

**RECONCILING ARCHIVAL AND EXPERIMENTAL RESEARCH:
DOES INTERNAL AUDIT CONTRIBUTION AFFECT THE EXTERNAL AUDIT FEE?**

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ABSTRACT: Consistent with guidelines from external auditing standards, a large body of experimental and survey research suggests that an internal audit function (IAF) can contribute in ways that lead to decreased external audit fees; however, research using archival methodologies finds either no relation or a positive relation between proxies for IAF contribution and external audit fees. In this paper, we provide new evidence using a unique and previously unavailable data set to develop archival proxies of internal audit quality based on SAS No. 65. We find that SAS No. 65-based proxies for the contribution of internal audit are associated with lower unexpected external audit fees. We also reconcile the findings of experimental and survey-based studies with archival studies in this area and show that proxies for the contribution of internal auditing used in prior archival studies are limited by their inability to capture IAF quality as an important aspect of the IAF's contribution. In addition, our results suggest that fee reductions are more strongly associated with the direct assistance of, than with reliance on work previously performed by, the internal auditor. Overall, our results provide evidence consistent with external auditing standards and with results from experimental and survey research suggesting that IAFs can indeed contribute in ways that lead to lower external audit fees.

Key Words: Internal Audit Function, Internal Audit Costs, Internal Audit Quality, External Audit Fee, SAS No. 65, and AS 5

Data Availability: Contact the authors. Data provided by the Institute of Internal Auditors are subject to restrictions.

INTRODUCTION

This paper examines the relation between the internal audit function (IAF) and external audit fees, an area that has been studied previously with various methodologies that provide apparently conflicting results. While experimental and survey research consistently have found evidence of a negative relation between measures of internal audit contribution and external audit fees, past archival research typically has documented either no relation or a positive relation between the two. While it has provided important insights, prior archival research examining the relation between internal auditing and external audit fees has been limited by the unavailability of detailed data about IAFs. In the absence of more direct measures of internal auditors' contributions to the external audit, prior archival research typically has used proxies relating to IAF size, which likely captures host companies' overall demand for auditing but not necessarily the contribution of the IAF with respect to the external audit. Benefitting from previously unavailable data, this study examines the internal audit/external audit fee relation using direct measures of the time internal auditors work as assistants to external auditors and the time internal auditors spend performing tasks upon which the external auditor are likely to rely.

Understanding the association between internal audit quality and external audit fees is important because this is an economically important relationship that could be facilitated by deeper understanding of the role of the parties involved. External auditing standards permit external auditors to rely on the work of internal auditors in performing a financial statement audit to the extent that the internal auditors are competent, objective, and perform work that is relevant to the external audit (AICPA 1997, PCAOB 2007). In defining work that is relevant to the external audit, the standards allow the external auditor to either use internal auditors as assistants or for the external auditors to rely on work previously performed by the IAF. We assume that in

a competitive market, a portion of any reduced external audit costs attributable to reliance on the IAF will pass to the client in the form of lower external audit fees.¹ As mentioned, research using surveys and experiments has consistently provided results that support this expectation, but previous archival research has not. These conflicting results have led a number of researchers to call for additional work in the area (e.g., Felix et al. 1998; Hay et al. 2006). Our purpose is to attempt to reconcile findings from the experimental and archival studies in this area.

A review of prior archival studies reveals that the measures used to capture the contribution of the IAF largely relate to the size of the IAF, which we argue is more closely related to the overall demand of the organization for auditing than to the contribution the IAF can make to the external audit. Using a unique and previously unavailable archive of internal audit data, we examine whether proxies that are more closely relate to external auditing standards are associated with lower external audit fees.

Our analysis is based on a combination of data gathered by the Institute of Internal Auditors (IIA) in its 2001 through 2006 annual surveys of IAFs and data available on Compustat and Audit Analytics.² Our primary sample includes 232 companies (572 firm-year responses) in 47 different two-digit SIC code industries and includes auditors from all of the then Big 5 accounting firms. To proxy for how the work the IAF performs may impact external audit fees, we use two measures specified in SAS No. 65: the time internal auditors spend providing direct assistance to the external auditor and the time internal auditors spend performing financial audit

¹ Felix et al. (1998) report survey evidence indicating that the foremost reason external auditors rely on the work of an IAF is to decrease costs and that external auditors typically do not obtain a higher realization rate as a result of the cost savings. In addition, prior research by Doogar and Easley (1998) and by the GAO (GAO 2003, 2008) provides evidence that the market for audits of publicly traded companies is competitive; thus, it is highly likely that at least some cost savings realized by external auditors due to reliance on the IAF are passed on to clients in the form of lower external audit fees. However, if this is not the case, it likely biases against our finding any results.

² Until recently, data from the IIA database was not made available for research and is currently available on a limited basis. The 2001 through 2006 annual surveys are related to the 2000 through 2005 fiscal years, respectively. Henceforth, we refer to fiscal years rather than survey years.

related tasks upon which the external auditor may later rely. We then relate these measures to an unexpected external audit fee dependent measure (e.g., see DeFond et al. 2002). The unexpected external audit fee measure is the residual of a regression that uses known determinants of external audit fees for the entire Compustat and Audit Analytics databases. By using a larger dataset and the two-step process of creating unexpected external audit fees, we are able to control for multiple possible determinants of external audit fees from the audit-fee literature in the first step while retaining sufficient power to detect a relation between IAF quality and external audit fees in the second step.³

Consistent with prior experimental and survey studies, we find that IAFs that spend more time *directly assisting* the external auditor are associated with lower external audit fees. Interestingly, we do not find evidence that external auditors reduce fees based on work *previously performed* by the IAF. We also find that the time spent assisting the external auditor has a greater negative effect on external audit fees than the time spent performing tasks upon which the auditor may rely but that are not performed as direct assistance to the external audit.

Our results also show that previous proxies used to measure this relation are either not associated or negatively associated with our direct measures of how the IAF can contribute to the external audit and are highly positively associated with the size and the complexity of the organization. Thus, we conclude the disparate experimental and archival results are attributable to issues surrounding the construct validity of measures used in previous archival studies, and

³ In creating the unexpected external audit fee we include 21 independent variables together with 47 industry indicators. Since we have 572 observations with internal audit data, including such a large number of variables in the same regression would result in greatly diminished power to detect a relation between the dependent and independent variables. Rather than trying to subjectively choose variables to include in a single analysis, we are better able to control for potential correlated omitted variables using the unexpected external audit fee model approach.

that when measures used in experimental studies are employed in archival tests, the archival results are consistent with experimental findings.

