

# **The Real Costs of Sarbanes Oxley<sup>1</sup>**

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## I. Introduction

On June 25, 2002 WorldCom revealed that it had overstated its earnings by more than \$3.8 billion during the past five quarters, primarily by improperly accounting for its operating costs.<sup>2</sup> Senate Bill 2673 was introduced to the full Senate that very same day. Within three weeks the Sarbanes-Oxley Act of 2002 (SOX), named after sponsors Senator Paul Sarbanes (D–Md.) and Representative Michael G. Oxley (R–Oh.), was approved in the Senate by a unanimous vote of 99-0. It represents one of the most influential pieces of corporate legislation in modern history.<sup>3</sup>

Sarbanes Oxley is a U.S. federal law enacted in response to the rising incidence of corporate and accounting fraud at prominent corporations, as exemplified by Enron, whose annual revenues in 2001 decreased from over \$100 billion to nearly zero in a matter of months<sup>4</sup>; Tyco International; WorldCom; and HealthSouth, which recorded thousands of surreptitious journal entries in an orchestrated scheme to conceal widespread fraud.<sup>5</sup> Due to these mounting scandals, public confidence in financial reporting, and ultimately in the financial markets, was deeply shaken.

Were investors to cease believing in the integrity of the financial markets, the system could easily fail, even if the underlying fundamentals were sound. Restoring trust in the system may be the most effective means of preventing this outcome and therefore serves as the underlying rationale of Sarbanes-Oxley. By facilitating continuous improvements in firms' internal controls, the Act seeks to increase both the reliability of financial reporting as well as the faith investors place in the system.

In spite of the apparent worthiness of its objective, Sarbanes Oxley has been considered highly controversial since its inception. While the criticisms vary, a central argument asserts that any potential benefits, however significant, pale relative to the documented financial burden imposed upon firms. Furthermore, it has been suggested that the same benefits may be achieved at a lower total cost. To date, researchers have defined and estimated cost as the aggregate resources (e.g., time, money) spent by firms in order to comply with the legislation.

However, theoretically distinct from the price of compliance, Sarbanes Oxley may also result in certain real—or indirect—costs. Real costs reflect the degree to which the Act potentially interferes with managerial decision making, producing a cost that is borne by firms, shareholders, or society. For instance, managers may be forced to enact core operational or strategic changes in order to mitigate compliance costs or reduce regulatory exposure, rather than to maximize profits.

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<sup>2</sup> For a thorough review, see Beresford, Dennis, Nicholas Katzenbaum, and C. B. Rogers, Special Investigative Committee of the Board of Directors of WorldCom, at [www.findlaw.com](http://www.findlaw.com), March 31, 2003.

<sup>3</sup> Sarbanes-Oxley: A price worth paying? *The Economist*, Special Report. May 19<sup>th</sup>, 2005.

<sup>4</sup> Enron Corp. 10-K FYE 12/31/2000.

<sup>5</sup> For more details, see Securities & Exchange Commission, Plaintiff vs. HealthSouth Corporation and Richard M. Scrushy, Defendants, at [www.findlaw.com](http://www.findlaw.com), Civil Action No. CV-03-J-0615-S.

This paper is the first to introduce and empirically assess the real costs associated with Sarbanes-Oxley. After providing a brief overview of Sarbanes Oxley in the first section, a theoretical framework for real costs is introduced. The following section discusses the results of an empirical test of the theory. The final section contains general conclusions along with the potential policy implications.

## II. Background

### A) SOX Provisions<sup>6</sup>

This section introduces the main provisions of the Sarbanes-Oxley Act of 2002, which include the following:

- Creation of the Public Company Accounting Oversight Board (PCAOB)
- Chief executive officers and chief financial officers must certify financial reports (e.g. Section 302<sup>7</sup>)
- Outright bans on certain types of work for audit clients and pre-certification by the firm's Audit Committee for all other non-audit work
- Ban on most personal loans to any executive officer or director
- Accelerated reporting of trades by insiders and prohibition on insider trades during pension fund blackout periods
- Enhanced penalties for violations of securities law under two separate certifications sections – one civil and the other criminal<sup>8</sup>
- Protections for corporate fraud whistleblowers
- Section 404 requires public firms to evaluate and disclose the effectiveness of their internal controls as related to financial reporting. Independent auditors must "attest" to such disclosure. It has two primary components:
  1. *Management's report*: Management affirms responsibility for maintaining adequate internal controls, while assessing their effectiveness in producing reliable financial reports.
  2. *Auditor's report*: An independent auditor verifies the effectiveness of the firm's internal controls as of fiscal year-end.

### B) Primary Benefits

The reported benefits of Sarbanes Oxley are broad and varied. However, the literature on this topic is limited, such that support for particular benefits relies mainly

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<sup>6</sup> The Sarbanes-Oxley Act of 2002. H.R. 3763. The 107th Congress, 2nd Session.

<sup>7</sup> 15 U.S.C. § 7241(a)(4).

<sup>8</sup> See 15 U.S.C. § 7241 (Section 302: civil provision); 18 U.S.C. § 1350 (Section 906: criminal provision).

upon anecdotal evidence. This section summarizes the benefits that are most commonly attributed to Sarbanes Oxley, which include the following:<sup>9</sup>

1. More active participation by the board, the audit committee, and management.
2. More thoughtful analysis of monitoring controls.
3. More structure to the year-end closing process and recording of journal entries.
4. Implementation of anti-fraud activities with defined processes in place.
5. Better understanding of the risks associated with general computer controls.
6. Improved documentation of controls and control processes.
7. Improved definition of controls and their relationship to risk across the organization.
8. The integration of control concepts within the organization.
9. Improvements in the adequacy of the audit trail.
10. Improved implementation of basic controls.

