## Sarbanes-Oxley Section 404 Places Disproportionate Burden on

## **Smaller Public Companies**

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# Sarbanes-Oxley Section 404 Places Disproportionate Burden on Smaller Public Companies

#### Overview

The Sarbanes-Oxley Act (SOX), also known as the Public Company Accounting Reform and Investor Protection Act of 2002, was signed into law on July 30, 2002, in response to a series of high-profile corporate accounting scandals that involved Enron, WorldCom, Tyco, Adelphia, and others. However, while the act was aimed to improve the quality of financial reporting and restore investor confidence on the integrity of corporate disclosure, it was not designed to accommodate smaller public companies' unique characteristics. In particular, Section 404 of the Act, which requires management and the external auditor to report on the adequacy of the company's internal control over financial reporting, is the most contentious part of SOX and has generated disproportionate cost burden for smaller public companies. The impact of Section 404 on smaller public companies has yet to be fully revealed as the Securities and Exchange Commission (SEC) has further extended the compliance deadline. Non-accelerated filers, which account for about 60 percent of all registered public companies, are currently required to document a management assessment of their internal controls for fiscal years ending on or after December 15, 2007, and to have external auditor attestation for fiscal years ending on or after December 15, 2009. Smaller public companies performing their first management and auditor assessment in the near future will find their compliance with Section 404 particularly challenging. Past evidence has shown that the costs of Section 404 have exceeded the benefits of strengthened investor protection for smaller public companies. As the compliance burden is falling upon non-accelerated filers that comprise the bulk of all public companies and may seriously jeopardize their competitiveness and growth potential, it is high time we take a second look at the appropriateness of SOX Section 404.

This report, by using audit fee as a proxy, studies the cost burden of Section 404 on all 404 filers and, in particular, smaller 404 filers and is intended to shed light on its future impact on non-accelerated filers. While audit fees are only a portion of total compliance cost of Section 404, the use of this proxy measure enables us to conduct a comprehensive analysis on a large-scale dataset. Our results provide a still more conservative estimate of the disproportionate burden Section 404 has imposed on smaller filers because other 404 compliance costs, such as staff training, consulting, documentation, and financial information system development, have appeared to be even more overwhelming for smaller public companies. Our findings imply that while smaller accelerated filers have borne disproportionate 404 cost burden, this could generate even more serious problems for non-accelerated filers, as they are the smallest and most vulnerable companies in the U.S. stock market. Our findings suggest that:

- Small and large public companies operate in different manners, thus the kind of internal control structure Section 404 requires to assess is not as necessary for smaller companies as for their larger counterparts.
- Section 404 has imposed disproportionate cost burdens on smaller public companies that exceed the benefits they could derive.

In June 2007, the Public Company Accounting Oversight Board (PCAOB) released

the new Auditing Standard No. 5 ("the new standard") that is intended to be a remedy for the problem Section 404 has brought forth to smaller public companies. However, deficiencies of the new standard have cast doubt on whether scaled audits can truly reduce 404 cost burdens. Thus, we recommend that:

- PCAOB should give a clear definition of "smaller public companies" that Auditing Standard No. 5 has referred to for scaled audits on internal controls, using revenue as a complementary indicator for company size and complexity.
- Congress should further consider amending Sarbanes-Oxley Section 404 so as to allow smaller public companies to opt in and opt out of the requirements of Section 404. For those companies that choose to voluntarily comply with Section 404, they should be able to obtain scaled internal control audits that are proportionate to their size and complexity.

#### Sarbanes-Oxley Section 404

The Sarbanes-Oxley Act of 2002 is composed of 11 titles that address auditor independence, corporate responsibility, enhanced financial disclosure, analyst conflicts of interest, corporate and criminal fraud accountability, white-collar crime penalty enhancements, and so on. It applies to those companies required to file reports with the SEC under the Securities Exchange Act of 1934 regardless of their size, although extension of the compliance of Section 404 of Title IV<sup>1</sup> is given to non-accelerated filers defined as companies with public float of less than \$75 million. The impact of SOX on smaller public companies has yet to be fully revealed as about 60 percent of all registered public companies have not completely complied with Section 404 so far.

<sup>1</sup>Section 404 "Management assessment of internal controls" is under Title IV "Enhanced Financial Disclosures." See 15 U.S. Code § 7262.

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Section 404(a) requires each annual report to contain an internal control report which shall "state the responsibility of management for establishing and maintaining an adequate internal control structure and procedure for financial reporting," and contain an assessment of the effectiveness of such structure. Section 404(b) requires "each registered public accounting firm that prepares or issues the audit report for the issuer shall attest to, and report on, the assessment made by the management of the issuer." For U.S. issuers, accelerated filers have already complied with Section 404 for fiscal years ending on or after November 15, 2004, and non-accelerated filers are required to include management's 404 report for fiscal years ending on or after December 15, 2007, and include external auditor's attestation for fiscal years ending on or after December 15, 2009. Section 404 remains the most controversial component of SOX as the annual review of the internal control generates significant compliance burden, especially for smaller public companies.

#### Data

Our analysis uses data from AuditAnalytics.com, a premium online market intelligence service from the IVES Group Inc., and includes U.S. issuers with audit fee data available from 2003 to 2006, while excluding foreign issuers and duplicate companies. This gives us a sample of almost 3,000 companies that filed 404 internal

<sup>&</sup>lt;sup>2</sup>See Sarbanes-Oxley Act of 2002, Public Law 107-204.

 $<sup>^{3}</sup>Ibid$ 

<sup>&</sup>lt;sup>4</sup>Companies with public float of \$75 million or more are identified as accelerated filers, and companies with public float of \$700 million or more are identified as large accelerated filers.

control reports. Since the SEC requires accelerated filers to include a 404 assessment in their annual reports for fiscal years ending on or after November 15, 2004, we adopt an offset-year approach in order that the first 404 compliance year represents fiscal year ending during the 12-month period from November 15, 2004, to November 14, 2005. The second compliance year represents fiscal year ending during the next 12 months from November 15, 2005, to November 14, 2006. And the base year refers to the 12-month period prior to the compliance of Section 404. Rather than using an ordinary fiscal year cut-off, this approach enables us to capture all the 404 filers in their first compliance year. We use audit fees as a proxy measure, although this only represents a portion of the 404 compliance cost, because staff training, consulting, documentation, financial information system development, and implementation all cause significant direct cost. However, the use of this proxy measure enables us to analyze a large-scale dataset instead of relying on survey methodology for a limited sample of companies. We standardize audit fee by the company's revenue so that a comparison can be drawn across companies with different sizes.

### Section 404 has imposed a heavy compliance burden

While the SEC initially estimated the cost of complying with Section 404 to be \$1.24 billion in the aggregate, multiple studies have projected the actual cost to be \$35 billion, almost 30 times that of the original estimate.<sup>5</sup> CRA International's survey data indicates

<sup>5</sup>Hearings, *The Sarbanes-Oxley Act 4 Years Later: What Have We Learnt?* Subcommittee on Regulatory

that total year-one Section 404 implementation cost per company with market capitalization between \$75 million and \$700 million, known as a small accelerated filer, is \$1.5 million, or 0.46 percent of its revenue; and that per company with market capitalization above \$700 million, known as a large accelerated filer, is \$7.3 million, or 0.09 percent of its revenue.<sup>6</sup> A more recent estimate pegged the average cost of direct compliance costs and outside audit fees in 2006 at 2.5 percent of a company's revenue.

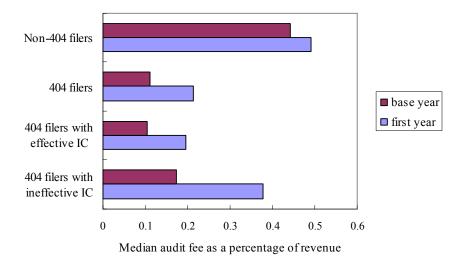
Our analysis of Audit Analytics data shows that 2,952 companies, or roughly 40 percent of all the companies in our sample, filed 404 internal control reports for the first compliance year, among which 417, or 14 percent, had ineffective internal controls. However, to find out those 14 percent, 404 filers have paid an enormous price. Figure 1 and Figure 2 show that 404 filers generally experienced a substantially larger increase in audit fees from base year to the first compliance year compared to non-404 filers. 404 filers experienced a median increase of 84.5 percent in audit fee as a percentage of revenue, while non-404 filers only experienced a median increase of 6.1 percent. The median is used instead of mean to reduce the distortion of outliers, since a company with an extreme value could cancel out the influence of many other companies. In the

Affairs, Committee on Government Reform, U.S. House of Representatives, 109<sup>th</sup> Congress, 2<sup>nd</sup> Session, April 5, 2006, Serial No. 109-199.

