

DESCRIPTIVE EVIDENCE ON SOX AUDIT COSTS

Susan W. Eldridge*
Burch T. Kealey

ABSTRACT

This study examines the cost of the new internal control audit required by the Sarbanes-Oxley Act of 2002 (SOX) for a sample of Fortune 1000 companies. The average audit fee increase from 2003 to 2004 of \$2.3 million is significant and is primarily attributable to the new SOX audit. SOX audit costs appear to be based on company size, asset growth, and the effectiveness of internal controls in addition to the 2003 financial statement audit rate. Specifically, the SOX audit costs increase with size, but the SOX audit unit costs vary inversely with size. This inverse relationship is consistent with larger companies benefiting from returns to scale and smaller companies spending fewer resources on internal controls and being more likely to have material weaknesses in internal controls. The positive relationship between SOX audit costs and asset growth supports the notion that rapidly growing firms may not be able to update their internal control systems in a timely manner and, therefore, may be more likely to experience internal control weaknesses. Firms that reported ineffective internal controls experienced higher SOX audit costs than those that reported effective internal controls. We also find evidence that financial services firms paid significantly lower SOX audit rates and electronic equipment and electronics firms paid significantly higher SOX audit rates than firms in other industries.

Keywords: Audit fees, Sarbanes-Oxley Act, internal controls, compliance costs.

* Susan W. Eldridge and Burch T. Kealey are Assistant Professors of Accounting at the University of Nebraska at Omaha.

Data Availability: Please contact the authors

I. INTRODUCTION

In his opening remarks at the April 13, 2005 Roundtable on the Implementation of Internal Control Reporting Provisions, Securities and Exchange Commission (SEC) Chairman William H. Donaldson said, "... of all the provisions of the Sarbanes-Oxley Act, the internal control requirements of Section 404 may have the greatest potential to improve the accuracy and reliability of financial statements. ... But we also understand that the process of implementing the requirements of Section 404 ... has consumed considerable time, energy and resources, and has generated intense debate" (SEC 2005a). Donaldson also mentioned concerns over "substantial expenses, including audit fees" and "duplicative testing procedures with little or no reliance on prior work." Recent articles in the business press (see Nyberg 2003, Arndt 2004, and Solomon 2005) provide comments or quotes from executives of firms trying to comply with these new regulations that indicate their concern over these additional attestation fees being paid to their auditors. A recent analysis performed by *Wall Street Journal* staff indicates that audit fees for 23 of the 30 Dow Jones Industrial Average companies increased by 40% from 2003 to 2004 and attributes this increase in part to internal-control audit fees (Gullapalli 2005). Clearly, SOX audit costs are of great concern and interest. Because initial compliance with the SEC's implementation rules for SOX Section 404 is required for fiscal years ending on or after November 15, 2004 (SEC 2004a), there is currently very little evidence on compliance costs other than survey data. Although firms are not required to track and report on their actual compliance costs, they are required to disclose their annual fees paid to their independent auditing firm. These fees will certainly reflect the new costs firms are incurring to comply with the SOX Section 404 internal control auditor attestation requirement. The purpose of our study is to provide empirical evidence on the SOX Section 404 auditor attestation costs using audit fee disclosures. This evidence provides documentation of

actual compliance costs to supplement and validate available survey data.

When Congress passed the Sarbanes-Oxley Act of 2002 (SOX), it created a tremendous amount of new work for public companies and their auditors by requiring companies that file annual reports with the SEC to assess and annually report on the effectiveness of their internal controls over financial reporting and by requiring the auditors of these companies to attest to these management assessments. In Release No. 33-8238, the SEC (2003a) lists expected company compliance costs such as the costs of "compiling documentation, implementing new processes, and training staff" in addition to the costs of performing annual reviews and preparing annual reports by management and provides an aggregate annual cost estimate of \$1.24 billion, or \$91,000 per company. Surveys of corporate executives, such as the surveys conducted by the Financial Executives International (FEI 2004), reveal much higher estimates of Section 404 compliance costs. Responses to the FEI (2004) surveys indicate average annual total compliance costs per firm are expected in the range of approximately \$559,000 to over \$8 million, depending on the size of the firm and the survey date (January or July). Auditor attestation fees are expected to be approximately 26% to 30% of the total costs (FEI 2004).

In this study, we evaluate audit fees disclosures from the 2005 proxy statements or Forms 10-K of a sample of Fortune 1000 firms and document a significant average increase in audit fees of \$2.3 million from 2003 to 2004. The firms in our sample were all required to comply with the internal control documentation, evaluation, and attestation requirements of Section 404 of the SOX for their fiscal years ended on or after November 15, 2004. The descriptive evidence presented in this paper indicates that the initial-year SOX attestation costs were substantial. For the 97 firms in our sample that fully disclosed their SOX audit fees, the average cost of \$2.4 million is essentially equal to the increase in audit fees from 2003 to 2004. These averages are at the upper extreme of the estimates executives have provided in surveys (see

FEI 2004). We also use univariate and multivariate analyses to evaluate the link between SOX audit costs and the likelihood and identification of internal control material weaknesses. We find that SOX audit costs appear to be based on company size, number of subsidiaries, asset growth, and the effectiveness of internal controls in addition to the 2003 financial statement audit rate.

Our study provides evidence on actual attestation costs related to initial compliance with the SOX. Until now, the primary evidence regarding SOX implementation costs has been from various surveys. Our analysis also suggests that only a few firms (approximately 15% in this sample) chose to highlight the dollar effect of the SOX on their audit costs by providing details of the SOX-related audit fees in their proxy statement disclosures. This study provides a baseline analysis of SOX audit costs that can be used for comparison with other firms initially complying with SOX and with costs of compliance in subsequent years.

II. BACKGROUND

Implementation Requirements for SOX Section 404

Section 404 of the SOX (2002) requires the SEC to set rules that accomplish two Congressional objectives. The first objective is the inclusion in a firm's annual report of a report by management stating its responsibility for internal controls over financing reporting and its assessment of the effectiveness of these internal controls (SOX 2002, Sec. 404(a)). The second objective is to require the firm's independent auditors to attest to management's internal control assessment as part of the annual audit engagement (SOX 2002, Sec. 404(b)). The SOX was signed into law on July 30, 2002, and on June 5, 2003, the SEC (2003a) approved final rules in Release No. 33-8238 for the implementation of Section 404 of the SOX. Although the SEC (2003a) stated a compliance date in Release No. 33-8238 for the first fiscal year ending on or after June 15, 2004 for "accelerated

filers,”¹ it extended that compliance date to fiscal years ending on or after November 15, 2004 when it adopted Release No. 33-8392 (SEC 2004a) on February 24, 2004.