Boards and especially audit committees are reportedly more knowledgeable as well as competent in their ability to address substantive risk issues facing the firm. Sarbanes-Oxley has produced a renewed interest in understanding the firm's exposure to material risk, as well as those specific actions required to mitigate it. This heightened sense of awareness may ultimately facilitate the development of comprehensive, proactive risk reduction strategies. For instance, before Sarbanes Oxley, many firms had yet to establish formalized procedures for the prevention of fraud.<sup>10</sup>

Other benefits attributed to Sarbanes Oxley range from increased motivation for technology firms to standardize core processes, to a reduction in the complexity of firm acquisitions caused by improved planning, and an improved understanding of the risks associated with outsourcing.<sup>11</sup> Furthermore, communication across firms has reportedly improved.<sup>12</sup>

### **C) Direct Costs**

This section provides an overview of the direct costs associated with Sarbanes Oxley. Much of the controversy stems from the fact that compliance expenditures greatly exceed original forecasts,<sup>13</sup> even while benefits are uncertain.<sup>14</sup> A recent econometric study estimates the aggregate loss in market value induced by Sarbanes-Oxley to be as high as

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<sup>9</sup> Rittenberg, LE and Miller, PK. (2005). Sarbanes-Oxley Section 404 Work: Looking at the Benefits. The IIA Research Foundation.

<sup>10</sup> Rittenberg, LE and Miller, PK. (2005). Sarbanes-Oxley Section 404 Work: Looking at the Benefits. The IIA Research Foundation.

<sup>11</sup> Wagner, S and Dittmar, L. The Unexpected Benefits of Sarbanes Oxley. Harvard Business Review. (April 1, 2006).

<sup>12</sup> Berinato, S. and Bowser, D. How to Learn to Love Sarbanes-Oxley. (December 1, 2005). Accessed online 9/7/06 at [www.CSOonline.com](http://www.CSOonline.com)

<sup>13</sup> Sarbanes-Oxley: A price worth paying? The Economist, Special Report. May 19th, 2005.

<sup>14</sup> Findings on U.S. Capital Markets Competitiveness. Committee on Capital Markets Regulation. Accessed online 4/10/07 @ <http://www.capmksreg.org>

\$1.4 trillion.<sup>15</sup> Cost estimates for Section 404 in 2004 alone range from \$15-20 billion,<sup>16</sup> or \$4.36 million per firm.<sup>17</sup>

**Year One Resources Spent on Section 404 Compliance**<sup>18</sup>  
*Roundtable Survey, December 2004, by Revenue*

<b>Company Revenue</b>	<b>&lt; \$5 B</b>	<b>\$5 B - \$10 B</b>	<b>\$10 B – \$50 B</b>	<b>&gt; \$50 B</b>
<b>Average Additional Audit Hours</b>	<b>6,285</b>	<b>20,756</b>	<b>11,540</b>	<b>19,000</b>
<b>Average Total Compliance Cost (millions)</b>	<b>\$1.9</b>	<b>\$6.1</b>	<b>\$20.6</b>	<b>\$1230.3</b>

Due in part to these factors, a survey of 1200 board directors revealed that more than half believed the Act should either be repealed or overhauled.<sup>19</sup> U.S. Treasury Secretary Henry Paulson is concerned by the potential long term ramifications on U.S. competitiveness.<sup>20</sup> Whether the Act can effectively decrease corporate fraud or whether it ultimately will prove cost-effective remain unanswered questions.<sup>21</sup> The comprehensive report issued by Secretary Paulson's blue ribbon panel<sup>22</sup> strongly emphasized the need for a regulatory regime that does not reduce the competitiveness of U.S. capital markets.<sup>23</sup>

### III. Real (Indirect) Costs

This section contains introduces the theory behind real costs, as conceptually distinct from compliance related expenditures, which are relatively easy to detect and quantify. Real costs, on the other hand, reflect the degree to which Sarbanes Oxley reduces the effectiveness of managerial decision making. For instance, managers may be forced to enact core operational or strategic changes in order to reduce compliance costs rather than to increase firm profits. However, unlike compliance costs, real costs are very

<sup>15</sup> Zhang, I.X. 2005. Economic Consequences of the Sarbanes-Oxley Act of 2002. Dissertation. University of Rochester. New York.

<sup>16</sup> Findings on U.S. Capital Markets Competitiveness. Committee on Capital Markets Regulation. Accessed online 4/10/07 @ <http://www.capmksreg.org>

<sup>17</sup> This total does not include an additional \$823,200 in audit fees, which represented an increase of 53% over the prior year.

<sup>18</sup> Although these costs have decreased as much as 30% after year one, net costs remain significant.

<sup>19</sup> Korn/Ferry. Feb. 23, 2006. Significant Numbers Demand Amendments, According to Korn/Ferry International's 32nd Annual Board of Directors Study. Accessed online 4/13/07 @ [PRNewswire.com](http://PRNewswire.com)

<sup>20</sup> Johnson, S. SarbOx Rollback Report Due November 30. November 22, 2006. Accessed online 4/9/07 @ [CFO.com](http://CFO.com).

<sup>21</sup> See Ribstein, L and Butler, H. The Sarbanes-Oxley Debacle: What We've Learned; How to Fix It. American Enterprise Institute Press. 2006.

<sup>22</sup> International Herald Tribune. ViewPoints: Is Sarbanes-Oxley ready for a trim? September 15, 2006.

<sup>23</sup> Findings on U.S. Capital Markets Competitiveness. Committee on Capital Markets Regulation. Accessed online 4/10/07 @ <http://www.capmksreg.org>

difficult to detect and/or measure. Nonetheless, to the degree that Sarbanes Oxley distracts managers from fulfilling their objective, it produces real costs that must be borne by the firm, its shareholders, and potentially by society.

More importantly, even the proposition that operations and accounting are designed to minimize total cost isn't universally agreed upon. This study is important in that it tests, without actually proving, a basic premise of transaction cost economics – that firms are designed to minimize the cost of production + distribution + accounting + management. If management were to alter the way non-accounting operations work in response to changes in accounting and reporting requirements, this would suggest an effort to minimize overall costs, including transaction costs.

The following list hypothesizes several potential types of real costs, which are likely to vary in terms of magnitude, prevalence, and impact upon the firm. The first—technically a negative cost—is the intended effect of the Act. The remaining real costs refer to effects not intended by the legislation.

