



***The Cost and Benefits of Management  
Reporting and Auditor Attestation on  
Internal Controls over Financial Reporting***

**Prepared for:**

**Ontario Securities Commission  
20 Queen Street West  
Toronto, ON, M5H 3S8**

**Prepared by:**

**Charles River Associates Canada Ltd.  
Suite 1501, 80 Bloor Street West  
Toronto, ON, M5S 2V1**

**April 2004**



## TABLE OF CONTENTS

---

Introduction and Summary of Findings.....	2
1. Views of Market Participants.....	18
1.1 Respondent Views on Costs of Compliance.....	20
1.2 Respondent Views on Benefits .....	23
2. Estimates of Costs and Benefits.....	29
2.1 Cost Estimates.....	31
2.1.1 Relationship Between Issuer Size and Costs of Compliance.....	33
2.1.2 Extrapolation of Cost Estimates to All Issuers .....	35
2.2 Benefit Estimates .....	38
2.2.1 The Approach to Estimating Benefits.....	42
2.2.3 Parameterization of the Model.....	43
2.2.3 Results.....	48
3. Alternative Approaches .....	52
3.1 Exempting Issuers Based on Exchange or Size .....	53
3.1.1 Optimal Cut-off Point for Regulatory Exemption .....	56
4. Summary and Conclusions .....	58
Appendix A: Theoretical and Empirical Foundation for the Benefits Estimation.....	61
A.1 Relationship Between Issuer Size and Audit Fees .....	67
Appendix B: Academic Research on the Regulation of Disclosure.....	69
References.....	73

---

\* \* \*

The primary authors of this report are Mark Neumann Associate Principal, Charles River Associates (“CRA”), Toronto, ON, and Perry Quick, Vice President Charles River Associates, Washington, DC. The views expressed herein are those of the authors and do not necessarily reflect the views of other CRA staff.



## Introduction and Summary of Findings

In the aftermath of Enron, WorldCom, and other financial reporting scandals, U.S. legislators and regulators have been moving to repair the damage to investor confidence by writing new laws and implementing new rules and regulations. The *Sarbanes-Oxley Act* (“SOX”) of 2002 is the new U.S. legislation that is designed to restore investor confidence by, among other things, making senior management more accountable, board of directors more independent, and auditors less susceptible to potentially compromising incentives.

Canada has not been immune from its own financial reporting problems,<sup>1</sup> and its regulators have also responded. In January 2004, the Canadian Securities Administrators (CSA) released final rules for audit committees, CEO and CFO certification, and auditor oversight. These regulations have been adopted by all jurisdictions with the exception that British Columbia may adopt its own set of rules in respect of audit committees and has not indicated any intention it will implement its own set of rules in respect of CEO and CFO certification.

An important section of SOX is s.404, which requires that management: (1) state its responsibility for establishing and maintaining adequate internal controls, (2) report on its assessment of the effectiveness of its internal control structure and procedures over financial reporting, and (3) provide a report by the external auditor that attests to management’s assessment. The auditor’s attestation must be made in accordance with the standards issued by the Public Company Accounting Oversight Board (PCAOB).

The SEC’s implementation of s.404 elaborates on the legislation in several ways. They clarify somewhat the definition of internal controls over financial reporting, require

---

<sup>1</sup> Livent and Philips Services Corp. are noteworthy Canadian cases. However, the maximum market capitalizations of these issuers were only fractions of, say, WorldCom’s maximum market capitalization. On the other hand, it might be argued that Canada’s smaller market makes it even more important to guard against possible large-scale fraud. Indeed, that we have yet to see such a large-scale fraud in Canada is perhaps only a matter of numbers; Canada has only a fraction of the number of public issuers that the U.S. has, so we generally have to wait longer to witness a major scandal. A recent KPMG survey of boards of directors found that 27% of directors who responded believed there was a possibility that the issuers on whose boards they sit would be involved in manipulation of financial statements, while 84% thought it at least somewhat likely that in 2004 they would hear of a Canadian public issuer involved in financial statement manipulation. (See KPMG, 2004, “Survey on the Risk of Manipulation of Financial Statements,” available at [www.kpmg.ca](http://www.kpmg.ca).)



issuers to state which recognized internal control framework they are using, define what “effective” means (or does not mean), explicitly include safeguarding of the issuer’s assets from unauthorized use as part of internal controls over financial reporting, and clarify how much the issuer’s auditor can participate in documenting internal controls. The SEC also requires issuers to evaluate any changes that are likely to materially affect an issuer’s internal controls each fiscal quarter.<sup>2</sup>

Internal controls over financial reporting (and internal controls more generally) are important for giving management control over the issuer and for providing information that management needs to monitor issuer performance and make business decisions. Thus, even in the absence of any regulatory mandates, management has private incentives to put in place some level of internal control.

The role of internal controls in reducing the incidence of misstatements has been researched extensively by COSO. Well-designed internal controls make it difficult for employees and management to adopt inappropriate opportunistic behaviour.<sup>3</sup> COSO research also suggests that if senior management establishes a high expectation of ethical conduct throughout a corporation, referred to as the “tone-at-the-top,” this can dissuade senior management from taking the first step down a slippery slope towards financial misstatements and outright financial reporting fraud.

Even prior to the latest changes in regulations, existing regulations in Canada, the U.S., and other countries required management to make materially accurate disclosure of publicly released financial information. The presumption has been that sufficient internal controls over financial reporting would need to be in place to meet this obligation. And,

---

<sup>2</sup> There is overlap between SOX sections 404 and 302. Section 302 requires, among other things, that management state its responsibility for designing internal controls over financial reporting, then evaluate and report on the controls’ effectiveness. The SEC’s implementation distinguishes between disclosure controls and procedures and internal controls over financial reporting in terms of the responsibility and evaluation requirements of s.302. While the SEC notes that there is substantial overlap between the two sets of controls, they also note that, in their view, neither is a proper subset of the other.

<sup>3</sup> Internal controls cannot, however, be 100% effective since collusion between individuals can allow them to circumvent the controls, and senior management responsible for establishing internal controls can override such controls. A well-developed set of internal controls leaves few holes and thereby forces employees to engage in collusion or management to override controls to achieve self-interested and unethical aims. For employees, finding others to collude with to circumvent internal controls is more difficult than acting alone. For senior management, deliberately overriding internal controls makes it easier for prosecutors to build a case against implicated senior managers.



indeed, issuers have internal controls over financial reporting in place that are intended to reduce the likelihood that a material misstatement would be made. However, after the major U.S. financial reporting scandals, many market observers and policymakers concluded that pre-SOX regulations were not sufficient to prevent significant misstatements from occurring in the largest corporations. And, among smaller issuers financial reporting misstatements are not uncommon.

The economic rationale for intervention is to correct an identifiable market failure in corporate governance that will generally result in inadequate internal controls (and poor financial reporting more generally). The market failure arises because shareholders do not have as much information about the quality level or effectiveness of internal controls as management, which leads to misaligned managerial incentives. In many circumstances, management's interests may be only partially aligned and, occasionally, completely at odds, with shareholders' interests. The inability for shareholders to directly monitor the quality of internal controls creates incentives for managers that can lead to a decline in the average quality or effectiveness of internal controls in generating financial reports. Without precise information—or any means for management to credibly signal it has put in place a high quality internal controls—shareholders can only form an expectation of the average quality of internal controls.<sup>4</sup> Managers who put in place below-average internal controls may see their compensation increase since compensation is tied to observable issuer outcomes, and the costs avoided by putting in a low standard of internal controls are better observed than the offsetting reduction in the accuracy of financial information and the increased likelihood of significant misstatements.

The incremental increase in the cost of capital is a social cost that can potentially be reduced through regulatory intervention to correct the market failure. However, there are usually diminishing returns to increasing regulatory intervention. It is possible for a regulator to set standards for internal controls (either directly or indirectly) at too high a level so that the costs outweigh the benefits, at least for some classes of issuers. Thus, the policy question is whether the improvement in the average standard or quality of internal controls brought about by the proposed Multilateral Instrument 52-111 *Reporting Requirements for Internal Control over Financial Reporting* (“MI 52-111”, the Canadian

---

<sup>4</sup> Of course, investors can use information such as issuer size, industry and past behaviour to develop a more issuer-specific estimate of the quality of internal controls. Nevertheless, even with this information the information investors have about the quality of internal controls is imperfect.



equivalent to s.404) could generate sufficient added social benefits to offset the costs of implementation.

In this report, we analyse the potential costs and benefits of implementing MI 52-111 in Canada, relying on two approaches. First, we interviewed representatives of issuers and accounting firms to obtain quantitative information on costs as well as qualitative information on costs and benefits. Second, we used the data we collected along with other research and analysis to generate our own quantitative estimates of costs and some portion of the benefits.

We contacted 95 issuers, accounting firms and organizations and were successful in scheduling interviews with 28 of these.<sup>5</sup> Most of the issuers we interviewed must meet SEC requirements in the U.S. and are currently in the planning or implementation process in respect of s.404 rules. While many of these issuers are medium to large in size (over \$500 million in assets), we also obtained important information from several smaller issuers (including several below \$50 million in assets).

Many of the issuers CRA contacted, as well as a number of the large accounting firms, were able and willing to give us quantitative cost information. Their costs include the initial costs to document, assess, and fix internal controls over financial reporting. They also include ongoing testing and, where required by changing conditions, further modifications of internal controls as well as the cost for the auditor to attest to management's report on the functioning of internal controls. Issuers incur both internal costs as existing or new employees work on s.404-related projects, and external costs such as those paid to accounting firms acting as consultants, the accounting firm that audits the issuer's financials, other outside experts in accounting and law, and information technology systems specialists.

While issuer respondents were not able to provide us with detailed breakouts of their costs, they were able to supply cost estimates broken into four components: initial internal, initial external, annual ongoing internal, and annual ongoing external costs. Some companies were also able to estimate how much lower their costs would be in the absence of the auditor attestation requirement. Based on the cost information we

---

<sup>5</sup> The issuers were from a wide range of industries and varied considerably in size. We also contacted several fund managers and representatives of business and industry groups. Finally, we contacted representatives of all the large accounting firms. The characteristics of the issuers we interviewed are provided in Table 1 on page 21.



collected, CRA estimated aggregate costs for TSX-listed issuers (not listed on a U.S. exchange) and for Venture Exchange-listed issuers (not listed on a U.S. exchange).<sup>6</sup>

The direct benefit of s.404 (and the expected benefit of MI 52-111) is improvement in internal controls. The broader social benefit from improved internal controls is improved investor confidence from more accurate financial reporting and a reduced risk of significant financial misstatements. These social benefits are inherently difficult to quantify.<sup>7</sup> In the extreme, a financial market with a reputation for widespread accounting irregularities will necessitate a higher cost of capital for those issuers seeking equity financing. Diminishing the perceived probability of such irregularities should tend to reduce the cost of capital. Our approach to estimating such benefits in this study follows closely the one developed in a previous CRA report that analysed the benefits of certification requirements:<sup>8</sup> We estimate the potential reduction in the incidence of significant misstatements in interim and annual filings as well as the value that this reduction would have for honest issuers in the form of reduced costs of capital.<sup>9</sup>

Our approach to quantifying these benefits is straightforward in principle. To estimate the change in the expected cost of significant financial misstatements, we first calculate the current expected cost of significant financial misstatement by multiplying the probability of any issuer making such a misstatement by an estimate of the cost to shareholders of a significant financial misstatement. We then estimate how much expenditures on internal controls will reduce the probability of a significant financial misstatement and recalculate the expected value. The change in expected value represents an estimate of the expected avoided costs of a significant misstatement.

---

<sup>6</sup> In calculating aggregate costs, we account for the fact that our interviewed sample is not a random sample.

<sup>7</sup> The SEC discusses benefits only at a very high level (Final Rule: Release No. 33-8238). The SEC does provide calculations of cost but these do not include the costs of auditor attestation. Unlike the SEC, CRA had the benefit of being able to obtain cost estimates from Canadian issuers interlisted in the U.S. that are in the process of meeting U.S. requirements.

<sup>8</sup> See CRA, June 2003, “The Costs and Benefits of Management Certification of Financial Reports,” available at [www.osc.gov.on.ca](http://www.osc.gov.on.ca).

<sup>9</sup> While the reporting over internal controls may affect the incidence of both minor and significant misstatements of financial results, our analysis is focused primarily on more significant misstatements. Such significant misstatements are often referred to as “fraudulent financial reporting” in the U.S.



Our quantification of benefits also includes a component to reflect the value of better information for managerial decisions as a result of better internal controls. Based on our interviews of issuers, and the likelihood that managers generally have correct incentives for choosing sufficient internal controls making prudent managerial decisions, our estimate of this source of benefits is small.

While there are some conceptual issues with estimating benefits, such as translating the size of a misstatement into a cost of misstatements, the major challenge is obtaining quantitative estimates of the underlying parameters. We have used a combination of economic analysis and other research approaches to obtain what we believe are reasonable estimates. Nevertheless, our estimates are subject to considerable uncertainty.

While some may question the merits of trying to quantify what appear to some to be highly intangible social benefits, we believe the analysis can be useful for several reasons. First, it forces a more clear articulation of the source of intangible benefits embodied in the notion of investor confidence. Second, it allows one to evaluate if there are reasonable underlying assumptions or estimates of parameters that could yield estimates of benefits that are at least of the same order of magnitude as estimated costs.

Our approach does not quantify all the benefits that may arise from an increase in the quality of internal controls over financial reporting. For example, one source of further benefits derives from the general improvement in the accuracy of financial information of many issuers—in contrast to the improvement from reducing the likelihood of significant misstatements by a few issuers—which would provide investors more accurate information for determining the expected value of an issuer.<sup>10</sup> In turn, this enhances the ability of shareholders to monitor the value of issuers, which may enhance incentives for management to increase issuer value. A second source of potential benefits is from an increase in liquidity as a result of increased confidence in the integrity of financial reporting. Increased liquidity benefits shareholders through reduced bid-ask spreads as inventory holding costs for market makers decline.

A third kind of benefit is the potential cost savings for Canadian issuers associated with maintaining the Multi-Jurisdiction Disclosure System (“MJDS”). MJDS is an agreement

---

<sup>10</sup> A recent example of issues surrounding the accuracy of financial statements is the restatement made by Nortel Networks Corporation in October of 2003, and the OSC and SEC investigations in connection with both this restatement and Nortel’s announcement that it will likely need to further restate previously filed financial results.



between the CSA and the SEC that allows eligible Canadian issuers who meet Canadian regulation to access U.S. capital market at lower regulatory costs (and vice-versa for U.S. registrants). MJDS is supported by mutual recognition of the effectiveness of regulation in both countries.<sup>11</sup> It is possible that the SEC may reconsider the merits of MJDS if Canada were not to adopt MI 52-111. The expected benefits of adopting MI 52-111 attributable to MJDS depend on the likelihood that the SEC would abandon MJDS if MI 52-111 is not adopted. Since we do not know this probability we are not able to quantify these benefits.

It is important to recognize that since we have been able to quantify most (perhaps all) of the costs but not all the benefits, comparing quantitative estimates of costs and benefits will be biased towards finding negative net measured benefits. Thus we caution the reader from simply comparing numeric estimates of costs and benefits. Furthermore, the reader should bear in mind that these quantitative estimates (especially those related to measured benefits) are subject to considerable uncertainty.

While cost-benefit analysis can be very useful, it should be considered as one input into the regulatory decision process, especially in light of the difficulty in estimating benefits. The analysis of costs and benefits, at least in this instance, unfortunately cannot remove all regulatory uncertainty. Regulators will have to face the difficult task of making decisions under uncertainty, recognizing there are risks regardless of which decision they take.

Below, we summarize our findings.

***Interview Findings:***

- Respondents view section 404 as one of the most costly components of SOX. Issuers are making large expenditures and devoting significant internal resources to s.404 projects.
- The initial costs of complying with s.404 are significantly higher than the ongoing annual costs, especially for larger issuers. Documentation and initial testing were the most important contributors to the initial costs.

---

<sup>11</sup> Puri and Sen measure the net present value of this system to Canadian MJDS issuers to be US\$1.6 billion



- Most issuers we interviewed are making only the necessary expenditures to comply with the regulations. There are a few exceptions where issuers are going beyond the regulatory requirements; these issuers see competitive benefits in being able to attest to world-class internal controls.
- The auditor attestation requirements add significantly to compliance costs. Removal of auditor attestation costs would reduce the costs of compliance significantly. One estimate by an accounting firm is that initial and ongoing costs would be 50% lower to achieve the same level of controls if the cost of attestation was avoided. Another accounting firm estimated that the additional costs issuers incur to facilitate the attestation process (separate from the direct cost paid to the auditor to provide an attestation report) might be only 5% (or less) of total compliance costs. Finally, issuers estimate that removing the attestation requirement would reduce costs by 40% to 70%, though some of these savings might be due to a decrease in expenditures on internal controls in the absence of auditor attestation.
- Most issuers think the internal benefits to the issuer—such as better management decisions based on more accurate and timely information; a greater awareness of risks in internal control structures; reduced liability risks for the CEO, CFO, and board of directors from reviewing and testing internal controls—are likely to be present but small. Heightened awareness of the importance of internal controls as well as a perceived increase in accountability were oft-mentioned results of the s.404 requirements. While many issuers recognize the possibility of broader benefits through greater investor confidence, most think these would be small and thus believe that the net benefits would likely be negative. No one we interviewed was able to quantify such benefits.
- Accounting firm representatives place more emphasis on the broader public benefits from improved investor confidence and, thus, tend to be generally more positive about the s.404 requirements. However, some accounting firms believe the costs may be too high to justify the benefits for small issuers.<sup>12</sup> One firm was

---

to US\$3 billion over 10 years. Poonam Puri and Anindya Sen, June 2003, *A Cost Benefit Analysis of the Multi-Jurisdictional Disclosure System*, LECG.

<sup>12</sup> Issuers below \$75 million in market capitalization are often considered to be small. Our analysis uses assets as a measure of issuer size since we find assets are more closely correlated with costs of compliance than other measures of issuer size. Based on our results, issuers with less than \$50 million in assets face



concerned about allowing smaller issuers to issue management reports over internal controls without auditor attestation. Others suggest that, if small-issuer exemptions are to be made, it should be explicit that there is no attestation; in addition, there were suggestions that some minimum requirements be set for small-issuer management reports.

- Generally, issuers were not averse to exemptions for smaller issuers (issuers of the size of those listed on the Venture Exchange), but there were exceptions—with some noting that smaller issuers were those most likely to be in need of improving their internal control structures.