BACKGROUND AND EXPECTATIONS

Internal auditors serve a valuable role as internal, full-time monitors of their employing organization. They are a critical component of high quality corporate governance (IIA 2005) and serve to mitigate earnings management (Prawitt, Smith, and Wood 2009), earnings manipulation (Prawitt, Sharp, and Wood 2009), fraud (Beasley et al. 2000; Coram et al. 2008), and internal control problems (Krishnan 2005). Given the important role internal auditing can play in monitoring organizations, external auditing standards permit the external auditor to use internal auditors as assistants in performing the external audit and to rely on work previously completed by the internal audit function to reduce the amount of additional evidence the external auditor must obtain to issue an opinion on a company's financial statements (SAS No. 65, AS 5).

AS 5 (SAS No. 65) provides instruction to external auditors of public (private) companies for evaluating the IAF in a financial statement audit. The more recently passed AS 5 does not differ significantly from SAS No. 65 in these respects, but instead retains the framework introduced in SAS No. 65, with some clarifications, as the basis for how external auditors should evaluate the IAF. As stated in the introduction, SAS No. 65 allows external auditors to (1) use internal auditors as direct assistants when performing the external audit and (2) use work previously performed by the IAF. In order to use internal auditors as direct assistants or use work the IAF previously performed, the standard requires the external auditor to first assess the competence and objectivity of the internal auditors.

Reliance on the work of internal auditors can reduce costs to the external auditor by substituting the time and effort of the internal auditor for that of the external auditor.⁴ These cost savings are either captured by the external auditor or passed on to the client in the form of lower external audit fees. We assume that the audit market is sufficiently competitive that at least a portion of these cost savings will pass to the client in the form of lower external audit fees (see footnote 1). Thus, consistent with the findings of prior experimental research, we expect that reliance by the external auditor on the IAF will be associated with lower external audit fees. We note that if the market is not sufficiently competitive, this would bias against finding results.

A considerable amount of experimental and survey research has been conducted to determine whether external auditors rely on the work of the IAF and if external auditors increase their reliance depending on the competence, objectivity, and relevance of work performed by internal auditors (for an excellent review of this research see Gramling et al. 2004). This body of research is nearly unanimous in finding that external auditors do increase reliance on the work of the IAF as measures indicating the potential for the IAF to contribute increase (e.g., see DeZoort, et al. 2001).⁵ The results of these studies differ in ranking the importance of the three factors specified by SAS No. 65, but taken together they demonstrate that external auditors are willing to rely on the work of a competent, objective IAF.⁶

⁴ It is possible that external auditors do not perform less testing if they choose to rely on the work of the internal auditor. The external auditor may perform the same amount of testing, but just test different areas resulting in better overall audit coverage but similar costs to the external auditor (and thus the external audit fee). In addition, the external auditor may have to employ greater resources of managers and partners to review/supervise work of internal auditors and thus no cost efficiencies would be realized. While these are both possibilities, they do not confound the results of this study but instead only function to bias against finding any results.

⁵ The experimental research generally focuses on whether IAF quality attributes affect external auditor reliance on the IAF—assuming that an increase in reliance will reduce external audit fees. Other experiments (e.g., DeZoort, et al. 2001) link IAF quality attributes directly to estimated audit fees.

⁶ Krishnamoorthy (2002) demonstrates analytically that no one factor dominates in all situations; thus, examining all three factors together is important when examining the reliance decision.

Complementing the findings of the experimental research, three prior studies combine archival and survey data to examine the relation between degree of reliance on the IAF and the external audit fee (Felix et al. 2001; Stein et al. 1994; Palmrose 1986). These studies use archival data to measure control variables and survey or experimental case responses to measure level of reliance on the IAF.⁷ Consistent with the experimental results discussed above, Palmrose (1986) and Felix et al. (2001) find that reliance measures reported by external auditors are significantly negatively related to external audit fees. However, Stein et al. (1994) do not find that external audit fees are related to the study's reliance measure (also reported by the external auditors).

While extant experimental and survey-based studies provide consistent evidence that (1) external auditors use the characteristics specified in auditing standards when making the IAF reliance decision and (2) this reliance results in lower external audit fees, the archival evidence examining the relation between various IAF proxies and external audit fees generally finds either a *positive* relation or no significant relation. Hay et al. (2006) conduct a meta-analysis of 147 separate audit fee analyses, including 11 archival analyses that examined proxies for the relation between the IAF and the external audit fee, and find an overall insignificant effect between the IAF and external audit fees. In addition, we identified four analyses not considered by Hay et al. (2006) that examine the relation between the IAF and the external audit fee (Goodwin-Stewart and Kent 2006; Ettredge et al. 2000; Gist 1992; Chung and Lindsay 1988). Of these 15 analyses, only one finds evidence consistent with the experimental and survey-based research (i.e., high

⁷ For purposes of this paper, we refer to survey research as research that uses a survey instrument to solicit subjective responses. For example, the measure used by Felix et al. (2001) to capture internal audit quality is the external auditor's estimate of the "percentage of the financial statement audit performed" by the internal audit function. Palmrose (1986) asked respondents to estimate the "percentage reduction in audit fees from auditee inputs" as the measure of internal audit contribution. Stein et al. (1994) asked respondents whether internal audit assistance was "extensive," "moderate," "limited," or "none." The IIA GAIN survey solicits objective reporting values (e.g., number of internal auditors holding a professional certification) as opposed to subjective estimates.

quality IAFs result in lower external audit fees—Wallace 1984).⁸ Four find evidence opposite that of the experimental/survey studies—that is, these studies find a significantly *positive* relation between internal audit and external audit fees (Goodwin-Stewart and Kent 2006; Adams et al. 1997; Deis and Giroux 1996; and Anderson and Zéghal 1994), and the remaining ten identify no significant relation (Willekens and Achmadi 2003; Ezzamel et al. 2002; Ahmed 2000; Ettredge et al. 2000; Anderson and Zéghal 1994; Gerrard et al. 1994; Gist 1992; Raman and Wilson 1992; Chung and Lindsay 1988).