<sup>&</sup>lt;sup>6</sup>See CRA International, "Sarbanes-Oxley Act Section 404 Costs and Implementation Issues: Survey Update," Washington, D.C., December 8, 2005. Financial Executives International (FEI) drew a similar conclusion from its surveys. They estimated average year-one 404 compliance cost to be over \$3 million per company, and over \$8 million for companies with more than \$5 billion in revenues. See Financial Executives International, "FEI Special Survey on Sarbanes-Oxley Section 404 Implementation Executive Summary," July 2004.

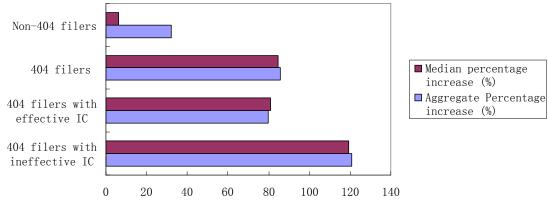
<sup>&</sup>lt;sup>7</sup>Lorraine Woellert, "The SEC Opens up Sarbox," *Business Week*, December 5, 2006, at http://www.businessweek.com/bwdaily/dnflash/content/dec2006/db20061205\_761982.htm (December 5, 2006).

aggregate, 404 filers experienced an 85.8 percent increase in audit fees from base year to the first year in contrast to a 32 percent increase of non-404 filers during the same period. Even after they experienced the learning curve in the initial compliance year, 404 filers still experienced a median increase of 65.7 percent in audit fee as a percentage of revenue from base year to the second year, compared to merely 9.0 percent of that of the non-404 filers, indicating that the soaring audit fees are not just one-time costs, but have become recurring out-of-pocket expenses under Section 404.



Source: CDA analysis of Audit Analytics data.

Figure 1: Median audit fee as a percentage of revenue (base year vs. first year)



Source: CDA analysis of Audit Analytics data.

Figure 2: Percentage increase of audit fee as a percentage of revenue (base year to first year)

Geographically, 404 filers concentrated in a few major metropolitan areas. The top 12 metropolitan statistical areas (MSAs)<sup>8</sup> in terms of the number of 404 filers accounted for half of the total 404 filers in the first compliance year (see Table 1), with New York-Northern New Jersey-Long Island MSA, Los Angeles-Long Beach-Santa Ana MSA, San Jose-Sunnyvale-Santa Clara MSA, Chicago-Naperville-Joliet MSA, and Boston-Cambridge-Quincy MSA at the top of the list. Hence, those were the places more extensively influenced by SOX. By state, Appendix Figure A-1 shows that California, Texas, and New York ranked in the top three in terms of the number of 404 filers.

Generally, those MSAs experienced a large percentage increase in aggregate audit fees from base year to the first compliance year, ranging from about 70 percent to 120 percent (see Table 1), with Boston-Cambridge-Quincy MSA leading with 122 percent, followed by San- Jose-Sunnyvale-Santa Clara MSA with 109 percent, much higher than the national level of 86 percent. New York-Northern New Jersey-Long Island MSA (69 percent) ranked last among the 12 MSAs, which may be explained by the fact that there are more large businesses in that area and large businesses tend to be less affected by SOX than smaller businesses due to their economies of scale. In all, eight out of 12 of those major MSAs experienced an audit fee increase higher than the national level, indicating their companies have felt the burden as the compliance cost of Section 404

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<sup>&</sup>lt;sup>8</sup>The Office of Management and Budget (OMB) issued definitions for "core-based statistical area" (CBSA) in 2000, which refers collectively to metropolitan and micropolitan statistical areas. The 2000 standards provide that each metropolitan statistical area must have at least one urbanized area of 50,000 or more inhabitants. In all, there are 369 metropolitan statistical areas.

phased in.

Table 1: Top 12 metropolitan statistical areas in terms of number of 404 filers

Rank (Audit	Metropolitan statistical area	Aggregate audit	N of 404	% of total	Rank (N
fee increase) <sup>a</sup>		fee increase (%)	filers	404 filers	of filers)b
1	Boston-Cambridge-Quincy, MA-NH	121.92	120	4.07	5
2	San Jose-Sunnyvale-Santa Clara, CA	108.86	128	4.34	3
3	Atlanta-Sandy Springs-Marietta, GA	97.87	69	2.34	12
4	Washington-Arlington-Alexandria,	95.52	77	2.61	10
	DC-VA-MD-WV				
5	Philadelphia-Camden-Wilmington,	92.32	102	3.46	8
	PA-NJ-DE-MD				
6	Los Angeles-Long Beach-Santa Ana, CA	91.16	143	4.84	2
7	Minneapolis-St. Paul-Bloomington,	90.17	73	2.47	11
	MN-WI				
8	Houston-Baytown-Sugar Land, TX	87.30	119	4.03	6
9	Chicago-Naperville-Joliet, IL-IN-WI	83.91	125	4.23	4
10	San Francisco-Oakland-Fremont, CA	80.99	109	3.69	7
11	Dallas-Fort Worth-Arlington, TX	75.73	100	3.39	9
12	New York-Northern New Jersey-Long	69.38	304	10.30	1
	Island, NY-NJ-PA				
Total			1,469	49.76	

Notes:

Source: CDA analysis of Audit Analytics data.

## Smaller public companies have inherent disadvantages in internal controls

An obvious deficiency of SOX Section 404 is that it creates unfair distribution of costs as the likelihood of having internal control problems is highly skewed towards smaller public companies due to their inherent disadvantages. With a lack of familiarity and experience to cope with SEC rules, smaller public companies have steeper learning curves. Their internal control structure is more vulnerable than that of big companies' and they usually lack internal accounting staff that possesses the expertise to handle the

a. Ranked by percentage increase of audit fees in the aggregate from base year to the first compliance year.

b. Ranked by the number of 404 filers in the first compliance year.

complexity of the internal control structure. As a result, they have to devote more resources and attention to fix internal control problems by spending more on staff training and soliciting outside consultancy. According to a survey by the U.S. Government Accountability Office (GAO) on the impact of SOX on smaller public companies, 81 percent or 128 out of the 158 respondents mentioned that they had to hire a separate accounting firm or consultant to help them with planning, documenting, and assessing the internal controls, whereas large companies could rely on their own personnel. Some executives commented that the financial accounting standards, for instance, for stock options, were too complex for their staff and they would rather let the auditor fix the problem and cite material weakness in their internal controls. 10

Further, smaller public companies are usually faced with liquidity constraints and lack resources to segregate duties and responsibility to meet basic requirements of an internal control structure. The American Institute of Certified Public Accountants (AICPA) noted that smaller companies usually do not have the internal audit functions as stated in the Committee of Sponsoring Organizations (COSO)<sup>11</sup> of the Treadway Commission's 1992 framework for internal controls, on which Section 404 was based. COSO released new guidance in July 2006 to assist smaller public companies to implement the 1992

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<sup>&</sup>lt;sup>9</sup>U.S. Government Accountability Office, *Sarbanes-Oxley Act: Consideration of Key Principles Needed in Addressing Implementation for Smaller Public Companies*, GAO-06-361, April 2006, p. 17. <sup>10</sup>*Ibid.*, p. 19.