*Cost/Benefit Estimates:*

- Costs are very likely to be disproportionately higher for smaller issuers than for larger issuers—largely the result of economies of scale in auditing and internal controls.<sup>13</sup>
- Ongoing annual costs are less than initial costs.
- Our approach to quantifying the expected benefits of the proposed regulations focuses on the financial market impacts of reducing the incidence of significant misstatements in corporations' financial reports. Certain benefits—including improvement in the quality of financial disclosure resulting in better corporate governance, an increase in liquidity, and decreasing any risk of losing MJDS—are not captured in our quantitative estimates.<sup>14, 15</sup>

---

significantly higher costs than issuers above this size (see summary on page 13). Similarly, issuers over \$5 billion in assets have significantly lower costs of compliance when compliance costs are scaled by assets. They also represent a large share of total assets. These issuers we might consider as large.

<sup>13</sup> While it is common to equate the TSX Venture Exchange-listed issuers with small issuers and TSX-listed issuers with large issuers, it is important to remember that a significant number of TSX-listed issuers can be classified as relatively small (below \$75 million in market capitalization) as well.

<sup>14</sup> There is a growing body of research using international comparisons that shows a statistically and economically significant relationship between the quality of information disclosure (as well as securities regulation and enforcement more generally) and the cost of capital and the liquidity of markets.



- The following table summarizes our estimates of benefits and costs. We report central estimates by exchange and by issuer size as well as ranges. Note that the estimates of measured benefits by size implicitly assume that shareholders form average estimates of the quality of financial information for each size category.<sup>16</sup>

---

<sup>15</sup> Our analysis assumes that investors behave as rational economic agents. Thus, our calculations of benefits assume that investors can make reasonable judgements about the likelihood of suffering losses from significant misstatements, the size of those misstatements, and the reduction in the likelihood of misstatements that improved internal controls may bring—and that our range of parameter estimates are sufficiently close to investors' expectations. We believe this is a sound approach to cost-benefit analysis of long-run policy changes. However, if investors on average have significantly higher expectations about the extent of financial misstatement, the cost of financial misstatement, or the effect of the improvement of internal controls on the likelihood of financial misstatement, the benefits could be potentially larger.

<sup>16</sup> In other words, the estimates assume that improvements in the average quality of internal controls for issuers of one size category does not lead to spill over benefits for issuers of another size category.



**Measured Costs and Benefits: Central Estimates and Ranges**  
(Dollar Amounts Are Per \$1,000 in Assets, Ranges are in Parentheses)\*

	<i>By Exchange</i>		<i>By Size (\$ Millions of Assets)</i>			
	TSX	Venture-Exchange	< \$50	\$50 - \$500	\$500 - \$5,000	>\$5,000
Costs	\$1.2	\$14.5	\$15.2	\$5.2	\$2.0	\$0.6
(range)	(\$1.0 - \$1.5)	(\$9.2 - \$22.8)	(\$10.4 - \$22.4)	(\$4.0 - \$6.7)	(\$1.6 - \$2.5)	(\$0.5 - \$0.8)
Benefits	\$0.7	\$3.8	\$4.2	\$2.1	\$1.2	\$0.5
(range)	(\$0.2 - \$1.8)	(\$1.8 - \$8.8)	(\$1.9 - \$9.7)	(\$0.8 - \$5.3)	(\$0.4 - \$2.8)	(\$0.1 - \$1.2)
<i>Approximate Share of Assets**</i>			2%	6%	20%	72%
<i>Approximate Share of Market Capitalization**</i>			10%	15%	27%	48%
<i>Approximate Share of Listed Issuers**</i>			81%	14%	4%	1%

Additional Unmeasured Benefits

*Increased market liquidity, which decreases inventory holding costs and leads to lower bid-ask spreads*

*Overall improvement in the accuracy of financial information, allowing shareholders to more accurately determine the value of issuers resulting in enhanced incentives for management to increase true issuer value*

*Increase likelihood that MJDS will be preserved*

---

\*Excludes interlisted issuers on a foreign exchange and non-listed public issuers. Central estimates are calculated at midpoints of parameters and do not lie at the centre of the estimated ranges due to the non-linear relationship between the parameters and cost and benefit estimates.

\*\* Based on samples of TSX and Venture Exchange listed (but not cross-listed) public issuers.

- The central estimates of measured costs exceed the central estimates of measured benefits for all categories of issuers.<sup>17</sup> Thus, using only point estimates of measured costs and benefits, the cost-benefit analysis for this proposed policy does not appear favourable.

---

<sup>17</sup>Note that as issuer size increases, the gap between cost and benefit decreases—as one would expect in a situation where there are scale economies.



- However, it is important to consider not just the central estimates but the ranges as well. Except for the smallest issuers, the upper bounds of measured benefits exceed the lower bounds of measured costs in our estimated ranges. And, for medium to large issuers the upper bounds of measured benefits exceed the *upper* bound of costs as well.
- We conclude, therefore, that given reasonable parameter estimates for the probability of significant misstatements, the size of misstatements (and their cost), and the effect of MI 52-111 on reducing the incidence of significant misstatements, the aggregate estimated benefits that we measured are of similar orders of magnitude to aggregate estimated costs for issuers with at least \$500 million in assets. In contrast, we do not find that, even at the upper bound of our parameter range, the benefits that we measure exceed the costs for issuers below \$50 million in assets. For issuers in the \$50 million to \$500 million asset range, the ratio of aggregate measured benefits to costs is uncertain.<sup>18</sup>

***Separate Consideration of the Auditor Attestation Requirement and Exemptions:***

- As noted, elimination of the auditor attestation requirement could reduce costs significantly, as the attestation costs are estimated to be between 40% and 70% of total costs. Cost savings to reach the same quality level of internal controls achieved with auditor attestation may be closer to 40% to 50%, and further savings may reflect less comprehensive or in-depth evaluation, improvement and ongoing testing of internal controls.
- Auditor attestation is likely to be important for setting consistent standards for reporting on the functioning of internal controls over financial reporting and for inducing issuers to improve internal controls. Retaining the management report without auditor attestation or a set of specific requirements issued by regulators could result in greater variation in the depth to which issuers evaluate internal controls in making management reports. Thus, while the costs may be lower, so too would be the benefits.

---

<sup>18</sup> However, as noted below, the optimal size cut-off to fully exempt TSX issuers falls within this asset range, being \$125 million.



- Exempting issuers from some or all of the requirements based on exchange rather than on size has advantages. First, small investors and foreign investors can use the branding of the exchanges—the Venture Exchange being branded as higher risk—to capture the differences in the quality of disclosure, freeing them from having to keep track of the meaning and interpretation of various regulations on a issuer-by-issuer basis. Second, this allows issuers some flexibility in deciding which set of regulations they prefer. Issuers that find the reputation benefits of listing on the TSX do not exceed the added regulatory costs can switch to the Venture Exchange. Venture Exchange-listed issuers unable to meet other requirements to list on the TSX can always voluntarily comply with internal control rules as a signal of quality to investors.
- The argument in favour of using size as the criterion to exempt some issuers is that there are a substantial number of small issuers listed on the TSX.
- We estimated various optimal size cut-offs for exemptions, based on only measured benefits and costs (thus ignoring other potential benefits.) These estimates are based on the assumption that investors are fully aware of which issuers are exempt and which issuers are not exempt. Using the most optimistic set of parameter estimates for benefits, we find it is optimal to exempt issuers with less than \$125 million in assets.
- In an alternative scenario, we consider an exemption from auditor attestation for some public issuers. We need to make an assumption of how much issuers would spend on improving internal controls over financial reporting in the absence of auditor involvement. Based on interviews, the avoided expenditure for auditor attestation is about 50%. Issuers may take the opportunity to make more modest improvements in internal controls. The accounting firms believe this effect may be significant. We assume a further 30% reduction so that overall expenditures on complying with 52-111 to evaluate internal controls (and make improvements where necessary) are only 20% of what they would be with auditor attestation. Under this assumption, and using only measured benefits and costs, we find that it would be optimal to exempt issuers from the auditor attestation requirement that have assets less than \$525 million. If issuers only reduce their expenditures to evaluate internal controls by 10%, so that overall expenditures were 60% less in the absence of auditor attestation, then it would be optimal to exempt all issuers from the attestation requirement based on quantifiable benefits and costs.



### Caveats

While CRA has attempted to exploit the available economic theory and market information with diligence and rigor to quantify costs and benefits, it is very important to recognize several important *caveats* to our analysis. Our estimates should not be interpreted as precise or exact. The primary goal of this analysis is to determine whether the benefits of the proposed regulations likely exceed their costs, not to determine the exact value of any net benefit.

Quantifying costs or benefits of a regulatory policy aimed at reducing the incidence of significant misstatements is difficult for several reasons. First, while the SEC's implementation of s.404 has clarified some areas of ambiguity, the rules are not highly prescriptive, nor do they provide many illustrative examples. This leaves some scope for individual issuers' approaches to compliance, and thus creates a level of uncertainty in our cost estimates.<sup>19,20</sup>

Second, our bottom-up analysis of benefits is partially based on Ontario Securities Commission (OSC) data from continuous disclosure reviews. The data from these reviews allow us to estimate, after controlling for issuer size, the relationship between an increase in expenditures on an independent auditor and the decrease in the likelihood an issuer must restate their financial information. We use this to estimate an elasticity that measures the percentage reduction in the probability of misstatement resulting from a one percent increase in expenditures on internal controls. However, there is a range in the severity of misstatements in the OSC data, while our benefit analysis is focused on misstatements that are sufficiently large that they would generally have a detectible and

---

<sup>19</sup> While we scale our cost estimates for issuer size, we cannot account for other differences across issuers, such as the sophistication of existing internal controls, which would result in different costs. However, size is the most important variable in discriminating among issuers when attempting to determine aggregate costs at the industry level. Moreover, our estimated cost range accounts for the fact that we do not have more precise information on issuer characteristics.

<sup>20</sup> The PCAOB's proposed rules governing the standards for auditor attestation also affects the expected cost of auditor attestation. Since our interviews with issuers, final PCAOB standards have been released. We asked representatives of two accounting firms if they thought the differences between the proposed and final standards would affect costs. Neither thought the changes would significantly alter costs. One representative suggested that attestation costs might fall as a result of some increase in auditor latitude allowing possibly more use of the work of management and others. He suggested the reduction in attestation costs would be less than 5%. Allowing issuers more flexibility to substitute work by internal audit departments for work by external auditors may translate into a more efficient use of resources.



important effect on the stock price of an issuer. Thus, our inferences regarding the effect of increased accountability on reducing significant misstatements based on the OSC continual compliance reviews are somewhat indirect, though still appropriately scaled to the estimated incidence of more significant misstatements.<sup>21</sup> In addition, we must estimate the value of avoided misstatements through the internal control reporting and attestation requirements. For smaller issuers we have some evidence that suggests that the *cost* of a misstatement appears to be the same order of magnitude as the *size* of the misstatement. However, there is no obvious reason why the relationship between size and cost is one-to-one. For larger issuers we use research on stock market reactions to the release of information of significant misstatements in the U.S. We blend these estimates together to estimate the relationship between the size of an issuer and the cost of a significant misstatement.

Third, CRA was asked to separately estimate the costs associated with auditor attestation. Auditor attestation adds the direct costs of the auditor's involvement plus indirect costs. These indirect costs include, for instance, the additional or more detailed documentation that an issuer might conduct to facilitate outside verification. One accounting firm thought such indirect costs were small—unlikely to be more than 5% of total internal and external costs of compliance. However, without auditor attestation—for some issuers at least—management may not document, test (initially and on an ongoing basis) and improve internal controls to the same depth. Thus, auditor attestation in practice is more than simply verification. It can affect the average quality of internal controls over financial reporting and force a level of convergence to the same quality level.<sup>22</sup> Based on information from the interviews we have attempted to disentangle the various sources of costs arising from auditor attestation as well as the benefits of auditor attestation. However, the information we have for doing this is limited. Furthermore, there is likely

---

<sup>21</sup> We do not use this data to estimate the current likelihood of a significant misstatement. We use the data only to infer the change in the likelihood of a significant misstatement. Also, using percentage changes rather than absolute changes ensures that the probability of a significant misstatement can never be reduced to zero. For example, if the probability of a significant misstatement were 1% and the estimated elasticity were 2 then the effect of a 1% increase in expenditures on internal controls (measured as a percent of current external audit fees) would reduce the probability of a significant misstatement by 2% so that the probability of a misstatement would be reduced to 0.98%. If the probability of a significant misstatement were instead 0.1%, then the same expenditure on internal controls would reduce the probability of a significant misstatement to 0.098%.



considerable variation in the extent to which issuers investigate and improve internal controls in the absence of auditor attestation, making it difficult to quantify the benefits of auditor attestation. As a consequence, there is significant uncertainty in CRA's cost and benefit estimates associated with auditor attestation.

Finally, as with our analysis of certification requirements, CRA's quantitative analysis implicitly assumes a level of enforcement that engenders the type of response exhibited by issuers having to meet U.S. regulations. The effectiveness of the reporting requirements in either Canada or the U.S. will ultimately depend on how these regulations are enforced.

\* \* \*

The remainder of this report is divided into three sections. Section 1 summarizes the results from our interviews. Section 2 provides CRA's analysis of costs and benefits. Section 3 reports on issues related to auditor attestation. Section 4 provides a brief summary and conclusions. A technical appendix (Appendix A) provides details on our calculations of costs and benefits. Appendix B provides an overview of some relevant academic literature and evidence in regards to regulated disclosure (this appendix is Section 2 from CRA's prior study of certification, with some minor changes).

---

<sup>22</sup> Of course, regulators could effectively replace the function of external auditors by randomly auditing internal controls of issuers that have issued positive management reports and imposing sufficient penalties on issuers found to be out of compliance.



## 1. Views of Market Participants

CRA interviewed Canadian issuer CEOs, CFOs, controllers, heads of internal audit departments, heads of compliance departments, and project managers for s.404 compliance, as well as both line audit partners and members of the leadership teams of some of the major accounting firms.<sup>23, 24</sup>

Table 1 below provides summary statistics regarding the sample of issuers and organizations CRA contacted and interviewed.<sup>25</sup> Of the 95 organizations we contacted, about one-quarter participated in an interview. The main reason the participation rate was not higher was that those most able to respond most knowledgably to our questions—often CFOs and controllers—were busy with year-end filings. Generally, there was a high level of interest in participating in the study despite the lack of direct benefits to participants.

We focused our efforts on Canadian public issuers that are also listed in the U.S. and subject to SEC regulations. These issuers were in the best position to provide us with reasonably accurate cost estimates. However, we also spoke with several issuers that were not SEC registrants.

Based on the distribution of Canadian issuers by size, smaller issuers are somewhat under-represented, as evident in the table. This is partially due to our focus on cross-listed Canadian issuers, which tend to be larger issuers. Furthermore, small issuers that

---

<sup>23</sup> The interviews we conducted in May of 2003 for our certification study also provided relevant information about the costs and benefits of management reporting and auditor attestation over internal controls. For that study we interviewed 2 CEOs, 3 CFOs, 2 Controllers, 3 auditors, and 2 solicitors from 10 different organizations. We contacted 18 different individuals to obtain the 12 interviews we conducted. For this study we also interviewed controllers at two U.S. issuers to get an idea how U.S. issuers were dealing with the new regulations. Before each interview we sent a brief issues paper in advance as background information and to focus the agenda. Most interviews were conducted by telephone and took between 30-60 minutes.

<sup>24</sup> We also contacted fund managers to solicit views of investors. Only one agreed to participate.

<sup>25</sup> The sample of issuers and organizations we contacted was not a strictly random sample. Our list of issuers and organizations was derived from our own contact lists but included some randomly chosen issuers as well. Constructing a sufficiently large sample to allow for robust statistical inferences based on random sampling was beyond the scope of this project. Nevertheless, after controlling for issuer size, the cost estimates provided by the sample issuers are consistent with each other, and are also consistent with estimates provided by the accounting firms, suggesting that there is not a substantial sampling bias in the data. Moreover, we take care to account for the actual distribution of issuer sizes when calculating estimated costs and benefits for all of Canada.



are not SEC registrants were less willing to participate because they had not given the issues much, if any, consideration and, thus, felt that they could not provide much useful information. The two small issuers (less than \$50 million in assets) that are in the sample are nevertheless useful for verifying whether our estimated relationship between size and costs based largely on medium and large issuers reasonably can be extended to the population of smaller issuers. (As we discuss below, we find no evidence that the estimated relationship between costs of compliance and issuer size cannot be extrapolated to smaller issuers.)

Most issuers in our sample are located in Ontario, Quebec, or Alberta. British Columbia is under-represented and there is no issuer in our sample from the Atlantic Provinces. In categorical terms, nine issuers are from the mining or oil and gas sectors. We used regression analysis to see if costs of compliance were unusually higher or low (after controlling for issuer size) for oil and gas issuers or for mining issuers. We did not find an economically or statistically significant difference in reported costs for these issuers.

**Table 1: Summary Statistics of Issuers and Organizations**

Number of issuers and organizations contacted		95			
Number of interviews		28			
Response rate		29%			
Issuer Headquarters*		Industries*		Size of Issuers - Assets in \$ millions**	
BC	1	Finance and Insurance	3	Less than \$50	2
AB	9	Transportation	4	Between \$50 and \$500	1
SK	1	Information	3	Between \$500 and \$5,000	5
MB	1	Manufacturing	3	Between \$5,000 and \$20,000	12
ON	7	Oil, Gas and Pipelines	6	More than \$20,000	3
QC	4	Utilities	2		
US	1	Mining	3		

\*Excludes four accounting firms.

\*\*Excludes four accounting firms and one fund management company.



CRA's interviews concentrated on the following broad topic areas:

- Costs of compliance to issuers;
- Benefits that issuers would receive directly;
- Benefits that would arise through improved investor confidence; and
- Issues around relief for small issuers, primarily through exemption either from all regulations or from the requirement of auditor attestation.

The cost of compliance was generally the only category in which respondents could readily provide quantitative information. Some respondents also provided quantitative information about how much they thought the cost of compliance could be reduced if auditor attestation were not required. No interviewee, including the one investment fund manager we interviewed, was willing to estimate or provide quantitative information on benefits.

Below we summarize the results for each of these four topic categories.

### **1.1 Respondent Views on Costs of Compliance**

All issuers CRA interviewed were spending or expected to spend a substantial amount of money and internal labour resources to comply with s.404. Among the SEC-registered issuers, some were just in the initial planning stages while the remainder were well into their initial implementation projects. Many issuers we interviewed were able to provide us with cost estimates, though several very large issuers refused, due to concerns over confidentiality. In addition, some of the smaller issuers did not have sufficient information to provide reasonable estimates.