In sum, the behavioral and survey research consistently produces findings suggesting that external auditors rely on the IAF and that organizations experience lower external audit fees because of this reliance. Archival research, on the other hand, has produced very little evidence consistent with this relation. We argue that the inconsistent and sometimes conflicting results from prior studies across methodologies suggest the need for a reconciliation of the differences between the two. Indeed, Hay et al. (2006) comment that the inability of prior research to document a negative relationship between internal auditing and the external audit fee represents an unexplained anomaly and call for more research to examine this issue.⁹

We posit that one of the chief reasons for the lack of consistent results across methodologies in the previous literature is unavailability of strong proxies for archival studies to measure the contribution of the IAF with respect to the external audit. While external auditing standards specify that external auditors can use internal auditors as assistants or rely on their prior completed work once objectivity and competence have been established, previous archival

⁸ Although the Wallace (1984) study found a significant negative relation, the results are based on an author-selected sample of 32 companies, significantly reducing the generalizability of the study's results.

⁹ Hay et al. (2006) are not the only ones to call for more research on this area. Felix et al. (1998) extensively discuss the relation between the IAF and the external audit fee and call for future studies to improve the proxies for IAF contribution to the external audit fee. In addition, most of the archival studies that find inconclusive results acknowledge that their particular proxies for IAF contribution are crude and suggest that future studies examine the relation between the IAF and the external audit fee using more refined proxies.

studies generally have only been able to measure internal audit contribution using crude proxies that relate to the size of the IAF.¹⁰ These measures do not necessarily capture the situations where the external auditors may rely on the IAF and therefore are unlikely to capture the relation between the contribution of the internal auditors to the external audit and external audit fees. We therefore reexamine this relation using improved proxies based on newly available data. We discuss separately our expectations in relation to the two ways internal auditors can make a contribution to the external audit (1) by acting as assistants and (2) by performing work that the external auditor later relies upon.

Using Internal Auditors as Assistants

SAS No. 65 provides explicit guidance about how the external auditor can use internal auditors as direct assistants. The standard permits the external auditor to request the internal auditors to perform some aspect of the external auditor's work (par. 27). The standard further indicates that "internal auditors may assist the auditor in obtaining an understanding of internal control or in performing tests of controls or substantive tests" (par. 27). Although the internal auditor can work as a direct assistant, the external auditor is still required to supervise, review, evaluate, and test the work performed by the internal auditors to the extent appropriate in the circumstances (par. 27).

To the degree the oversight of internal auditors working as direct assistants is less costly for the external auditor than having additional external auditors perform the work, cost savings

¹⁰ We do not mean to criticize prior researchers' attempts to examine this question. United States financial reporting standards do not require companies to disclose information about their IAF, making it extremely difficult for researchers to use archival methodologies to examine the impact of the IAF on the external audit fee. Without readily available data, archival researchers examining internal audit issues have had little choice but to employ relatively crude proxies to measure the contribution of the IAF from the perspective of the external audit. Previous measures used in archival studies include total internal audit expenditures (Adams et al. 1997; Raman and Wilson 1992; Wallace 1984), ratio of internal audit payroll costs to assets (Anderson and Zéghal 1994 ; Gist 1992; Chung and Lindsay 1988), presence versus absence of an IAF (Willekens and Achmadi 2003; Ezzamel et al. 2002), number of internal auditors (Goodwin-Stewart and Kent 2006; Gerrard et al. 1994), and whether the external auditors reported a weakness in internal control (Deis and Giroux 1996).

should be realized. As previously argued, we believe some of these cost savings will be transferred to the audited organization through lower fees. This leads to our first hypothesis:

H1 – The time internal auditors devote to helping external auditors as assistants in performing the external audit is associated with lower external audit fees.

Using Work Previously Performed by the IAF

External auditing standards also permit the external auditor to rely on work performed by internal auditors that is not done as direct assistance to the external audit. Internal auditors perform a variety of audit work throughout the year and some of this work may provide evidence that is relevant to the external audit. The work of the IAF can affect auditors' risk of material misstatement at the financial-statement level or the account-balance or class-of-transaction level (SAS No. 65). The work of the IAF can also directly influence substantive procedures if the internal auditors, for example, confirm certain accounts receivable or observe certain physical inventories" (par. 17).

Similar to our prediction in H1, we expect that if the external auditor is able to reduce testing because of reliance on work previously performed by the IAF, cost savings should be realized, and some of these savings will be transferred to the audited firm in the form of lower external audit fees. Stated formally, we expect the following:

H2 – The time internal auditors devote, in the course of their work, to tasks of a financial nature is associated with lower external audit fees.

Given that both working as an assistant to the external auditor and performing work relevant to the external audit have the potential to reduce external audit fees, it is an interesting question to test whether one of these approaches reduces external audit fees to a greater extent than the other. SAS No. 65 states that although external auditors may use work previously performed by the IAF, the external auditor is still required to "obtain sufficient, competent,

evidential matter to support the auditor's report" (par. 18) and the external auditor's direct personal knowledge "is generally more persuasive than information obtained indirectly" (par. 18). If the external auditors request internal auditors to work as direct assistants, the external auditors should be in a better position to evaluate the performance of the internal auditors. This close supervision likely results in the external auditor having greater confidence in the results of the work performed by the internal auditors and consequently greater reliance on that work. Therefore, we expect there to be a greater external audit fee effect for time internal auditors spend working as direct assistants versus performing tasks relevant to the financial statement audit not under the supervision of the external auditors. Stated formally:

H3 – The extent to which internal auditors provide direct assistance in performing the external audit will have a greater negative association with external audit fees than the extent to which internal auditors work on tasks of a financial nature in the course of their work.

DATA AND MODEL SPECIFICATION

Sample and Data

We examine data from the IIA's GAIN database relating to fiscal years 2000 to 2005.¹¹ We restrict our analysis to these years because of availability of IIA data (we have no data after 2005) and because of availability of external audit fees (audit fee data were not made public before 2000). Our final sample of 572 firm-year observations contains responses from 235 distinct companies from 47 different two-digit SIC industry code listings.