The SOX (2002) established the Public Company Accounting Oversight Board (PCAOB) to oversee audits of public companies filing reports with the SEC. In Section 404 of the SOX (2002), Congress stated that the PCAOB would adopt attestation standards for auditors to follow in complying with the newly required internal control attestations. The SEC (2004b) approved the PCAOB’s *Auditing Standard No. 2 - An Audit of Internal Control over Financial Reporting Conducted in Conjunction With an Audit of Financial Statements* on June 17, 2004.

The SEC’s rules for implementing Section 404(a) of the SOX are primarily effected by the addition of Item 308 to Regulations S-B and S-K (SEC 2003a). Item 308(a) requires management to include an internal control report in its annual statement filing and states that this required internal control report must include four items: management’s statement of responsibility for internal controls over financial reporting, identification of the framework used by management to evaluate the effectiveness of these internal controls, management’s conclusion regarding the effectiveness of these controls and disclosure of any material weaknesses, and management’s confirmation that its auditors have issued their required attestation report on these controls. Item 308(b) requires firms to include the auditor’s internal control attestation report in their annual report filings, and Item 308(c) requires firms to disclose on a quarterly basis any material changes to these internal controls. The SEC (2003a) implemented Section 404(b) of the SOX by amending Rule 2-02 of Regulation S-X to require the accountants auditing the annual financial statements to

¹ “Accelerated filer” is defined in Exchange Act Rule 12b-2 and includes U.S. companies filing annual reports with the SEC and having market capitalization over \$75 million (SEC 2003b).

also attest to and report on management's assessment of its internal control effectiveness.²

Expected Benefits and Costs

Congress states at the beginning of the SOX (2002) that the Act is "to protect investors by improving the accuracy and reliability of corporate disclosures made pursuant to the securities laws." In its Release No. 33-8238, the SEC (2003a) discusses the following benefits and costs. The primary benefits sought as a result of the rules implementing Section 404 of the SOX are increased investor confidence in financial reports, improved corporate disclosure, more reliable financial data based on effective internal control systems over that data, and detection and deterrence of financial fraud. The costs mentioned by the SEC (2003a) include costs of preparing management's required report on internal controls and costs of the auditor's attestation report.

Although the benefits are difficult to quantify, the costs are not. Before attestation can occur, companies must evaluate and document their existing control systems, determine what changes are needed to improve those systems, implement changes, and test the effectiveness of the established internal controls. Costs to accomplish these tasks include increased internal personnel wages and benefits, external consulting fees, and new or updated technology (hardware and software). In Release No. 33-8238, the SEC (2003a) provided a cost estimate of \$91,000 per company on average for annual implementation costs related to SOX Section 404(a) only. This estimate does not include costs related to independent auditor attestation. Surveys of corporate executives during 2003 and 2004 reveal much higher cost estimates.

A survey conducted by *CFO* magazine in August 2003 provides some interesting information about SOX Section 404 implementation costs (Nyberg 2003). Only 44% of the responding executives were tracking implementation costs, and almost half of

² SEC (2003a) includes the text of the rule amendments. SEC (2003a) references Regulation S-B at 17 CFR 228.10 *et seq*, Regulation S-K at 17 CFR 229.10 *et seq*, and Regulation S-X at 17 CFR 210.1-01 *et seq*.

those not tracking costs never intend to track costs. This could imply that these costs are immaterial or that executives see no benefit in evaluating these specific costs. Over three-fourths of respondents indicated the SEC's \$91,000 cost estimate is too low. Approximately one-half of respondents estimated that their first year implementation costs, including attestation fees, would be less than \$500,000. Even though 49% of respondents believe that their company has benefited internally from the implementation process, 70% of respondents believe that the costs of compliance outweigh the benefits. This survey was conducted by e-mail questionnaire to a random sample of executives on *CFO's* circulation list. Of the 220 responses, 139 were from executives at public companies.

The Financial Executives International (FEI) surveyed its public company members regarding expected first-year SOX Section 404 implementation costs in January and July of 2004 (FEI 2004). Over 50% of respondents to both surveys represent large firms with annual revenues of \$1 billion or more. In its surveys, the FEI asked executives about three different types of compliance costs – internal staffing costs, external costs such as external consulting and software fees, and auditor attestation fees. Average total cost estimates increased from \$1.9 million in the January survey to \$3.1 million in the July survey. For the respondents with revenues of \$1 billion or more, average total cost estimates increased from \$3.0 million to \$5.2 million. Average cost estimates increased for all three types of costs, but the proportions for cost types changed from January to July. Respondents in January expected attestation fees to be approximately 30% of total costs, but that percentage fell to 26% in the July survey responses. Average expected auditor attestation fees were \$823,200 in July compared to \$590,100 in January. For respondents with revenues of \$1 billion or more, average attestation fee estimates were \$1.33 million in July compared to \$0.92 million in January.

III. SAMPLE SELECTION AND DATA

Sample selection

In order to provide a broad view of the impact of the attestation requirement of SOX Section 404, we use a sample of the Fortune 1000 companies. Table 1 summarizes the steps we followed in selecting our sample. From the Fortune 1000 list published in the April 8, 2005 issue of *Fortune Magazine*, we eliminated twenty-nine firms that were mostly mutual insurance companies not subject to SEC filing requirements. Based on the initial compliance date for accelerated filers of fiscal years ended after November 15, 2004 (SEC 2004a), we eliminated 269 Fortune 1000 companies that had fiscal years outside the period from November 15, 2004 to December 31, 2004 and 33 companies that were not accelerated filers. Twelve companies were excluded because they were either acquired or were in the process of being acquired and had not filed proxy statements reporting audit fees by May 19, 2005. Nine other firms made NT-10-K filings early in 2005 and had not filed either their proxy statement or their 10-K by May 19, 2005. From our examination of these NT-10-K filings, we found that six of the companies delayed their 10-K filings because they expected to restate financial statements for one or more prior periods as a result of findings associated with material weaknesses in internal controls. The other three indicated a restatement was the primary cause for their 10-K filing delay but made no mention of any internal control problems. Thus, our screening process resulted in a final sample of 648 Fortune 1000 companies.