We asked respondents to divide costs into four components: (1) initial internal costs, (2) initial external costs, (3) ongoing internal costs, and (4) ongoing external costs. Most issuers were able to provide this breakdown, though a few issuers did not provide separate estimates of internal and external costs.

In terms of accuracy, respondents considered internal initial cost estimates to be the most accurate, followed by external initial cost estimates. Most respondents considered these estimates to be accurate or approximate (defined as +/-25% and +/-50%, respectively). Respondents' estimates of future ongoing costs were thought to be less accurate, as one would expect.



For all respondents, the initial costs are much higher than the estimated ongoing annual costs, as we discuss in more detail below. Documentation and initial testing were the most important drivers of initial costs; these are labour-intensive activities. While issuers are making use of software to facilitate documentation and later to provide a means for auditor attestation of some components of internal controls, the labour-intensive nature of the process is unavoidable. The accounting firms generally agreed that documentation and initial testing were the first and second most important contributors to cost, though they would also include fixing an issuer's IT system among the larger cost drivers. Remediation of control weaknesses ranked lower on the list of expected sources of costs. Large issuers generally have hired one or more employees who work full-time on the internal controls project. Smaller issuers expect to divert a portion of current employees' time to working on internal controls, as these issuers cannot justify hiring an additional employee.<sup>26</sup>

Most of the respondents (86%) are making only required expenditures to comply with the regulations. One of the issuers making additional investments is doing so for competitive reasons; i.e., publicity regarding high-quality internal controls would be used to increase the value of the issuer's reputation. Another such issuer had recently grown quickly through a series of acquisitions and needed to implement a more uniform system of internal controls. The issuer was going slightly beyond (about 10%) what they thought was required. This issuer and three others would have implemented some of the measures s.404 requires—though not components related to auditor attestation—for purely business reasons. Recent growth, especially through mergers and acquisition, was the common reason for this. However, these issuers would not have implemented the changes as quickly as U.S. regulations have required.

As mentioned above, several issuers were able to provide estimates of how much costs would be reduced if the auditor attestation component were eliminated from the requirements. One issuer official expected that cost savings would only be the avoided incremental external audit cost due to the attestation and that there would be no internal cost savings. In contrast, another issuer representative told CRA that the attestation costs

---

<sup>26</sup> There are two general approaches larger issuers are taking to implement the necessary changes. One approach is to designate a group of individuals that is responsible for implementing changes to internal controls and required documentation/testing across all of an issuer's business units. The second approach is to assign an individual or group of individuals in each business unit to undertake the work, with coordination provided by headquarters. The favoured approach tends to be the first, as issuers would like to ensure consistency in implementation. However, this is viewed as a considerable outlay for highly decentralized issuers, leading to large travel costs as well as requiring the same group of individuals to acquire sufficient understanding of potentially diverse business units.



were responsible for a very significant component of his issuer's external and internal costs—both initial and ongoing (figures were not provided). Based on the issuers that provided us with estimated cost savings, initial total costs would range between 40% and 70% lower if there were no auditor attestation requirement. The estimate from an accounting firm was 50%. Savings of more than 50% may reflect a decrease in the depth to which internal controls are improved in the absence of auditor attestation. If there is less improvement in internal controls the benefits would be accordingly less.

Uncertainty in the language of the regulatory requirements is an additional cost element that a number of respondents raised in our interviews. That is, several respondents were frustrated because they did not have a sufficiently precise understanding of what the regulations require. Many of those we spoke with expected it would be very damaging to the issuer if the auditor could not attest to a positive report by management of the issuer's internal controls over financial reporting. This makes the uncertainty surrounding the statutory language costly, especially for the more risk-averse managers. In an effort to significantly reduce the risk of a negative auditor report, in addition to consultations with multiple accounting firms, issuers are making investments in their own internal control structures that may in the end be too large relative to what regulators ultimately require. Issuers would like to have as much specific guidance as possible as to what is actually required in order to reduce such potential over-investment.

More guidance via illustrative examples from the regulators was the most frequently recommended method for reducing costs of compliance arising from uncertainty over requirements. This was followed by a recommendation to reduce the prescriptive nature of auditor attestation and to make greater use of a more principles-based approach supported by strong enforcement. Greater clarity and more examples do not necessarily mean more micromanagement in the regulations, according to the respondents. However, several also opined that the PCAOB has become too prescriptive in setting the requirements for auditor attestation and that this is driving up costs significantly with little or no benefit. For example, some internal controls over financial reporting are also considered mission-critical to the issuer's operations and, thus, the issuer has more than sufficient private incentive to make sure these internal controls are robust. Furthermore, some of the internal controls are complex and require specialized skills to evaluate. The PCAOB draft standards, in the view of one respondent, would require the auditor to



acquire such skills and to test internal controls that have already undergone substantial testing by the issuers themselves.<sup>27</sup>

A third recommendation made by a few respondents was to allow greater time for issuers to comply with the regulations, as compressing the timeline can add significantly to costs.<sup>28</sup> Issuers would also like to learn from regulators the earliest a regulation might be enacted, even if the effective date is not yet known.

## 1.2 Respondent Views on Benefits

CRA asked those we interviewed for their views on the private benefits that an issuer would receive as a result of the investments in documenting, testing, enhancing, and monitoring of internal controls. We also asked them to comment on their perception of the broader benefits to investors and other market participants.

Issuer-specific private benefits include better and more timely information for decision-making (including identification of previously unknown risks and possible reduction in known and previously unknown risks) by management and investors; more efficient business processes; and better safeguarding of assets. One accounting firm described these benefits in more detail as including:

- Centralizing and streamlining financial reporting processes;
- Reducing the time necessary to prepare reliable financial reports, often through automation or through reduction in the number of adjustments required to underlying reports;
- Management's increased understanding of financial reporting processes, leading to better educating personnel in internal control and financial reporting, such that efficiency is improved and more delegation can be made;

---

<sup>27</sup> The PCAOB's final standard (Standard No. 2) related to auditor attestation provides some additional latitude for auditor judgment especially in terms of how much to rely on testing by management and others. As a result, this source of cost may be less under the final standards.

<sup>28</sup> The SEC extended compliance dates for rules pursuant to s.404 on February 24, 2004 by six months. An "accelerated filer" needs to comply for its fiscal year ending on or after November 15, 2004 (previously June 15, 2004) and a non-accelerated filer needs to comply for its fiscal year ending on or after July 15, 2005 (previously April 15, 2005).



- Reducing the incentive, opportunity, or need to rationalize fraudulent financial reporting or misappropriation of issuer assets; and
- Improving the safeguarding of issuer assets through controls designed to ensure authorization over the acquisition, use, or disposition of issuer assets.

Another private benefit, which is related to risk identification and reduction, is the additional comfort senior management and the board of directors derive from increased confidence in the issuer's internal control structure and the reduction in liability from improved and tested internal controls over financial reporting. Broader market-wide benefits are related to overall improved investor confidence and increased participation in markets, resulting in a lower cost of capital and greater economic activity.

None of the individuals we interviewed was able to provide any quantitative information on issuer-specific or broader benefits. Even the benefits that accrue to issuers are considered too difficult to quantify. As one interviewee noted, since the current changes in internal controls are imposed by regulation, no one within the issuer has needed to develop a business case to justify the investment. Issuers have simply accepted that they must comply with the regulations and will incur whatever costs are necessary to ensure that they are able to issue a favourable report over internal controls supported by the attestation of the auditor.

When CRA discussed benefits, many interviewees (68%) commented on the likely increase in awareness and more emphasis on accountability at various corporate levels as a consequence of the s.404 requirements. This increase in awareness suggests that, while issuers are generally not going beyond specified compliance requirements, they are nonetheless treating this activity as more than a simple box-checking mechanical exercise. A main driver of this internalization of the importance of internal controls over financial reporting is the perception of increased involvement of the CEO and CFO in the process. Somewhat ironically, one respondent conjectured that the difficulty in defining precisely the standard for internal controls in the U.S. has led senior management to take a more active role in overseeing projects related to internal controls than they would have thought necessary if regulators had been more prescriptive about internal control requirements.

Increased awareness of the importance of internal controls is, however, not a benefit in and of itself. It is the actual improvement in the quality of internal controls over financial reporting, driven partially by this enhanced awareness, which translates into benefits. Respondents cited four areas of potential private benefits of enhanced internal controls as a result of the s.404 regulations that issuers noted: 1) improvements in the operation of



the issuer and better decision-making; 2) better safeguarding of assets; 3) a higher comfort level for senior management, especially the CEO and CFO; and 4) a higher comfort level for the board of directors.

Of the respondents that commented on improvements in operations of the issuer and better decision-making based on more timely and accurate information, 79% thought there would be at least some benefits, with the remaining 21% reporting that they did not expect any such benefits. However, even those who thought there would be some benefits expect these to be modest. Part of the reason for this is that most managers felt that their issuer already has set the quality of internal controls over financial reporting (as well as over operations) at the optimal level—i.e., the level where the incremental benefits to the issuer of further improvements are less than the incremental costs.

While several issuers did comment that their improvements to date have allowed them to catch some (“non-material”) errors and to better understand some aspects of their organization, the associated benefits have been modest. A few interviewees did mention that the difficulty in measuring the benefits to the issuer of improved internal controls sometimes makes it problematic to convince senior management to spend more funds on enhancing internal controls and may result in under-investment.

Only rarely do issuers make investments beyond what they think is necessary to meet the base regulations. Issuers that have grown rapidly through acquisitions found that the private benefits of the changes they were making to internal controls were in line with their additional costs, with the exception of some of the costs associated with auditor attestation. That auditor attestation is not perceived to yield much direct benefit to the issuer—i.e., no issuer would have benefited sufficiently in terms of better information from the additional requirements imposed by auditor attestation—is not surprising. The value of auditor attestation, as we discuss below, is largely derived from the broader benefits associated with increased investor confidence.<sup>29</sup>

The SEC commentary on its rules implementing s.404 explicitly discusses the importance of internal controls over financial reporting in the safeguarding of assets from unauthorized use and the timely detection of any unauthorized use. About half of our respondents thought that the management report and auditor attestation would result in some improvements in the safeguarding of assets. The other half felt that their internal



control structures were already sufficient and that there would be very little or no improvement. However, in many cases of financial misreporting, the CEO and CFO are often implicated in various forms of misappropriation of assets from the issuer and its shareholders.<sup>30</sup> Internal controls over financial reporting, along with other mechanisms, are intended to prevent such behaviour, especially among top management, by requiring the CEO and CFO to set a high ethical standard for the whole issuer (the so-called “tone at the top”), and by making it more likely that the CEO or CFO would be successfully prosecuted if they were directly involved with the issuance of misstated financial information.<sup>31</sup> One would not expect those with whom we spoke to view themselves (or their CEOs or CFOs) to have questionable or poorly grounded ethics or to tell us that s.404 would improve their own corporate behaviour. Moreover, it is difficult for an individual to accurately predict how they might behave in a situation where their ethics are truly put to the test.<sup>32</sup>

The individuals CRA interviewed generally agreed that the s.404-related requirements would provide some additional comfort to management and, in particular, to boards of directors and their audit committees. However, no one thought that these benefits were very large, and nearly everyone thought that they were too small to justify the costs.

Certification of, and especially attestation of, corporate internal controls should increase significantly the comfort levels of boards of directors, who are generally far removed from the day-to-day processes that generate information about the issuer’s financial condition. While board audit committees will be expected to work harder to monitor the information generated by the new regulations, these additional responsibilities should be somewhat counterbalanced by the resulting increase in comfort level.

---

<sup>29</sup> A few respondents mentioned that there might be some decrease in the cost of the external audit of their financial statements as a result of auditor attestation. Some others thought these savings would be negligible.

<sup>30</sup> See the COSO study by Beasly, Carcello, and Hermanson [1999] and the COSO report.

<sup>31</sup> A CEO or CFO can always override internal controls. However, a good internal control structure over financial reporting would require them to override controls in order to issue misstatements, a situation that ought to be evident to prosecutors.

<sup>32</sup> The COSO study [1999] found that many managers can be tempted to cross the line into unethical behaviour under certain circumstances.



In terms of the broader market benefits, about half of the issuers we interviewed thought there would be improved investor confidence, which would translate into a boost in share prices, though with the additional costs acting as an offsetting effect. The other half of respondents thought there would be little or no broader market benefits. Those who were sceptical offered various arguments in support. One is that the regulations would do little to stop the behaviour of unethical senior managers—these managers would override the controls in any event. One response was that there is an overall mistaken belief regarding the extent to which SOX or the investor confidence initiatives can reduce the risk of financial misstatements. Any significant reduction in risk would only result from a strong enforcement policy, which this respondent expected to be lacking. Issuers also commented on the effect on the decision of issuers to go public. Most thought there would be either a negative net effect or that the effect would be marginal.<sup>33</sup>

However, there appears to be some confusion about how disclosure over the quality of internal controls and third-party verification of this disclosure translates into broader market benefits. For instance, several respondents thought there would only be a downside, in that any issuer that was not able to produce an unqualified report on internal controls supported by the auditor would see its stock price decline significantly, while all other issuers would see no benefit from issuing a positive report backed by an auditor attestation. It is true that if almost all issuers almost always issue positive reports, then issuing a positive report may have only a small effect on a issuer's stock price—and possibly not even measurable, given all the other factors affecting stock prices. However, issuing a positive report must provide information to the market if a negative report provides information. That is, issuing a positive report means that the issuers has not issued a negative report, and this represents new information for investors. Only if a negative report were never expected to be issued (or if investors naively believed that this would be the case) would the certification of the functioning of internal controls over financial reporting have no information value.

Another interviewee sceptical of s.404 benefits commented that regulators had shifted from trying to catch the very few issuers with inadequate internal controls to imposing significant costs on all issuers to prove their controls are adequate. However, the fact that the quality of internal controls is very difficult for outside investors, and the regulator, to

---

<sup>33</sup> For a discussion of how changes in SEC disclosure requirements for the OTC Bulletin Board affect the decisions of issuers to comply or exit, see Bushee and Leuz [2002]. They find that a significant number of issuers chose to go private as a result of the increased regulatory costs for staying on the OTC Bulletin Board.



evaluate implies that there is no way for regulators to target only those issuers with inadequate controls.

CRA asked issuers and accounting firms to weigh both the costs and benefits of regulatory compliance and give their views on net benefits. Not surprisingly, the accounting firm representatives generally thought the net benefits were higher than did the issuers. Accounting firms are in a better position to understand some of the broader benefits that can result from enhanced investor confidence. Indeed, they were able to articulate these benefits better than many of the issuers. For example:

- *More reliable financial reporting.* The events involving issuers such as Enron and WorldCom have underscored the importance of reliable financial reporting. Management's assessment coupled with an audit of internal control will improve the reliability of financial reporting and help to avoid such unfortunate situations.
- *Greater investor confidence in the capital markets.* Investors need to rely on the financial reports of management. Assurances regarding the processes and controls that produce those reports will improve investor confidence.
- *Lower cost of capital.* Improved confidence in financial reporting will decrease any risk premium built into the cost of capital based on uncertainty in the production of management's earnings reports.
- *Competitive Canadian securities markets.* Many major securities markets already have some form of assurance relative to risk and control. For example, Sarbanes-Oxley in the US, and Turnbull in the UK. The implementation of similar requirements in Canada will level the playing field with many securities markets around the world that have already recognized the benefits of such reporting.

Of course, the accounting firms also have a vested interest in the outcome here, as they would benefit from the work that would be generated if rules similar to s.404 were implemented in Canada. Issuer executives CRA interviewed, who may have their own vested interests, generally thought that the net benefits were unlikely to be positive.



## 2. Estimates of Costs and Benefits

CRA's approach to estimating costs and benefits is similar to the approach we developed in an earlier analysis of the costs and benefits associated with the rules implementing CEO and CFO certification requirements (the "certification study").<sup>34</sup> The two major differences are: (a) we have more information about the costs issuers expect to incur to meet s.404 requirements; and (b) we have provided a more extensive description of our approach, with the hope of making clearer what assumptions we are making and the sources of uncertainty.

The economic rationale for intervention is to correct an identifiable market failure in corporate governance that would generally result in inadequate internal controls (and poor financial reporting more generally). The associated higher cost of capital is a social cost that can potentially be reduced through regulatory intervention. However, since it is possible that a regulator could set standards for internal controls (either directly or indirectly) at a level that is too high relative to socially optimal levels, it is important to assess the cost and benefits of increased regulation.<sup>35</sup> Our approach in this section to addressing this policy question is to quantify as much of the benefits and costs as possible. However, benefits are more difficult to quantify than costs. This has two implications: (1) if we have quantified essentially all of the costs but only a portion of the benefits, comparing only quantified benefits to quantified costs will be biased in favour

---

<sup>34</sup> See CRA, June 2003.

<sup>35</sup> As we found in our certification study, some of those we interviewed thought that many small investors were not sophisticated enough or had sufficient interest in finance to make use of the information released by issuers, so that changes in the quality of internal controls over financial reporting were not that important. However, it is not the case that it is necessary for most investors to make direct use of this information or to account for the improvement in the quality of the information for it to have a positive impact. One reason is that the market provides simplified information through analysts for both sophisticated and unsophisticated investors. Another reason is that sophisticated large investors, such as institutional investors and mutual fund managers, can drive much of price formation so that better quality information can be impounded into stock prices through these sophisticated investors. For instance, a McKinsey & Company [2002] survey of institutional investors found that these investors put corporate governance on par with financial indicators when evaluating investment decisions and would pay a premium (12 to 14% in North America) for issuers exhibiting high governance standards. Also, financial disclosure was considered a pivotal concern, and the quality of market regulation and infrastructure is seen as highly significant. Finally, most small investors are informed of major scandals, such as Enron, WorldCom, Tyco, Livent, and Parmalat, to name a few, and form expectations about how safe it is to invest in markets, affecting how much exposure they should have to any individual issuer and how much of their portfolio should be held in equities.



of finding negative net benefits; (2) there is more uncertainty in our estimates of the benefits—i.e., a wider range of possible results—than in our estimates of costs.<sup>36</sup>

On the cost side, we start with the estimates provided by the interviews to measure the relationship between cost components and issuer size.<sup>37</sup> Using these estimates and a sample of TSX and Venture exchange listed issuers based in Canada and not listed on a foreign exchange, we derive an estimate of total costs for the sample.<sup>38</sup> For each index, we scale up these cost estimates to the population of issuers.<sup>39</sup>

We provide a range of cost estimates based on the measured level of uncertainty in the estimated relationship between issuer size and costs. The estimation procedure we use (regression analysis) yields an estimate of the level of uncertainty in the estimate relationship.<sup>40</sup>

On the benefits side, we developed a simple model, which provides an approach to quantifying some of the value of reduced financial misreporting. We calibrated the parameters of the model based on various studies and our own analysis. There is considerable uncertainty in the link between the parameters and the research, which we capture by considering the sensitivity of the results to different parameter estimates.