The IIA GAIN database is a compilation of information gathered from Chief Audit Executives (CAEs) associated with IIA member organizations. Since the IIA database includes a

¹¹ The IIA conducts annual surveys of participating organizations, soliciting objective measures relating to the organizations' IAF for benchmarking purposes. Data from the annual surveys are collected into an archive that the IIA refers to as the GAIN database. The survey is approximately 30 pages long and covers various aspects of internal audit practice. The survey has changed slightly from year to year; however, all of the questions included in this study were unchanged from 2000 to 2005. Additional information about the GAIN database is available on the IIA's Web site.

wide range of institutions (e.g., publicly-traded companies, private companies, educational institutions, divisions within companies, and governmental institutions) for which we could not obtain sufficient market data to perform our analysis, we restrict our sample to those companies that are publicly traded and for which data is available on Compustat. The IIA does not identify the responding organizations in the data it shares for benchmarking or research purposes. Therefore, with IIA permission we performed a match of several self-reported fields in the survey with data items in Compustat in order to include needed measures in our study. We matched on self-reported total assets, total revenues, and operating industry to identify firms.¹² In addition, we deleted companies if external audit fee data was not available on Audit Analytics, other data needed for model estimation was missing, or internal audit responses were nonsensical.¹³ After controlling for these factors, our sample includes 572 firm-year observations. Table 1 shows the details of our sample's composition.

(Insert Table 1 about here)

Audit Fee Model Specification for Computation of Unexpected Audit Fees

Following prior research, we estimate a cross-sectional regression model to generate unexpected audit fees to test H2 (e.g., see DeFond et al. 2002). We use unexpected audit fees rather than audit fees because of the relatively small sample size available to test our measures of internal audit's contribution to the external audit fee. By using unexpected audit fees, we can control for significantly more variables that are likely related to external audit fees in the first

¹² Every firm-year match in our sample represents a unique combination of assets, revenues, and industry identifiers reported in both the GAIN and Compustat databases. In other words, there were no instances where more than one firm from Compustat matched the combination of the three identifiers. In addition, the IIA kindly provided names for a subset of firms in the GAIN database, which we were able to use to validate our matching process. Our matches were consistent in every case with the information provided by the IIA.

¹³ We trimmed the data to exclude reported average internal audit experience amounts of zero or greater than 30 years, percentage of certified internal auditors (CIA or CPA) greater than 100 percent, time spent on financial audit work or on assisting the external auditor greater than 100 percent, and time spent training greater than 160 hours.

step and retain sufficient power to test our expectations in the second step. Our measure of unexpected audit fees is the residual from the following regression model:

$$EAFees = \beta_0 + \beta_1 Assets + \beta_2 IRisk + \beta_3 Complexity + \beta_4 Leverage + \beta_5 ROA + \beta_6 Loss + \beta_7 NonAuditFees + \beta_8 BigN + \beta_9 AuditSpecialist + \beta_{10} Andersen + \beta_{11} YearEnd + \beta_{12} CurrentRatio + \beta_{13} Acquisition + \beta_{14} AuditorChange + \beta_{15} GoingConcern + \beta_{16} ForeignSales + \beta_{17-21} YearDummies + \beta_{22-68} IndustryDummies + \varepsilon$$

(Variables are fully defined in the Appendix)

All of the variables that we include in this model (except *Andersen*) are from the meta-analysis conducted by Hay et al. (2006). The purpose of a meta-analysis is to examine a large number of studies to determine which variables are consistent predictors of the variable of interest. The results of a meta-analysis are therefore more likely to reflect “true” relations between variables than any single, individual study. Thus, we select variables from the meta-analysis that are significant determinants of external audit fees rather than rely on a single prior model.

We include *Assets* because it consistently has been found that the larger the company, the higher the external audit fee (Hay et al. 2006). We include a measure of inherent risk (*IRisk*) and two measures of complexity (*Complexity* and *ForeignSales*) because audit fees are higher when companies are more risky and their operations are more complex. External audit fees are higher when companies have high leverage; thus, we include the variables *Leverage* and *CurrentRatio*. We include two variables, *ROA* and *Loss*, because external audit fees are higher for companies that perform poorly. We include *NonAuditFees* and *Big5* and expect, consistent with Hay et al. (2006), that as the nonaudit fees paid by a client to its external audit firm increase, the external audit fee will increase; further, the fee will be greater if the external audit firm is a Big 5 firm. We include *Andersen* to control for possible pricing effects caused by the demise of Arthur Andersen. We include *YearEnd* because audits conducted during busy season are likely more

expensive as staff may have to work overtime (or alternatively audit firms may offer discounts to perform audits during less busy times of the year). Companies that have recently purchased another company may require additional audit work; thus, we include *Acquisitions*. We include *AuditorChange* as audit firms may discount the audit fees during the initial years of the engagement in order to win the auditing engagement. Audit fees are likely to be higher if the auditor issues a going concern opinion because audit risks (including auditor business risk) are elevated; therefore, we include *GoingConcern* in the model.

We include dummy variables to represent the different years in our sample because we expect fees to generally increase from one year to another. Finally, we include 47 industry control variables to control for differences in external audit fees because of industry affiliation. We expect the signs on all these control variables to be in the same direction as found in previous research.

We run this model on all firms for which data are available from both the Compustat and Audit Analytics databases. The residual from this regression is our measure of unexpected audit fees. Thus, our unexpected audit fee measure represents the portion of the external audit fees that cannot be explained by the presence of the independent variables included in the first step.

Unexpected Audit Fee Model Specification for Testing IAF Contribution to the External Audit

In step two, we estimate the following cross-sectional regression model to test our hypotheses:

$$UnexpectedFees = \beta_0 + \beta_1 TimeEA + \beta_2 TimeF + \beta_3 ACEffectiveness + \beta_4 Gindex + \varepsilon$$

(Variables are fully defined in the Appendix)

We include two variables, *TimeEA* and *TimeF*, to test our hypotheses of the distinct ways in which the IAF can contribute to a reduction in the external auditor's work—directly assisting

the external auditor and performing tasks on which the external auditor can later rely. We expect to observe a negative relation between each of these variables and unexpected audit fees.

We also include *ACEffectiveness* and *Gindex* to control for the overall corporate governance of the organization. Companies may invest in higher quality IAFs as part of an effort to achieve higher quality corporate governance. Companies with higher quality corporate governance are likely to have lower external audit fees; therefore, we include corporate governance control variables to determine whether the external auditors' reliance on the IAF provides cost savings that are distinguishable from the effects of overall high quality corporate governance. High quality corporate governance results from the actions and attitudes of management, the audit committee (board of directors), the external auditor, and the IAF (IIA 2005). We include *Gindex* as a measure of the relative power management has over the company. If management has higher power, they are also in a greater position to manipulate accounting results (Prawitt, Smith, and Wood 2009; Prawitt, Sharp, and Wood 2009). Following previous research, we include *ACEffectiveness* to control for the quality of the audit committee. Stronger audit committees should be associated with lower external audit fees. Finally, we control for external audit quality by including *BigN* and *AuditSpecialist* in the creation of *UnexpectedFees*. By including these variables, the coefficients on our measures of the work of the IAF should only reveal relations associated with differences in the actions of the IAF and not in overall differences in the corporate governance of the organization.