<sup>&</sup>lt;sup>11</sup>Committee of Sponsoring Organizations (COSO) of the Treadway Commission is an independent private-sector initiative formed in 1985 with main objectives to study the factors that cause fraudulent financial reporting and make recommendations to reduce such incidence. COSO has established a common definition and criteria of internal controls that companies could use to assess their own structure (from Wikipedia, at

http://en.wikipedia.org/wiki/Committee\_of\_Sponsoring\_Organizations\_of\_the\_Treadway\_Commission).

framework, but there are complaints that the new guidance does nothing to reduce the scope of external audits because it only addresses management, not auditors. According to the GAO's survey, 60 percent of the smaller companies that responded said they found it difficult to perform segregation of duties in their financial reporting.<sup>12</sup> Two executives said their companies were cited by the auditor with material weaknesses in internal controls because they did not have enough internal accounting staff, which they were unable to achieve because of limited resources.<sup>13</sup>

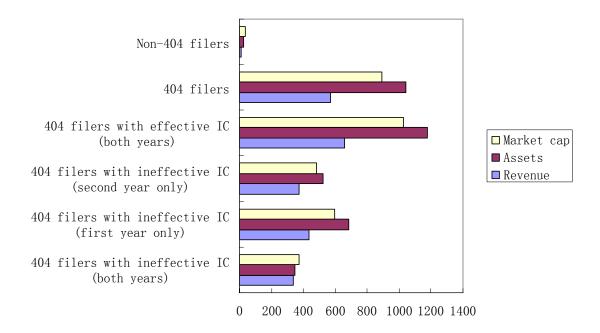
Due to these inherent disadvantages of smaller public companies, they are far more likely than large companies to have ineffective internal controls. Our analysis of Audit Analytics data shows that there are 2,908 companies that filed Section 404 reports for both the first and second year. This is slightly different than the 2,952 filers in the first year, which may be because some companies transitioned between different filer categories as their public float changed or other companies were delinquent in implementing Section 404. Among them, 2,375 filers had effective internal controls for both years, 283 had ineffective internal controls in the first year but had corrected them in the second year, 131 had ineffective internal controls in the second year but not the first year, and 119 had ineffective internal controls for both years. Figure 3 shows that in terms of median market cap, assets, and revenue, 404 filers that had ineffective internal controls for both years were substantially smaller than those with effective internal controls for

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<sup>&</sup>lt;sup>12</sup>U.S. Government Accountability Office, Sarbanes-Oxley Act: Consideration of Key Principles Needed in Addressing Implementation for Smaller Public Companies, p. 19.

<sup>13</sup>Ibid.

both years and still smaller than those that had ineffective internal controls for the first year only.<sup>14</sup>



Notes: Market cap, assets, and revenue are in millions of dollars, based on the second year.

Source: CDA analysis of Audit Analytics data.

Figure 3: Median market cap, assets, and revenue of 404 filers by their internal controls condition

We further conducted a Kruskal-Wallis test to compare the means of market cap, assets, and revenue of 404 filers by their internal controls condition in the two-year period. The Kruskal-Wallis test is a non-parametric (distribution-free) test used to compare three or more independent groups. It is an alternative of one-way analysis of variance (ANOVA) when the assumption of normality or equality of variance is not

<sup>&</sup>lt;sup>14</sup>The median market cap for 404 filers with ineffective internal controls for both years was \$373 million, while the median for 404 filers with effective internal controls for both years was \$1,027 million, and the median for 404 filers with ineffective internal controls in the first year only was \$594 million.

The median assets for 404 filers with ineffective internal controls for both years were \$347 million, while the median for 404 filers with effective internal controls for both years was \$1,176 million, and the median for 404 filers with ineffective internal controls in the first year only was \$687 million.

The median revenue for 404 filers with ineffective internal controls for both years was \$339 million, while the median for 404 filers with effective internal controls for both years was \$660 million, and the median for 404 filers with ineffective internal controls in the first year only was \$437 million.

satisfied. We used the Kruskal-Wallis test because Bartlett's test shows for our data that the null hypothesis of equal variance is rejected. The Kruskal-Wallis test uses the ranks of the data rather than their raw values to calculate the mean rank of each group. The results show that at least one of the means significantly differs from others, with 404 filers with effective internal controls for both years possessing substantially larger average market cap, assets, and revenue than filers with ineffective internal controls in either year or both years (see Table 2). Additionally, a mean-comparison test based on the first compliance year shows similar results that 404 filers with ineffective internal controls were significantly smaller than those with effective internal controls in terms of average market cap, revenue, and net income (see Appendix Table A-1).

Table 2: Kruskal-Wallis test for mean-comparison of market cap, assets, and revenue of 404 filers by their internal controls condition

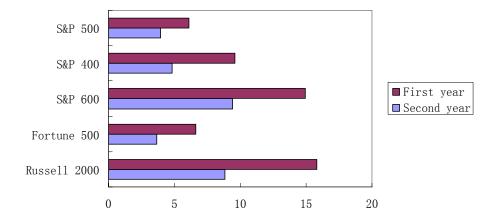
	(1) Market cap				(2) Assets	3	(3) Revenue			
	Obs.	Rank sum	Mean rank	Obs.	Rank sum	Mean rank	Obs.	Rank sum	Mean rank	
404 filers with effective IC	2,293	3.34E+06	1,457	2,349	3.51E+06	1,494	2,349	3.46E+06	1,473	
(both years)										
404 filers with ineffective	270	317,333	1,175	280	344,125	1,229	280	357,691.5	1,277	
IC (first year only)										
404 filers with ineffective	123	133,447	1,085	129	147,407	1,143	129	165,012	1,279	
IC (second year only)										
404 filers with ineffective	103	101,455	985	112	119,024.5	1,063	112	140,051	1,250	
IC (both years)										

#### Notes:

Source: CDA analysis of Audit Analytics data.

<sup>1.</sup> Market cap, assets, and revenue are based on the second year.

<sup>2.</sup> Significance of the test: (1) Market cap: chi-squared=78.157, probability=0.0001; (2) Assets: chi-squared=67.854, probability=0.0001; (3) Revenue: chi-squared=24.855, probability=0.0001.



Source: CDA analysis of Audit Analytics data.

Figure 4: Percentage of filers with ineffective internal controls by major stock market indices and Fortune 500

When breaking up the 404 filers with ineffective internal controls by major stock market indices, we find that for the first compliance year, 14.9 percent of the 404 filers in the Standard & Poor's (S&P) 600 small-cap index had ineffective internal controls, while that decreased to 9.6 percent for S&P 400 medium-cap and 6.1 percent for S&P 500 companies. The same trend is observed for the second compliance year, in which 9.4 percent of S&P 600 small-cap companies had ineffective internal controls, but that decreased to 4.8 percent and 3.9 percent for S&P 400 medium-cap and S&P 500 (see Figure 4). This provides another piece of evidence that smaller companies are more likely to have problems in their internal control structure than their large counterparts.

However, some unique characteristics of smaller companies may create an additional advantage for effective internal controls over financial reporting even without the implementation of a formal structure. The less hierarchical organizational structure, higher level of trust within the company, and management's usual hands-on approach

may lead to less formal communication and control procedures and give managers more opportunities to closely monitor the financial reporting so that even in the absence of a formal structure, smaller companies may still achieve acceptable internal control quality. 15 Many smaller companies have less complex business operations and fewer segments, centralized accounting functions, and a more concentrated geographic location with less subsidiaries and branch plants. This will add more transparency to their financial reporting, facilitate outside investors' oversight, and reduce the probability for fraudulent behaviors. In fact, external auditors and internal financial personnel of smaller public companies have acknowledged that the smaller the company is, the less valuable the internal control audit is to the financial statement audit. 16 This is because auditors rely less on the operation of the internal controls to perform the financial statement audits for a smaller company. Rather, the financial audits for smaller companies tend to be more substantive in nature, with particular attention paid to high-risk areas and transactions. 17 Internal controls are more fundamental to larger companies because of the complexity of their business and organizational structure. For larger companies, it is impossible to test significant numbers of transactions for audits. Therefore, the kind of internal control structure that Section 404 requires to assess is not as necessary for smaller companies as for their larger counterparts.

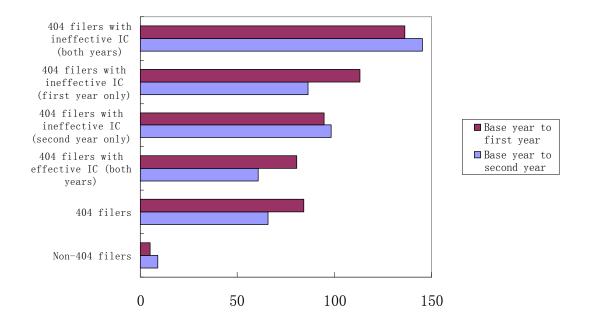
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<sup>&</sup>lt;sup>15</sup>U.S. Government Accountability Office, *Sarbanes-Oxley Act: Consideration of Key Principles Needed in Addressing Implementation for Smaller Public Companies*, p. 19.