---

<sup>36</sup> We have reported on the respondents' inability to articulate the issuer-specific benefits in qualitative terms, let alone quantitatively, and with enough detail to allow researchers to develop a model that can be easily estimated or calibrated. Moreover, the broader market benefits associated with enhanced investor confidence are even less tangible to most market observers.

<sup>37</sup> We use assets as a measure of size for reasons discussed in footnote 40.

<sup>38</sup> This step is important since our sample of interviewed issuers is not random; thus, in order for our estimates to accurately reflect overall costs, we need to capture the distribution of issuers by size.

<sup>39</sup> We consider two possibilities for scaling, the ratio of total market capitalization of the entire population of Canadian listed (but not interlisted) issuers to the total market capitalization of our sample; the ratio of the total number of Canadian listed (but not interlisted) issuers in the population to the number of issuers in our sample. Since we scale costs and benefits by the same factor, any imprecision in the scaling factor affects measured costs and benefits proportionally.

<sup>40</sup> There is additional uncertainty in the cost estimates as a result of issuers' uncertainty about the final requirements, such as any rules or recommendations governing auditor attestations. This uncertainty is difficult to quantify and we have not accounted for it in the range of cost estimates.



## 2.1 Cost Estimates

We asked issuers to break out costs into four categories.

- Initial internal costs;
- Initial ongoing costs;
- Ongoing internal costs; and
- Ongoing external costs.

We provided issuers with a method for disaggregating costs into detailed components, such as costs of IT or costs of internal audit staff, but no issuer was able or willing to provide information at this level of detail. Nevertheless, many of the companies we interviewed provided us with dollar amounts for the above cost segments.

We asked the accounting firms for cost estimates in the same four segments, for typical issuers of varying sizes and levels of centralization. Two provided us with cost estimates for several typical issuers, varying by size and extent of decentralization. Their estimates were in line with the estimates provided by issuers and did not reveal any reporting bias.<sup>41</sup>

---

<sup>41</sup> We did not include the accounting firm's numbers directly in our analysis, due to scaling incompatibilities. That is, our estimating process was derived using assets as the measure of size, because assets provided the best statistical fit for our regression equations. In contrast, one accounting firm provided the measure of size based on market capitalization and the other based on revenues. Nevertheless, these estimates are still useful for detecting any sampling bias in our estimates. That is, there is a natural concern that the issuers that agree to participate in the interviews are somehow different from typical issuers (e.g. they have higher than average costs and thus have a stronger preference to participate). The accounting firms—which arguably have some incentive to see the regulations implemented—would have, if anything, a bias toward reporting lower cost expectations. For our sample of issuers we collected revenue and market capitalization data and separately plotted internal costs and ongoing costs against each of these issuer size measures. We then plotted the accounting firms' estimates of internal and ongoing costs for the appropriate measure of issuer size (revenues or market capitalization) that the accounting firm provided. Controlling for size, the estimates of one accounting firm tended to be somewhat lower than the average of the issuers' estimates; those of the other accounting firm tended to be somewhat higher. In both cases the differences between the estimates of the accounting firms and the issuers were well within the range of differences between issuers. Moreover, there is no evidence that the issuer estimates were systematically higher or lower than the accounting firms' estimates. Thus, CRA concludes that the issuer-provided cost data do not appear to be biased relative to the accounting firms' estimates.



For the few issuers that were spending in excess of what they felt was required to meet the regulations, we asked the issuers to include only those costs for meeting the regulations. These issuers were able to segregate those costs.

We also asked issuers for their internal accounting budgets and their (pre-SOX) external audit fees. These audit costs provide one means to scale cost by issuer size, using internal audit costs to scale internal s.404 compliance costs and using external audit costs to scale external s.404 compliance costs. We also collected information on annual revenues, current market capitalization, and asset values.<sup>42</sup>

Using these data, CRA estimated the relationship between a measure of issuer size and cost data. We found that for each cost category, a regression of the natural logarithm of compliance costs on the natural logarithm of assets provided the best fit. Taking natural logarithms of costs and assets accounts for the large disparity in the scale of issuers.<sup>43</sup> The fact that we have some very large and very small issuers in the sample is also very

---

<sup>42</sup> The source of these data is the TSX. We considered revenues as well as assets as a measure of issuer size, and found a better statistical fit with assets. The effort and expense required to document, verify, and improve existing internal controls as well as ongoing testing depend on various factors such as issuer size and complexity. Our sample size is not sufficiently large to control for all the factors that might affect costs. We focus on issuer size, since this is the most important determinant of costs. For instance, an issuer with \$50 million in assets, whether it is complex or not in terms of the structure of its operations, will have much lower compliance costs than an issuer with \$50 billion in assets. Our results, then, represent average costs for a given issuers size. (We did examine whether industry was relevant and found not statistically significant or economically significant change in our estimates.) *A priori*, it is difficult to determine the appropriate measure of issuers size. Accounting firms often use revenues. However, some issuers (such as a small resource exploration issuer) may have very little in the way of current revenues but substantial assets that require controls. Other issuers may have a large market capitalization (an issuer might hold a patent) yet may currently have few assets or revenues and, with only basic operations, may not require very extensive internal controls. Rather than arbitrarily choosing one measure of size, we examined how close the relationship was between reported compliance costs and size (e.g. looking at adjusted R<sup>2</sup>s). We found assets to work best for predicting compliance costs.

<sup>43</sup> Using natural logarithms is a common way in empirical economic analysis of rescaling the data. There is no particular reason why we would expect a linear relationship between size and compliance costs, which one would obtain in a model where size and costs were not transformed. The model in logarithms fits the data much better than a model without this adjustment. Taking natural logarithms allows the relationship between a (small) percent increase in issuer size and the percent increase in compliance costs to remain constant. (For those familiar with empirical techniques, Box-Cox regressions using our data strongly reject a linear model in favour of a log-log model.)



useful in establishing a robust relationship between issuer size and compliance costs.<sup>44</sup> We also found that we obtained a better fit when we pooled internal and external costs together rather than treat them separately.<sup>45</sup> A reasonable explanation for this is that issuers can substitute between external and internal resources to some degree, so that issuers that tend to use more internal resources will use fewer external resources. As a result, the total cost of internal and external resources is more similar across issuers than the individual components.

### **2.1.1 Relationship Between Issuer Size and Costs of Compliance**

Table 2 below shows the relationship between issuer size and initial costs, and between issuer size and annual ongoing costs of compliance. The adjusted  $R^2$  indicates how much of the cost is explained by issuer size. An  $R^2$  equal to one indicates that all variation in costs across companies is explained by differences in size.<sup>46</sup> The adjusted  $R^2$  is above 0.85 for each cost component, indicating that more than 85% of the variation in costs is explained by issuer size. For cross-sectional analysis, an  $R^2$  in this range generally indicates a good fit of the data.

For each of the regressions the coefficient on log assets is much less than 1. This means that the costs of compliance do not increase one-for-one with issuer size. In particular, for every 10% increase in the size of the issuer, as measured by assets, there is approximately a 6.4% increase in initial costs and a 5.8% increase in annual ongoing

---

<sup>44</sup> The large differences in issuer size in our sample are useful because they provide us with much more information about how costs vary with issuer size. Note that while not all issuers in Table 1 could be included in the regression analysis, the two smallest issuers were among those included.

<sup>45</sup> That is, we used the sum of internal and external initial costs in one regression and the sum of internal and external ongoing costs in a second regression rather than run four separate regressions for each cost component.

<sup>46</sup> The difference between an unadjusted and an adjusted  $R^2$  is not of practical importance in this application, but it is standard to report the adjusted value, which takes into account the number of variables used to explain the variation in the dependent variable; (i.e., in this case for each equation there is one variable, log assets, that is used to explain the dependent variable log cost).



costs. These coefficient estimates are accurately estimated (as indicated by the standard errors), especially given the small sample size.<sup>47</sup>

**Table 2: Relationship between Issuer Size and Compliance Costs (standard errors in parentheses)**

	Log Initial Costs	Log Ongoing Costs
Intercept	8.67 (0.43)	8.45 (0.53)
Log Assets	0.64 (0.05)	0.58 (0.06)
Observations	16	15
Adjusted R <sup>2</sup>	0.92	0.87

The fact that compliance costs increase at less than a one-for-one rate with issuer size indicates economies of scale in compliance—just as one finds in external auditing. Large issuers are able to spread certain fixed costs of auditing or, in this case, compliance on reporting on internal controls, over a much larger asset base. This has important implications for how the regulations affect issuers of differing size. In particular, as most commentators note, the relative burden on smaller issuers is expected to be much larger. Our calculations provide an indication of just how much larger this additional burden is.

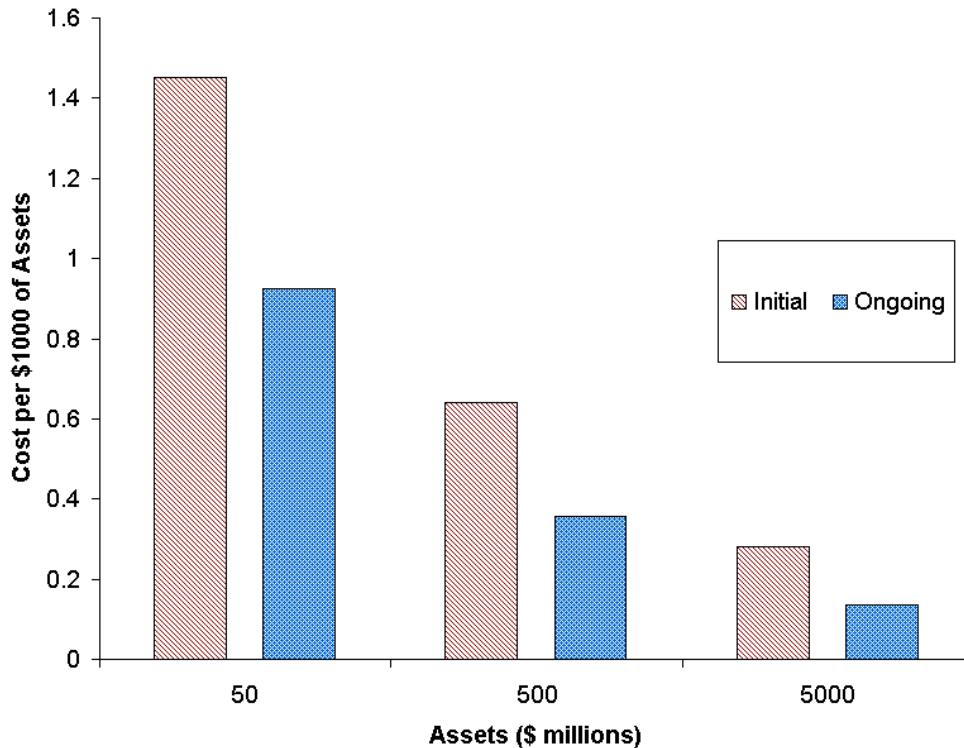
Figure 1 shows the compliance costs per \$1,000 of assets for issuers in three different size classes. These cost estimates, based on the regression results above, show that costs

---

<sup>47</sup> As far as regression estimates go for a sample of this size, we consider the accuracy to be high. However, that does not imply that there is not uncertainty in the cost estimates. The size of this uncertainty is reflected in our estimated range of costs. In terms of standard errors, it is reasonable to expect that the true coefficient estimates (if our model is correct) for the population of issuers are likely to be plus or minus 2 standard errors (i.e. a standard error multiplied by two) away from the estimated parameter values. For example, it is about 95% likely that if the model is correct and the true parameter value for Log Assets in the Log Initial Costs regression was between 0.54 and 0.74 that we would have obtained an estimate of 0.64.



per \$1,000 of assets are much larger for smaller issuers. It is also clear that estimated initial costs are larger than ongoing annual costs in all size categories.



**Figure 1: Estimated Costs Relative to Issuer Size**

### 2.1.2 Extrapolation of Cost Estimates to All Issuers

We used the estimated relationships between issuer size and costs to extrapolate costs to the population of issuers listed on the TSX and Venture Exchange (but not interlisted). We did this in two steps. First, we took samples of issuers for each of the TSX and



Venture exchange.<sup>48</sup> The sample is based on the issuers for which we have asset data.<sup>49</sup> We calculated expected costs for each sample of issuers based on the above estimated relationships. In the second step we extrapolated the costs to the population of issuers for each corresponding exchange.

Ideally we would have used the ratio of total assets for the population of issuers to total assets in our sample. However, we do not have an estimate of total assets for the population of Venture Exchange or TSX listed issuers. As an alternative, we used the ratio of market capitalization of the population of issuers to the market capitalization of the sample to gross up both cost and benefit estimates. For non-interlisted TSX issuers, the ratio of market capitalization in our sample to total market capitalization of listed companies is 1.29.<sup>50</sup> For Venture Exchange listed companies, the ratio is 4.87. Some have remarked that the relationship between assets and market capitalization is weak, though we only require a relationship to hold on an aggregate basis rather than on an issuer-by- issuer basis for market capitalization to be a valid approximation. An alternative is to use the ratio of the number of issuers in the population to the number of issuers in our samples. The ratio of counts of issuers in the sample to total companies in the population is 6.49 for the Venture Exchange and 1.40 for the TSX. Thus using market capitalization rather than counts will tend to make the population estimated costs (and benefits) lower for the Venture Exchange and slightly lower for the TSX. The choice of method is not critical to any of our conclusions, since we scale both estimated costs and benefits by the same factor.

Table 3 below shows the range of estimated costs for the population of the issuers. We show a range of estimates for the initial cost, the annual ongoing cost, and the net present

---

<sup>48</sup>These samples are much larger than the sample we used to estimate the relationship between issuer size and compliance costs. In particular, the sample size of TSX listed (but not interlisted) issuers is 489 and the sample size of TSX Venture Exchange listed (but not interlisted) issuers is 300.

<sup>49</sup> Some of these data come from Bloomberg and the rest from the TSX.

<sup>50</sup> We exclude issuers interlisted in the U.S. since these issuers are already subject to s.404. We obtained data from the TSX indicating which Canadian issuers were interlisted; the data source is the TSX. The data include closed-end funds, which we excluded from the analysis.



value of these costs over a 10-year horizon.<sup>51</sup> We used a 5% discount rate to discount future costs.<sup>52</sup>

The uncertainty in the estimated costs arises from the uncertainty in the estimated coefficients that measure the relationships between issuer size and the various components of costs. In particular, the reported ranges represent roughly 95% confidence intervals. That is, there is a 95% probability that costs lie within the stated range, assuming that the only source of uncertainty is in the estimated relationships between issuer size and costs.<sup>53</sup>

The initial costs for companies listed on the Venture Exchange range from \$15.4 million to \$46.4 million, and the ongoing annual cost is estimated to be between \$12.1 million and \$29.0 million. The total 10-year NPV cost is between \$111 million and \$276 million. These costs are significant, given the small average size of issuers listed on the Venture Exchange. The 10-year NPV costs represent between 0.9% and 2.3% of assets.

---

<sup>51</sup> We assume that all the initial costs are incurred in the first year and then there are 10 years in which the ongoing costs are incurred. For some issuers the initial costs will in fact be incurred over more than one year.

<sup>52</sup> Issuers may typically have a higher real weighted average cost of capital (WACC) than 5%. However, the costs of compliance are highly certain—the issuer might go out of business or go private to avoid them since most issuers seem unwilling not to comply—and the benefits are likely negatively correlated with market returns in that avoided misreporting, which the regulations seek to accomplish, tends to be more likely when the market begins to perform poorly.

<sup>53</sup> When calculating the confidence intervals, we assume that the errors in estimation for initial costs are perfectly correlated with the errors for the ongoing costs. This is a conservative assumption in that it leads to larger estimates of the 95% confidence intervals.



**Table 3: Cost Ranges for Non-Interlisted Issuers (\$ millions)**

	Short-Term Transition (first year)	Long-Term Recurring (per year)	NPV
<i>Venture Exchange</i>			
Total	15.4–46.4	12.1–29.0	111–276
As a percent of Assets			0.9%–2.3%
<i>TSX</i>			
Total	156.7–232.5	75.4–122.7	754–1,203
As a percent of Assets			0.10%–0.15%

For TSX-listed issuers not listed on a U.S. or other foreign exchange, the estimated initial cost is between \$157 million and \$233 million, while the ongoing annual cost is between \$75 million and \$123 million. That is, ongoing annual costs are roughly half the initial costs. The 10-year NPV cost ranges from \$754 million and \$1,203 million, or between 0.10% and 0.15% of assets. Thus, when compared with assets, the costs are much lower for TSX issuers on average than for Venture Exchange issuers. However, this does not imply that the costs are low for all TSX-listed issuers since there are many TSX-listed issuers that are also small.

## 2.2 Benefit Estimates

CRA's approach to measuring benefits follows the one we took in our previous analysis of the certification regulations. We begin by first describing various sources of benefits that would arise from the internal control certification and attestation requirements and then proceed to describe how we quantify some of these.

Section 404 of *Sarbanes-Oxley* as well as the Act itself was implemented to restore investor confidence after several large-scale debacles in the U.S. such as Enron and



WorldCom.<sup>54</sup> “Investor confidence” is often not precisely defined. It has been used as a catch-all for the broad public benefits deriving from increased regulation of financial reporting, but is not of much use when attempting to measure benefits. To add some precision to what is meant by investor confidence—and in particular what would be the result of enhanced internal controls over financial reporting—we turn to the economics of corporate finance.

We discussed above how market failures in private choices of the quality of financial information and internal controls may arise as a result of asymmetric information between shareholders and management. Increasing the potential liability of management for inadequate controls by requiring them to certify the accuracy of its internal control process will increase the level of investment and quality of controls chosen by management. Requiring auditors to attest to the quality of management’s report appears to push the standards higher still, based on our interviews of issuers and accounting firms. Attestation reports also reveals more information about the quality of internal controls, as issuers from time to time may find problems that they are not able to fix quickly enough to meet reporting deadlines. Of course, auditors may not always do an adequate job in assessing management’s report, but they have strong incentives to do so since a public scandal can severely damage an accounting firm’s reputation, as was the case with Arthur Andersen.

To be more specific about the source of benefits (i.e., the costs investors and issuers avoid when there is reduced financial misreporting), consider an issuer where there is financial misstatement that inflates the value of the issuers. There are a number of costs that are imposed on investors and on other stakeholders.