### *1) Increased Managerial-Shareholder Alignment*

This hypothesis suggests that an environment of heightened transparency facilitated by Sarbanes Oxley has the potential to increase the alignment between managerial action and owners' interests. This real effect may occur through several different mechanisms. An enhanced understanding of the firm, as facilitated by Sarbanes-Oxley, may potentially improve managerial decision making, increasing the utility it provides to the firms' owners. For instance, managers may now be able to utilize labor more efficiently, perhaps by allocating it where it is most needed and/or in the most efficient quantities. Potentially, managers may also possess a better understanding of the specific areas and/or types of innovation most required by the firm. Even the stringent compliance requirements may facilitate innovation, in part by compelling the firm to be more efficient.

Managers operating under heightened scrutiny can also reasonably be expected to place greater emphasis upon shareholder welfare when selecting investment projects. This may result in a strategy that more closely approximates the values and objectives of the firms' owners. Furthermore, operating under a greater threat of harsh penalties for those who run afoul of the law, the probability that managers will shirk shareholders interests by engaging in fraudulent activity may be expected to decrease.

### *2) Increased Risk Aversion in Project Selection*

This hypothesis suggests that Sarbanes Oxley may negatively influence strategic decision making as managers seek to a) minimize the risk of litigation and/or b) decrease accounting expenditures. Under the Act, firm executives and directors are subjected to the increased threat of litigation in addition to harsh penalties.<sup>24</sup> Corporate officers and

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<sup>24</sup> The Committee on Capital Markets Regulation suggests that litigation is a major problem. See Findings on U.S. Capital Markets Competitiveness. Committee on Capital Markets Regulation.

directors may be unwilling to pursue a risky, high growth strategy due to personal liability concerns. An honest mistake may result in a lawsuit or criminal charges. Therefore, managers and directors are likely to become more risk averse, resulting in strategic changes that reduce firm value.<sup>25</sup>

There seems to be preliminary support for this hypothesis. A recent survey of 1200 directors found that nearly three-fourths believe boards are not taking the necessary risks to achieve company growth.<sup>26</sup> Instead, firms may pursue a strategy of restrained growth and steady profits, rather than seek a dominant market position. In any event, Sarbanes Oxley worsens the downside risk for the firm, increasing the level of risk aversion relative to pre-SOX.

The second part of this hypothesis suggests that managers have an incentive under Sarbanes Oxley to select projects according to the degree that they are readily auditable and transparent, rather than for their potential for profit. To the degree that intricate projects, or projects requiring a single manager to fulfill several roles, are less attractive, project selection will be biased. The result is that certain types of otherwise profitable projects may either be reduced or eliminated. Were this negative effect to be common among firms, the potential loss in market value may be significant, even were it to represent a mere fraction of total market value.

Whether project selection is negatively influenced by the increased threat of litigation or the desire to reduce accounting expenditures, the net effect in either case would be a loss to the firms' owners, who are able to diversify their investment portfolios against certain types of risk more efficiently than large, publicly traded companies. At the same time, both financial markets and the selection of investment projects are complex phenomenon for which there are a wide variety of influencing factors. As a result, even were this effect to be significant, it would be very difficult to empirically estimate.

### *3) A Decrease in Innovation*

This hypothesis suggests that under Sarbanes Oxley, an increase in rigidity may produce a decline in the rate of firm innovation. An inflexible rules-based regime,<sup>27</sup> with multiple overlapping regulators, is likely to produce significant economic costs of its own.<sup>28</sup> For instance, the Act requires firms to formally document any operational changes, such as the installation of new software or the introduction of a new line of business, which can require extensive resources. The result is that the marginal cost associated with change, including those changes that are beneficial to the firm, is effectively increased.

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<http://www.capmksreg.org>

<sup>25</sup> Wallison, September 2003, WSJ.

<sup>26</sup> PRNewswire. Feb. 23, 2006. Significant Numbers Demand Amendments, According to Korn/Ferry International's 32nd Annual Board of Directors Study. Accessed online 4/13/07 @ PRNewswire.com

<sup>27</sup> Shortridge, R.T. and Myring, M. 2004. The CPA Journal Online. Defining Principles-Based Accounting Standards. Accessed online 4/20/07 @ [www.nysscpa.org/cpajournal](http://www.nysscpa.org/cpajournal)

<sup>28</sup> Zhang, I.X. (2005) Economic Consequences of the Sarbanes-Oxley Act of 2002. Dissertation. Rochester (New York).

As firms learn through trial and error, a decrease in the willingness to enact change, by increasing the costs associated with change, in the long run would be expected to decrease firm innovation. While not all changes may be beneficial, without a willingness to engage in calculated risk taking, firms may be less likely to innovate.

In terms of real costs, even a minor decrease in the types of change that produce innovation can be expected to decrease firm profits. This effect is likely to be more pronounced for smaller firms which, due to scale economies, possess fewer resources relative to larger firms, to prepare and file periodic accounting reports, monitor the effectiveness of internal controls, and document operational changes.<sup>29</sup> Small firm innovation is essential within our economy given their central role in fueling job and economic growth.

#### *4) Increased managerial role for auditors*

This hypothesis suggests that through Sarbanes Oxley, auditors may have gained entrance into the strategic decision making process. For the following reasons, this could either injure or benefit the firm's competitive ability. Sarbanes-Oxley has produced greater consolidation in an accounting industry that was already highly concentrated prior to its enactment. Today, just four accounting firms—Ernst & Young, Deloitte, PricewaterhouseCoopers (PwC) and KPMG—audit 97% of all large companies in America, while smaller accounting firms face significant barriers to entry.

Firms rely heavily upon their auditor throughout the compliance process, to the extent that the external auditor is now viewed as a key stakeholder of the firm.<sup>30</sup> As a result, the market power possessed by large accounting firms has increased under Sarbanes Oxley. Auditing firms have been accused of abusing this power in order to artificially inflate the demand for auditing services to a point of “socially inefficient hyper-vigilance”<sup>31</sup> and beyond the level required by law.<sup>32</sup>

The rise in power for large auditing firms under Sarbanes Oxley is likely to produce real costs to the degree that auditors can make use of it to influence the strategic decision making process of the firm. Auditors are professionally trained to conduct a systematic examination of the activities of the firm, such as its systems, controls, and records. Conversely, strategic decision making requires expertise in problem identification, the development and analysis of alternative solutions, as well as the selection and implementation of a final solution. To the degree that strategic decision making is influenced by auditors who are not formally trained as managers, and by

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<sup>29</sup> Kamar, E., Karaca-Mandic, P., & Talley, E. 2006. Sarbanes-Oxley and Small Firms: What is the Evidence?