TEST RESULTS

Descriptive Statistics

In Table 2, we present various descriptive statistics and a correlation matrix for variables of interest in our sample. Panel A displays general univariate statistics and reveals that mean

(median) total assets for firms in our sample are \$20.3 (\$9.0) billion, suggesting that our sample primarily comprises large companies. This may limit to some extent the generalizability of our results to relatively large companies.

Panel B of Table 2 presents descriptive statistics related to the sample firms' IAFs. The mean number of years of internal audit experience for internal auditors in our sample is 6.57 years, and 59 percent of the internal auditors in our sample have either the CIA or CPA certification or both. Additionally, 70 percent of the Chief Audit Executives (CAEs) in our sample report directly to the audit committee, an IIA-recommended best practice (IIA Practice Advisory 1110-2) and a primary indicator of internal auditor objectivity (SAS No. 65). On average, IAFs in our sample spend about 26 percent of their time performing tasks that are financial in nature and 3 percent of their time providing direct assistance to the external auditors. IAFs also report that internal auditors spend approximately 57 hours per year in training.

The variance in the internal audit quality measures suggests that the IIA survey captures a wide range of IAFs in terms of overall IAF quality. Thus, although our sample consists primarily of data from IAFs housed within large corporations, the IAFs vary significantly in terms of quality.

Panel C of Table 2 presents Spearman and Pearson correlations between unexpected audit fees and the measures used in testing our hypotheses. The results suggest that *UnexpectedFees* is negatively associated with *TimeEA* (p-value < 0.05) and *TimeF* (p-value < 0.10) using parametric statistics and is negatively associated with *TimeEA* using non-parametric statistics (p-value < 0.05). This evidence is consistent with the first two hypotheses that the time spent assisting the external auditor (H1) and the time spent performing tasks upon which the external auditor can rely (H2) are negatively associated with unexpected audit fees. These descriptive results are also

consistent with H3 in that the relation with the time the IAF spends assisting the external auditor has a stronger association, in terms of statistical significance and greater magnitude, than the time performing tasks upon which the external auditor can rely. We perform more formal tests in the next sections.

(Insert Table 2 about here)

Results from Unexpected External Audit Fee Model and Hypothesis Testing

Table 3 presents descriptive statistics for the explanatory variables in our unexpected external audit fee model as well as the results of the regression we use to compute unexpected external audit fees. All of the variables that we include from the Hay et al. (2006) meta-analysis are significant in the predicted direction in our model (all p-values < 0.01). In addition, the coefficient on *Andersen* is significant and negative (t-stat = -7.89, p-value < 0.01).¹⁴ As noted earlier, our two-step approach to analyzing the relation between internal audit quality and external audit fees is necessary because it allows us to first control for all the standard determinants of external audit fees in stage one before testing the effect IAF quality on unexpected external audit fees in our smaller sample of 572 firm-year observations in stage two.

(Insert Table 3 about here)

We present multivariate analyses to test our hypotheses in Table 4. The results of our multivariate tests are generally consistent with our expectations. Consistent with H1, which predicts that the use of internal auditors as assistants is associated with lower external audit fees, we find a negatively significant coefficient on the *TimeEA* variable (p-value < 0.05). This suggests that the more time the IAF spends assisting the external auditor in the conduct of an external audit, the lower the external audit fee. In relation to H2 that the use of internal auditors'

¹⁴ The negative coefficient estimate on *Andersen* may reflect the fact that Andersen had clients only in the early part of our sample period, when fees were generally lower than in the latter part of our period.

work is associated with lower external audit fee, we find that the coefficient on *TimeF* is not statistically significant (p-value > 0.10). In relation to H3 that the effect of using internal auditors as assistants has a greater effect than relying upon their previously performed work, we find that *TimeEA* is significantly more negative than *TimeF* (p-value < 0.10), providing confirming evidence for H3.

Our controls for corporate governance, *ACEffectiveness* and *Gindex*, while in the direction we predicted, do not load significantly in the model.

(Insert Table 4 about here)

Sensitivity Analysis

We conduct two follow-up tests to shed additional light on the relation between the contribution of the IAF to the external audit fee and to test the robustness of our results. We discuss each in turn.

Relations Controlling for Variables used in Previous Archival IAF/External Audit Fee Studies

As noted previously in the paper, prior archival studies have attempted to examine the relation between proxies for internal audit contribution to the external audit and external audit fees (see footnote 10). The measures used in previous studies include total internal audit expenditures (Adams et al. 1997; Raman and Wilson 1992; Wallace 1984), ratio of internal audit payroll costs to assets (Anderson and Zéghal 1994 ; Gist 1992; Chung and Lindsay 1988), presence versus absence of an IAF (Willekens and Achmadi 2003; Ezzamel et al. 2002), number of internal auditors (Goodwin-Stewart and Kent 2006; Gerrard et al. 1994), and whether the external auditors reported a weakness in internal control (Deis and Giroux 1996). We are able to replicate three of these measures (total internal audit expenditures, ratio of internal audit payroll costs to assets, and number of internal auditors) to test their effect on our sample. When we

include these three measures in our models, as seen in Table 5, Panel A, we find that *TimeEA* becomes moderately significant (p-value < 0.10) and *TimeF* is still not significant (p-values < 0.10) and the difference between their coefficients is no longer significant (p-value > 0.10). We note that the ratio of internal audit payroll costs to assets and number of internal auditors are both positive and statistically significant (p-values < 0.05) but total internal audit expenditures is not (p-value > 0.10).