---

<sup>54</sup>However, while the scale of the scandals was unprecedented in the U.S., the issues were not new. Indeed, prior to the release of its integrated framework, the Treadway Commission conducted numerous studies and compiled the results in a detailed report in 1987 (“Treadway Report”). (National Commission on Fraudulent Financial Reporting [1987]. (Subsequent related work was undertaken by The Committee of Sponsoring Organizations of the Treadway Commission.) While most of the financial reporting frauds were on a much smaller scale than Enron and WorldCom, the types of issues were the same among the smaller issuers. The U.S. and Canadian—note Livent and Philips Services Corp.—markets have always been subject to some level of misreporting of financial statements. The scale has just been sufficiently small that the costs of misreporting may have appeared to be small relative to the benefits of adopting the recommendations of Treadway Report—though the authors of the Treadway Report believed its recommendations were cost-effective.



First, a issuer's outside shareholders who have made no trades during the period when the issuer's value was artificially inflated, still incur some cost because their perceived wealth was artificially inflated resulting in suboptimal consumption and savings decisions. Thus, delaying the report of bad news results in negative real effects on investor behaviour, especially among investors who have a reasonably large share of their investment portfolio allocated to the issuer.

Second, a issuer's managers may be able to secure higher bonuses than what they would have been paid had accurate financial reports been made. This is money that should have remained in the issuer or have been paid back to investors as dividends, and represents a direct transfer of wealth from shareholders to management.

Third, management's incentives to increase issuer value are negatively affected. One way to ensure that management is acting in the interests of shareholders is to provide management with performance bonuses. However, if management is able to secure the entire bonus even when performance is poor by misreporting financial results, then the effectiveness of bonuses as an incentive is diminished. Another source of managerial discipline is takeovers, in particular, hostile takeovers. Bertrand and Mullainathan [2003], for instance, have found that when the probability of takeovers is lower, management typically does not put as much effort into running the issuer and the value of the issuer is consequently lower. If management is able to keep the value of the issuer artificially high through misreporting, it reduces the likelihood of a hostile takeover. This hurts shareholders further by lowering the incentive for management to work hard and in the interests of shareholders. Bertrand and Mullainathan's research provides a measure of the value of this discipline. They find that anti-takeover laws in U.S. states result in a 1% decrease in the return on capital.

Fourth, other stakeholders may be negatively impacted. The COSO study (Beasley, Carcello, and Hermanson, 1999) notes the loss of reputation to the CEO and CFO, the cost to employees of lost jobs, and the cost to buyers and suppliers of lost products or payments arising from the failure of an issuer that often accompanies financial misreporting. However, while misreporting may be responsible for some of these costs, its role may also be overstated. If the issuer would have failed in any event, the costs that arise from a failed issuer are not directly attributable to financial misstatements. Generally, only the cost arising from the incremental increase in the probability of the issuer failing—captured by, say, the loss in management performance incentives—should be attributed to the cost of financial misstatements.



Fifth, the outside investor bears a loss of wealth if management or other insiders sell some of their shares during the period of misreporting or raise additional capital. This is an illegitimate transfer of wealth from new shareholders to old shareholders. In the case of raising capital, selling shares at an artificially inflated price benefits existing shareholders by diluting their positions less for a given amount of funds raised. For shareholders who sell shares in the secondary market or hold shares when the issuer is raising capital and who know nothing about the misreporting, the benefits they receive by selling at a higher price or suffering less dilution mostly offset the costs to new shareholders of buying at an artificially inflated price. The added risk created on both the buy and sell sides between these uninformed shareholders does add some cost. The more substantial cost, however, is the transfer of wealth between shareholders implicated in the misreporting to other innocent shareholders.

Since outside shareholders do not know which issuer is engaged in financial misreporting, they cannot avoid the possibility of buying or holding shares in such an issuer. However, shareholders' willingness to invest depends on the expected return on investment. By increasing the risk that potential shareholders may suffer a loss from financial misreporting, the potential shareholders will decrease how much they value any issuer. That is, the current price of shares will need to decrease to provide the investor with a sufficiently high expected return to offset the risks of financial misreporting. Since shareholders cannot discern which issuer is most at risk, all issuers will have to pay higher costs, including those that have put in place above-average internal controls over financial reporting.<sup>55</sup> As mentioned above, this reduces the incentives for issuers to invest in high-quality internal controls.

The more risky are stocks, the more likely it is for some risk-averse investors to stay out of the equity market (or portions of the equity market), and the more likely it is for investors in those markets to invest less. Such a decrease in supply of capital can result in a decrease in market liquidity—the amount of trading in a market—which adds further costs. For example, when liquidity is low, investors have to wait longer to buy or sell a stock. A delayed sale, in particular, can add significantly to the cost of holding an investment. In addition, if more sophisticated and fully informed investors are more

---

<sup>55</sup> Investors in fact have some information about which issuers are more likely to engage in financial misreporting. For instance, historically, small issuers are more likely to issue materially inaccurate financial statements--although the recent accounting scandals involving large issuers may have changed expectations about the likelihood of misreporting by large issuers. While this allows investors to differentiate between issuers of higher and lower risk to some extent, the inherent problem remains.



likely to stay in a market where the quality of financial disclosure is poor, this increases the likelihood that less informed investors (and market makers) will be on the wrong side of trades—buying overvalued stocks from or selling undervalued stock to informed traders. As a result of any change in the mix of more and less informed investors, the cost of capital can increase further, including an increase in costs from widening bid-ask spreads. These liquidity effects are not estimated in this report.

### **2.2.1 The Approach to Estimating Benefits**

CRA approached the problem of estimating benefits by estimating the potential reduction of significant misstatements as a result of the regulations, then determining how much value, using one economic metric, this reduction in misstatements would create. To accomplish this, we needed to know the probability of misstatements, the reduction in this probability due to increased internal efforts and external expenditures engendered by these regulations, and the economic cost of misstatements. In essence, we computed the expected value of the avoided costs of significant misstatements.

The principal challenge in determining the appropriate parameters for our model is finding relevant market information. The difficulty in measuring the cost of a significant misstatement is also partially conceptual. The costs depend on whether there was a misappropriation of assets facilitated by the misstatement, whether insiders sold shares during the period of misstatement, what types of uninformed investors purchased shares, and how managerial bonuses and incentives were affected.

We measured the cost of misstatements based on two different data sources. The first applies to small issuers. We took the cost of a significant misstatement to be equal to the amount by which issuer value was overstated. The true cost may be higher or lower. One might argue that, in general, the true costs would be lower since every misstatement is not accompanied by a misappropriation of assets or a transfer of wealth to insiders through the sale of shares. Furthermore, the over-payment on bonuses is likely smaller than the size of the misstatement. On the other hand, since ownership stakes in small issuers are often concentrated in the hands of insiders (at least compared to large issuers) and bonuses are large when measured relative to the value of the issuer (rather than on an absolute basis), one would expect that the costs of misstatement in a small issuer are perhaps closer to the size of misstatements. The second data source applies to larger issuers. It is based on academic research into the average effect of public disclosure of significant financial misstatements on an issuer's stock price.



### 2.2.3 Parameterization of the Model

CRA used the information we collected for our earlier study of CEO and CFO certification requirements to determine the parameter values for our model. The mathematical description of the model is provided in Appendix A. The calculated benefits are different, however, because our estimated benefits are tied directly to the cost expenditures for internal control improvements. We also take into account that other investor confidence-related regulations have already been put in place—hence, the s.404 equivalent regulations are incremental to these. As our cost estimates have built-in decreasing returns to improving the quality of financial information released, accounting for the other regulations reduces the incremental benefit of the s.404 requirements. The effect of accounting for other measures reduces the upper bound of measured benefits by about 10%.<sup>56</sup> The rest of this subsection closely follows CRA's methodology set out in the report on CEO and CFO certification requirements.

The COSO study by Beasly, Carcello and Hermanson [1999] provides us with data for inferring the incidence of financial misstatements and its cost. The study found about 300 identified cases of fraudulent financial reporting over an 11-year period from Accounting and Auditing Enforcement Releases (AAERs) issued by the SEC. It also provides estimates of the total amount of misstatements. We scaled the reported incidence of misstatements reporting to the Canadian market size. However, since these cases represent only detected misstatements, we adjusted the estimate using a fraud detection rate of 20%, based on an Ernst & Young study [2002]. This generates an estimate of the incidence of misstatements of 0.36% per year. We also used the COSO reported data as well as results from a study by Karpoff and Lott [1993] to determine how the amount of fraud varies with issuer size (based on assets). The estimate for a small issuer (\$50 million in assets) is 18% of assets; for a larger issuer (\$500 million in assets), the estimate is about 8% of assets; and for a large (Canadian) issuer (\$5 billion in assets), the estimate is about 4% of assets. (Details of the estimation are supplied in Appendix A.)

The COSO estimates include both misstatements and misappropriations. While misappropriations can be considered as a direct dollar cost, the translation of the value of

---

<sup>56</sup> At issue is the extent to which the various investor confidence initiatives are regulatory substitutes or complements. We have assumed them to be substitutes resulting in conservative estimates of benefits. Some argue that they are complements so that, for instance, greater independence of the board increases the benefits of management's reports on internal controls.



misstatements to actual dollar loss to society is not straightforward for the reasons discussed above. There are several reasons, however, to believe that actual costs are on the same order of magnitude as the size of the misstatements. First, the COSO study found severe consequences to financial fraud. In particular, it reports that 36% of issuers involved in financial fraud went bankrupt or became defunct, 15% experienced a change in ownership, and 21% delisted from a national stock exchange (the sample included issuers traded over the counter). The average fine paid by a senior executive was \$5.5 million, or about 20% of the total cumulative amount of misstatement.

Second, if one uses the COSO data to extrapolate to an average size, cross-listed TSX issuer, the estimated misstatement for these large issuers is on the same order of magnitude as a reduction in issuer value that would be needed to generate the 4.66% drop in stock price that Karpoff and Lott found when issuers were reported in the *Financial Times* to be under investigation for financial reporting fraud. While we believe that it would be possible to conduct a rigorous analysis of the relationship between the value of misstatements and loss in issuer value, this was beyond the scope of the current study.<sup>57</sup>

CRA used compliance data provided by the OSC to infer the relationship between expenditures by issuers on improved internal controls and disclosure controls as well as procedures and *reductions* in the likelihood of misstatements. After controlling for size and industry effects, we estimated a regression model that linked the probability of refiling (the most serious outcome in the data) following a compliance sweep to whether or not the issuer was using a large audit firm. We found that using a large audit firm reduces the probability of misstatements from 0.19 to 0.12.

In order to make use of this information, we need to know the additional cost of using a big audit firm. Craswell, Francis and Taylor [1995] estimate that Big 8 auditors in Australia earn a 30% premium over non-Big 8 auditors. We combined this estimate with

---

<sup>57</sup> Both Enron and WorldCom filed for bankruptcy due to financial reporting scandals. WorldCom's petition was the largest in U.S. history. Graham, Litan and Sukhtankar [2002] conjecture that the WorldCom scandal in 2002 can be associated with a 10 to 24 percent loss in stock market value in the U.S. They estimate a loss in GDP output of between \$37 and \$42 billion in the first year. In light of Enron and WorldCom, and now Parmalat, one might argue that setting the average cost of a significant financial misstatement in the neighbourhood of 3% of assets for a large issuer is relatively conservative.



our regression results to compute a relationship (elasticity) between added expenditures and reduced probability of misstatements. This produces a relationship whereby added efforts to reduce misstatements yield diminishing returns: the same percentage increase in expenditure is required to reduce the probability of misstatements from 0.36% to 0.18% as to reduce it from 0.18% to 0.09%.<sup>58</sup>

One potential criticism of this approach is that the relationship between expenditures and reduced significant misstatements is based on data on refilings that include minor misstatements. The issuers required to make refilings after a continuous disclosure review have not necessarily or even generally engaged in significant misstatements.<sup>59, 60</sup>

CRA's approach provides a relatively simple methodology for calculating a component of benefits. However, there is a great deal of uncertainty in the parameter estimates, which translates into uncertainty in measured benefits (as highlighted below in our sensitivity analysis). In order to capture that uncertainty, we have calculated benefits assuming a ±50% variation in three key parameters:

- The misstatement detection rate;
  - The reduction in the incidence of misstatements for a given level of expenditure; and
  - The current incidence of misstatements.
- 

<sup>58</sup> We assume that internal efforts to control fraudulent reporting have the same impact on reducing fraud as expenditures on auditors. Support for this assumption is found in Felix, Gramling, and Maletta [2001].

<sup>59</sup> Note that we do not use the OSC refiling data to estimate the likelihood of misstatements. We analyse the stock prices of issuers listed on the OSC website under "errors and refilings" to determine if there was a stock price impact upon the press release. We did not find statistically significant evidence of any effect. In all likelihood, the violations were generally seen as small by investors; thus, it would take many more observations than our 19 to detect any effect.

<sup>60</sup> Several of those we interviewed thought that misstatements supported by senior management would not be affected by the reporting requirements. This would be problematic, as the COSO report found that 83% of cases implicated the CEO or CFO in financial statement fraud. On the other hand, the CFO was only implicated in 43% of these cases, so that joint liability would in some cases provide a check on CEO behaviour. Another COSO [1994] report on internal controls points out that management can always override the internal control system, but it also describes the importance of the CEO setting the "tone at the top" that affects others throughout the organization, including other senior executives.



The above model ignores the private value to the issuer from better decision-making based on more accurate and timely information and a reduction in risks facilitated by identifying weaknesses in internal controls. To account for these benefits, we have assumed them to be equal to 10% of costs, an assumption that is not completely arbitrary. We know from our interviews that many issuers expect to receive some issuer benefits, though all issuers thought these would be small. The accounting issuers also believed that issuers would benefit directly from the review of their internal controls and improvements in detected deficiencies. Also, direct benefits to issuers that have grown quickly through acquisitions would approximate the non-attestation related costs required to harmonize internal controls. Therefore, an estimate of 10% of costs in private benefits is arguably on the low side. On the other hand, since possibly up to 70% of the costs of compliance are associated with auditor attestation, and the activities directly related to auditor attestation do not generate much direct value for issuers, an estimate much above 10% of total costs would likely be too high.<sup>61</sup>

Among a number of other possible benefits, this approach does not account for all the potential broader market benefits from an increase in the quality of internal controls over financial reporting. First, it does not account for any small but widespread improvements in the quality of publicly released financial information. The focus here is on significant misstatements, in keeping with the large-scale scandals involving financial misstatements that motivated the changes in regulations. Second, it may not fully capture the effect of risk aversion. That is, we only measure the change in expected value as would be measured by a risk-neutral investor.<sup>62</sup> Third, we do not account for any increase in

---

<sup>61</sup> Some may argue that these benefits to issuers are much higher. However, benefits that result in better decision making are more directly detectable by shareholders so that shareholders can provide management with incentives to make the necessary investment in internal controls. That is, there is not a market failure. We rely on our interviews of issuers, which suggest that this source of benefits is small (some accounting firms are likely to disagree). Some commentators have suggested that it is inappropriate to include this source of benefits in calculating social benefits. We strongly disagree. Social benefits should include both benefits from better issuer decisions as well as reduced capital costs arising from more accurate financial information and greater management accountability. The (forgone) benefits that we have not counted are the ill-gotten gains of unethical employees and managers obtained through financial misreporting.

<sup>62</sup> However, for investors with well-diversified portfolios, the change in risk from reducing the probability of significant financial misstatements is likely small. On the other hand, investors, such as employees whose compensation is partially in stocks (or options) of the issuer they work for and who are restricted from diversifying their portfolio (e.g., vesting or lock-in periods) or who simply do not diversify optimally, would receive greater benefits from the decrease in risk.



liquidity that would accompany a decrease in the risk of misstatements. Higher liquidity generates direct benefits for investors, as it allows them to more quickly sell stocks if they need the money urgently. If it is also accompanied by an increase in the share of so-called liquidity traders or less informed trades (in contrast to more informed sophisticated traders), then this can decrease the cost of asymmetric information resulting in a lower cost of capital.<sup>63</sup> Fourth, we assume investors are rational economic agents. If investors' expectations of the probability of significant financial misstatements are exaggerated (i.e., well outside the range of our parameter estimates), they may also perceive that the benefits of the regulations in terms of reducing the extent of financial misstatements are much larger than what CRA estimated.<sup>64</sup>

Our approach also does not attempt to incorporate the empirical academic research on financial disclosure that examines the correlation between changes in the quality of disclosure and the impact on measures of cost of capital and liquidity. This research often relies on a large cross-section of countries or on the decisions of individual issuers. While the research is very useful from a qualitative perspective, showing that various aspects of securities regulation and enforcement can lead to measurable and important effects on the cost of capital and liquidity, it cannot be easily translated into an estimate of benefits arising from marginal changes in specific policies in financial markets with a relatively well developed set of existing regulations.<sup>65</sup>

---

<sup>63</sup> One might see this in a decline in bid-ask spreads. The bid-ask spreads are partially required to offset the cost of asymmetric information that the market maker incurs. Thus, as asymmetric information decreases, the market maker can reduce the spread. Leuz and Verrecchia [2000] measure a decrease in bid-ask spreads for issuers that choose to increase the quality of their financial disclosure (see Appendix B).

<sup>64</sup> Individuals are often poor at estimating the probability of events that are unlikely to occur. It is possible that some investors have a much higher probability assessment of financial misstatements relative to our estimate and have been reluctant to participate much or at all in equity markets. If true, they might be willing to supply significantly more capital as a group if the risk of financial misstatements decreased compared to what we would expect based on our research.

<sup>65</sup> Studies that use a large cross-section of countries make use of the large variation in regulatory standards across countries to detect the effects of differences in regulations on costs of capital and liquidity.



### **2.2.3 Results**

Table 4 presents the ranges of estimated benefits. Assuming it is appropriate to compare benefits expressed in terms of the NPV of dollar reductions in the value of misstatements with costs in terms of the NPV of dollars expended by issuers to meet the certification requirements, we find that the range of these estimated benefits are of a similar order of magnitude of the estimated cost ranges for TSX-listed issuers. For Venture Exchange-listed issuers we find that the quantifiable net benefits are likely negative.