<sup>30</sup> Berinato, S. and Bowser, D. How to Learn to Love Sarbanes-Oxley. (December 1, 2005). Accessed online 9/7/06 at [www.CSOonline.com](http://www.CSOonline.com)

<sup>31</sup> The trial of Sarbanes-Oxley. The Economist. Apr 20th, 2006. New York.

<sup>32</sup> Johnson, S. PCAOB Revises AS2. September 11, 2006. Accessed online @ [www.cfo.com](http://www.cfo.com) 9/14/06

auditing concerns rather than the profit objective, firm profits can be expected to decrease over time.

However, it is possible that an increased managerial role for auditors may provide the firm with an unanticipated source of benefit. For instance, influential auditing firms may prove effective conduits for the diffusion of “best practices” throughout an industry. Large auditing firms possess a knowledge base that is broad and deep across multiple industries, whereas firm managers are likely to focus on a single industry. Conversely, the potential magnitude of this effect is likely to be tempered by the fact that “best practices” are rarely if ever identified as such. As a result, the decision making input may ultimately prove more beneficial to the auditor rather than the firm.

### *5) Limiting Transparency*

This hypothesis suggests that firms are likely to feign superficial compliance to the statute, limiting the ability of the Act to achieve transparency gains relative to a principles-based regime. A prescriptive, rules-based format may encourage firms to engage in certain gaming behaviors.<sup>33</sup> In part, this hypothesis rests upon the distinction between ethical and legal norms. Firms that engage in fraudulent activity not only violate the relevant legal statutes but transgress ethical codes as well. Ideally, laws will support rather than punish firms who choose to behave ethically.

Full and accurate disclosure of firms’ financial accounting information represents an important ethical issue which influences the public welfare. Sarbanes Oxley seeks to guarantee a minimum level of firm transparency. However, Sarbanes Oxley, as a rules-based system, proscribes the use of professional discretion just as it prescribes a one-sized-fits-all approach to accounting.<sup>34</sup> This is problematic in that accounting is not a science, but a profession that requires the use of extensive judgments. Accurate disclosure, as mandated by the law, requires a level of flexibility in accounting that the Act proscribes.

Firms that encounter a double bind situation requiring rigid obedience to the law on the one hand, and full and accurate disclosure on the other, are likely to feign compliance with the underlying ethical imperative. For instance, Sarbanes Oxley may encourage firms to provide investors with a less than accurate portrayal of their financial condition. Due to the presence of harsh penalties, it is to be expected that firms will want to avoid the negative consequences of anything less than rigid adherence to the law, even if this requires sacrifices in transparency. To the degree that firms are encouraged to act in a manner that is less than ethical, Sarbanes Oxley imposes a real cost upon society.

A second factor involves the prescriptive and ambiguous nature of the Act. The law requires that firms must document all of their controls. Every document, whether electronic or on paper, used to derive numbers on the financial statement must be carefully preserved and archived. For instance, a firm could be required to preserve an e-

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<sup>33</sup> Harvey Pitt, Former SEC Chairman. New York Economic Club. November 20, 2006

<sup>34</sup> Henry Paulson, U.S. Treasury Secretary. New York Economic Club. November 20, 2006

mail inferring that a certain client may not meet a future obligation, even if it was shown to be based upon poor information or intended as a joke. Firms are likely to realize that whatever they document has the potential to be audited,<sup>35</sup> suggesting a perverse incentive to conceal information by documenting items selectively or at a suboptimal rate.

These factors suggest that there may be an incentive for firms to feign compliance, without actually becoming more transparent. The result is the imposition of a real cost equivalent to the decrease in transparency relative to a more effective system. By mere assumption, investors are led to trust the accuracy of financial statements produced by SOX compliant firms, although this conclusion is not necessarily warranted.

### 6) *Resource Cost Inflation*

This hypothesis suggests that under Sarbanes Oxley the marginal cost of acquiring operating resources has increased, producing a real cost for firms.<sup>36</sup> For instance, specific changes in the overall market for accounting services appear to have increased the cost of auditing services.<sup>37</sup> There also may be a shortage in those specific resources required to achieve compliance. For instance, many firms report a growing inability to locate qualified CFO's and independent board members,<sup>38</sup> in part as many candidates fear that the benefits are insufficient compensation for the required responsibilities.<sup>39</sup>

While audit committees were required pre-SOX, their composition and duties were largely unregulated, making it easier to locate directors.<sup>40</sup> By extending the window for liability, limiting the form of compensation, and placing requirements upon the characteristics of directors, the Act is likely to restrict the supply of applicants.<sup>41</sup> As a result, the Committee on Capital Markets Regulation has suggested shielding outside board members against liability from the SEC.<sup>42</sup>

Any Sarbanes-Oxley induced shortage of directors is likely to be exacerbated by a perceived lack of clarity regarding the specific work required, the over-application of extremely stringent accounting standards,<sup>43</sup> and significant time constraints.<sup>44</sup> Reflecting

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<sup>35</sup> IBID. Direct quotation.

<sup>36</sup> Sarbanes-Oxley: A price worth paying? The Economist, Special Report. May 19th, 2005.

<sup>37</sup> Kamar, E., Karaca-Mandic, P., & Talley, E. 2006. Sarbanes-Oxley and Small Firms: What is the Evidence?

<sup>38</sup> Baker, M. and Barley, L. Investment Banking at Thomas Weisel Partners. Harvard Business School. (August 10, 2006).

<sup>39</sup> Green, S. 2005. Sarbanes-Oxley and the Board of Directors: Techniques and Best Practices for Corporate Governance. p.2. Wiley & Sons (New York).

<sup>40</sup> Kamar, E., Karaca-Mandic, P., & Talley, E. 2006. Sarbanes-Oxley and Small Firms: What is the Evidence?

<sup>41</sup> Kamar, E., Karaca-Mandic, P., & Talley, E. 2006. Sarbanes-Oxley and Small Firms: What is the Evidence?