Table 1
Sample Selection Criteria

Fortune 1000 (as of April 8, 2005)	1,000
Less	
Not subject to SEC filing requirements	29
Fiscal-year end outside 11/15/04 – 12/31/04	269
Not accelerated filers	33
Acquired or in process of being acquired	12
Filed NT-10-K	9
Total excluded due to sample constraints or data availability	<u>(352)</u>
Final Sample for Audit Fee Collection	<u>648</u>

Data

Our primary variable of interest is audit fees paid to a firm's principal accountant. Prior to the SOX, proxy statement disclosure rules required disclosure of audit and non-audit service fees paid to a firm's principal independent accountant, but the SEC modified these disclosure rules in Release No. 33-8183 to provide investors with more detailed fees disclosure (SEC 2003c). Release No. 33-8183 (SEC 2003c) amended Item 9 of Regulation S-K and Item 16 of Form 10-K to require proxy statement and Form 10-K disclosure, respectively, of four categories of fees paid to the firm's principal accountants: audit fees, audit-related fees, tax fees, and all other fees. These fees must be disclosed for each of the last two fiscal years. The effective date for this fees disclosure requirement is fiscal years ending after December 15, 2003 (SEC 2003c).

Although the SEC does not explicitly state in which category Section 404 attestation fees should be disclosed, it does state in Release 33-8183 (SEC 2003c) that the Audit Fees category should include those fees for "services performed to comply with GAAS" (generally accepted auditing standards). The Audit-Related fees category, according to the SEC (2003c), would

include services such as “employee benefit plan audits, due diligence related to mergers and acquisitions, accounting consultations and audits in connection with acquisitions, internal control reviews, attest services that are not required by statute or regulation and consultation concerning financial accounting and reporting standards.” Firms that disclose audit-related fees must also provide a description of the nature of these services (SEC 2003c). Based on this guidance, we expect the Section 404 attestation fees to be included in the Audit Fees category.³ To our knowledge, there is no SEC requirement that firms separately disclose their Section 404 attestation (or other compliance) costs. Thus, our primary analysis is based on the disclosed Audit Fees measure.

The audit fees were collected from the Corporate Governance Performance and Technalytics (CGPT) Audit Fee product. CGPT collects audit fee data, auditor changes, and any notes that are disclosed regarding the fees paid to the principal accountants. These note disclosures often provide explanations about changes in fees from 2003 and 2004, including incremental fees due to the SOX internal control attestation. We also collected certain financial statement data from 10-K filings using the CGPT *Direct-Link* product which has direct hyperlinks to each specific section of the SEC filings for its coverage set and from Standard & Poor’s *Compustat* database. Finally, we used CGPT’s *Direct-Search* product to search the 10-Ks of our sample firms to determine the nature and extent of internal control material weaknesses and to identify the types of audit reports.

IV. DATA ANALYSIS

As previously mentioned, our data analysis is primarily descriptive in nature. We are interested in the costs of the required SOX internal control attestation, and so, we address the following three questions in our analysis of audit fees:

³ Only one company in our sample (Flowers Food) reported Section 404 attestation fees as a component of Audit-Related fees.

- 1) Were 2004 audit fees significantly higher than 2003 audit fees?
- 2) Were audit fee increases from 2003 to 2004 primarily attributable to the new SOX audit?
- 3) Are SOX audit costs based on the likelihood or identification of material weaknesses in internal controls over financial reporting?

Question 1: Were 2004 audit fees significantly higher than 2003 audit fees?

To evaluate the extent to which total audit fees were affected by the SOX Section 404 internal control audit requirement, we compare the 2004 audit fees to the 2003 audit fees. Descriptive statistics for the 2004 and 2003 audit fees and the dollar and percentage change in these fees are reported in Panel A of Table 2. Werner Enterprises' audit fees of \$87,271 in 2003 and \$422,040 in 2004 are the minimum values for our sample and reflect a 384% increase. General Electric reported audit fees of \$55,300,000 in 2003 and \$78,200,000 in 2004, the maximum values for our sample, and these fees reflect a 41.4% increase. The average increase in audit fees is \$2,315,964, from average 2003 fees of \$3,464,146 to average 2004 fees of \$5,780,110. Only twelve firms reported that their audit fees declined or were unchanged from 2003 to 2004. Although special circumstances could result in non-recurring components of audit fees for a particular year, we could not identify and adjust for such items because disclosure levels explaining changes in audit fees were inconsistent. An example of clear disclosure of special circumstances is provided by Dynegy, who reported that the 2003 audit fees included \$13 million for re-audits of prior years' financial statements. Because most other companies did not provide sufficient disclosures on non-recurring audit fee components, we use audit fees as they were reported in order to maintain consistency. Test statistics from a *t*-test (Wilcoxon test) for mean (median) differences indicate that average (median) 2004 audit fees of \$5,780,110 (\$3,544,503) are significantly greater than

average (median) 2003 audit fees of \$3,464,146 (\$1,756,761). Our *t*-statistic and *z*-score (for a normal approximation) were 6.54 and 11.8, respectively, and both are significant with a *p*-value less than 0.001.

Table 2
Audit Fees Descriptive Statistics

Panel A: All sample firms (n=648)

	Mean ^a	Minimum	Median ^b	Maximum
2004				
Audit Fees	\$5,780,110	\$422,040	\$3,544,503	\$78,200,000
2003				
Audit Fees	3,464,146	87,271	1,756,761	55,300,000
Dollar				
change				
2003 to				
2004	2,315,964	(12,500,000)	1,520,550	22,900,000
Percentage				
change				
2003 to				
2004	102.99%	(41.36%)	86.99%	651.63%

Panel B: Companies that disclosed SOX internal control audit fees as part of total audit fees for 2004 (n=97)

	Mean ^a	Minimum	Median ^b	Maximum
2004 Audit				
Fees	\$5,099,092	588,000	3,600,000	\$36,200,000
2003 Audit				
Fees	2,705,909	182,200	1,674,686	23,000,000
Dollar				
change				
2003 to				
2004	2,393,183	(6,500,000)	1,978,000	13,200,000

Percentage change 2003 to 2004	134.92%	(38.24%)	114.83%	498.79%
2004 Internal Control Audit Fee	\$2,401,948	\$280,000	\$1,800,000	\$17,300,000

^a *t*-statistic for mean differences in audit fees in Panel A is 6.54 ($p < 0.001$). *t*-statistic for comparing mean dollar change in audit fees with mean 2004 internal control audit fee in Panel B is 0.55 and is not statistically significant.

