITFEE_{i,t} - \log AUDITFEE_{t-1}$ , where $\log AUDITFEE$ equals the natural log of actual audit fee;
$UNEXPFE_{i,t}$	=	$UNEXPFE_{i,t} - UNEXPFE_{t-1}$ , where $UNEXPFE$ equals the residual value from an audit fee determinants model (reported in Appendix A);
$\log ASSETS_{i,t}$	=	$\log ASSETS_{i,t} - \log ASSETS_{t-1}$ , where $\log ASSETS$ equals the natural log of actual total assets (#6);
$INVREC_{i,t}$	=	$INVREC_{i,t} - INVREC_{t-1}$ , where $INVREC$ equals total inventory (#3) plus total accounts receivable (#2) divided by total assets (#6);
$SEGS_{i,t}$	=	$SEGS_{i,t} - SEGS_{t-1}$ , where $SEGS$ equals the total number of Compustat business segments;
$FOREIGN_{i,t}$	=	$FOREIGN_{i,t} - FOREIGN_{t-1}$ , where $FOREIGN$ is an indicator variable equal to one if the firm has foreign operations (#150), otherwise zero;
$LAG_{i,t}$	=	$LAG_{i,t} - LAG_{t-1}$ , where $LAG$ equals the number of days between current fiscal year-end and Compustat quarterly earnings announcement date;
$GROWTH_{i,t}$	=	$GROWTH_{i,t} - GROWTH_{t-1}$ , where $GROWTH$ equals the one-year sales (#12) growth rate;
$MERGER_{i,t}$	=	$MERGER_{i,t} - MERGER_{t-1}$ , where $MERGER$ is an indicator variable equal to one if the firm was involved in merger activity during fiscal year (footnote code #1), otherwise zero;
$SPECIAL_{i,t}$	=	$SPECIAL_{i,t} - SPECIAL_{t-1}$ , where $SPECIAL$ equals the absolute value of negative special items (#17) divided by total assets (#6), otherwise zero;
$BIGN_{i,t}$	=	$BIGN_{i,t} - BIGN_{t-1}$ , where $BIGN$ is an indicator variable equal to one if the auditor is a member of the Big5/4 (#149), otherwise zero;
$INITIALYR_{i,t}$	=	$INITIALYR_{i,t} - INITIALYR_{t-1}$ , where $INITIALYR$ is an indicator variable equal to one if the length of the auditor-client relationship is less than or equal to two years (#149), otherwise zero;
$GCO_{i,t}$	=	$GCO_{i,t} - GCO_{t-1}$ , where $GCO$ is an indicator variable equal to one if the firm received a going concern audit opinion, otherwise zero;
$ZFC_{i,t}$	=	$ZFC_{i,t} - ZFC_{t-1}$ , where $ZFC$ equals Zmijewski's (1984) financial distress score;
$BTM_{i,t}$	=	$BTM_{i,t} - BTM_{t-1}$ , where $BTM$ equals the book-to-market ratio as of the end of the current fiscal year;
$IPO_{i,t}$	=	$IPO_{i,t} - IPO_{t-1}$ , where $IPO$ is an indicator variable equal to one if the firm had an IPO over the previous three years, measured as less than or equal to three years of total assets (#6) reported by Compustat, otherwise zero;
$RETURN_{i,t}$	=	$RETURN_{i,t} - RETURN_{t-1}$ , where $RETURN$ equals the stock return over the current fiscal year; and
$VOLATLTY_{i,t}$	=	$VOLATLTY_{i,t} - VOLATLTY_{t-1}$ , where $VOLATLTY$ equals stock volatility, measured as the standard deviation of monthly stock returns over fiscal year.