(Insert Table 5 about here)

If these measures from prior research are interpreted to be proxies for the contribution the IAF makes to the external audit, these results are not consistent with a negative relation between IAF contribution and external audit fees. We test what these measures proxy for by correlating them with *TimeEA* and *TimeF*—which are measures directly derived from external auditing standards—and with a measure of the size (*Assets*) and the complexity (*Complexity*) of the organization. As seen in Table 5, Panel B, the measures used in previous studies are either not related to or negatively related with *TimeEA* and *TimeF* and are highly related to both *Assets* and *Complexity*. This evidence suggests that these proxies from prior studies do not adequately capture the contribution the IAF makes to the external audit in that they are not related or are negatively related with direct measures of the time the internal auditors devote to the external audit process and they are highly correlated with variables that should be positively correlated with audit fees. We therefore argue that the findings of prior archival studies that fail to find a negative relation between internal audit contribution and external audit fees are attributable to the poor construct validity of the measures used to measure the contribution of internal auditing. We further argue that our results—which are based on measures that are relatively direct measures of the contribution of internal auditing with respect to the external audit and which are

similar to those used in a large body of experimental and survey-based studies that find similar results—are a better reflection of the “true” relation between the contribution the IAF makes to the external audit and external audit fees. Thus, our results provide support for the validity of prior experimental and survey-based research results over the conflicting archival results.

Relations Controlling for IAF Quality

AS 5 stipulates that external auditors cannot rely to any degree on the IAF if the IAF is of low competence or low objectivity. This suggests that the quality of the IAF should interact with the ability of the external auditors to rely on the IAF such that if quality is low, the external auditor will not rely on the IAF. To test whether this is the case, we create a quality metric based on prior research (Prawitt, Smith, and Wood 2009; Prawitt, Sharp, and Wood 2009) and SAS No. 65. To create the quality measure, we select proxies of competence and objectivity that are: (1) specifically suggested by SAS No. 65 as proxies for these dimensions of internal audit quality, and (2) available in the GAIN database. To measure competence, we use three variables—*Experience*, *Certification*, and *Training* (variables are fully defined in the Appendix).¹⁵ To proxy for objectivity, we use *CAEAC*, a binary measure for whether the CAE reports to the audit committee.¹⁶ To be consistent with prior research, we also include a measure of the size of the

¹⁵ When evaluating the competence of internal auditors, SAS No. 65 specifies that external auditors should examine the following: educational level and professional experience of internal auditors; professional certification and continuing education; audit policies, programs, and procedures; practices regarding assignment of internal auditors; supervision and review of internal auditors’ activities; quality of working-paper documentation, reports, and recommendations; and evaluation of internal auditors’ performance. The IIA survey did not contain adequate proxies for all of these aspects of competence; thus, we examine those attributes for which we can find a suitable proxy.

¹⁶ When evaluating the objectivity of internal auditors, SAS No. 65 specifies that external auditors should examine two areas. The first area includes the organizational status of the internal auditor responsible for the internal audit function, including: whether the internal auditor reports to an officer of sufficient status to ensure broad audit coverage and adequate consideration of, and actions on, the findings and recommendations of the internal auditors; whether the internal auditor has direct access and reports regularly to the board of directors, the audit committee, or the owner-manager; and whether the board of directors, the audit committee, or the owner-manager oversees employment decisions related to the internal auditor. The second area includes policies to maintain internal auditors’ objectivity about the areas audited, including: policies prohibiting internal auditors from auditing areas where relatives are employed in important or audit-sensitive positions, and policies prohibiting internal auditors from

IAF (*IASize*).¹⁷ We dichotomize each variable by assigning a value of one if the variable is higher than the average of the sample and zero otherwise. We then sum the variable so that the final quality measure potentially ranges from zero to five with higher values suggesting a higher quality IAF.

We include this composite quality measure and interactions of the measure with *TimeEA* and *TimeF* in our tests. The quality measure and the interactions are not significant (p-values > 0.10). We also try to include in our models a dummy variable (and interactions) that equals one if the quality measure equals zero or one. This dummy variable and the interactions are similarly not significant. Thus, our results do not suggest that the extent to which the external auditor is willing to rely on the IAF varies with the quality of the IAF. One possible reason for this result is that all internal auditors in the large companies that are part of our sample are of sufficient competence and objectivity to merit reliance by the external auditor, assuming their work is adequately supervised as required by professional standards.

SUMMARY

The purpose of this study is to better understand the relation between the IAF contribution to the external audit and external audit fees by improving on the proxies for IAF contribution used in previous archival studies. Specifically, following the guidance in SAS No. 65 and AS 5, we examine how proxies relating to the time internal auditors work as direct assistants to the external auditor and the time internal auditors spend performing tasks upon which the external auditor may rely are associated with external audit fees.

auditing areas where they were recently assigned or are scheduled to be assigned on completion of responsibilities in the internal audit function. The IIA survey did not contain adequate proxies for these other dimensions of objectivity; we examine those attributes for which we can find a suitable proxy.

¹⁷ Prawitt, Smith, and Wood (2009) and Prawitt, Sharp and Wood (2009) also include the *TimeF* measure in computing their quality metric. Since we are interested in the separate effects of *TimeF* (and *TimeEA*) we do not include this variable in computing the overall quality measure.

In contrast to the inconclusive evidence from past archival research—but consistent with a substantial body of experimental and survey research—our results suggest that external audit fees are negatively associated with the time internal auditors spend assisting the external auditor. We find little evidence that the amount of time internal auditors spend performing tasks of a financial nature is associated with lower external audit fees. Thus, consistent with H3, we find that the extent to which the internal auditor directly assists the external auditor has a greater impact on external audit fees than the extent to which internal auditors focus on tasks of a financial nature in the course of their work.

We also provide evidence that past proxies used in archival studies are positively associated with measures of the host companies' size and complexity and are negatively associated or not associated with our relatively direct measures of the contribution of the IAF to the external audit. This evidence suggests that the conflicting results between experimental and archival studies are likely driven by the heretofore lack of detailed data on the IAF available for use by archival researchers and the consequent use of proxies that fail to adequately capture the contribution of the IAF to the external audit. This finding highlights a distinct advantage of experimental research when adequate proxies for certain constructs are unavailable in existing data archives.

Managers, boards of directors, and audit committees may find these results useful to benchmark their own organizations and determine areas in which they may be able to realize cost savings. Standard setters for external auditors could consider these results in terms of whether external auditors are appropriately relying on specified characteristics of the IAF when making their reliance decisions. Finally, researchers may wish to consider the results of this study when conducting research relating to the external auditor's reliance decision or when performing other

audit fee examinations, especially considering whether proxies used in this study would be appropriate control variables or experimental variables of interest with respect to the contribution of internal auditing.