^b *z*-score for median differences in audit fees in Panel A is 11.80 ($p < 0.001$). *z*-score for comparing median dollar change in audit fees with median 2004 internal control audit fee in Panel B is 0.54 and is not statistically significant.

Question 2: Were audit fee increases from 2003 to 2004 primarily attributable to the new SOX audit?

Because of differences in disclosure of audit fee components across our sample, we evaluate this question with a sub-sample of the 97 sample firms that actually identified the incremental cost of their SOX compliance audit. Most firms used general language when explaining their audit fee costs. For example, ExxonMobil reported, “The increase of \$4.1 million from 2003 is **predominantly** from auditing financial reporting internal controls as specified in Section 404 of Sarbanes-Oxley.” (2005; emphasis added). We consider this to be too indeterminate to use as a basis of specifically attributing the entire increase in costs directly to the costs of ExxonMobil’s internal control audit since other firms were more specific. Most companies that made a specific disclosure did so unambiguously. For example, DST Systems stated, “Of the 2004 amount, \$1,492,737 was related to the Internal Control Attestation.” (2005) The 97 sample firms that reported specific 2004 SOX audit costs represent 15 percent of our sample. Panel B of Table 2 contains descriptive statistics for the 2004 and 2003 audit fees, the dollar and percentage change in

these fees, and the incremental internal control attestation costs for this sub-sample of firms. The mean (median) 2004 internal control audit fee is \$2,401,948 (\$1,800,000), and the mean (median) change in total audit fees from 2003 to 2004 is \$2,393,183 (\$1,978,000). These means (medians) are not statistically different based on a *t*-statistic (*z*-score) of 0.55 (0.54). Thus, we conclude for this sub-sample that the increase in audit fees from 2003 to 2004 is attributable to the incremental cost of the SOX internal control attestation. Based on this analysis, we assume that the fee increases for our full sample are due to the incremental cost of the SOX internal control audit. We acknowledge that this assumption is not valid for every firm in our sample (see the Dynege example in the previous section) and that this assumption may affect the strength of any assertions we make later about the determinants of SOX audit costs.

Question 3: Are SOX audit costs based on the likelihood or identification of material weaknesses in internal controls over financial reporting?

For companies to be in compliance with SOX Section 404, management's internal control report must provide management's conclusion regarding the effectiveness of its internal controls over financial reporting and must disclose any material weaknesses. Management cannot conclude that its internal controls are effective if it identifies one or more material weaknesses (SEC 2003a). In the absence of a developed theory on determinants of internal-control audit fees, we rely on our intuition and expect SOX audit fees to be primarily determined by the likelihood or identification of material weaknesses in a firm's internal controls. Doyle et al. (2005) examine the determinants of internal control weaknesses and find that the likelihood of such weaknesses decreases with firm size and increases with complexity, growth, and organizational restructuring. Both BDO et al. (2004) and Glass Lewis (2004) discuss the iterative nature of evaluating internal controls, which includes design, documentation, assessment, testing, and remediation of exceptions, deficiencies, and weaknesses. Significant additional work by the auditors is needed when control

exceptions, deficiencies, and weaknesses are identified, and this additional work increases the audit costs. Glass Lewis (2004) emphasize that if companies identify and remediate internal control problems prior to fiscal year-end, it is still possible for management and the auditors to assess the internal controls as effective in their year-end reports.

Based on test results for Question 2 above, we assume that the change in audit fees from 2003 to 2004 represents the SOX audit costs for our sample firms. We scale these costs by total assets and use this unit cost measure instead of total costs to evaluate the cost determinants for two reasons. First, a unit cost focus is more informative and provides a better basis for comparison across companies than does a total cost discussion. For example, Xerox Corporation reported that it paid \$17.3 million for its internal-control audit, and Brinks reported paying \$5.9 million. However, while Xerox paid almost three times what Brinks paid in total fees, Brinks' unit cost was about \$2.31 per thousand dollars of assets, but Xerox's unit cost was only about \$0.70 per thousand dollars of assets. Second, unit costs provide a more unambiguous prediction for how we expect size to influence internal control audit costs. As the previous example illustrates, larger companies usually benefit from returns to scale in the form of lower unit costs. However, larger firms should also have more numerous and complex internal controls and greater resources to spend on internal auditors and on the establishment of strong internal control systems.

Because companies do not report the number or complexity of their internal controls, we use the number of subsidiaries as an indicator of the complexity of a firm's control environment. The need for both more numerous and more complex controls increases as the number of subsidiaries grows. We expect SOX audit unit costs to increase with the number of subsidiaries because of the additional time auditors would spend testing and evaluating additional and more complex controls. Based on the finding in Doyle et al. (2005) that the existence of material weaknesses varies inversely with size, we expect SOX audit unit costs to be higher

for smaller firms. If smaller companies have less effective internal controls, then we expect them to require more remediation work before their controls can be judged effective. More auditor time and effort will be required to evaluate control problems and the remediation of those problems. Doyle et al. (2005) also report that internal control quality is associated with growth. Rapidly growing firms are likely to outgrow existing internal controls and experience a lag before new controls are established. We measure growth in 2004 based on the percentage change in total assets and expect SOX audit unit costs to be higher for firms that experienced more growth during 2004. Even though some firms that identified material weaknesses during the year were able to remediate those by year-end and assess the internal controls as effective, others were not able to do so and had to report material weaknesses and ineffective internal controls. We expect firms that reported material weaknesses and ineffective controls to have higher SOX audit unit costs than those that reported effective controls.

In addition to our expectations that SOX audit costs will vary with size, number of subsidiaries, growth, and existence of material weaknesses, our intuition and various press reports suggest that internal controls and the cost of auditing those controls will vary by industry. For example, Section 36 of the Federal Deposit Insurance Act of 1991 (FDIC 1991) began requiring banks to evaluate the effectiveness of their internal controls and have their external auditor opine on this evaluation in 1992. Thus, we would expect banking firms to face lower SOX audit unit costs than other industries without regulatory oversight requirements since these companies and their auditors have almost twelve years of experience with internal control audits. Companies in industries that have historically faced rate or regulatory audits are also more likely to have relatively lower unit costs for internal-control audits because of the internal control systems and testing that were previously established to support these regulatory audits.