**Table 4: Estimate Benefits as a NPV (\$ millions and percent of assets)**

	Venture Exchange	TSX
Reduction in Misstatements	21–106 0.2%–0.9%	167–1,432 0.02%–0.18%

The reason why we find that there is a reasonable scenario in which the net benefits are positive for TSX-listed issuers but not for Venture Exchange-listed issuers is related to how the estimated benefits and costs change with issuer size. Both benefits and costs, when measured relative to issuer size, increase as the size of the issuer decreases, for reasons discussed above. However, the costs increase faster than the benefits and, thus, the smaller the set of issuers the more likely the net benefits will be negative. Most of those we interviewed recognized that the costs would be proportionally higher for small issuers, but they also recognized that investors in these small issuers would, on average, benefit the most from an improved quality of disclosure.<sup>66</sup>

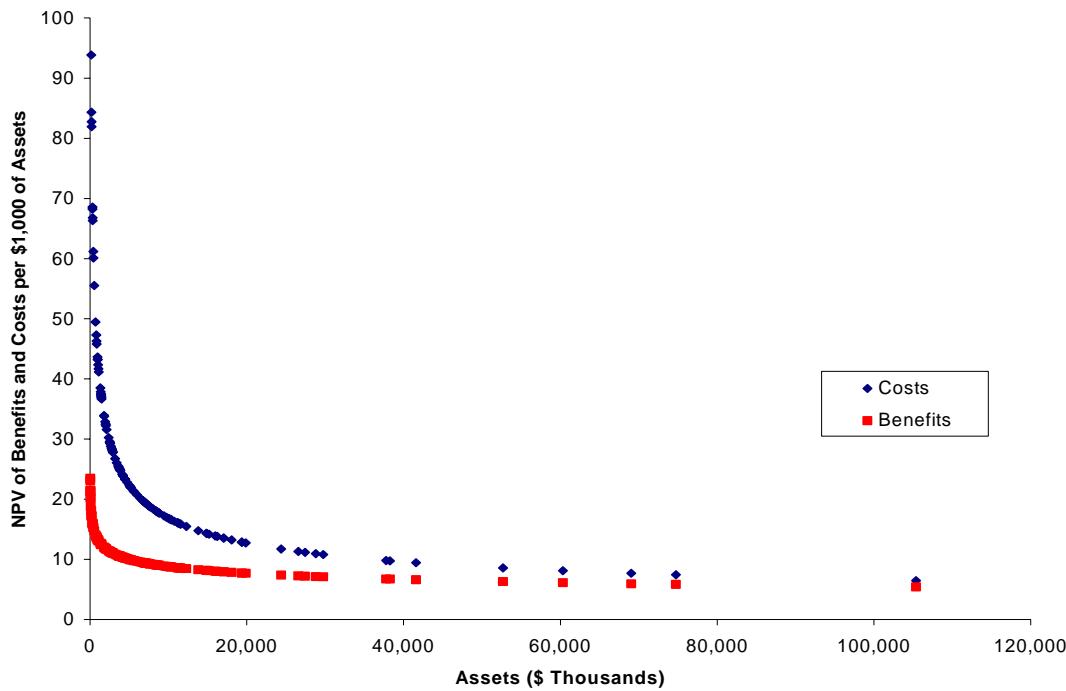
Figures 2 and 3 below show the cost and benefits per \$1,000 dollars of assets plotted against issuer size. We have set benefits at the upper range and costs at their mid-point.

---

<sup>66</sup> While our sample of small issuers used to estimate costs limited, we believe our estimates are reasonable, for a number of reasons. First, for those small issuers in our sample, the reported compliance was reasonably close to the regression line that we fit through all the data. Second, the fact that measured costs exceed measured benefits for small issuers (e.g. issuers listed on the Venture Exchange) is unlikely to change as a result of reasonable changes in parameter estimates from the cost regression. Third, for the smallest of issuers, their importance to the economy needs to be kept in perspective: while some of these issuers are a source for innovative ideas and, thus, their importance may be greater than their size would indicate, they still represent a small fraction of the total value of public issuers.



**Figure 2: Measured Costs and Benefits for Venture Exchange-Listed Issuers (Upper Range of Benefits)**



**Figure 3: Costs and Benefits for Non-interlisted TSX Issuers (Upper Range of Benefits)**

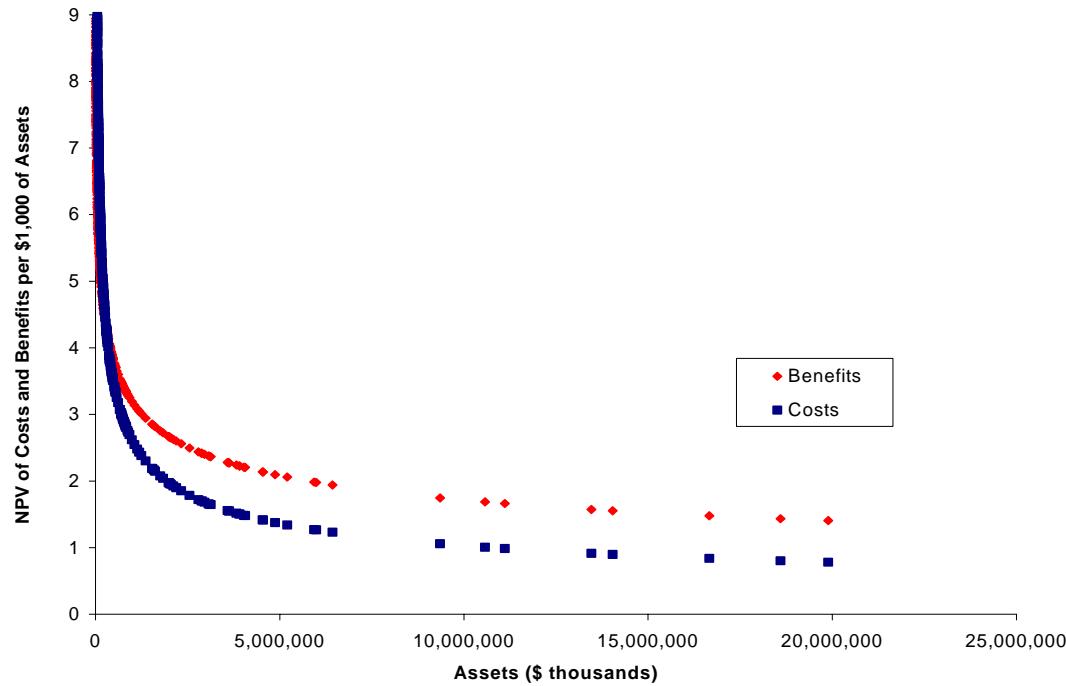


Table 5 below summarized estimated costs and benefits. We report both central estimates (based on central estimates of parameters) and ranges of costs and benefits. The quantified costs and benefits are reported relative to assets.

For issuers over \$5 billion in assets, the measured benefits are close to the measured costs. Furthermore, these issuers represent a large share of total value, though they are few in number. Issuers under \$50 million in assets that costs significantly exceed the measured benefits. However, it is important to recognize that there are other benefits identified in the table that we have not measured.



**Table 5: Costs and Benefits: Central Estimates and Ranges**  
(Dollar Amounts Are Per \$1,000 in Assets, Ranges are in Parentheses)\*

	<i>By Exchange</i>		<i>By Size (\$ Millions of Assets)</i>			
	TSX	Venture-Exchange	< \$50	\$50 - \$500	\$500 - \$5,000	>\$5,000
Costs	\$1.2 (\$1.0 - \$1.5)	\$14.5 (\$9.0 - \$22.8)	\$15.2 (\$10.4 - \$22.4)	\$5.2 (\$4.0 - \$6.7)	\$2.0 (\$1.6 - \$2.5)	\$0.6 (\$0.5 - \$0.8)
Measured Benefits	\$0.7 (\$0.2 - \$1.8)	\$3.8 (\$1.8 - \$8.8)	\$4.2 (\$1.9 - \$9.7)	\$2.1 (\$0.8 - \$5.3)	\$1.2 (\$0.4 - \$2.8)	\$0.5 (\$0.1 - \$1.2)
<i>Approximate Share of Assets**</i>			2%	6%	20%	72%
<i>Approximate Share of Market Capitalization**</i>			10%	15%	27%	48%
<i>Approximate Share of Listed Issuers**</i>			81%	14%	4%	1%
<i>Additional Unmeasured Benefits</i>						
<i>Increased market liquidity, which decreases inventory holding costs and leads to lower bid-ask spreads</i>						
<i>Overall improvement in the accuracy of financial information, allowing shareholders to more accurately determine the value of issuers resulting in enhanced incentives for management to increase true issuer value</i>						
<i>Increase likelihood that MJDS will be preserved</i>						

\*Excludes interlisted issuers on a foreign exchange and non-listed public issuers. Central estimates are calculated at midpoints of parameters and do not lie at the centre of the estimated ranges due to the non-linear relationship between the parameters and cost and benefit estimates.

\*\* Based on samples of TSX and Venture Exchange listed (but not cross-listed) public issuers.



### 3. Alternative Approaches

As part of this study, CRA was asked to separate out the costs and benefits associated with auditor attestation. One possibility to reduce the costs for smaller issuers would be to exempt issuers under a certain size or Venture Exchange-listed issuers from auditor attestation. In this section we discuss these alternatives, drawing on information from our interviews and our analysis. We also highlight several issues and recommendations that arose from the interviews. As mentioned above, the costs associated with auditor attestation are generally considered large, in the range of 40% to 70% of overall costs based on issuer estimates. One accounting firm respondent estimated these costs to be closer to 50%. Attestation entails direct ongoing costs as well as increased costs of documentation and testing. Some of this higher cost arises simply because documentation and the internal controls themselves must be more formal in order for an outside auditor to evaluate them. An accounting firm estimated these costs not to be more than 5% of total costs. A number of issuers told us that they would not need to do nearly as much documentation or testing absent the auditor attestation requirement. And, several issuers viewed much of the additional documentation and testing to be of very little value since they thought the chance of finding a material weakness in many areas very low while the cost of verification remained high. However, these avoided costs may in fact reflect a reduction in the improvements in internal controls if there is no auditor attestation.

The proportional costs for smaller issuers of auditor attestation may be higher since smaller issuers tend to have less formal internal controls in place in the first instance. Thus, proportional to their size, smaller issuers may require more effort to formalize existing internal controls than may larger issuers. On the other hand, one accounting issuer told us that the attestation process for small issuers does not require the same level of formality as with larger issuers.

Even if the percentage reduction in costs is the same for small issuers as for large, the savings would still be much more important for small issuers, given their higher costs of compliance per dollar of assets. Thus, there is a strong argument based on costs that might be made in favour of exempting smaller issuers from auditor attestation.

However, exemption from the attestation requirement raises some issues. Several accounting firms and several issuers we interviewed told us that, without attestation, issuers in general, and small issuers in particular, would not conduct nearly as an



extensive investigation of their existing internal controls. According to this view, the cost savings from omitting the attestation requirement may be even higher than what we have reported but there would be a significant decrease in the value of management's report about its internal controls.

There is also concern that confusion among investors may arise in terms of the accuracy or quality of management reports subject to different levels of verification. Several accounting firms suggested that issuers not subject to the attestation requirement should be required to explicitly note that management's statements regarding internal control have not been subject to an independent audit. One might go further to require the issuer to state that the issuer has chosen not to have such an assessment. Another accounting firm thought that there were significant problems with requiring a management report but not attestation for some issuers. This could put an accounting firm in a difficult position if, in auditing the issuer's financial statements, the accounting firm learns that there are deficiencies with internal controls over financial reporting, even though management issues a report to the contrary. With a large issuer, the accounting firm may not be willing to issue an unqualified opinion about the financial statements when they find material deficiencies in internal controls. But with a small enough issuer, it may be possible for the accounting firm to verify enough direct transactions to meet the standards for issuing an unqualified opinion on the financial statements, even when material deficiencies in internal controls over financial reporting are apparent. This could put the accounting firm in a difficult position vis-à-vis its reputation and the regulations. Other accounting firms, however, did not raise this as an issue.

### **3.1 Exempting Issuers Based on Exchange or Size**

We asked issuers and accounting firms whether it would be preferable to exempt issuers from auditor attestation or the regulations altogether based on issuer size or based on the exchange they trade on, if there were to be an exemption. Most of those who commented preferred an exemption based on exchange. The commonly cited reason was that it was much easier for investors to keep track of the quality of financial reporting when an exemption was based on exchange.

There are economic arguments in support of this view. First, the Venture Exchange is already branded as a more risky junior exchange while the TSX is branded as a less risky senior exchange. By "risk" we mean both regulatory and non-regulatory risks.



Exempting only issuers trading on the Venture Exchange would not be in conflict with the existing differential branding of the two exchanges.

Branding is especially important for small investors and foreign investors. Large sophisticated investors have the economies of scale to keep track of many different regulations and build them into how they interpret financial information. Small investors and foreign investors find it more costly to keep track of what the regulations mean and, thus, benefit from the branding the exchanges provide. Subsuming s.404-equivalent regulations in the brand of the exchange is an efficient method for small and foreign investors to keep track of the expected quality of financial reporting, if there are to be differences among Canadian issuers.

A second economic argument in favour of using the exchanges to differentiate between issuers is that it gives issuers some scope for choosing which regulatory regime they want to submit to. A small issuer listed on the TSX that finds the regulations too costly may choose to forfeit the benefits of listing on the TSX and switch to the Venture Exchange where the regulatory burden is smaller. Similarly, an issuer on the Venture Exchange that finds it would benefit from sending a signal of higher-quality financial reporting could switch to the TSX, if it satisfied other requirements. Alternatively, such an issuer could remain on the Venture Exchange and still issue a management report on the state of internal controls along with the auditor's opinion. Such an issuer would not obtain the full benefits of listing among other issuers meeting similar thresholds, but would still benefit to the extent that some of its current or potential investors were sophisticated or large enough to recognize the value of management's choice to issue a report and obtain an independent assessment.

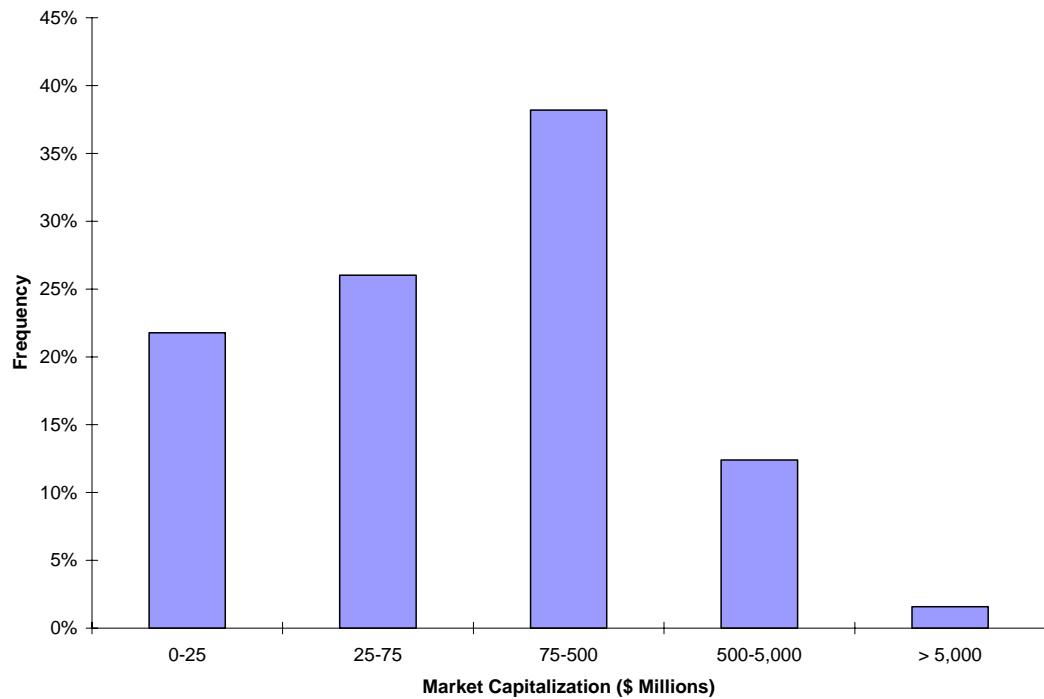
The argument for using size rather than exchange to separate issuers is that there are a substantial number of small issuers listed on the TSX. While some may switch exchanges, many will likely stay and, thus, face a significant burden. Figures 4 and 5 below show histograms by market capitalization for each of the exchanges.<sup>67</sup> While the Venture Exchange is substantially skewed toward smaller issuers relative to the TSX, there is still a large percentage of small issuers listed on the TSX. In fact, almost 50% of TSX-listed issuers that are not listed on a U.S. exchange are below \$75 million in market capitalization.

---

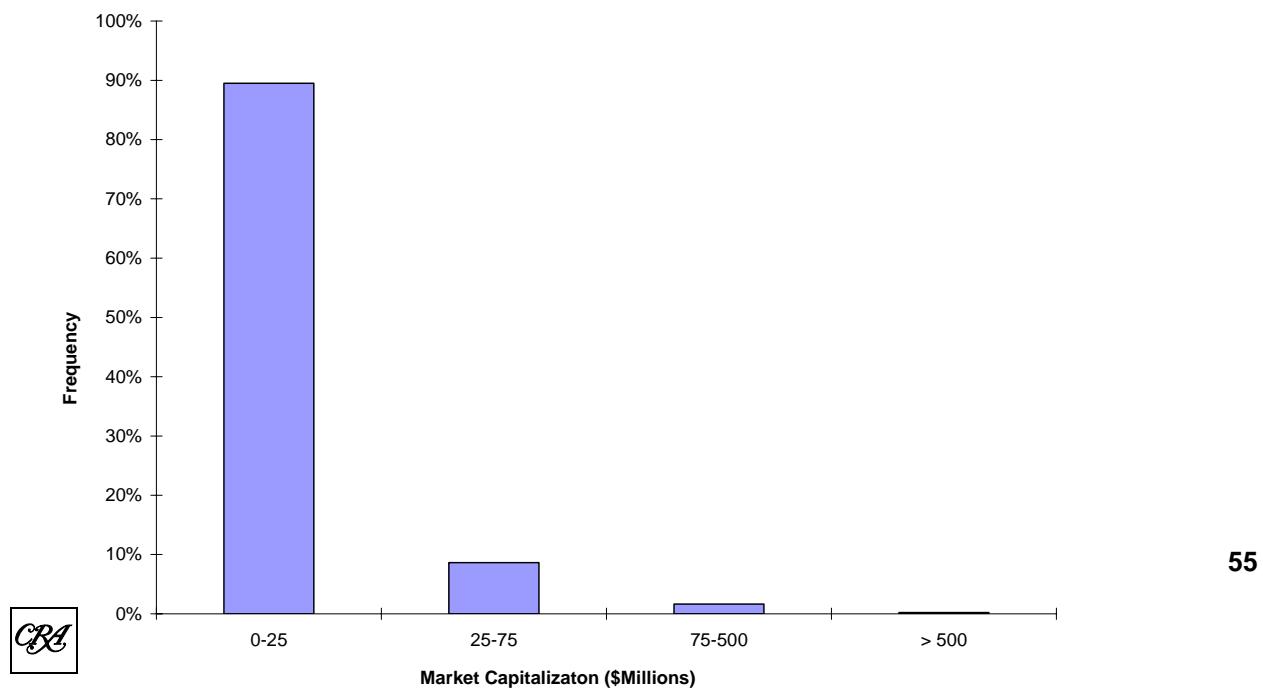
<sup>67</sup> We use market capitalization rather than assets since we have data on market capitalization for all issuers in the population.