<sup>&</sup>lt;sup>16</sup>SEC Advisory Committee on Smaller Public Companies, *Final Report to the U.S. Securities and Exchange Commission*, April 23, 2006, p. 43, at

<sup>&</sup>lt;u>http://www.sec.gov/info/smallbus/acspc/acspc-finalreport.pdf</u> (April 16, 2008). <sup>17</sup>*Ibid*.

The one-size-fits-all approach of Section 404, by implicitly mandating smaller companies to reach for an internal control structure that does not fit their scale and business cycle, overlooks their unique characteristics and punishes them for deficiencies determined by their inherent disadvantages. It fails to realize that the internal control framework designed by COSO was particularly targeted at large public companies, and failure of differentiation between large and small companies by imposing a universal solution will only create an unnecessary compliance burden for the latter.



Source: CDA analysis of Audit Analytics data.

Figure 5: Median percentage increase of audit fee as a percentage of revenue by internal controls condition

Figure 5 shows that companies with ineffective internal controls have experienced a substantially larger percentage increase of audit fee normalized by revenue both from base year to the first year and from base year to the second year.

• 404 filers that had ineffective internal controls for both years underwent a median increase of 145.3 percent in audit fees as a percentage of revenue from base year to

- the second year, and a median increase of 136.2 percent from base year to the first year.
- 404 filers that had ineffective internal controls for the first year but had corrected them in the second year underwent a median increase of 86.4 percent in audit fees as a percentage of revenue from base year to the second year, and a median increase of 113.0 percent from base year to the first year.
- Relatively speaking, 404 filers that had effective internal controls for both years underwent a smaller audit fee increase: a median increase of 60.7 percent in audit fees as a percentage of revenue from base year to the second year, and a median increase of 80.5 percent from base year to the first year.

In particular, 404 filers that had ineffective internal controls for both compliance years experienced a far larger percentage increase in their audit fees, and continued to experience an audit fee increase from the first year to the second. Those are the companies that are having tremendous trouble adjusting to Section 404, and have borne the greatest burden since its implementation. Moreover, there seems to be inertia of the occurrence of ineffective internal controls because among the 404 filers that had ineffective internal controls in the second year, 47.6 percent of them also had ineffective internal controls in the first year; whereas among the 404 filers that had effective internal controls in the second year, only 10.7 percent of them had ineffective internal controls in the first year. 18 Our analysis in this section has shown that those companies are of a significantly smaller size and are inherently disadvantaged with developing a robust internal control structure, which actually does not reconcile with their needs and characteristics. It is these companies that have been disproportionately and continually penalized under SOX Section 404.

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<sup>&</sup>lt;sup>18</sup>CDA analysis of Audit Analytics data.

## Section 404 places disproportionate burden on smaller public companies

Section 404 compliance cost constitutes a substantial fixed cost component that imposes a disproportionate burden on smaller public companies as they are inherently unable to spread the cost with the economies of scale. A survey completed by PricewaterhouseCoopers finds that executives believe three quarters of the direct 404 cost is derived from additions to internal resources, including documentation, staff training, self-assessment, financial and legal consulting, policy development, and new tools and technology. 19 This is further worsened by the fact that smaller companies are far more likely to have internal control problems as discussed before.

Smaller public companies have already been paying higher audit fees as a percentage of revenue than their large counterparts even in the pre-404 period. Yet the implementation of Section 404 has further exacerbated this problem. Our analysis of 404 filers<sup>20</sup> shows that in the first compliance year, the median audit fee as a percentage of revenue for companies with a market cap of less than \$75 million and between \$75 million and \$250 million was 0.75 percent and 0.48 percent, respectively. In contrast, that for companies with a market cap of more than \$5 billion was 0.07 percent.<sup>21</sup> The median audit fee as a percentage of revenue for 404 filers with less than \$75 million market cap

<sup>&</sup>lt;sup>19</sup>Pete Collins, "Senior Executives Divided on Cost of Complying with Sarbanes-Oxley Act," PWC Management Barometer, July 2, 2003.

<sup>&</sup>lt;sup>20</sup>There are 55 filers with a market cap less than \$75 million, 512 filers between \$75 million and \$250 million, 666 filers between \$250 million and \$700 million, 784 filers between \$700 million and \$2.5 billion, 313 filers between \$2.5 billion and \$5 billion, and 441 filers more than \$5 billion. This adds up to 2,771 companies. The rest have missing values in market cap. Some non-accelerated filers have chosen to voluntarily comply with Section 404 even before they are required to do so.

<sup>&</sup>lt;sup>21</sup>The SEC's classification of filer status is based on public float. Public float is a subset of market capitalization, which includes outstanding shares available to the public and held by non-affiliates. Thus, strictly speaking, insider holdings should not be included in public float. However, due to data availability, we use market cap as an approximation for cut-off points.

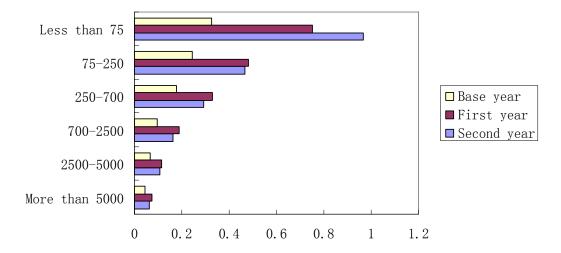
even went up to 0.97 percent for the second compliance year, while that roughly leveled off for other filers (see Table 3, Figure 6).

Table 3: Median audit fee as a percentage of revenue and median yearly percentage increase of audit

fee by market cap

Market cap	Median audit	fee as a percenta	ge of revenue (%)	Median yearly audit fee increase (%)			
	Base year	First year	Second year	Base year to first year	Base year to second year		
Less than 75	0.33	0.75	0.97	109.36	115.93		
75-250	0.25	0.48	0.47	102.40	90.74		
250-700	0.18	0.33	0.29	90.50	73.10		
700-2500	0.10	0.19	0.16	88.61	67.67		
2500-5000	0.07	0.12	0.11	82.44	60.96		
More than 5000	0.04	0.07	0.06	62.64	43.71		

Notes: Market cap is in millions of dollars. Source: CDA analysis of Audit Analytics data.



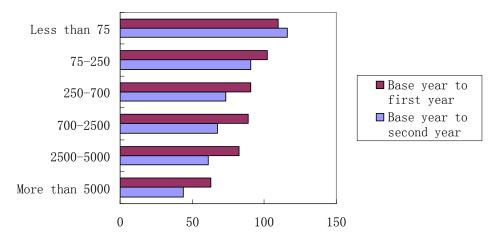
Notes: Market cap is in millions of dollars.

Source: CDA analysis of Audit Analytics data.

Figure 6: Median audit fee as a percentage of revenue by market cap (%)

When interpreted in terms of median yearly audit fee increase, 404 filers with a market cap of less than \$75 million experienced a 109.4 percent increase in audit fee as a percentage of revenue from base year to the first year, and a 115.9 percent increase from base year to the second year, while 404 filers with a market cap between \$75 million and

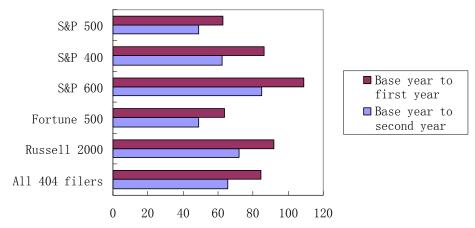
\$250 million experienced a 102.4 percent increase from base year to the first year, and a 90.7 percent increase from base year to the second year. In comparison, filers with a market cap of more than \$5 billion experienced a 62.6 percent increase from base year to the first year and a 43.7 percent increase from base year to the second year (see Table 3, Figure 7).



Notes: Market cap is in millions of dollars.

Source: CDA analysis of Audit Analytics data.

Figure 7: Median yearly percentage increase of audit fee as a percentage of revenue by market cap



Source: CDA analysis of Audit Analytics data.

Figure 8: Median yearly percentage increase of audit fee as a percentage of revenue by major stock indices and Fortune 500

The same trend is observed when examining the audit fee increase by major stock

indices. While S&P 500 companies experienced median increases of 62.8 percent and 49.0 percent from base year to the first year and from base year to the second year, that increased to 86.4 percent and 62.1 percent for S&P 400 medium-cap companies and 108.8 percent and 85.0 percent for S&P 600 small-cap companies (see Figure 8). It is thus salient that smaller public companies have undergone substantially larger audit fee increases under Section 404, which further aggravates their liquidity constraints.