<sup>42</sup> Findings on U.S. Capital Markets Competitiveness. Committee on Capital Markets Regulation. Accessed online 4/10/07 @ <http://www.capmksreg.org>

<sup>43</sup> PCAOB Standard 2, An Audit of Internal Controls Over Financial Reporting Conducted in Conjunction with an Audit of Financial Statements.

<sup>44</sup> Rittenberg, LE and Miller, PK. (2005). Sarbanes-Oxley Section 404 Work: Looking at the Benefits. The

the relative supply and demand, median total compensation for outside directors of U.S. boards, especially for those on audit and compensation committees,<sup>45</sup> has risen significantly across all three major industry sectors since the Act became law.<sup>46</sup> These factors suggest that the Act may have reduce the supply of qualified and/or willing directors.

To the extent that Sarbanes Oxley exerts a negative and indirect influence upon the market price firms must pay to acquire operating resources, firms incur a real cost equivalent to the marginal cost of acquiring operating resources. This would typically be excluded in a study seeking to estimate the direct, compliance-related costs of the legislation.

### *7) Centralization of Core Processes*

This hypothesis suggests that the Act may increase the rate of firm centralization, resulting in increased rigidity. As a result of Sarbanes-Oxley, firms are encouraged to centralize audit processes, such as security administration. For instance, consider a hypothetical firm that possesses six business systems in six different locations, where the control on each is user ID and a password. The auditors would be required to inspect six different systems. However, by centralizing the process, there now exists just one control for six locations. The auditing process has been simplified, while the total number of controls has been reduced.

The shift towards centralization of auditing processes induced by Sarbanes-Oxley is likely to motivate other types of centralization within the firm. For instance, firms may seek to centralize production and/or distribution into one single location, in order to simplify the demands of a complex and resource intensive auditing process. Managers may be forced to enact core operational or strategic changes in order to mitigate compliance costs or reduce regulatory exposure, rather than to maximize profits. To the extent that the Act encourages managers to minimize auditing costs, rather than to pursue a strategy that maximizes firm value, firm profits are likely to decline. The result is a type of real cost that is borne by firms, but which would not typically be included in a direct evaluation of compliance costs.

### *8) A Reduction in Worker Incentives*

This hypothesis suggests due to Sarbanes-Oxley worker productivity may decline as traditional work related activities are de-emphasized in favor of compliance functions. While not to the level of a wholesale change in logistics or operations, some firms have reported altering employee compensation schemes in order to include SOX-related activities in performance objectives. The objective is to motivate employees to engage in

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IIA Research Foundation.

<sup>45</sup> Savich, R.S. 2006. Cherry Picking Sarbanes-Oxley. Provisions that deserve a second look. Accessed online 4/13/07 @ <http://www.aicpa.org/PUBS/jofa/jun2006/savich.htm>

<sup>46</sup> Peck, Charles. The Conference Board Email Express Newsletter - October 31, 2006. The Conference Board Inc. New York. Accessed online 10/20/06 at [www.theconferenceboard.com](http://www.theconferenceboard.com)

required compliance activities so as to decrease the future probability that the firm will be penalized by auditors for late or incomplete documentation.

However, individuals possess a limited capacity to engage in multiple problem solving activities simultaneously. As a result, offering workers incentives to comply with the requirements of Sarbanes Oxley may be equated to a de-emphasis, or reduction in the incentives attached to other work related activities.<sup>47</sup> To the degree that workers are less productive in meeting the objectives of their employers due to the legislation, in real terms total output per worker is decreased. While firms are unable in the short run to decrease workers' compensation, they now receive less in exchange for that salary. The result is a real cost imposed upon firms, and which may potentially harm U.S. competitiveness.<sup>48</sup>

#### IV. Survey

##### A) Methodology, Sample & Limitations

A detailed survey was conducted and analyzed in order to test the general hypothesis that Sarbanes-Oxley imposes real costs upon firms. Relative to previous efforts to assess the direct costs of complying with SOX, detecting and/or measuring real costs is elusive as well as conceptually difficult. It is not possible to quantify real costs using available data, while at present a conceptual categorization of real costs does not exist in the literature.

At the heart of the real cost concept is firms' behavioral responses to SOX. Perhaps the most effective, direct means of gaining substantive information on firm behavior is by surveying executives who create firm strategy. Statistical analyses were also conducted in order to determine the extent to which managerial survey responses could be predicted by the following firm characteristics: Industry, Market Capitalization, P/E ratio, 3 year trailing Beta, Profit Margin, and Debt: Market Capitalization ratio. Summary statistics are displayed in the following table<sup>49</sup>:

<i>Mkt. Cap (billions)</i>		<i>P/E Ratio</i>		<i>Beta</i>		<i>Margin</i>		<i>Debt: Mkt. Cap</i>	
Mean	27.03	Mean	13.80	Mean	0.98	Mean	4.03	Mean	0.37
Median	2.79	Median	13.01	Median	0.91	Median	0.10	Median	0.17
Mode	#N/A	Mode	11.00	Mode	1.00	Mode	0.10	Mode	0.91
Std. Dev.	90.27	Std. Dev.	6.54	Std. Dev.	0.42	Std. Dev.	5.98	Std. Dev.	0.37
Count	51.00	Count	51.00	Count	51.00	Count	51.00	Count	51.00

17 major industry classifications were covered in the survey, along with 11 Financial Services firms. The final survey sample included a random sample of 51

<sup>47</sup> This is a principle insight of multitasking theory. For a more complete discussion, see Holmstrom, Bengt and Milgrom. "Multitask Principal-Agent Analyses: Incentive Contracts, Asset Ownership, and Job Design." *Journal of Law, Economics and Organization*, 1991, 7, pp. 24-52

<sup>48</sup> Johnson, S. SarbOx Rollback Report Due November 30. November 22, 2006. Accessed online 4/9/07 @ CFO.com.

<sup>49</sup> In order to protect the confidentiality of the participant firms, some information has not been shown.

publicly traded firms with an average Market Cap of \$27.03 billion, representing nearly 20% of the Fortune 500. The expressed concern of the SEC has been SOX's impact upon large firms due to their economic significance. This study is the only to research this impact as it involves real costs, which potentially may be more significant than direct costs.