**Figure 4: Histogram of Market Capitalization for TSX Non-interlisted Issuers**



**Figure 5: Histogram of Market Capitalization for Venture Exchange Issuers**



### 3.1.1 Optimal Cut-off Point for Regulatory Exemption

While the choice of exchange may be a simple delineator for any permitted exemption, the economic determinant is size. Using the data we have, CRA was able to estimate an optimal cutoff size for exempting TSX-listed issuers from either the auditor attestation requirement or from both requirements. This requires several additional assumptions. First, we assume the parameters on benefits set at their upper range (but we do not include other benefits that we have not quantified). Setting them at the lower range has the result that the optimal cutoff would be to exempt all issuers. Second, we assume that the cost savings from eliminating auditor attestation are 60%. Third, we assume that the relationship between expenditures and the reduction in probability of significant misreporting of financial information remains constant. However, the specification of this relationship has, as noted above, a built in decreasing returns assumption; for instance, the effect of the first 50% of expenditures on internal controls for the probability of misreporting is larger than the final 50% of expenditures.<sup>68</sup> Fourth, we assume that investors are able and willing to discriminate between issuers in terms of the likely quality of internal controls by observing which requirements apply. As we discussed above, this assumption may be too strong for small investors or foreign investors (hence, the argument for an exchange-based division).

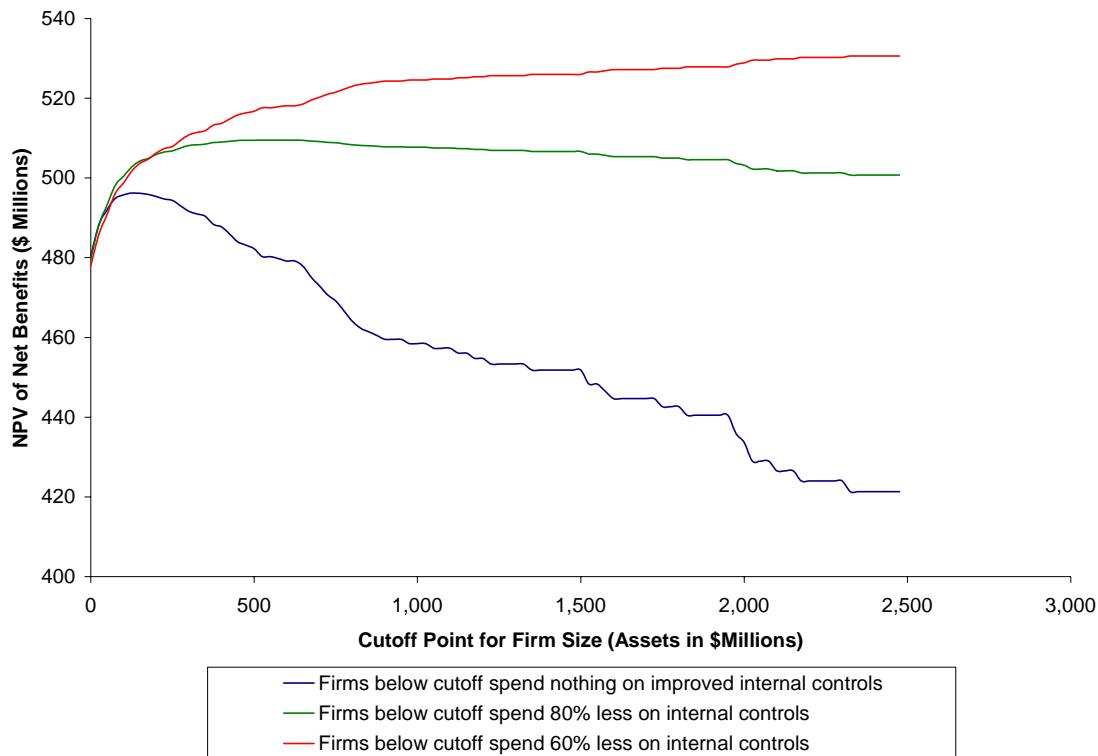
Figure 6 below shows how the net benefits change as the cutoff size for partial or full exemption from the requirements change. We only consider non-interlisted TSX issuers and consider only three cases. For case 1, all issuers below the cutoff point for assets are excluded from the regulations and incur no additional costs. For case 2, issuers below the cutoff incur only 20% of the full costs to meet MI 52-111 requirements. This case is designed to reflect a decrease in improvements in internal controls when there is no auditor attestation. For case 3, issuers incur 40% of the full costs; this case roughly corresponds to the case of no auditor attestation and a possibly moderate deterioration in the standard of internal controls from what would be achieved with auditor attestation.

---

<sup>68</sup> One view may be that almost all the benefit is achieved with the first 30% or 40% of expenditures, and that we should have a much stronger assumed rate of decreasing returns. Another view is that, without auditor attestation, most issuers will not choose to incur even the 40% of cost levels.



**Figure 6: The Effect of Cutoffs on Net Benefits**



The optimal cutoffs occur where the curves reach their maximum value. Under case 1 where issuers below the cutoff are fully exempt, the optimal cutoff point is about \$125 million in assets. Exempting issuers below this cutoff point provides additional value, since the costs of full compliance (including auditor attestation) are greater than the measured benefits. For case 2, the optimal cutoff is \$525 million in assets. The reason the optimal cutoff moves to the right is that the issuers below the cutoff still capture much of the benefits of improved internal controls in the first 20% of expenditures, which they are assumed to make in this case. Case 3 shows that it is optimal to have all issuers making only the 40% expenditures rather than 100% of expenditures on improved internal controls. In other words, the additional 60% of expenditures is not resulting in a sufficient reduction in the probability of misstatement to offset the additional cost. This would imply that a preferable policy would be to drop the auditor attestation requirement altogether. However, dropping the auditor attestation requirement may result in issuers spending less money and effort on improving internal controls. That is, without auditor



attestation the incentive to improve internal controls is weakened; based on CRA's interviews of accounting firms and issuers, many issuers may choose to spend less than 40% of the full cost if no auditor attestation is required. Furthermore, investors lose the benefit of the increased confidence generated by a positive audit report.<sup>69</sup> Thus, case 2 may be seen as more realistic.

Another important result Figure 6 shows is that the choice of cutoff is not very important in terms of overall net benefits. The main reason for this is that the largest issuers generate a large percentage of the benefit, a finding consistent with the large financial reporting scandals that were the impetus for SOX and the investor confidence initiatives.

## 4. Summary and Conclusions

Section 404 of the *Sarbanes-Oxley Act of 2002* requires management of publicly traded issuers to issue a report on its assessment of the functioning of the issuer's internal controls over financial reporting and for the issuer's external auditor to attest to management's assessment. As a result of s.404, issuers are expending considerable resources in both money and employee time to comply with the regulations. Documentation, testing and, where necessary, remediation of internal controls are driving initial costs. Ongoing costs for the continuous evaluation of internal controls by management and for auditor verification are also incurred. The direct result of all this effort and cost should be an increase in the quality of internal controls over financial reporting and more accurate information for investors about the state of issuers' internal controls. In turn, there should be a reduction in the likelihood of significant financial misstatements, a resulting improvement in investor confidence, and a lower cost of capital for issuers that are able to issue positive assessments.

The economic rationale for regulation over the quality of internal controls, whether indirect as in the past or more directly via the s.404 requirement, is clear. Managers will not necessarily choose the optimal quality level of internal controls since investors cannot observe such internal policymaking or reward / punish issuers for good / bad compliance behaviour. However, senior management already has a responsibility, enforced by

---

<sup>69</sup> Of course, even in the absence of a requirement for auditor attestation, management could still choose to issue an independent auditor report of management's certification of internal controls as a signal of quality.



regulators, for issuing materially accurate financial information to the public. The question addressed in this report is whether the incremental increase in effort and money that would be spent on the internal controls by Canadian issuers as a result of s.404-like regulations is greater or less than the associated benefits.

The incremental costs of compliance for most issuers are expected to be large. Most issuers we interviewed expect that any private benefits to the issuer, such as better information for managerial decision-making or increased safeguarding of assets, would be much smaller than the costs. Issuers are also generally sceptical that the broader social benefits from improved investor confidence are sufficient to offset costs.

CRA was provided good information on costs from the issuers we interviewed, which allowed us to estimate with reasonable confidence the relationship between costs (both initial and ongoing) and issuer size. We used this information to estimate costs for a sample of TSX- and Venture Exchange-listed issuers. While we controlled for issuer size in our estimates, we did not control for other differences, such as the extent of decentralization or the nature of an issuer's operations. Thus, our results are measures of average effects for a given issuers size.

We estimate that implementation will cost very large issuers in the range of several million dollars in initial costs plus substantial ongoing costs. For smaller issuers the costs are in the thousands of dollars. However, the relative costs for small issuers are much larger than those for large issuers.

The approach used to estimate benefits is based on a previous analysis of CEO and CFO certification requirements. Using a number of assumptions, CRA estimated the expected reduction in the amount of significant misstatements.

We found that for TSX-listed issuers there are reasonable estimates of the underlying parameters, such that the reduction in the total amount of misstatements is of the same order of magnitude as costs. However, there are other reasonable parameter estimates for which benefits fall short of costs. For Venture Exchange-listed issuers, we were unable to find a case in which measured benefits exceeded costs. However, we do not measure all benefits such as those arising from more trading activity.

Eliminating the cost of auditor attestation would reduce compliance costs on the order of 50% for the same quality level of internal controls. However, absent auditor attestation, there may be considerable variation in the extent to which issuers document, test, and



improve their internal controls. As a result, the information value to investors of management reports on internal controls may be significantly diminished.

The auditor attestation component is an important part of the regulations. In addition to the direct cost of attestation, it adds costs by requiring many issuers to go beyond the level of documentation and testing that they would otherwise conduct and to increase the formality of internal control structures to facilitate outside verification. However, some of these additional efforts generate benefits since they represent, in fact, improvements in internal controls rather than just additional costs incurred to facilitate the attestation process. More generally, the attestation requirement is likely important for setting a common standard for management reports on internal controls.

We considered two possibilities for providing relief to small issuers from some or the entire regulatory burden: exemption for Venture Exchange-listed issuers or for issuers below a certain size threshold. The advantage of an exchange-based exemption is that this makes it easier for small and foreign investors to keep track of the average quality of publicly disclosed financial information, as the effects of the regulations on disclosure quality are likely captured in the branding of the exchange. An exchange-based exemption also gives issuers some scope for choosing the level of regulation. The advantage of a size-based cut-off is that there are a substantial number of smaller issuers listed on the TSX. The optimal cut-off below which all issuers would be exempt from both the management report and auditor attestation would be around \$125 million in assets.



## Appendix A: Theoretical and Empirical Foundation for the Benefits Estimation

In order to quantify the benefits of regulatory requirements for internal controls, we need a mathematical representation of the problem. An investor who is uncertain whether or not an issuer is making a misstatement in its financial reports must form an expectation about the value of the issuer. In our simple model, we assume that the investor believes that, with some very high probability (near, but not exactly one), the issuer is making an accurate report and, with one minus this probability, the report is incorrect (i.e., such that value or assets have been misappropriated).

Let  $V$  be the value of an issuer where there is no misstatement. Suppose that in each year with probability  $p$  a misstatement occurs and existing shareholders lose  $F$ . The loss of  $F$  can be thought of as including the loss in assets from misappropriation and a fraudulent conveyance of value to managers (such as by keeping bonuses—or their positions—that should have been lost if reporting had been accurate). An honest issuer may never make misstatements, but outside investors cannot tell if an issuer's managers are honest or not; thus, investors apply the probability of misstatements  $p$  to all companies, which reduces the value of the honest issuer accordingly. The value of the issuer to an outsider is then

$$\begin{aligned} V^e &= V - pF - pF/(1+r) - pF/(1+r)^2 - \dots \\ &= V - pF/r, \end{aligned}$$

where  $r$  is the discount rate.

We estimate the benefits by determining how much  $V^e$  would increase if the probability of misstatements fell from a change in the regulatory regime. Let  $V^*$  represent the value of the issuer with the new internal control requirements in place and  $p^*$  represent the new probability of misstatements in a given year; then our estimate of benefits (B) is:<sup>70</sup>

$$B = V^* - V^e$$

<sup>70</sup> Notice that the owners of the ethically run issuer bear the cost in that the issuer is worth  $V - pF/r$  rather than  $V$  to outside investors. In contrast, an issuer run by unethical owners or managers that make a misstatement of  $F$  in year one obtain  $V - pF/r + F$ , which is greater than  $V - pF/r$ , what they would get otherwise. However, since this gain of  $F$  is unethical we do not include it as a benefit.



$$=(p-p^*)F/r.$$

To calculate benefits we need an estimate of how  $p$  changes with added expenditures on internal controls, the level of  $p$ , and the effect of a misstatement on issuer value.

We assume that the probability of misstatements is a decreasing function of the expenditure  $E$  on internal controls broadly defined to include monitoring efforts by senior management, enhancing internal controls, and consulting with outside audit and legal experts. In particular, we assume that

$$p=\alpha E^\beta, \quad (1)$$

where  $\alpha$  and  $\beta$  are parameters to be estimated.

Thus, the percentage decrease in the rate of misstatements is related to expenditures by the elasticity parameter  $\beta$ . There is an implicit decreasing return to investment in internal controls embedded in the above, in that as  $p$  approaches zero, each additional investment leads to a smaller absolute decrease in the probability of fraud. Ideally we would estimate the parameters  $\alpha$  and  $\beta$  from market data. However, while we have some useful data, they do not allow us to directly estimate (1). We discuss an alternative approach below.

Algebraic manipulation of equation (1) allows us to express the change in the probability of misstatements as:

$$(p-p^*)/p = 1-(E^*/E)^\beta.$$

We can then rewrite the benefits equation as

$$B=(1-(E^*/E)^\beta)pF/r. \quad (2)$$

The final complication is that the proportional size of fraudulent reporting generally decreases with the size of the issuer.<sup>71</sup> To capture this effect we assume that the size of

<sup>71</sup> This was the finding of the COSO study on fraudulent reporting. The Enron and WorldCom scandals indicate, however, that in some cases fraudulent reporting among large issuers can be proportionately as large as that in small issuers.



the misstatement is a function of the size of the issuer measured in assets. In particular, we assume that

$$F = \delta V^{\gamma}, \quad (3)$$

where  $\delta$  and  $\gamma$  are parameters. We substitute this assumed relationship into (2). As with the parameters governing the size of fraud, we unfortunately do not have a dataset to estimate these parameters. However, we have several data points that we use to identify the parameters, discussed below.

Using (2) we estimate benefits for each issuer in our sample of non-interlisted TSX and Venture Exchange companies. For each group of companies, we gross up total benefits to the industry level by multiplying by the ratio of the number of total companies to the number of companies in our sample for the respective exchanges. Our estimates of the probability of misstatements are at an annual frequency; thus, our estimated benefits recur annually.<sup>72</sup>

In order to calculate benefits, we need estimates of the parameters in (2) and (3). To obtain an estimate of  $\beta$  we make use of OSC data from audits by the OSC of issuer compliance with continuous disclosure requirements. The dataset consists of 430 observations from compliance audits between 2001 and 2003. These data include the industry, the exchange the issuer is listed on, the auditor, and the issuer size measured as asset ranges.<sup>73</sup> The data also provide 15 different categories in which an issuer may be out of compliance. We focus on refilings, which are the most serious outcome of the continuous disclosure reviews. We estimate a logit regression to determine the relationship between the probability an issuer will need to refile disclosure documents and whether the issuer uses one of the big accounting companies as its auditor. We control for issuer size and industry. The regression results are presented in Table A1.

<sup>72</sup> We have not accounted for the possibility that an issuer committing fraud goes bankrupt and thus is no longer in the sample. New entrants would replace such issuers – a necessary condition to ensure the stock of assets does not decline to zero.

<sup>73</sup> The ranges are: under \$5 MM; between \$5 MM and \$25 MM; between \$25 MM and \$100 MM; between \$100 MM and \$500 MM; between \$500 MM and \$1 billion; between \$1 billion and \$5 billion; and over \$5 billion.



**Table A1: Logit Regression of the Probability of Refiling After a Continuous Disclosure Review**

Variable	Parameter Estimate	p-value
Big Auditor	-0.63	0.1
Over \$1 billion	-2.42	0.0
\$100 to \$500 million	-1.71	0.003
\$25 to \$100 million	-0.84	0.074
\$5 to \$25 million	-0.82	0.091
Financial	0.27	0.68
Technology	0.15	0.713
Resource	0.74	0.185
Manufacturing	0.64	0.235
Communications	0.50	0.574
Constant	-0.65	0.074
Observations	364	
Pseudo R <sup>2</sup>	0.14	

The asset size of \$500 million to \$1 billion was dropped due to a lack of observations for this size category. The omitted size was under \$5 million so that all the size variables are measured relative to this smallest category. As expected, the larger the issuer, the less likely the issuer will be out of compliance. Using one of the large audit companies is associated with a lower probability of being out of compliance, as indicated by the negative coefficient. The p-value of 0.1 indicates that this variable is only marginally statistically significant. This is partially due to multi-collinearity with the size variables. For instance, when the dummy variable for the \$5 to \$25 million size range, which also has a relatively large p-value, is not included, the coefficient on Big Auditor falls to -0.83 with a p-value of 0.02.



Using the estimated logit equation, we calculate the average probability of companies being out of compliance if they do not use a big audit firm and the average probability if they use a big audit firm. The average probability falls from 20% to 12%.

In order to infer  $\beta$  from this result, we need to know how much more expensive a big audit companies costs. Craswell, Francis and Taylor [1995] estimate that Big 8 auditors in Australia earn a 30% premium over non-Big 8 auditors. Using this information we calculate

$$\beta = \log(0.12/0.2)/\log(1.3) = -1.95.$$

This calculation is derived directly from (1) using the change in the probability of misstatements with a change in expenditure on audit fees to isolate  $\beta$ .<sup>74</sup>

The next variable we need to estimate is the probability of a misstatement,  $q$ . The COSO report [1999] found about 300 instances of alleged instances of fraudulent reporting in SEC Accounting and Auditing Enforcement Releases (AAERs) over an 11-year period, or 27.3 cases per year. Assuming one-tenth the number in Canada would imply 2.73 cases per year; however, these are only detected cases. An Ernst and Young study estimates a public detection rate of 20%. This detection rate would imply 13.6 significant cases of misstatements reporting per year in Canada. There are about 3,760 companies listed on the TSX and Venture Exchange. Thus, the probability of a misstatement,  $q$ , for any given issuer is about 0.36% ( $=13.6/3,760$ ) per year. We assume the same probability of misstatements for all companies.