Table 4: Correlation matrix between audit fee increase and company size (by state, first year)

	Audit fee increase	Market cap	Revenue	Net income
Audit fee increase	-			
Market cap	-0.3343**	-		
Revenue	-0.4148***	0.8956***	-	
Net income	-0.4324***	0.8723***	0.8834***	-

#### Notes

- 1. "Audit fee increase" is calculated as the percentage increase of audit fee in the aggregate from base year to the first year by each state.
- 2. "Market cap," "Revenue," and "Net income" are calculated as the mean value of the filers in each state. They are in natural log and based on the first year.
- 3. Number of observations: 50
- 4. \*\*\* denotes statistical significance at 0.01; \*\* denotes statistical significance at 0.05.

Source: CDA analysis of Audit Analytics data.

Geographically, average market cap, revenue, and net income of the filers of each state are negatively correlated with the state's percentage increase of aggregate audit fees from base year to the first year (see Table 4), meaning larger audit fee increases were found among states with smaller average company size. This is another piece of evidence that smaller public companies are more vulnerable to Section 404 cost burden.

As a result of increased demand for audit services and the consequent increased audit

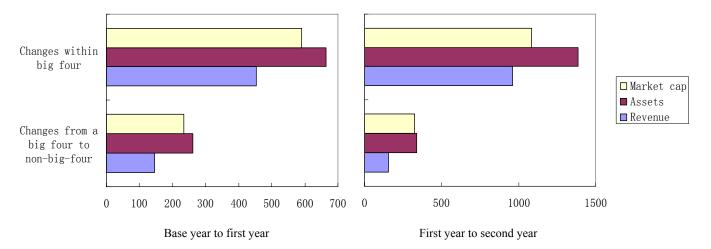
fees, smaller public companies may find it hard to retain their original big-four auditor,<sup>22</sup> hence shifting to a non-big-four auditor for cost saving reasons. As downward auditor change is usually perceived to be a negative sign by outside investors as a possibility for decreased disclosure quality, it is usually avoided. However, Section 404's compliance burden may have forced some smaller companies to take this step as a way to shirk rising audit fees at the expense of their reputation. Our analysis of Audit Analytics data shows that those 404 filers that changed from a big-four auditor to a non-big-four auditor were significantly smaller than those who changed within big four auditors in terms of market cap, assets, and revenue (see Figure 9, and Appendix Table A-2).<sup>23</sup>

The big four auditors are the four largest international accounting firms. They refer to Deloitte Touche Tohmatsu, PricewaterhouseCoopers, Ernst & Young, and KPMG. They audit the majority of the publicly traded companies.
The median market cap for 404 filers that changed from a big-four auditor to a non-big-four auditor from base year to the first year and from the first year to the second year was \$235 million and \$325 million, respectively, while that for 404 filers that changed within the big four was \$590 million and \$1,084 million, respectively.

The median assets for 404 filers that changed from a big-four auditor to a non-big-four auditor from base year to the first year and from the first year to the second year was \$262 million and \$339 million, respectively, while that for 404 filers that changed within the big four was \$664 million and \$1,384 million, respectively.

The median revenue for 404 filers that changed from a big-four auditor to a non-big-four auditor from base year to the first year and from the first year to the second year was \$145 million and \$156 million, respectively, while that for 404 filers that changed within the big four was \$454 million and \$961 million, respectively.

Appendix Table A-2 shows the results of mean-comparison tests in terms of market cap, assets, and revenue.



Notes: Market cap, assets, and revenue are in millions of dollars. The values are based on first year data for base year to first year auditor change, and based on second year data for first year to second year auditor change.

Source: CDA analysis of Audit Analytics data.

Figure 9: Median market cap, assets, and revenue by auditor change type

As Section 404 has placed a far heavier burden on smaller public companies in terms of audit fees and other direct cost, it would be important to do a cost-benefit analysis and see if the compliance cost has exceeded the increase in shareholder value arising from improved financial reporting quality. We base the analysis on the model raised by Professor Ellen Engel at the University of Chicago Graduate School of Business and her colleagues<sup>24</sup> and apply it specifically to Section 404: the value of being a public company in the post-404 period is equal to the value of being a public company in the pre-404 period, plus the difference between firm-specific 404-related benefits created by governance improvements and 404 compliance cost (see Equation 1). The net effects of Section 404 depend on the interrelationship between all those factors and therefore may vary considerably across firms.

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<sup>&</sup>lt;sup>24</sup>Ellen Engel, Rachel M. Hayes, and Xue Wang, "The Sarbanes-Oxley Act and Firms' Going-Private Decisions," *Journal of Accounting and Economics*, Vol. 44 (2007), pp. 116–145.

$$Value_{Public}^{Post-404} = Value_{Public}^{Pre-404} + b - k$$
 (1)<sup>25</sup>

where b=firm-specific 404-related benefits

k=404 compliance cost

Hence, companies with low value of being public in the post-404 period will be those that have low value of being public in the pre-404 period, have less 404-related benefits, and higher compliance cost. Smaller companies are known as generally benefiting less from their status of being a public company because they tend to be thinly traded, undervalued, have low share price and highly concentrated ownership structure, lack of investor interest and analyst coverage, thus having difficulty raising capital from the stock market.<sup>26</sup> Smaller public companies also tend to benefit less from Section 404 as the internal control structure Section 404 focuses on is not indispensable for them considering the less complexity of their business. Research using event study<sup>27</sup> finds that abnormal returns around events that increased the likelihood of the passage of SOX were positively related with firm size, indicating SOX was perceived to be more burdensome for smaller public companies<sup>28</sup> and the bulk of the compliance burden is attributed to Section 404. Therefore, with lower pre-404 value of being public, less 404-related benefits, and higher compliance cost, smaller companies are more likely to have less

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<sup>&</sup>lt;sup>25</sup>The equation is based on the model raised by Ellen Engel, Rachel M. Hayes, and Xue Wang, "The Sarbanes-Oxley Act and firms' going-private decisions," *Journal of Accounting and Economics*, Vol. 44 (2007), pp. 116-145.

<sup>&</sup>lt;sup>26</sup>U.S. Government Accountability Office, Sarbanes-Oxley Act: Consideration of Key Principles Needed in Addressing Implementation for Smaller Public Companies.

<sup>&</sup>lt;sup>27</sup>Event study uses transaction data from the stock market to estimate the financial gains or losses associated with newly disseminated information.

<sup>&</sup>lt;sup>28</sup>See, for example, Ellen Engel, Rachel M. Hayes, and Xue Wang, "The Sarbanes-Oxley Act and Firms' Going-Private Decisions," *Journal of Accounting and Economics*,; Ivy Xiying Zhang, "Economic Consequences of the Sarbanes-Oxley Act of 2002," *Journal of Accounting and Economics*, Vol. 44 (2007), pp. 74–115.

post-404 value of being public, which has given rise to the increasing going-private transactions in the post-404 period.<sup>29</sup> For instance, a study by Foley & Lardner LLP found that while 143 public companies went private in 2001, 245 made this switch in 2004.<sup>30</sup>

SOX Section 404 has generated unintended consequences by mismatching problem and solution: it was created in response to the high-profile financial scandals of big companies, and it is the collapse of those companies that may strike the investor confidence. Big companies did not oppose it when the bill was still brewed in Congress because they would be able to gesture their upholding of corporate ethics through this act. Ironically, 404 compliance cost has weighed far more heavily on smaller public companies which never have the leverage to exert such influence as the Enron scandal once imposed.

### **Regression analysis**

We further examine the determinants of audit fee increase in the post-404-period by conducting regression analyses. Because the majority of the companies complying with Section 404 did not report their 404-related audit fees separately, we use the percentage increase of total audit fees as a proxy measure for the 404 compliance burden. The rationale for this approximation is that when using non-404 filers as a control group, their

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<sup>&</sup>lt;sup>29</sup>U.S. Government Accountability Office, *Sarbanes-Oxley Act: Consideration of Key Principles Needed in Addressing Implementation for Smaller Public Companies*, p. 22.