In spite of various precautions<sup>50</sup> taken, the survey is clearly limited in several ways. For instance, the study seeks to assess whether firms experience real costs, as reported by their executives. Consequently, it does not seek to assess or furthermore to quantify—assuming precise quantification is possible, which is unlikely for at least several of the categories—which of the eight hypothesized real costs firms experience.

The methodology employed is also relatively basic. Econometrically precise research estimates are typically the fruit of well defined and mature academic disciplines. As the pioneering study to assert the existence of real costs, this paper seeks to introduce that which has yet to be categorically defined, while providing fundamental, if not general, support for its primary theses.

Another fundamental limitation, fairly germane to survey data, is that while the study seeks to objectively evaluate SOX's influence upon managerial decision making, the study at least partially assesses instead how executives perceive SOX. In fact, the first 7 survey questions intentionally solicit managerial opinion. However, the primary question intended to evaluate real costs requests objective, verifiable information. Whether or not a firm enacted fundamental changes is not a matter of opinion, and whether or not that change was forced by SOX is a matter that only firm managers can reveal.

## **B. Survey Results<sup>51</sup>**

This section summarizes the results of the survey. Nearly every executive reported that SOX exerted a noticeable impact upon the firm, while the average executive reported making 2.53 core changes in response to SOX, the most common of which was to centralize accounting. Executives within the sample tend to believe SOX has decreased firm autonomy, largely because it is perceived to have increased the managerial authority of auditors. Executives also report that SOX interferes somewhat strongly with managerial decision making by decreasing managerial flexibility and discretion.<sup>52</sup> These results are summarized in the following table:

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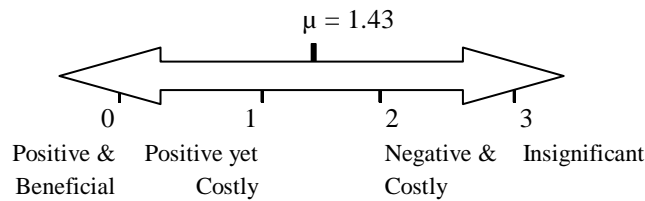
<sup>50</sup> Survey questions were designed to promote unbiased responses, and were pilot tested. Firms typically completed the survey as a committee so as to ensure responses accurately reflected the behavior of the firm rather than the personal bias of any single executive.

<sup>51</sup> Please refer to the actual survey listed in the appendix for the purposes of this discussion.

<sup>52</sup> Firms also reported that the extensive requirements of the legislation interrupt and/or severely delay business activities. Other sources listed were an overabundance of consultants, pervasive fear within the organization, and the excessive compliance costs.

#2 (y=1)	#5	#8	#9 (y=1)	#10
Noticeable impact?	How categorize?	# of core changes?	As autonomous?	Interferes with mgt?
Mean 0.92	Mean 1.43	Mean 2.53	Mean 0.39	Mean 6.47
Median 1.00	Median 2.00	Median 3.00	Median 0.00	Median 6.00
Mode 1.00	Mode 2.00	Mode 3.00	Mode 0.00	Mode 6.00
SD 0.27	SD 0.76	SD 1.39	SD 0.48	SD 2.80
Count 51.00	Count 51.00	Count 51.00	Count 51.00	Count 51.00

The following diagram illustrates the mean response to question #5: “How would you characterize the impact of SOX upon your firm?”



Correlation analysis revealed the following patterns in the data:  $r_{\text{(#2, #8)}} = 48.29\%$  and  $r_{\text{(#2, #5)}} = -41.70\%$ . Question #2 inquires whether SOX had a noticeable impact upon firms, question #5 asks executives to categorize SOX’s impact, and question #8 addresses core changes. The correlation between (#2, #8) is both significant and positive, meaning that a “noticeable impact” was likely to be accompanied by a report of core changes. Conversely, the negative, but imperfect correlation between (#2, #5) indicates that managers who perceived SOX as having a “noticeable impact” were more likely to categorize SOX in either a mixed or negative light. These patterns seem to suggest that, in the case of SOX, managerial attention is likely to be accompanied by mixed or negative implications, and to require changes within the firm.

### C. Statistical Analyses

Statistical analyses were conducted in order to determine the extent to which executive responses may be influenced by firm characteristics. Successive models incorporated responses to individual survey questions as the dependent variable(s). The majority of regression models were not statistically significant. This may suggest that a larger dataset is required to detect variation in the independent variables, or that SOX, in terms of real costs, exerts an impact upon firms independent of their relative size, P/E ratio, beta, profit margin, and/or leverage (e.g. debt: market capitalization ratio).

However, two regression models were statistically significant.<sup>53</sup> The regression model seeking to predict whether or not executives perceived SOX as lessening firm autonomy had strong statistical significance (Sig. F = 0.0006). In this model, Beta (p-value= .00), P/E ratio (p-value= .01), and Market Capitalization (p-value= .02), all demonstrated to be statistically significant predictors of (reported) firm autonomy. The negative coefficients of the t-statistics associated with each variable indicate that, on average, executives of firms with relatively higher earnings multiples, market caps, and levels of market risk were more likely to report that SOX impaired firm autonomy.

<sup>53</sup> Regression results are provided in the appendix.

This may suggest that real costs for larger firms with relatively high levels of nondiversifiable risk and high earnings multiples may be higher. Another potential explanation has to do with the fact that large firms, even prior to SOX, were experiencing difficulty responding to changes in the competitive environment. As a result, the additional restrictions placed upon the firm by SOX may be perceived as imposing upon firm autonomy. Conversely, investors in firms with higher than average market risk and relatively high earnings multiples are likely to demand a return commensurate with the level of risk. Consequently, executives at these firms may resent SOX as restricting their ability to meet shareholder expectations.

One other regression model—in which the dependent variable was the number of core changes reported by executives—was very close to statistical significance (Sig. F = 0.065). In this model, Beta (p-value = .02) served as the only statistically significant predictor of the dependent variable. An interpretation of its coefficient suggests that as beta increased by one standard deviation, controlling for firm size, earning multiple, and profitability, executives reported making (.59) fewer core changes in response to SOX.

A potential explanation may be that executives of firms with higher than average betas may be less willing to alter core processes due to the fear that a significant change motivated by SOX might increase the covariance of the firm's rate of return relative to that of the market. As a result, firms with higher levels of market risk may be less likely to change core processes in response to SOX, even if such actions may provide benefits to the firm, such as reduced compliance costs.