The results of this study should be viewed in light of certain limitations. First, the data in the GAIN archive was provided to the IIA by the heads of internal audit organizations for benchmarking purposes. Similar to most archives, the database likely contains some inaccuracies. However, we have taken steps to minimize the possibility of inaccuracies by verifying where possible the data used in this study against corresponding data from Compustat. Further, errors in the data set would likely bias against finding significant results. Second, it should be noted that our results do not necessarily imply a causal relation between our proxies for the contribution of the IAF and audit fees. Third, while the GAIN data provides unprecedented opportunities to examine questions relating to the role of internal auditing, the data set that is currently available is relatively small. Thus, the lack of statistical significance for results relating to some predicted relations may be attributable to a relative lack of statistical power. Finally, we cannot determine the effects of self-selection by IAFs in providing data to the IIA, which may limit the generality of our findings.

The results of this study also suggest several future avenues for research. A large number of papers examine the factors in SAS No. 65 when examining the external auditor's reliance on the IAF, yet it must be noted that SAS No. 65 represents a prescriptive model. Research that contributes toward a descriptive model of the external auditor's reliance decision could prove both enlightening and useful. Experimental research that provides insight into why external auditors are more likely to rely on the work of internal auditors when they serve as direct assistants as opposed to work previously performed would also be useful.

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TABLE 1
Derivation of Sample

Description	Sample Size
Firm-year observations in internal auditing database (2000 to 2005)	4,178
Less observations with no reported data in Compustat or Audit Analytics	(3,443)
Less observations with missing data items for model estimation	(113)
Less observations where IAF reported values are nonsensical	(50)
Firm-years available for final sample	572

Nonsensical IAF values include reported average internal audit experience amounts greater than 30 years, percentage of certified internal auditors (CIA or CPA) greater than 100 percent, time spent on financial audit work or on assisting the external auditor greater than 100 percent, and time spent training greater than 160 hours.

The final sample of 572 firm-years are from 232 different companies from 47 different two-digit SIC code industries.

TABLE 2
Descriptive Statistics and Correlations

Panel A: General Descriptive Statistics

Variable	Mean	Std. Dev	Min	P25	Median	P75	Max
Assets (\$m)	20,319	41,818	238.752	3,150	9,036	25,222	529,499
IRisk	0.202	0.145	0.000	0.084	0.162	0.289	0.812
Complexity	4.065	1.994	1.000	3.000	4.000	5.000	10.000
Leverage	0.445	0.167	0.022	0.364	0.454	0.545	1.214
ROA	0.034	0.096	-1.311	0.015	0.036	0.067	0.458
Loss	0.161	0.368	0.000	0.000	0.000	0.000	1.000
EAFees (\$m)	3.608	4.698	0.000	0.898	2.000	4.388	49.400

Panel B: Descriptive Statistics of Internal Audit Characteristics

Variable	Mean	Std. Dev	Min	P25	Median	P75	Max
Experience (yrs)	6.57	4.40	1.00	3.00	6.00	8.00	28.00
Certification	0.59	0.31	0.00	0.38	0.56	0.72	2.00
Training (hrs)	57.01	27.85	0.00	40.00	58.00	80.00	160.00
CAEAC	0.70	0.46	0.00	0.00	1.00	1.00	1.00
TimeEA (%)	3.28	4.94	0.00	0.00	1.00	5.00	35.00
TimeF (%)	25.72	21.93	0.00	3.00	25.00	42.50	80.00
ACEffectiveness	9.38	2.14	0.00	10.00	10.00	10.00	10.00
Gindex	9.79	2.50	3.00	8.00	10.00	11.00	16.00

Panel C: Spearman and Pearson correlations (Above/Below the diagonal, respectively)

Variable	1	2	3	4	5
1 UnexpectedFees		-0.126	-0.041	-0.024	0.055
2 TimeEA	-0.099		0.326	0.095	0.056
3 TimeF	<i>-0.076</i>	0.254		-0.075	-0.040
4 ACEffectiveness	-0.035	0.003	-0.107		0.000
5 Gindex	0.048	0.015	-0.067	0.019	

Italics – p-value ≤ 0.10 ; **Bold** – p-value ≤ 0.05

See the Appendix for variable descriptions.

TABLE 3
Descriptive Statistics and Regression of Various Measures on External Audit Fees

Variable	Mean	Median	Stdev	Hypothesized	β	z-value
				Sign		
Intercept	--	--	--	?	10.018	161.78**
Assets	5.02	5.13	2.74	+	0.382	150.14**
IRisk	0.25	0.19	0.22	+	0.277	12.69**
Complexity	2.08	1.00	1.56	+	0.079	27.66**
Leverage	2.31	0.41	58.38	+	0.001	9.99**
ROA	-2.27	0.01	112.55	-	-0.0002	-6.75**
Loss	0.45	0.00	0.50	+	0.176	19.1**
NonAuditFees	10.40	11.44	4.11	+	0.038	31.4**
Big5	0.74	1.00	0.44	+	0.303	25.58**
AuditSpecialist	0.12	0.00	0.33	+	0.107	8.17**
Andersen	0.04	0.00	0.21	-	-0.161	-7.89**
YearEnd	0.74	1.00	0.44	+	0.157	16.82**
CurrentRatio	3.27	1.62	24.12	-	-0.001	-5.99**
Acquisition	0.28	0.00	0.45	+	0.131	13.93**
AuditorChange	0.11	0.00	0.31	-	-0.217	-16.92**
GoingConcern	0.11	0.00	0.32	+	0.373	25.78**
ForeignSales	0.37	0.00	0.48	+	0.301	31.58**

Industry and year effects are repressed for presentational ease. Clustered standard errors are used to compute z-statistics.

**, * indicate statistical significance at the p-value ≤ 0.05 , and 0.10 levels respectively. P-values represent one-tailed tests when a specific direction is predicted and the sign of the coefficient is consistent with that prediction. Total sample size for these tests is 33,928.

See the Appendix for variable descriptions.

TABLE 4
Tests of IAF Characteristics' Relations with Unexpected External Audit Fees

Variable	Hypothesized		z-value
	Sign	β	
Intercept	?	0.321	1.76*
TimeEA (%)	-	-0.012	-2.05**
TimeF (%)	-	-0.002	-1.09
ACEffectiveness	-	-0.013	-1.25
Gindex	+	0.013	0.83
Test of TimeEA = TimeF		F = 2.42*	

Clustered standard errors are used to compute z-statistics.

**, * indicate statistical significance at the p-value ≤ 0.05 , and 0.10 levels respectively. P-values represent one-tailed tests when a specific direction is predicted and the sign of the coefficient is consistent with that prediction. Total sample size for these tests is 572.