We initially test these predictions by analyzing SOX audit costs and SOX audit unit costs in quintiles based on size, number of subsidiaries, and growth. For the analyses that address Question

3, we use a sub-sample of 625 firms. We eliminate 12 firms that had a decrease in audit fees from 2003 to 2004 and 11 additional firms for which subsidiary data are unavailable.⁴ Panel A of Table 3 presents SOX audit cost and unit cost means by size quintiles, where size is measured using 2003 year-end total assets. As expected, the mean 2004 SOX audit cost increases as size increases, and the mean 2004 SOX audit unit cost decreases with size. Average SOX audit cost and unit cost are \$1,019,000 and \$1.01, respectively, for the smallest group and \$4,542,000 and \$0.09, respectively, for the largest group. Further, most of the *t*-statistics used to compare the SOX audit costs and SOX audit unit costs are significant. Thus, we can conclude that while the total costs of the SOX audit increased positively with firm size, the SOX audit unit cost decreased. The relationships between firm size and both SOX audit costs and unit costs are graphically depicted in Figure 1.

Table 3
Quintile Analysis of 2004 SOX Audit Cost¹ and
2004 SOX Audit Unit Cost¹ (n=625)
Panel A: Size Quintiles

Quintile Group	Mean 2003 Year-end Total Assets ²	Mean 2004 SOX Audit Cost ²	<i>t</i> -statistic for sequential group differences	Mean 2004 SOX Audit Unit Cost	<i>t</i> -statistic for sequential group differences
1	\$1,103,939	\$1,019	(5.02)**	\$1.01	3.22**
2	2,476,425	1,796		(1.44)	0.74

⁴ In the OLS regression that we use later, we log transform the SOX audit unit cost measure. Because of the log transformation, we cannot use firms whose audit fee decreased or remained unchanged. Thus, we drop those observations so we can use the same sample for this section of the analysis.

3	5,074,772	2,086		0.42	
			(2.63)**		6.51**
4	13,345,865	2,728		0.21	
			(4.32)**		6.65**
5	110,912,461	4,542		0.09	

Panel B: Number of Subsidiaries Quintiles

Quintile Group	Mean Total Number of Subsidiaries	Mean 2004 SOX Audit Cost ²	<i>t</i> -statistic for sequential group differences	Mean 2004 SOX Audit Unit Cost	<i>t</i> -statistic for sequential group differences
1	7	\$1,634	(0.97)	\$0.40	(2.70)**
2	24	1,847		0.58	
			(1.01)		(0.06)
3	48	2,141		0.57	
			(0.62)		1.26
4	98	2,323		0.49	
			(5.45)**		1.14
5	412	4,314		0.42	

Panel C: Growth Quintiles

Quintile Group	2004 Total Assets Growth	Mean 2004 SOX Audit Cost ²	<i>t</i> -statistic for sequential group differences	Mean 2004 SOX Audit Unit Cost	<i>t</i> -statistic for sequential group differences
1	-6.71%	\$2,593	0.04	\$0.38	(1.50)
2	3.52%	2,579		0.48	
			0.62		0.85
3	8.68%	2,380		0.42	
			0.16		(1.59)
4	15.15%	2,325		0.52	
			0.00		(1.68)

5	48.53%	2,323		0.65	
---	--------	-------	--	------	--

¹ SOX Audit Cost is measured as 2004 Audit Fees minus 2003 Audit Fees.
SOX Audit Unit Cost equals SOX Audit Cost divided by 2003 year-end total assets in \$thousands.

² Stated in \$ thousands.

** Significant at 0.001 or less.

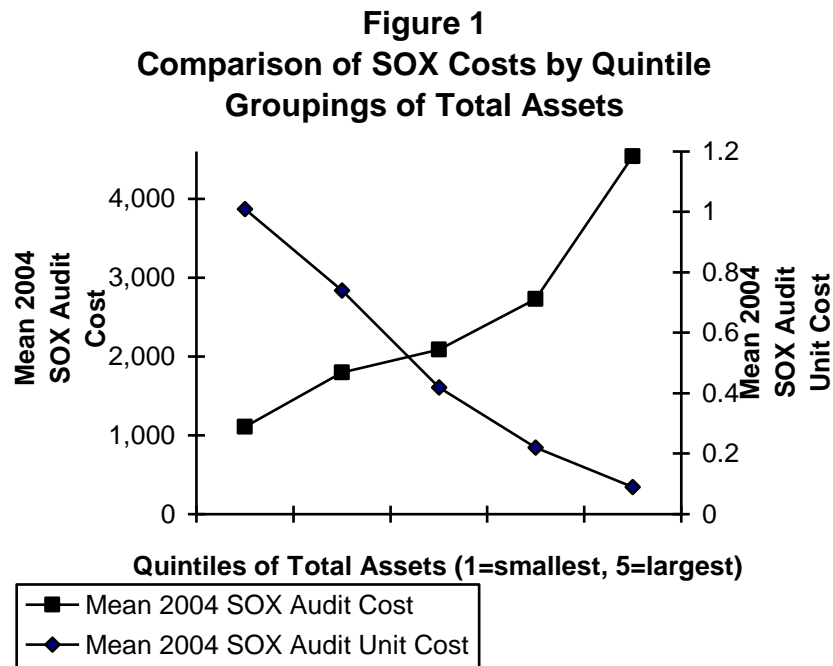


Table 3, Panel B reports SOX audit cost and unit cost means by quintiles based on the number of subsidiaries, where number of subsidiaries is used to capture number and complexity of internal controls. While there is a distinct increase in mean SOX audit cost across the quintiles, only the increase from the fourth to the fifth quintile is significant. The pattern is suggestive of an association between the increases in audit fees and the

number of subsidiaries though the lack of significance for most of the adjacent quintiles suggests this is just weak evidence. There appears to be no pattern in the unit costs across the quintiles. The only significant difference in sequential group mean unit costs is the increase from the first quintile (\$0.40 mean unit cost) to the second quintile (\$0.58 mean unit cost).