#### **D. Discussion**

In general, this paper is intended to serve two broad purposes. First, it introduces the notion that accounting requirements may provide incentive for firms to adapt production, logistics and human resource operations in order to reduce the regulatory burden imposed by Sarbanes Oxley. Second, it surveys major corporations as a partial test of our theory in evaluating SOX's impact upon the firm and its operations. We found strong evidence that apart from compliance costs, the Act also imposes significant real costs upon firms. If the objective of future reform is to improve the balance between the costs and benefits of regulation, this later type of cost must be taken into consideration.

Perhaps the most notable finding is evidence suggesting a potential tradeoff between transparency and rigidity. Creating centralization and making the behavior of corporations more rigid clearly was not a purpose of the law. The vast majority, or 80%, of the firms surveyed reported changing core processes in response to Sarbanes-Oxley, conceivably in order to minimize the cost of production + distribution + accounting + management.

Centralization of various operations was reported by a majority of respondents. This is consistent with the view that Sarbanes Oxley has a smaller impact on larger firms, because centralization is a way of making firms larger. The disadvantage is that the firms

become more cumbersome, more difficult to change, more entrenched, and less nimble. The finding of centralization is worrisome, especially in light of international competition with firms that are not governed by Sarbanes Oxley. These firms may be able to react more swiftly and effectively to changes in their environment, resulting in superior operating performance.

Large corporations already have trouble with rigidity. Kmart went out of business largely because it was unable to change,<sup>54</sup> Sears experienced similar problems, and Dell has recently stumbled.<sup>55</sup> Managers continuously seek to preserve the firm's ability to respond proactively to a dynamic environment. Centralization is extremely costly because it increases rigidity, decreasing a firm's ability to respond nimbly and favorably to changes in its environment. Whether it may improve short-term stock performance is a different question. However, the apparent tradeoff between transparency and rigidity is notable.

Real costs may take several forms, including decreasing managerial autonomy and serving as a source of managerial interference. Overall, the survey uncovered two primary forms of interference:

- An increased tendency towards centralization
- A greater managerial role for auditors

No prior studies have discussed changing operations and/or the structure of the firm in regards to the impact of Sarbanes-Oxley. Rather, the discussion has focused on accounting and auditing. Therefore this study is the first to indicate that the effects, although not yet quantified in dollars, are potentially much broader.

The survey revealed an increased managerial role for auditors as a key finding. In one sense, an increased managerial role for auditors is the intended effect of Sarbanes Oxley – the entire point of the law is to prevent actions by firms that endanger the financial security of the firm. On the other hand, auditors are poorly trained for making operational decisions, and may decrease the competitiveness of the firms they are protecting. In the same way that the general counsel of a firm serves an important role in preventing actions that could lead to class action or antitrust lawsuits, auditors can prevent firms from taking unnecessary risks, while also promoting transparency and accuracy in numbers. Auditor interference in management is problematic, however, when it prevents the firm from undertaking profitable activities or results in unnecessary delay.

## **V. Conclusion & Policy Implications**

Our results suggest, along with several other sources, that clear benefits have resulted from stronger internal controls, increased transparency, and elevated

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<sup>54</sup> For a more detailed discussion, refer to page 431 of An Experiential Approach to Organization Development, Seventh Edition by Donald R. Brown (Prentice Hall, 2005)

<sup>55</sup> Zehr, D. July 26, 2006. Dell regroups, forges ahead. Cox News Service. The Austin Statesman online.

accountability.<sup>56</sup> These findings also concur with the opinions expressed by the Committee on Capital Markets Regulation that, relative to costs versus the benefits, Sarbanes-Oxley may be “overly expensive.” However, with improvements, it may be possible to produce the same benefits at a lower cost.

We propose specific recommendations that would improve the efficiency of implementation without compromising the Act’s fundamental objectives.<sup>57</sup> As these suggestions are prescriptive, they extend beyond the survey in order to minimize the negative impact of the unintended consequences documented in the study. Each suggestion is intimately connected to the study in that it is intended to maximize the freedom of the firm’s efforts to comply with the intention of the law, while doing so in the least cost way, versus imposing a rigid set of rules.

These suggested improvements include:

- Focus auditing on critical issues
- Use random audits
- Introduce a Transparency Ratings Mechanism (TRM)

As currently implemented, Sarbanes Oxley fails to distinguish between transparency that has a material effect on the firm versus transparency that deters relatively inconsequential incidents of fraud. A small fraud, while bad for a company, is unlikely to result in a complete collapse of the firm or to negatively impact general investor confidence. In contrast, large, management-inspired frauds can ruin an entire firm while also threatening investor confidence in the entire stock market. It is the latter problem that Sarbanes Oxley was intended to mitigate. However, implementation of the law has extended beyond the prevention of large frauds, to the provision of limits on the daily behavior of employees at all levels. As such, implementation of the law appears to be creating much greater interference than is required to safeguard the integrity of US stock markets.

Second, implementation of the law involves assurance that internal controls are adequate. The most effective means of verifying the adequacy of a particular process is through the use of broad-based random audits.<sup>58</sup> Under Sarbanes-Oxley the current verification process is both narrowly applied and highly predictable, which is easy to defeat relative to a verification system that was both broader in scope as well as more random in frequency. A predictable process can usually be circumvented, merely by studying the process for flaws. However, were the audit process to be random, it would be much more difficult to forecast what frauds will not be detected. Thus, a more

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<sup>56</sup> Findings on U.S. Capital Markets Competitiveness. Committee on Capital Markets Regulation. Accessed online 4/10/07 @ <http://www.capmktreg.org>

<sup>57</sup> These recommendations are consistent with stated law, while some may require additional legislation.

<sup>58</sup> We believe this approach is more efficient as well as consistent with the intent of the law than the multi-year rotational testing approach suggested by the Committee on Capital Markets Regulation.

effective method would be to randomly audit a fraction of a company very deeply, rather than to audit the whole company lightly.