See the Appendix for variable descriptions.

TABLE 5
Relation between Measures used in Prior Archival Literature and Unexpected External Audit Fees

Panel A: Regression Model

Variable	Hypothesized Sign	B	z-value
Intercept	?	0.038	0.22
TimeEA (%)	-	-0.009	-1.54*
TimeF (%)	-	-0.002	-1.08
ACEffectiveness	-	-0.013	-1.33
Gindex	+	0.021	1.54*
IAExpenditures	+	0.178	1.78**
IACosts/Assets	+	0.000	0.10
NumIA	+	0.004	1.71**
Test of TimeEA = TimeF		F = 1.22	

Panel B: Spearman and Pearson correlations (Above/Below the diagonal, respectively)

Variable	1	2	3	4	5	6	7
1 IAExpenditures		-0.041	0.949	-0.159	0.065	0.832	0.243
2 IACosts/Assets	-0.036		-0.146	0.036	-0.031	-0.555	0.020
3 NumIA	0.841	-0.096		-0.120	0.049	0.859	0.244
4 TimeEA	-0.120	0.050	-0.115		0.326	-0.151	-0.053
5 TimeF	-0.016	-0.020	-0.010	0.254		0.062	-0.023
6 Assets	0.565	-0.230	0.548	-0.088	0.022		0.206
7 Complexity	0.254	-0.088	0.226	-0.014	-0.012	0.117	

Clustered standard errors are used to compute z-statistics.

In Panel A, **, * indicate statistical significance at the p-value ≤ 0.05 , and 0.10 levels respectively. P-values represent one-tailed tests when a specific direction is predicted and the sign of the coefficient is consistent with that prediction. In Panel B, *Italics* signifies p-value ≤ 0.10 ; **Bold** signifies p-value ≤ 0.05 .

See the Appendix for variable descriptions.

Appendix

Variable	Description
ACEffectiveness	= A composite score of ten dummy variables formed by scoring a company one point for each Blue-Ribbon Committee (BRC 1999) for audit committee effectiveness attribute the company's audit committee possesses.
Acquisition	= A dichotomous variable taking the value of 1 if a company has any nonzero amount listed acquisition related accounts in their statement of cash flows (Data129) or in their income statement (Data377) and 0 otherwise.
Age	= The number of years the company has data available on Compustat.
Andersen	= A dichotomous variable indicating whether the company's external auditors was Arthur Andersen (yes = 1, no = 0).
Assets	= Total assets (Data6) in millions (natural log used in and regression models).
AuditorChange	= A dichotomous variable indicating whether the company changed auditors in the last year (yes = 1, no = 0).
AuditSpecialist	= A dichotomous variable that indicates whether the external auditor is an industry specialist auditor or not. We define industry specialist auditor as a Big N audit firm whose within-industry market share is 30 percent greater than if the audit firms were to split the industry evenly among themselves.
Big5	= A dichotomous variable indicating whether the company's external auditor is a Big 5 auditor (yes = 1, no = 0).
CAEAC	= A dichotomous variable indicating whether the CAE reports to the audit committee (= 1) or somebody else (= 0).
Certification	= The percent of internal auditors who have the CIA or CPA certification. (Number of auditors with the CIA or CPA certification / Total staff in the IAF).
CFO	= A company's cash flow from operations divided by total assets (Data308/Data6).
Complexity	= The number of business segments that the company has.
CurrentRatio	= The current ratio of the company (Data4 / Data5).
EAFees	= External audit fee in millions paid by a company to its external auditor (natural log used in regression model).
Experience	= The average number of years of internal audit experience of the internal auditors.
ForeignSales	= A dichotomous variable indicating whether a company has any foreign sales listed in the Compustat segments file (yes = 1, no = 0).
Gindex	= Corporate governance metric computed by Gompers et al. (2003). For years the metric was not computed (i.e., 2001, 2003, and 2005), the average of the metric for the year before and after the unreported year was used.

GoingConcern	= A dichotomous variable indicating whether the company received a going concern audit opinion (yes = 1, no = 0).
IACosts/Assets	= Amount of money spent on the IAF per dollar of company assets (Data6) in the organization (Total IAF costs / Assets)
IAExpenditures	= Total amount of money spent on the IAF (divided by 1,000,000 for presentational ease).
IASize	= Total IAF costs divided by the average assets of the industry at the 2-digit SIC code level (Total IAF costs / Assets / 100).
IndustryDummies	= 47 dichotomous variables used to represent each of Fama and French's (1997) industry classification.
Inventory	= A company's inventory divided by total assets (Data3/Data6).
IRisk	= Sum of inventory (Data3) and receivables (Data2) divided by total assets (Data6).
Leverage	= The sum of long term debt (Data9) and current liabilities (Data5) of a company divided by total assets (Data6).
Loss	= A dichotomous variable indicating whether the company experienced a loss in the previous year (yes = 1, no = 0).
NonAuditFees	= Nonaudit fees paid by a company to its external auditor (natural log used in regression model).
NumIA	= Total number of employees in the IAF.
Outsource	= A dichotomous variable indicating whether the firm outsources some or all the work performed by the IAF to a third party (=1) or not (=0).
Receivables	= A company's receivables divided by total assets (Data2/Data6).
ROA	= Return on assets (Data172 / Data 6).
TimeEA	= The percentage of time the IAF spends providing assistance to the external auditors.
TimeF	= The percentage of time the IAF spends performing tasks that are financial in nature.
Training	= The average amount of training hours internal auditors attend during the year.
UnexpectedFees	= Residual from the following regression: $EAFees = \beta_0 + \beta_1 Assets + \beta_2 IRisk + \beta_3 Complexity + \beta_4 Leverage + \beta_5 ROA + \beta_6 Loss + \beta_7 NonAuditFees + \beta_8 Big5 + \beta_9 AuditSpecialist + \beta_{10} Andersen + \beta_{11} YearEnd + \beta_{12} CurrentRatio + \beta_{13} Acquisition + \beta_{14} AuditorChange + \beta_{15} GoingConcern + \beta_{16} ForeignSales + \beta_{17-21} YearDummies + \beta_{22-68} IndustryDummies + \varepsilon$
YearDummies	= Dichotomous variables indicating whether the data is from a specific year (= 1) or not (= 0).
YearEnd	= A dichotomous variable indicating whether the company's fiscal year end is December (yes = 1, no = 0).