Our quintile analysis of SOX audit cost and unit cost means based on growth (2004 percentage change in total assets) is shown in Panel C of Table 3. Even though the growth rate for each quintile is significantly higher than for the prior quintile, we find no evidence that either SOX audit cost or SOX audit unit cost differed between adjacent quintiles. Despite the lack of statistical significance, the unit cost is increasing as growth rates increase across quintiles; however, contrary to our prediction the total cost of the SOX audit is decreasing across the quintiles.

Only 38 (approximately 6%) of our companies reported material weaknesses in internal controls and a resulting assessment of ineffective internal controls over financial reporting. We report SOX audit cost and unit cost means based on reports of effective or ineffective internal controls in Table 4. The mean SOX audit cost of \$4.1 million for firms reporting ineffective internal controls is significantly higher than the mean of \$2.3 million for firms reporting effective internal controls. The average SOX audit unit cost of \$0.86 for firms reporting ineffective controls is also significantly higher than the average of \$0.47 for firms reporting effective controls. Many of the firms reporting ineffective controls also indicated that the material weaknesses that were identified resulted in restatement of either prior annual or quarterly financial statements.

Table 4

**Test for Differences in Mean SOX Audit Cost Based on
Reported Internal Control Effectiveness**

	Firms with Effective Internal Controls (n=587)	Firms with Ineffective Internal Controls (n=38)	<i>t</i> -statistic
Mean 2004 SOX Audit Cost ¹	\$2,331	\$4,126	(4.14)**
Mean 2004 SOX Audit Unit Cost ¹	\$0.47	\$0.86	(4.21)**

¹ SOX Audit Cost is measured as 2004 Audit Fees minus 2003 Audit Fees. SOX Audit Unit Cost equals SOX Audit Cost divided by 2003 year-end total assets in \$thousands. Mean 2004 SOX Audit Cost is stated in \$ thousands.

** Significant at 0.001 or less.

Table 5 contains a summary of the industry composition of our sample. The 625 firms are distributed across 228 4-digit SIC codes that we consolidated into thirteen major groupings. The two largest industry groups in our sample are Utilities and Mining (124 companies) and Financial Services (109 companies). These two groups account for approximately 37% of our sample. After these groups, the next three largest groups are Electronic Equipment and Electronics, Distributors and Retailers, and Services, with each group comprising slightly over eight percent of the sample. The remaining eight groups represent about 38% of the sample with the smallest group (Food and Tobacco Manufacturers) contributing only 17 companies or about three percent to the sample. The industry groups are listed in Table 5 from lowest to highest SOX audit unit cost. The differences in unit costs are striking in that the largest average unit cost, \$0.85 for Durables and Machinery Manufacturing, is more than six times the smallest average unit cost, \$0.13 for Financial Services. However, despite the clear differences between groups, the only significant difference between the ordered pairs is from comparing the mean unit cost

paid by Financial Services firms to that paid by sample companies classified as Utilities and Mining.

Table 5
Industry Composition and SOX Audit Unit Cost¹ by Industry

Industry Group Description (Listed from lowest to highest SOX Audit Unit Cost)	n	SOX Audit Unit Cost	<i>t</i> -statistic for sequential group differences
Financial Services (incl. insurance and banking)	109	\$0.13	(4.23)**
Utilities and Mining	124	0.28	(1.37)
Food and Tobacco Manufacturing	17	0.37	(1.00)
Paper and Paper Products	34	0.45	(0.38)
Transportation Equipment Manufacturing and Servicing	23	0.48	(1.20)
Construction and Construction Materials	28	0.61	(0.01)
Medical, Personal and Other Services	52	0.61	(0.00)
Chemical and Pharmaceutical Manufacturers	42	0.61	(0.06)
Consumer Goods Manufacturing	20	0.62	(0.16)
Transportation	35	0.65	(0.85)
Electronic Equipment and Electronics	55	0.81	(0.11)
Distributors and Retailers	51	0.82	

			(0.21)
Durables and Machinery Manufacturing	35	0.85	
Total	625		

¹ SOX Audit Unit Cost equals SOX Audit Cost divided by 2003 year-end total assets in \$thousands. SOX Audit Cost is measured as 2004 Audit Fees minus 2003 Audit Fees.

** Significant at 0.001 or less.

Despite our intuition that changes in audit fees due to the new internal control attestation requirement imposed by SOX Section 404 would vary by size, number of subsidiaries, existence of material weaknesses, and growth rates, we have so far only found weak evidence supporting our notion that these factors systematically explain differences in SOX audit costs and unit costs. Specifically, the evidence supports our predictions that the SOX audit costs would vary positively with size and that the SOX audit unit costs would be negatively associated with size and with the identification of at least one material weakness in internal controls. We find weak evidence that SOX unit costs varied by industry grouping. Our analysis provides little support for an association between the SOX audit cost and unit cost measures and either number of subsidiaries or growth in total assets. However, given the complicated nature of the interrelationships between these various measures, we also estimate an ordinary least-squares model to test these relationships. The base model we use is:

$$\begin{aligned} \ln(SOXUNITCOST) = & \alpha + \beta_1 \ln(TotalAssets_{2003}) + \beta_2 SQRSUBS + \\ & \beta_3 ASSETGROW + \beta_4 MATWEAK + \beta_{4+i} \sum_{i=1}^{i=12} INDUSDUM + \varepsilon \end{aligned}$$

where $SOXUNITCOST$ = (2004 audit fees minus 2003 audit fees) divided by 2003 year-end total assets in thousand of dollars, $TotalAssets_{2003}$ = 2003 year-end total assets in thousands of dollars,

SQRSUBS = square root of the number of subsidiaries as reported in the 2004 Form 10-K, *ASSETGROW* = percentage change in total assets from 2003 to 2004 computed as 100 times [(2004 year-end total assets divided by 2003 year-end total assets) minus one], *MATWEAK* = one if the company reported a material weakness (ineffective internal controls) in its 2004 SOX management report and zero otherwise, and *INDUSDUM* represents a series of twelve variables set equal to one if the firm is a member of a particular industry grouping and zero otherwise. We have thirteen industry groupings but can only directly test for an association between industry grouping and SOX audit unit cost with twelve since with thirteen industry variables, the matrix would be singular, and we could not estimate any of the parameters. The industry that is not represented by an industry dummy variable is the Services industry.