<sup>&</sup>lt;sup>30</sup>Thomas E. Hartman, "The Cost of Being Public in the Era of Sarbanes-Oxley," Foley & Lardner LLP, June 15, 2006.

audit fees only increased slightly from base year to the first 404-compliance year, meaning that the majority of the audit fee increase is attributed to the implementation of 404, while other aspects of SOX have relatively modest influence on firms' audit fees. We use the time period from base year to the first compliance year because 404 filers' audit fees changed dramatically during this time span. After removing observations with missing values, the sample includes roughly 2,630 404 filers. Specifically:

Increase =  $\beta_0 + \beta_1$  Size +  $\beta_2$  Growth +  $\beta_3$  Big Four +  $\beta_4$  Auditor Change

+ 
$$\beta_5$$
 Weakness +  $\beta_6$  S&P 500 +  $\beta_7$  S&P 600 +  $\beta_{8-10}$   $\sum_{j=1}^{3}$  Region  $_j$  +  $\epsilon$  (2)

where

Increase Natural log of percentage increase of audit fee normalized as a percentage of revenue from base year to the first compliance year;

Size Natural log of revenue in the base year; or

Natural log of balance sheet assets in the base year;

Growth Percentage change of revenue from base year to the first

compliance year;

Percentage change of assets from base year to the first compliance

year;

Big Four A dummy with a value of 1 if the company was audited by a

big-four auditor in the first compliance year, 0 otherwise;

Auditor Change A dummy with a value of 1 if the company shifted from a big-four

auditor in the base year to a non-big-four auditor in the first

compliance year, 0 otherwise;

Weakness Count of material weaknesses in the company's internal control

structure over financial reporting. For filers with effective internal

controls, the value is 0;

S&P 500 A dummy with a value of 1 if the company is an S&P 500 company,

0 otherwise;

S&P 600 A dummy with a value of 1 if the company is an S&P 600 small-cap

company, 0 otherwise;

Region i West, South, Midwest, and Northeast are coded as dummy variables,

respectively; Northeast is used as the reference group.

We take the natural log of the dependent variable and the independent variable "Size" because log transformation deals with nonlinearity and reduces the influence of outliers, thus can improve the goodness of fit of the model. Specifically, the coefficients for the variable "Size" should be interpreted in terms of elasticity as in a log-log model, and the coefficients of other independent variables should be interpreted as in a log-level model.

The purpose of the model estimation is to find out the relationship between audit fee increase and the company size, auditor type, and the robustness of their internal controls. The inclusion of the dummy variables "S&P 500" and "S&P 600" is another way to capture the relationship between audit fee increase and company size in terms of market cap, since S&P 500 companies refer to large public companies while S&P 600 companies refer to smaller ones. Regional dummies are added to explore if there is a geographical dimension of the issue. We estimate the model both with the regional dummies and without them. "Size," "Auditor Change," and the S&P 500 dummy are expected to have negative signs because it is generally held that large companies incurred less audit fee increase, and downward auditor change is a way to shirk rising audit fees. "Weakness" and the S&P 600 dummy are expected to have positive signs because companies with ineffective internal controls and smaller companies should have incurred larger audit fee increases.

Company size is measured by revenue in models (1) and (3) and by assets in models

(2) and (4). Models (1) and (2) are estimated without the regional dummies and models (3) and (4) are estimated with them. Breusch-Pagan test shows that heteroskedasticity is present if the models are estimated by using the ordinary least squares (OLS) method.<sup>31</sup> Regression with robust standard errors provides the same estimates of the coefficients as in the standard OLS regression, but it estimates the standard errors by Huber-White sandwich estimators, which are more robust to failure to meet assumptions concerning normality and homogeneity of variance of the residuals. A check with the variance inflation factors (VIFs) shows models (1) through (4) do not have multicollinearity problems as VIFs are well below the common threshold of 5.

Table 5 shows the regression results. The coefficients are similar regardless of whether the regional dummies are included. Based on model (4) we find that

- Each 1 percent increase in assets is associated with a 0.1 percent smaller percentage increase of audit fees from base year to the first compliance year.
- Being audited by a big-four auditor in the first compliance year is associated with an additional 60 percent increase in the percentage increase of audit fees from base year to the first year.
- Each additional material weakness in a firm's internal control structure is associated with a 9.6 percent increase in the percentage increase of audit fees from base year to the first compliance year.
- Being an S&P 500 company is associated with a 14 percent smaller percentage increase of audit fees from base year to the first compliance year.
- Being an S&P 600 small-cap company is associated with a 14 percent larger percentage increase of audit fees from base year to the first compliance year.
- Being a company in the West is associated with a 15 percent larger percentage increase of audit fees from base year to the first compliance year, when compared to companies in the Northeast.
- Being a company in the South is associated with an 11 percent larger percentage

<sup>31</sup>A heteroskedasticity problem occurs when the variance of the residuals is not constant. This violates the Gauss Markov conditions and results in the OLS estimators to be not efficient although still unbiased and consistent.

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increase of audit fees from base year to the first compliance year, when compared to companies in the Northeast.

Table 5: Regression analyses of percentage increase of audit fees from base year to first year

	(1)		(2)		(3)		(4)	
	Coef.	Sig.	Coef.	Sig.	Coef.	Sig.	Coef.	Sig.
Assets			-0.094	***			-0.089	***
			(0.0129)				(0.0130)	
Revenue	-0.053	***			-0.047	***		
	(0.0119)				(0.0119)			
Assets growth			0.002	***			0.002	***
			(0.0004)				(0.0004)	
Revenue growth	-0.012	***	-0.014	***	-0.012	***	-0.014	***
	(0.0009)		(0.0011)		(0.0010)		(0.0011)	
Big four	0.620	***	0.616	***	0.599	***	0.602	***
	(0.0765)		(0.0736)		(0.0764)		(0.0736)	
Auditor change	-0.2796		-0.306		-0.300		-0.319	
	(0.2422)		(0.2399)		(0.2379)		(0.2359)	
Material weaknesses	0.106	***	0.099	***	0.101	***	0.096	***
	(0.0167)		(0.0162)		(0.0165)		(0.0161)	
S&P 500	-0.247	***	-0.139	**	-0.253	***	-0.139	**
	(0.0565)		(0.0558)		(0.0565)		(0.0560)	
S&P 600	0.171	***	0.134	***	0.171	***	0.138	***
	(0.0436)		(0.0431)		(0.0434)		(0.0428)	
West					0.166	***	0.148	***
					(0.0517)		(0.0512)	
South					0.106	**	0.107	**
					(0.0493)		(0.0487)	
Midwest					-0.014		-0.014	
					(0.0494)		(0.0485)	
Constant	4.333	***	4.636	***	4.253	***	4.558	***
	(0.0893)		(0.1078)		(0.0947)		(0.1136)	
N	2,637	7	2,637		2,633	2,633		3
R-sq	0.17		0.19		0.18		0.20	

Notes:

Source: CDA analysis of Audit Analytics data.

<sup>1. \*\*\*</sup> denotes statistical significance at 0.01; \*\* denotes statistical significance at 0.05.

<sup>2.</sup> Standard errors are in parentheses.

<sup>3.</sup> Models (1), (2), (3), and (4) are all estimated with robust standard errors.

<sup>4.</sup> Models (3) and (4) exclude four companies located in Puerto Rico.

Our models provide evidence that from base year to the first 404 compliance year, smaller public companies and companies with more material weaknesses in their internal control structure tend to incur larger audit fee increases. This is consistent with our analysis in previous sections. The models also shed light on the geographical distribution of the problem, with companies in the West and South experiencing a larger audit fee increase. We conclude that SOX Section 404 has imposed disproportionate burden on smaller public companies.

## Auditing Standard No. 5: A real fix for Section 404?

As SOX Section 404 compliance cost per dollar of revenue is disproportionately higher for smaller public companies, Congress should take a second look at the law after their "overzealous political and regulatory reaction" in the Enron aftermath cools down. Both the Senate and the House of Representatives introduced the Compete Act of 2007 (Competitive and Open Markets that Protect and Enhance the Treatment of Entrepreneurs Act of 2007)<sup>33</sup> in the 110th Congress that would make Section 404 compliance voluntary to smaller companies, which could be a potential legislative fix to the challenges Section 404 has presented.<sup>34</sup> However, similar bills introduced in the 109th Congress never became law, and the current ones may undergo significant changes in markup sessions.