Third, the development of a Transparency Ratings Mechanism (TRM) that rates firm compliance with Sarbanes Oxley-- as does Moody's for corporate bonds-- would provide the investor public with a detailed understanding of firms' internal control processes. Currently, investors know only whether or not a firm is in compliance with the Act, while lacking any basis for assessing the quality or degree of that compliance. More importantly, careful implementation of a TRM might lessen the current reliance upon rules based accounting that has created rigidity and limited the use of discretion.

Taken together, these three suggested improvements would represent a shift towards a principles based approach that has the potential to enhance flexibility and reduce cost, in part by simplifying the compliance requirements and introducing market dynamics. The objective is to achieve transparency at a reduced cost.

This study suggests that the measured costs of Sarbanes Oxley may be underestimated as some of the costs involve organizational changes beyond audit costs. Such costs, while indirect consequences of compliance, are still consequences of the law. These findings are important in light of the SEC's view that improving the cost: benefit ratio of regulation is critical to fostering the competitiveness of U.S. capital markets. This study also documents a wide range of SOX benefits stemming from stronger internal controls, greater transparency, and elevated accountability.

Future research might attempt to quantify the real costs uncovered in this study, as well as to evaluate the impact of SOX using a sample of international firms as a comparison group.

**Appendix**

## I) Regression Results

## SUMMARY OUTPUT

<i>Regression Statistics</i>	
Adjusted R Square	0.35
Standard Error	0.39
Observations	51.00

## ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Sig. F</i>
Regression	5.00	4.27	0.85	5.53	0.000637
Residual	46.00	5.87	0.15		
Total	51.00	10.14			

	<i>Coefficients</i>	<i>SE</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	1.51	0.23	6.43	0.00
Beta	-0.77	0.19	-4.16	0.00
Mkt. Cap	-0.00135	0.00	-2.65	0.01
P/E	-0.02	0.01	-2.35	0.02
Net Profit Margin	0.01	0.01	0.85	0.40
ROA	-0.02	0.01	-1.86	0.07

## SUMMARY OUTPUT

<i>Regression Statistics</i>	
Adjusted R Square	0.20
Standard Error	0.44
Observations	51.00

## ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Sig. F</i>
Regression	5.00	2.35	0.47	2.42	0.06
Residual	46.00	4.65	0.19		
Total	51.00	7.00			

	<i>Coefficients</i>	<i>SE</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	1.35	0.30	4.57	0.00
Beta	-0.59	0.14	-2.47	0.02
Mkt. Cap	0.00	0.00	-0.75	0.46
P/E	-0.01	0.01	-1.48	0.15
Margin ('06)	0.01	0.01	0.51	0.61
ROA	-0.03	0.02	-1.78	0.09

## II) Survey

Name:

Position:

Firm:

Contact info:

*Introduction:*

The general purpose of this interview is to better understand and appreciate the impact that Sarbanes-Oxley has had on your firm. The results of these interviews will be held strictly confidential and used only for the purposes of this study, funded by the RAND LRN- Center for Business Ethics. Survey participants will receive a copy of our final report.

This study seeks to evaluate changes firms have made in their core business processes, such as operations, logistics, or human resources as a result of Sarbanes-Oxley. An example is a firm that consolidates production, resulting in fewer and larger factories, in order to reduce its costs of complying with SOX. An outcome of this behavioral response may be that the firm suffers a loss in flexibility, rendering it less efficient and/or competitive. However, this real cost would normally be excluded in a study estimating the direct costs of complying with Sarbanes-Oxley.

At the same time, it is possible that the changes in response to Sarbanes-Oxley may have yielded unexpected benefits. These are unexpected because presumably if they had been expected, your company most likely would have implemented them even in the absence of Sarbanes-Oxley. Nonetheless, greater transparency in operations and more rapid access to information on risks might have an unexpected positive impact on your company's operations.

In responding to this survey, it would be most helpful were you to, as much as possible, provide information out of your firm's own experiences, versus what you may have read in the news. This survey can be completed in as little as 15 minutes. Let's begin with a few general questions. Please provide follow-up information as necessary.

1. On a scale of 1-10 with 1 meaning "not at all" and 10 meaning "entirely", how familiar are you with Sarbanes-Oxley and the impact it has had, in general, upon your firm?
2. Has Sarbanes-Oxley had a noticeable impact upon the firm where you work?

Yes	
No	
Unsure	

3. What, in your opinion, have been the primary benefits of the legislation to your firm?
4. What, in your view, have been the primary costs of the legislation to your firm?
5. Taking into account both the costs incurred as well as the benefits of the law would you classify its overall impact to date upon your firm as (select one):
  - a) Positive and Beneficial
  - b) Negative and Costly
  - c) Minor and insignificant
6. Please elaborate on your response to question #5. What causes you to characterize Sarbanes-Oxley in that manner as it relates to your firm?
7. Preliminary research has uncovered a wide range of strongly held views on Sarbanes-Oxley. Within upper management, would you characterize the various perspectives regarding the impact of Sarbanes-Oxley on your firm as relatively homogenous or polarized?

*The following questions are intended to address behaviors that your firm may have altered in order to simplify or decrease the costs of complying with SOX.*

8. Has your firm either changed, or contemplated changing, any of its procedures in the following areas as a result of Sarbanes-Oxley: (If so, please describe the nature and extent of the changes).

<b>Core Processes</b>	<b>Yes/No</b>	<b>Unsure</b>	<b>Changes</b>
Logistics			
Manufacturing			
Sales and Marketing			
Human Resources			
Employee Compensation (e.g. stock options, compliance)			
Accounting (e.g. centralize audit functions)			
Other not listed			

9. The following is an intentionally ambiguous question. In your opinion, is your firm able to function as autonomously as it was able to prior to Sarbanes-Oxley? Why or Why Not?

10. How true- on a scale of 1-10 with 1 meaning “not at all” and 10 meaning “entirely”- is the following statement: Sarbanes-Oxley interferes with management’s ability to run the firm?
11. As a follow-up question to #10, what are the primary sources of interference? For instance, is it true that, under Sarbanes-Oxley, managers have less discretion? Conversely, do auditors have more authority over operational decisions as a result of the legislation?
12. If you had the ability to make changes or improvements to Sarbanes-Oxley, what would they be?
13. Are there any other comments that you might wish to make regarding the impact of Sarbanes-Oxley on your firm?