In addition to the base model, we also estimate an augmented model with a control variable, $\ln(2003AUFEE)$, defined as 2003 audit fees divided by 2003 year-end total assets in thousands of dollars. We estimate this augmented model based on our intuition that auditors may use many of the same determinants of financial statement audit fees for determining their SOX audit costs. If, in fact, the SOX audit cost were priced solely based on the auditors' 2003 financial statement audit fees, then we would expect any significant parameter estimates in the base model to be not significant in the augmented model since their effect should be seen through the parameter estimate on $\ln(2003AUFEE)$.

Table 6 reports the parameter estimates, their significance, and goodness-of-fit measures from estimating both the base model and the augmented model. The base model supports our original expectations that the cross-sectional variation in the SOX audit unit cost is affected by size, number of subsidiaries, growth, existence of material weaknesses, and membership in particular industries. However, when we augment the base model with $\ln(2003AUFEE)$, most of the industry coefficients and the parameter estimate for the number of subsidiaries become insignificant. Thus, our discussion that follows will focus on the

augmented model. By using a log transformation of the SOX audit unit cost as our dependent variable we can interpret the parameter estimates as percentage effects on the dependent variable of changes in the particular independent variables. Thus, we can interpret the 0.65 estimate of $Ln(2003AUFEE)$ as indicating that for every one percent increase in the 2003 financial statement audit rate, the SOX audit unit cost increases by 0.65%. This suggests that auditors used their experiences from the 2003 audit as the starting point in establishing the fee for the SOX audit work in 2004. As expected, the parameter estimate on our measure of size, $Ln(TotalAssets_{2003})$, was negative and significant. The (0.31) parameter estimate suggests that for every percent increase in total assets, the SOX audit unit cost decreases by about one-third of a percent. These findings could indicate that auditors share their economies of scale with their clients, and they confirm the findings of Doyle et al. (2005) who show that the likelihood of a company having ineffective controls decreases with size. The estimate on *MATWEAK* paints a grim picture for companies that had ineffective controls. Since the independent variable is not log-transformed, the 0.38 estimate can be interpreted as suggesting that, *ceteris-paribus*, companies with one or more material weaknesses paid a 38% premium in their SOX audit rate. A comparison of the SOX audit unit cost for EGL and C H Robinson Worldwide make this finding a little more salient. Both companies are in the same SIC group, are close in size, and experienced similar growth rates from 2003 to 2004. However, EGL reported ineffective internal controls due to material weaknesses while C H Robinson Worldwide reported effective internal controls. EGL's SOX audit unit cost of \$3.26 is more than 14 times the \$0.22 unit cost of C H Robinson Worldwide. Our other main findings are that the SOX audit unit cost is positively associated with asset growth and that two industry groups have differential effects on the SOX audit unit cost. Specifically, companies in the Electronic Equipment and Electronics industry group paid a steep premium (about 30%) relative to other industry groups, and Financial

Services companies paid about 30% less than firms in other industries.

Table 6
Multivariate Estimation of SOX Audit Unit Costs

Dependent variable is $Ln(SOXUNITCOST)$.
 n=625

Variable	Base Model	Augmented Model
<i>Intercept</i>	17.70 (82.74)**	15.81 (73.48)**
$Ln(TotalAssets_{2003})$	-0.62 (-25.44)**	-0.31 (-11.00)**
<i>SQRSUBS</i>	0.0005 (4.13)**	0.0001 (0.82)
<i>ASSETGROW</i>	0.33 (3.32)**	0.42 (5.03)**
<i>MATWEAK</i>	0.48 (4.03)**	0.38 (3.79)**
<i>2003AUFEE</i>		0.65 (15.98)**
<i>CONSTRUCTION</i>	0.04 (0.22)	0.08 (0.59)
<i>FOOD/TOBACCO</i>	0.10 (0.50)	-0.02 (-0.13)
<i>CONSUMERGOODS</i>	0.39	0.12

	(2.05)	(0.75)
<i>PAPERPRODUCTS</i>	0.15 (0.94)	0.02 (0.14)
<i>CHEM&PHARM</i>	0.37 (2.45)**	0.14 (1.14)
<i>DURABLES&MACHINERY</i>	0.50 (3.24)**	0.23 (1.77)
<i>ELECTEQUIP</i>	0.58 (4.15)**	0.31 (2.62)**
<i>TRANSEQUIP</i>	0.46 (2.56)**	0.08 (0.55)
<i>TRANSPORTATION</i>	-0.31 (-1.97)	-0.10 (-0.79)
<i>UTILITIES&MINING</i>	-0.14 (-1.15)	0.03 (0.32)
<i>DIST&RETAILERS</i>	-0.03 (-0.05)	0.11 (0.89)
<i>FINANCIALSERVICES</i>	-0.66 (-4.94)**	-0.29 (-2.55)*
<i>F-value</i>	96.61	144.01
<i>Adjusted R²</i>	71.03%	79.58%

* Significant at 0.01 or less.

** Significant at 0.001 or less.

Variable definitions: $Ln(SOXUNITCOST)$ =natural log of [(2004 audit fees – 2003 audit fees) ÷ 2003 year-end total assets]; $Ln(TotalAssets2003)$ =natural log

of 2003 year-end total assets; $SQRSUBS$ =square root of the number of subsidiaries reported in fiscal year 2004 Form 10-K; $ASSETGROW$ =percentage change in total assets from 2003 to 2004; $MATWEAK$ =1 if management reported material weakness(es) in internal control as of fiscal year-end 2004, zero otherwise; $Ln(2003AUFEE)$ =natural log of (2003 audit fees \div 2003 year-end total assets); all other variables are industry dummy variables equal to 1 if the firm is a member of that industry and zero otherwise.

V. SUMMARY AND CONCLUSION

This study examines the impact on audit fees of the SOX Section 404 requirement that firms' independent accountants attest to management's assessment of the effectiveness of internal controls over financial reporting. This requirement is designed to achieve benefits such as improved investor confidence and more effective internal controls resulting in less fraud and financial statement misstatements. We evaluate the audit fees disclosed by a sample of Fortune 1000 companies for which fiscal year 2004 is the initial year of compliance with SOX Section 404 and address the following three descriptive questions:

- 1) Were 2004 audit fees significantly higher than 2003 audit fees?
- 2) Were audit fee increases from 2003 to 2004 primarily attributable to the new SOX audit?
- 3) Are SOX audit costs based on the likelihood or identification of material weaknesses in internal controls over financial reporting?