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<sup>&</sup>lt;sup>32</sup>Damian Reece, "It's Risky All Round Doing Business with the Americans," *The Daily Telegraph*, June 13, 2006, p. B2.

<sup>&</sup>lt;sup>33</sup>The Competitive and Open Markets that Protect and Enhance the Treatment of Entrepreneurs (COMPETE) Act (S. 869, H.R. 1508).

<sup>&</sup>lt;sup>34</sup>David C. John and Nancy M. Marano, "The Sarbanes–Oxley Act: Do We Need a Regulatory or Legislative Fix?" Heritage Foundation *Backgrounder* No. 2035, May 16, 2007, at <a href="http://www.heritage.org/Research/Regulation/bg2035.cfm">http://www.heritage.org/Research/Regulation/bg2035.cfm</a>.

In June 2007, the PCAOB released Auditing Standard No. 5<sup>35</sup> to supersede the previous Auditing Standard No. 2 under which "auditors are so focused on the detail and the shear breadth of the internal controls" and "there is little room for judgment and clear perspective over the overall process goals." As SEC Chairman Christopher Cox stated, "Our experience of the first three years under Sarbanes-Oxley 404 had convinced us that the way it was being implemented through Auditing Standard No. 2 was too expensive for everyone--and imposing that system on the smallest companies would impose unacceptably high costs from the standpoint of the companies' investors, who would have to pay the bills." Auditing Standard No. 5 is intended to adopt a top-down, risk-based and materiality-focused approach and to allow more cost-effective implementation of Section 404 while keeping its role in investor protection. However, given the obvious deficiencies of the new standard, it is dubious whether it could truly lower the unduly high compliance costs for smaller companies.

Auditing Standard No. 5 has two worrisome problems that could potentially overturn its good intention. First, while the standard suggests scaling the audit of internal controls

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http://www.pcaob.org/Rules/Docket 021/2007-05-24 Release No 2007-005.pdf (April 18, 2008).

Healthcare Institute, comment letter to SEC, "Concept Release Concerning Management's Reports and Internal Control Over Financial Reporting," (File No.S7-11-06, Release No.34-54122), and "Internal Control over Financial Reporting in Exchange Act Periodic Reports of Non-Accelerated Filers and Newly Public Companies," (File No.S7-06-03, Release no. 33-8731).

<sup>&</sup>lt;sup>35</sup>See PCAOB Auditing Standard No. 5, an audit of internal control over financial reporting that is integrated with an audit of financial statements and related independence rule and confirming amendments, PCAOB Release No.2007-005, May 24, 2007, at

<sup>&</sup>lt;sup>36</sup>Biotechnology Industry Organization, TechNet, Telecommunications Industry Association, Electronic Industries Alliance, Semiconductor Industry Association, Advanced Medical Technology Association, Medical Device Manufactures Association, Association of Bioscience Financial Officers, California

<sup>&</sup>lt;sup>37</sup>Christopher Cox, "Sarbanes-Oxley Section 404: New Evidence on the Cost for Small Companies," testimony before the Committee on Small Business, U.S. House of Representatives, December 12, 2007, at <a href="http://www.sec.gov/news/testimony/2007/ts121207cc.htm">http://www.sec.gov/news/testimony/2007/ts121207cc.htm</a> (April 16, 2008).

according to the size and complexity of the business and appears to provide more principle-based rules for judgment, it has removed objective measures auditors could use to determine what a "smaller, less complex company" is. This leaves much room for subjectivity and external auditors, under the incentive of profit-maximization and the fear of legal liabilities for conducting a too lax auditing, will inevitably adopt a more conservative approach when evaluating if the company deserves audit treatment proportionate to a less complex company. The PCAOB's December 2006 proposed auditing standard indicates that companies with a market capitalization of approximately \$700 million or less with reported annual revenues of approximately \$250 million or less should be considered as smaller companies, 38 which is consistent with the spirit of the recommendation of the SEC Advisory Committee on Smaller Public Companies ("the Advisory Committee"). However, by removal of any indication of objective criteria in the final version, Auditing Standard No. 5 fails to point a clear direction of how to reduce the scope of 404 audits in practice.

Second, the new standard encourages auditors to use the work of others in an integrated audit of financial statement and internal controls when the work is performed by sufficiently competent and objective persons, including company personnel (not just internal auditors) and third parties working under the direction of the management or the audit committee. However, this again leaves a great deal of subjectivity for auditors to

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<sup>&</sup>lt;sup>38</sup>See PCAOB proposed auditing standard, an audit of internal control over financial reporting that is integrated with an audit of financial statements and related other proposals, PCAOB Release No.2006-007, December 19, 2006, page A1-7, at <a href="http://www.pcaob.org/Rules/Docket\_021/2006-12-19">http://www.pcaob.org/Rules/Docket\_021/2006-12-19</a> Release No. 2006-007,pdf (April 18, 2008).

determine the competency and objectivity of others' work, and given the economic incentives and concerns for legal liabilities, there is no clear motivation for accounting firms to recognize the work of others when conducting 404 audits.

To make Auditing Standard No. 5 a more effective procedure to relieve Section 404's cost burden, we urge that the PCAOB give a clear definition of "smaller public companies." We agree that company size should not be the sole criterion. Rather, emphasis should be placed on the complexity of a company's financial operations because even a larger company could have aspects that are less complex. However, operational definitions of "smaller public companies," if properly formulated, can reduce ambiguity and provide a more feasible calibration of the complexity of a business. One such definition has been proposed by the Advisory Committee in its final report to the SEC issued in April 2006. The Advisory Committee suggested developing scaled or proportional regulation for "microcap companies" (companies with market capitalization<sup>39</sup> of approximately \$128 million or less) and "smallcap companies" (companies with market capitalization of approximately \$128 million to \$787 million), 40 which in the aggregate comprise the bottom 6 percent of total U.S. equity market capitalization, but roughly 78.5 percent of all public companies.<sup>41</sup>

<sup>&</sup>lt;sup>39</sup>The Advisory Committee recommended that the SEC use equity market capitalization, rather than public float, to determine eligibility of smaller public companies for proportional regulatory treatment because using market capitalization avoids the subjective assessment of affiliate status of shareholders that the calculation of public float would involve.

<sup>&</sup>lt;sup>40</sup>The Advisory Committee contemplates that the revenue limits contained in its internal control recommendation would be periodically and automatically adjusted by reference to an established benchmark, such as the Consumer Price Index or the GDP Price Deflator.

<sup>&</sup>lt;sup>41</sup>Advisory Committee on Smaller Public Companies, Final Report to the U.S. Securities and Exchange Commission, April 23, 2006, at <a href="http://www.sec.gov/info/smallbus/acspc/acspc-finalreport.pdf">http://www.sec.gov/info/smallbus/acspc/acspc-finalreport.pdf</a> (April 18,

While we agree with the Advisory Committee's suggestion for the objective test, scaling Section 404 requirements based on market capitalization may also be problematic. Some smaller public companies, especially those high-tech ones, might have low revenues compared to their market capitalization: the biotechnology industry is one example. 42 Early-stage biotech companies invest heavily in research and development (R&D) activities and the development of new therapies may take many years before product revenues can be realized. However, a biotech company with little or no product revenue and simple operations from an accounting standpoint could possibly have relatively high market capitalization due to lucrative prospect of the industry. Due to this mismatch of market cap and revenue in some individual cases, using revenue as a complementary indicator will better capture those companies that should be eligible for scaled audits. Our regression analysis in the previous section also implies that annual revenue could be an appropriate indicator for the objective test as revenues are negatively associated with percentage increase of audit fees during year-one 404 implementation. However, the Advisory Committee feels that when formulating metrics for determining eligibility for scaling, adding additional metrics like revenues will cause additional complexity that outweighs the benefits of doing so.<sup>43</sup> Our understanding is that adding one more revenue indicator, preferably product revenue, will provide a more accurate

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<sup>&</sup>lt;sup>42</sup>James C. Greenwood, "Sarbanes-Oxley Section 404: Will the SEC's and PCAOB's New Standards Lower Compliance Costs for Small Companies?" written testimony before Committee on Small Business, U.S. House of Representatives, June 5, 2007.