The final coefficients to estimate are  $\delta$  and  $\gamma$ , which relate the misstatement size to the size of the issuer. The COSO [1999] report provides four data points:

- Average misstatement of US\$25 million with average issuer size of US\$533 million;

---

<sup>74</sup> In the probit model the effect of using a large auditor on the probability of refile depends on the values of the other variables, including size, and thus so does the estimate reduction in the probability of having to refile. We experimented with using a separate elasticity estimate for each size class of rather than an average value. The effects on the final results were small, increasing estimated benefits by about 5% for TSX-listed issuers and decreasing the estimated benefits by less than 1% for Venture Exchange-listed issuers.



- Median misstatement of US\$4.1 million with median issuer size of US\$16 million;
- First quartile misstatement and size (US\$1.6 million and US\$2.6 million); and
- Third quartile misstatement and size (US\$11.8 million and US\$73.8 million).

The Karpoff and Lott [1993] results indicate a 4.66% drop in equity value when fraudulent financial results are reported to be under investigation. This corresponds to companies reported in the *Wall Street Journal*, which are almost certainly reasonably large U.S. companies.<sup>75</sup> We assume that the average Canadian cross-listed companies would have a similar 4.66% drop in equity value. However, due to leverage, a drop of 4.66% in equity value would require a smaller drop in asset value. For example, if equity holders have a claim on 80% of assets but suffer the entire loss of value from a misstatement (i.e., the value of assets owing to debt holders is secured as a first-order approximation), then an equity holder value would fall by 4.66% if the value of assets fell by  $4.66\% \times 80\% = 3.7\%$ . (The average debt-to-asset ratio for TSX interlisted companies is 20%.) On the other hand, this calculation does not include the value of goodwill. If goodwill were unaffected by the misstatement, then the drop in tangible asset necessary to induce a drop of 4.66% in equity value would be much larger.

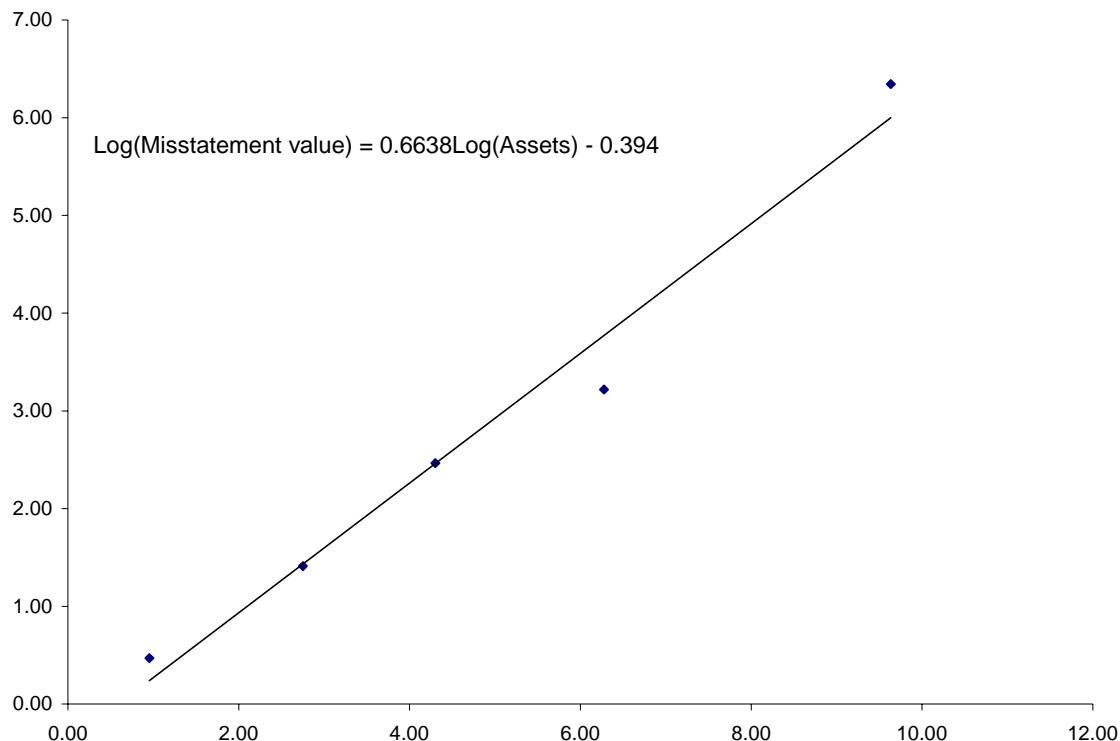
Thus, using a 3.7% drop in asset value for an average size interlisted issuer (\$15 billion), we obtain a third data point. A plot of total size of the misstatement (in logs) against issuer size (in logs) is shown in Figure A1. The five points lie quite closely on the same regression line despite the fact that one comes from a completely different source.

---

<sup>75</sup> Unfortunately, Karpoff and Lott do not provide any descriptive statistics for the issuers they analyse.



**Figure A1: Relationship Between the Size of Misstatement (and Misappropriation) and Issuer Assets**



The above estimates provide the information necessary to compute expected benefits. We first calculate the average increase as a percentage of audit based on the cost increases reported in the cost section above. We then translate this into a reduction in the probability of misstatements and determine the expected benefits for each issuer in the sample. Finally, we sum over all companies and gross up to total industry size using the methodology described in the cost section.

### A.1 Relationship Between Issuer Size and Audit Fees

We do not have detailed audit fee data for each issuer in our sample. Thus, we must infer external audit fees from the asset data. We hand-collected data from a random sample of companies' proxy circulars and estimated the relationship between audit fees and assets. We also had information on audit fees for most of the companies we interviewed. Thus,



our sample is larger than the one we used for our cost-benefit study of CEO and CFO certification.

The audit fees for some companies are combined with legal fees. We retained these observations in the regression but controlled for legal fees. We estimate a log-linear model; Table A2 shows the results. The adjusted R<sup>2</sup> is high at 0.67, indicating a good overall fit. The coefficient on Log Assets is 0.368 and is precisely measured. The interpretation is that for a 1% increase in assets, audit costs increase by only 0.37%. Thus, the larger the issuer, the lower audit costs are as a share of assets. This type of economy of scale effect explains much of the higher costs of certification for smaller companies.

**Table A2: Regression of Log Audit Costs (and Legal Fees)**

	Coefficient	P-value
Intercept	5.18 (1.01)	0.00
Log Assets	0.379 (0.048)	0.00
Legal Dummy	6.85 (3.66)	0.04
Legal Dummy × Log Assets	-0.38 (0.18)	0.05
Adjusted R <sup>2</sup>	0.72	
Observations	39	



## Appendix B: Academic Research on the Regulation of Disclosure

The information gap between issuer insiders and outside investors goes to the core of many regulatory, auditing, and corporate finance issues. As this *information gap* or *asymmetric information* problem is fundamental and its effects intangible, measuring the benefits from incremental improvements in disclosure becomes complex and difficult.

Myers and Majluf [1984], Ross [1977], Jensen and Meckling [1976], and Leland and Pyle [1977] were among earlier academic contributors to the understanding of the role of asymmetric information in corporate finance. They recognized that information asymmetries between insiders and outsiders may ultimately hurt the insiders if such asymmetries force them to take costly actions to reassure the outsiders that the investment is valuable and fairly priced.

More recent academic work in accounting and corporate finance is largely focused on detecting and measuring the effects of asymmetric information and how different regulatory regimes affect information asymmetries and market economics. For example:

- Bushee and Leuz [2002] investigate changes in the SEC disclosure requirements for the OTC Bulletin Board (OTCBB). All companies trading on the OTCBB had to provide SEC disclosure filings starting in 1999, which was a significant increase in reporting requirements. Bushee and Leuz found that companies that complied with the new regulations (remaining on the OTCBB) experience a permanent increase in liquidity and realized abnormal positive returns, whereas the reverse is true for non-compliant companies forced off the OTCBB. The authors also found, however, that 74% of companies chose not to comply with the eligibility rule. Thus, a majority of companies found that the costs outweighed the benefits.
- Leuz and Verrecchia [2000] examine changes in market economics for German companies that chose to switch from German reporting requirements to a more rigorous international reporting regime (IAS or U.S. GAAP). Leuz and Verrecchia find that committing to increased disclosure results in lower bid-ask spreads and higher trading volume, consistent with reduced information



asymmetry between insiders and outsiders.<sup>76</sup> In particular, they find that switching to international reporting results in an average reduction in the bid-ask spreads of 35%, while share turnover increases by more than 50%. Also, it is the *ex ante* commitment to enhanced disclosure that matters; additional *ex post* voluntary disclosures have little effect on bid-ask spreads or turnover.

- Kothari [2001] provides an overview of the role of financial reporting in reducing overall risk in the market. Building on the work cited above, Kothari discusses the literature on international differences in corporate law and, in particular, the differences between common law and code (civil) law.<sup>77</sup> Kothari argues that in common law countries, protection through shareholder litigation and bankruptcy laws will generate high-quality public disclosure regardless of the regulatory standard. It may be advantageous to avoid mandating too high a standard so that disclosure requirements may be customized for different issuer needs. Kothari's argument is compatible with the proposed reporting requirements, in that the requirements do not prescribe required internal controls or disclosure controls and procedures but instead prescribe outcomes.
- Using international panel data, Bhattacharya, Daouk and Welker [2003] examine the relationship between three measures of the degree to which earnings reports hide information—aggressiveness, loss avoidance, and earnings smoothing—and both the cost of capital and the amount of trading. The authors find that an increase in earnings opacity is associated with an economically significant increase in the cost of capital and decrease in trading.

Recent empirical research suggests strong links between disclosure controls and the extent (and, hence, the cost) of asymmetric information. The Leuz and Verrecchia investigation of German companies also highlights how differences in disclosure regimes can cause companies seeking to signal higher quality to choose a higher-quality regime.

---

<sup>76</sup> The authors' results control for the fact that issuers choose to adopt an international reporting regime and thus may have different (unobserved) characteristics from other issuers (i.e., the problem of self-selection).

<sup>77</sup> LaPorta, Lopez-de-Silanes, Shleifer and Vishny [1997] have examined how increased protection afforded to outside investors in common law countries has resulted in more diffuse shareholders and separation of ownership and control since agency problems are less acute. Other research (Bhattacharya and Daouk [2000]) has examined how the threat of litigation as a credible signal of enforcement of shareholder protection laws is more important than the laws themselves.



This could suggest that if Canada does not closely follow the SOX changes in the U.S., more high-quality companies may choose to submit to SEC regulations only or largely as a signal of quality. The potential danger is that Canadian companies that choose to be regulated only by Canadian securities commissions may be perceived as higher-risk companies, resulting in a higher cost of capital.<sup>78</sup>

Some of the empirical results discussed above suggest that reducing information asymmetries can generate economically significant gains. Other studies have shown that market penalties associated with revelations about actual misstatements are significant. These studies include the following.

- Callen and Morel [2002] examine the effect of the Enron-Anderson debacle. In particular, they analyse whether the loss of reputation for Anderson led to significant abnormal declines for other Anderson audit clients compared to non-Anderson clients on various event days. There is evidence of a cumulative negative impact (across all event days) of about a 4% loss in issuer value for Anderson clients and no statistically significant impact for non-Anderson clients.
- Karpoff and Lott [1993] investigate the effect of criminal fraud on issuer value. While they look at fraud in general, for the 11 cases of financial disclosure fraud in their sample of frauds reported by the *Wall Street Journal*, they find a statistically significant drop of 4.66% on the initial report of the fraud. Similar evidence is found in Alexander [1999].<sup>79</sup>

The research related to some of the SOX requirements is still preliminary. Two studies of CEO and CFO certification requirements in the U.S. find mixed results. The first study finds evidence that for a range of financial and non-financial companies the

---

<sup>78</sup> Exercises in extrapolating from one situation to another should be considered with great caution. The positive economic results obtained in the German case—moving from relatively loose standards to international norms—do not necessarily imply that moving from current international norms to a more regulated environment will generate further gains.

<sup>79</sup> The 4.66% may be conservative, as Karpoff and Lott do not address the possibility of information leakage of the fraud prior to its report in the *Wall Street Journal*. The Callen and Morel finding of a 4% loss of value for issuers that are not accused of fraud but are just associated with an accounting firm accused of fraudulent behaviour also suggests that the 4.66% reduction for actual fraudulent behaviour may be conservative. On the other hand, the Callen and Morel finding is only marginally statistically significant.



certification announcements were not value-relevant to investors while the second finds that the certification announcements by bank holding companies were value-relevant. In particular:

- Bhattacharya, Goznik and Haslem [2003] examined stock price reactions, price volatility, and volumes around the event of CEOs certifying (or failure to certify) earnings reports on SEC-imposed due dates. The authors find no detectable reaction of the market to certification or failure to certify on the certification due date. Additional analysis of pre-event returns suggest that the market had already separated companies with good earnings transparency from companies with bad earning transparency prior to the SEC passing the certification order. They conclude that the evidence supports their null hypothesis that CEO and CFO certification of earnings numbers is not relevant to issuer value.
- Hirtle [2003] also investigates stock price reactions to the certification of financial statements by CEOs and CFOs. However, she focuses her examination on bank holding companies (Bhattacharya *et al.* [2003] examined a range of financial and non-financial companies.) She finds statistically significant average abnormal positive returns of 30 to 60 basis points on the day of certification and companies certifying early experience the largest abnormal returns. She also finds that higher returns were associated with companies whose activities were more opaque to outside investors, which is consistent with the hypothesis that companies which are most difficult for outsiders to evaluate benefit most by sending a credible signal that disclosed financial information is materially accurate.



## References

- Alexander C.R. 1999. "On the Nature of the Reputational Penalty for Corporate Crime: Evidence." *Journal of Law and Economics* (Spring).
- Bhattacharya, Utpal, Hazem Daouk, and Michael Welker. 2003. "The World Price of Earnings Opacity." *Accounting Review*.
- \_\_\_\_\_, Peter Groznik, and Bruce Haslem. 2003. "Is CEO Certification of Earnings Numbers Value-Relevant?" Working Paper.
- \_\_\_\_\_, and Hazem Daouk. 2002. "The World Price of Insider Trading." *Journal of Finance*, 57.
- Beasley M.S., J.V. Carcello, and D.R. Hermanson. 1999. *Fraudulent Financial Reporting: 1987-1997*. New Jersey: AICPA.
- Bertrand, Marianne and Sendhil Mullainathan. 2003. "Enjoying the Quiet Life? Corporate Governance and Managerial Preferences," *Journal of Political Economy*, October, 1043-1075.
- Brian J. Bushee and Christian Leuz. 2002. "Economic Consequences of SEC Disclosure Regulation: Evidence from the OTC Bulletin Board." Working Paper, Wharton School.
- Callen J.L. and M. Morel. 2002. "The Enron-Andersen Debacle: Do Equity Markets React to Auditor Reputation?" University of Toronto Working Paper.
- Caplan D. 1999. "Internal Controls and the Detection of Management Fraud." *Journal of Accounting Research*, 37 (Spring).
- Charles River Associates. 2003. "The Costs and Benefits of Management Certification of Financial Reports." Report prepared for the Ontario Securities Commission.
- Committee of Sponsoring Organizations of the Treadway Commission (COSO). 1992. *Internal Control – Integrated Framework*. New York: COSO.



- Craswell, Allen T., Jere R. Francis, and Stephen L. Taylor. 1995. "Auditor Brand Name Reputations and Industry Specializations." *Journal of Accounting and Economics*, 20.
- Ernst & Young. 2002. "Fraud, the Unmanaged Risk." Public Report.
- Felix W.L., A.A. Gramling, and M. J. Maletta. 2001. "The Contribution of Internal Audit as a Determinant of External Audit Fees and Factors Influencing This Contribution." *Journal of Accounting Research*, 39 (Fall).
- Graham, Carol, Robert E. Litan, and Sandip Sukhtankar. 2002. "Cooking the Books: The Cost to the Economy." *The Brookings Institution*. Policy Brief #106.
- Hirtle, Beverley. 2003. "Stock Market Reaction to Financial Statement Certifications by Bank Holding Company CEOs." *Federal Reserve Bank of New York, Staff Reports*, no. 170.
- Jensen, Michael C. and William H. Meckling. 1976. "Theory of the Firm: Managerial Behaviour, Agency Costs and Ownership Structure, *Journal of Financial Economics*, 3.
- Karpoff, J.M. and J.R. Lott, Jr. 1993. "The Reputational Penalty Firms Bear From Committing Criminal Fraud." *Journal of Law and Economics* (Fall).
- Kothari S.P. 2000. "The Role of Financial Reporting in Reducing Financial Risks in the Market." in Eric Rosengren and John Jordan, eds. *Building an Infrastructure for Financial Stability*. Federal Reserve Bank of Boston, pp. 89-102.
- La Porta, R, F. Lopez-de-Silanes, A. Shleifer and Robert W. Vishny. 1998. "Law and Finance." *Journal of Political Economy*, 106.
- Leland, Hayne E and David H. Pyle. 1977. "Information Asymmetries, Financial Structure, and Financial Intermediation." *Journal of Finance*, 31.
- Leuz C. and R.E. Verrecchia. 2000. "The Economic Consequences of Increased Disclosure." *Journal of Accounting Research*, 38 (Supplement).
- McKinsey & Company. 2002. *Global Investor Opinion Survey: Key Findings*.



National Commission on Fraudulent Financial Reporting. 1987. *Report of the National Commission on Fraudulent Financial Reporting.*

Myers, Stewart C. and Nicholas S. Majluf. 1984. "Corporate Financing and Investment Decisions When Firms Have Information That Investors Do Not Have." *Journal of Financial Economics*, 13.

Ross, Stephan A. 1977. "The Determination of Financial Structure: The Incentive-Signalling Approach." *Bell Journal of Economics*, 8.

Shleifer, A. and D. Wolfenzon. 2002. "Investor Protection and Equity Markets." *Journal of Financial Economics*, 66 (Winter).

Strahan P.E. 1998. "Securities Class Actions, Corporate Governance and Managerial Agency Problems." *Federal Reserve Bank of New York*.