Our data analyses support "yes" answers to all three questions. Average 2004 audit fees of \$5.8 million are significantly higher than average 2003 audit fees of \$3.5 million. For our sub-sample of 97 firms that explicitly identified SOX audit fees, the average change in audit fees from 2003 to 2004 is statistically equivalent to the average disclosed 2004 SOX audit fees. Using size and asset growth as indicators of the likelihood of material weaknesses, we present results that support the assertion that SOX audit costs are determined based on these factors after considering the 2003 financial statement audit rate and the identification of material weaknesses.

Our study provides empirical evidence on actual initial SOX audit costs and documents that actual costs for our sample are at the upper extreme of costs estimated in surveys (see FEI 2004). The SEC is continuing to monitor the implementation of SOX Section 404 and to work closely with the PCAOB and others to improve the compliance process. In a Commission Statement released on May 16, 2005, the SEC announced the release of additional guidance regarding the Section 404 requirements and made the following statement about its expectations for future internal control audits: "In future years we expect the internal control audit to be better integrated with the audit of a company's financial statements. If management and auditors can achieve the goal of integrating the two audits, we expect that both internal and external costs of Section 404 compliance will fall for most companies" (SEC 2005b). The evidence we report in this study not only provides documentation of the first-year SOX audit costs but also serves as a baseline for analysis of future costs.

REFERENCES

- Arndt, M. 2004. Accounting's Beautiful Losers. *BusinessWeek online* (November 10). Available at:
http://www.businessweek.com/bwdaily/dnflash/nov2004/nf20041110_0586_db038.htm.
- BDO Seidman LLP, Crowe Chizek and Company LLC, Deloitte & Touche LLP, Ernst & Young LLP, Grant Thornton LLP, Harbinger PLC, KPMG LLP, McGladrey & Pullen LLP, PricewaterhouseCoopers LLP, and William F. Messier, Jr. 2004. A Framework for Evaluating Process/Transaction-Level Exceptions and Deficiencies, Version 1 (October 28). Available at:
[http://www.404institute.com/docs/US DPP ICOFR 04 028 A 01.pdf](http://www.404institute.com/docs/US_DPP_ICOFR_04_028_A01.pdf) (accessed May 26, 2005).
- Doyle, J., W. Ge, and S. McVay. 2005. Determinants of weaknesses in internal control over financial reporting and the implications for earnings quality. Working paper.

- DST Systems Inc. 2005. *Definitive Proxy Statement*. Available at:
<http://www.sec.gov/Archives/edgar/data/714603/000104746905008236/a2154197zdef14a.htm>
- ExxonMobil Corporation. 2005. *Definitive Proxy Statement*. Available at:
<http://www.sec.gov/Archives/edgar/data/34088/00010474690509977/a2153225zdef14a.htm>
- Federal Deposit Insurance Corporation (FDIC). 1991. Federal Deposit Insurance Act. Pub. L No. 102--242; 105 Stat. 2242. (Section 2[36(c)]).
- Financial Executives International (FEI). 2004. *FEI Special Survey on Sarbanes-Oxley Section 404 Implementation – Executive Summary (July 2004)* and related exhibits. Available at: http://www.fei.org/news/404_july.cfm.
- Glass Lewis & Co. 2004. Running Out of Time: Compliance Deadline for Reporting on Internal Financial Reporting and Disclosure Controls Nears (September 23). Yellow Card Trend Alert.
- Gullapalli, D. 2005. Audit Fees Are on Rise As Companies Pony Up. *Wall Street Journal* (March 25): C3.
- Nyberg, A. 2003. Sticker Shock. *CFO* (September). Available at:
http://www.cfo.com/article.cfm/3010299/c_3046597?f=magazine_coverstory.
- Sarbanes-Oxley Act (SOX). 2002. *Public Law No. 107-204*. Washington, D.C.: Government Printing Office.
- Securities and Exchange Commission (SEC). 2003a. *Final Rule: Management's Reports on Internal Control Over Financial Reporting and Certification of Disclosure in Exchange Act Periodic Reports*. Release No. 33-8238. Washington, D.C.: SEC. Available at: <http://www.sec.gov/rules/final/33-8238.htm>.
- Securities and Exchange Commission (SEC). 2003b. *SEC Implements Internal Control Provisions of Sarbanes-Oxley Act; Adopts Investment Company R&D Safe Harbor*. Press Release

- No. 2003-66. Washington, D.C.: SEC. Available at: <http://www.sec.gov/news/press/2003-66.htm>.
- Securities and Exchange Commission (SEC). 2003c. *Strengthening the Commission's Requirements Regarding Auditor Independence*. Release No. 33-8183. Washington, D.C.: SEC. Available at: <http://www.sec.gov/rules/final/33-8183.htm>.
- Securities and Exchange Commission (SEC). 2004a. *Final Rule: Management's Reports on Internal Control Over Financial Reporting and Certification of Disclosure in Exchange Act Periodic Reports*. Release No. 33-8392. Washington, D.C.: SEC. Available at: <http://www.sec.gov/rules/final/33-8392.htm>.
- Securities and Exchange Commission (SEC). 2004b. *Public Company Accounting Oversight Board; Order Approving Proposed Auditing Standard No. 2, An Audit of Internal Control over Financial Reporting Performed in Conjunction With an Audit of Financial Statements ("Auditing Standard No. 2")*. Release No. 34-49884. Washington, D.C.: SEC. Available at: <http://www.sec.gov/rules/pcaob/34-49884.htm>.
- Securities and Exchange Commission (SEC). 2005a. *Speech by SEC Chairman: Opening Remarks Before the Roundtable on the Implementation of Internal Control Reporting Provisions*. (April 13). Washington, D.C.: SEC. Available at: <http://www.sec.gov/news/speech/spch041305whd.htm>.
- Securities and Exchange Commission (SEC). 2005b. *Commission Statement on Implementation of Internal Control Reporting Requirements*. (May 16). Washington, D.C.: SEC. Available at: <http://www.sec.gov/news/press/2005-74.htm>.
- Solomon, D. 2005. Accounting Rule Exposes Problems But Draws Complaints About Costs. *Wall Street Journal* (March 2): A1.