<sup>&</sup>lt;sup>43</sup>See Advisory Committee on Smaller Public Companies, *Final Report to the U.S. Securities and Exchange Commission*, April 23, 2006, p. 19, at <a href="http://www.sec.gov/info/smallbus/acspc/acspc-finalreport.pdf">http://www.sec.gov/info/smallbus/acspc/acspc-finalreport.pdf</a> (April 18, 2008).

calibration of the complexity of corporate structure, while not complicating the objective test too much.

However, we wish to take a step further than scaling 404 audits. We think that a more pertinent solution to mitigate the negative impact of Section 404 on smaller companies is to allow shareholders of the company to opt in and opt out of Section 404 through shareholder proxy proposals. A similar idea has been expressed in the Compete Act of 2007. The SEC has again extended the deadline of complying with Section 404(b) for non-accelerated filers to the first fiscal year ending on or after December 15, 2009, but a more permanent solution, such as exemption of smaller public companies, should be considered. As discussed before, the kind of internal control structure that Section 404 requires to test is not as necessary to smaller public companies as to their larger counterparts, and it still remains doubtful whether the scaled treatment proposed by Auditing Standard No. 5 will lead to significant 404 cost reduction. Allowing smaller public companies to opt in and opt out of Section 404 is a more effective way to reduce the uncertainty of the policy. The opt-in and opt-out approach limits the risk that investors are exposed to because bankruptcies of smaller companies will strike a limited impact on the market while enabling investors to reap returns through a diversified portfolio rather than ultimately paying the bills for 404 costs. Smaller companies should conduct their own cost-benefit analysis and be allowed to choose for themselves the optimal internal control rigidity that trades off between firm growth, risk, and investor protection. For those companies that choose to voluntarily comply with Section 404, they should be able to obtain scaled 404 audits that are proportionate to their size and complexity.

The eligibility for opt-in and opt-out should be based on a clear definition of "smaller public companies" using both market capitalization and revenue metrics. One realistic cut-off point is the Advisory Committee's criteria of including microcap companies (companies comprising the bottom 1 percent equity market capitalization) with less than \$125 million in annual revenue, and smallcap companies (companies comprising the next lowest 5 percent equity market capitalization) with less than \$10 million in annual product revenue.44 This leaves at least 94 percent of the market value of U.S. public companies covered under the provisions of Section 404 and still greatly limits the risk investors are exposed to. A combination of both market cap and revenue metrics enables a more accurate capture of those companies that are indeed "smaller and less complex," while differentiating those considered as smallcap companies, but have already had relatively high revenues and are more likely to have more business segments, thus possibly more hierarchical internal control structure. The SEC should re-rank public companies annually based on market capitalization at the recalculation date to determine those that fall within the bottom 6 percent. Companies could also decide, in advance, whether they will be qualified for opt-out next year based on publicly available financial

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<sup>&</sup>lt;sup>44</sup>The Advisory Committee, in its April 2006 final report to the SEC, suggests that the SEC provide further exemptive relief from Section 404 requirements to microcap companies (companies with market capitalization of approximately \$128 million or less) with less than \$125 million in annual revenue, and to smallcap companies (companies with market capitalization of approximately \$128 million to \$787 million) with less than \$10 million in annual product revenue unless and until a framework for assessing internal control for such companies is developed that recognizes their characteristics and needs. See Advisory Committee on Smaller Public Companies, *Final Report to the U.S. Securities and Exchange Commission*, April 23, 2006, p. 6, 43, at <a href="http://www.sec.gov/info/smallbus/acspc/acspc-finalreport.pdf">http://www.sec.gov/info/smallbus/acspc/acspc-finalreport.pdf</a> (April 18, 2008).

information and prepare accordingly.

#### Conclusion

Our analysis of Sarbanes-Oxley Section 404's impact on public companies, especially smaller 404 filers, suggests that:

- Section 404 has imposed a heavy compliance burden for all 404 filers: 404 filers experienced a median increase of 66 percent in audit fee as a percentage of revenue from base year to the second compliance year, while non-404 filers only experienced a median increase of 9 percent during that period.
- Smaller public companies have inherent disadvantages in internal control over financial reporting, and 404 filers with ineffective internal controls were significantly smaller than those with effective internal controls in terms of market cap, assets, and revenue.
- Section 404 has placed disproportionately heavier burden on smaller public companies: 404 filers in lower market capitalization categories have undergone substantially larger audit fee increase.

Specifically, our regression analysis demonstrates that:

- Company size measured by revenue or assets is negatively associated with percentage increase of audit fees from base year to the first compliance year.
- Being an S&P 500 company is negatively associated with percentage increase of audit fees from base year to the first compliance year, while that is the opposite for S&P 600 small-cap companies.
- Each additional material weakness in a company's internal control structure is associated with a roughly 10 percent increase in the percentage increase of audit fees from base year to the first compliance year.

Based on our statistical findings, we conclude that:

- Small and large public companies operate in different manners, thus the kind of internal control structure Section 404 requires to assess is not as necessary for smaller companies as for their larger counterparts.
- Section 404 has imposed disproportionate cost burdens on smaller public companies that exceed the benefits they could derive.

We thus recommend that:

• PCAOB should give a clear definition of "smaller public companies" that Auditing

- Standard No. 5 has referred to for scaled audits on internal controls, using revenue as a complementary indicator for company size and complexity.
- Congress should further consider amending Sarbanes-Oxley Section 404 so as to allow smaller public companies to opt in and opt out of the requirements of Section 404. For those companies that choose to voluntarily comply with Section 404, they should be able to obtain scaled internal control audits that are proportionate to their size and complexity.

The Sarbanes-Oxley Section 404 is a regulatory failure in that Congress overreacted to the political pressure following the Enron scandal without adequately understanding the origin of the problem. It has generated tremendous unintended consequences that could possibly outweigh the initial problem it tried to correct. Congress, the SEC, and the PCAOB should take serious actions to alleviate Section 404's side effect on smaller public companies' competitiveness.

## Appendix

Table A-1: Two-sample t-tests of market cap, revenue, and net income of 404 filers by their internal controls condition (first compliance year)

	(1) Market cap			(2) Revenue			(3) Net income		
	Obs.	Mean	Std. Dev.	Obs.	Mean	Std. Dev.	Obs.	Mean	Std. Dev.
404 filers with effective IC	2258	5582.99	19005.36	2505	3416.47	13231.38	2434	239.63	1171.74
404 filers with ineffective IC	358	2890.29	21185.54	409	1982.01	9689.87	392	90.67	1003.75
Difference	2692.7** (0.024)			1434.45*** (0.009)			148.96*** (0.008)		

#### Notes:

- 1. The above mean-comparison test uses t-test for two independent samples with unequal variances.
- 2. P-value for two-tailed t-test in parentheses.
- 3. \*\*\* denotes statistical significance at 0.01; \*\* denotes statistical significance at 0.05.

Source: CDA analysis of Audit Analytics data.

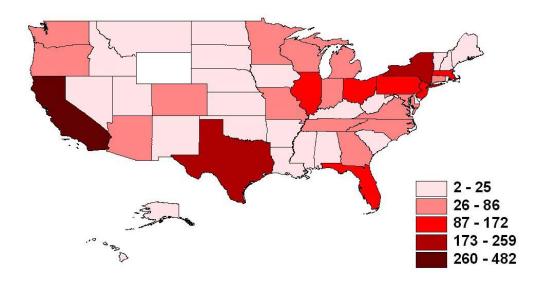
Table A-2: Two-sample t-tests of market cap, assets, and revenue of 404 filers by auditor change type

Year one							
Group	Market cap		As	ssets	Revenue		
Group	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	
Changes within big four	4699 19830		3779	13459	3202	12557	
Changes from big four to non-big four	388	348	862	2054	238	271	
Difference	4311.5* (0.082)		2916.8* (0.060)		2964.3** (0.038)		
Year two							
Crown	Market cap		Assets		Revenue		
Group	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	
Changes within big four	5052	11425	7089	20152	3527	7117	
Changes from big four to non-big four	468	481	981	1475	240	275	
Difference	4584.0** (0.030)		6107.2* (0.092)		3287.2** (0.012)		

#### Notes:

- 1. Two-tailed t-test with unequal variances. P-value in parentheses.
- 2. \*\* denotes statistical significance at 0.05; \* denotes statistical significance at 0.1.

Source: CDA analysis of Audit Analytics data.



Notes: The number of 404 filers is based on the first compliance year.

Source: CDA analysis of Audit Analytics data.

Figure A-1: Number of 404 filers by state