

# **INVESTOR CONFIDENCE AND THE CEO/CFO CERTIFICATION REQUIREMENT OF SARBANES-OXLEY**

**Stephen E. Rau\***  
**Brian Nagle**

## **Abstract**

As the high incidence of corporate malfeasance began to erode investor confidence in the financial reporting systems and financial markets, Congress passed the Sarbanes-Oxley Act. Sarbanes-Oxley holds the CEO and CFO of publicly traded companies accountable to investors by requiring them to certify that the financial statements are free of material misstatements<sup>1</sup>. While an often cited purpose of this certification requirement is to restore investor confidence in the financial markets, its effectiveness remains an open question.

The purpose of our study is to empirically test whether the CEO/CFO certification requirement of Sarbanes-Oxley has had any impact on investor confidence. MBA students from two AACSB accredited universities participated in a study in which they examined the financial statements and other information contained in the annual report of a Fortune 500 company. The results indicate that subjects' level of knowledge of the CEO/CFO certification requirement is positively related to their confidence that the financial statements are free of material errors. In addition, subjects' knowledge of the certification requirement was positively related to their belief that the CEO and CFO's performance targets would be met and that these executives were diligent in their review of the financial statements. These results

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\* Stephen E. Rau is an assistant professor of accounting at Duquesne University. Brian Nagle is an associate professor of accounting at Duquesne University.

<sup>1</sup> U.S. Congress: 2002, *Sarbanes-Oxley Act*, Washington D. C., at 806.

suggest that the CEO/CFO certification requirement of the Sarbanes-Oxley act is capable of enhancing investor confidence and that the investing public's awareness of the requirement is critical to its effectiveness.

### INTRODUCTION

In the wake of the myriad of corporate scandals that surfaced over the past several years, Congress passed the Sarbanes-Oxley Act in 2002. The overriding objectives of Sarbanes-Oxley were to rebuild investor confidence in the capital markets and to restore public trust in, and to enhance the transparency of, corporate financial reporting<sup>2 3 4</sup>. In light of these objectives, a key provision of the Act holds the executives of publicly traded companies accountable to shareholders.

Indeed, Sarbanes-Oxley requires that the CEO and CFO of publicly traded companies certify that the financial statements and other financial information in the annual report are free of material misstatements<sup>5</sup>. One component of Sarbanes-Oxley (Sections 901 through 906) is referred to as the "White-Collar Crime Penalty Enhancement Act of 2002". This act establishes the penalties for corporate officers who certify financial statements knowing that information contained in the periodic report *does not* fairly present, in all material respects, the financial condition and results of operations of the issuer as a of up to \$1,000,000 and/or imprisonment of up to ten years<sup>6</sup>. When the SEC published the first list of companies that would be required to have their financial statements certified, then Chairman Harvey Pitt stated that the

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<sup>2</sup> Petruno, Tom, and Thomas S. Mulligan: 2003, "Corporate Reform's Baby Steps; The Law to Clean Up Wall Street's Worst Abuses is Getting Mixed Reviews a Year After Enactment." *Los Angeles Times*, July 27: A1.

<sup>3</sup> Howell, Joy and Stephen Hibbard: 2002, "Navigating the Changed Landscape of Corporate Governance." *Harvard Management Update* 7: 3-4, at 4.

<sup>4</sup> Doernberg, John A.: 2003, "The D&O Dangers of Financial Certification." *Corporate Board* 24: 23-26, at 26.

<sup>5</sup> U.S. Congress: 2002, *Sarbanes-Oxley Act*, Washington D. C., at 806.

<sup>6</sup> U.S. Congress: 2002, *Sarbanes-Oxley Act*, Washington D. C., at 806.

CEO/CFO certification requirement “is an unprecedented step to help restore investor confidence”.<sup>7</sup>

More than a year has passed since the enactment of Sarbanes-Oxley and public debate over its effectiveness continues.<sup>8 9</sup> While the markets have shown some recovery, there is no empirical evidence that links the CEO/CFO certification requirement of Sarbanes-Oxley to an increase in investor confidence. The purpose of our study is to investigate whether the CEO/CFO certification requirement has any effect on investors’ trust or confidence in the accuracy of corporate financial statements. This is an important question because if the CEO/CFO certification is capable of enhancing investor confidence, understanding how it can impact investor confidence may provide guidance that will help to develop strategies such as public awareness campaigns for the purpose of bolstering confidence in the future. If the certification requirement does not affect investor confidence, changes to the requirement and/or its associated penalties may be considered so that the desired effect is achieved.

## **BACKGROUND**

### **Trust and the capital markets**

Relevant and reliable external financial reporting is critical to the efficient functioning of capital markets. In a very basic sense, managers, seeking investors’ capital, supply firm-specific information to the market. Investors demand such information to identify the most promising investment opportunities to which they can allocate their resources. In this external financial reporting framework, however, an information asymmetry problem can potentially exist. While auditors function to enhance the reliability of corporate financial information and mitigate this information

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<sup>7</sup> Securities and Exchange Commission: 2002, “SEC Staff Completes Processing of CEO, CFO Statements.” Press release, August 20, 2002.

<sup>8</sup> Petruno and Mulligan, at A1.

<sup>9</sup> Washington Post: 2003, “Corporate Reform, Year One.” July 30: A18.

asymmetry problem, trust is still a very critical component of manager-shareholder relationship.

Recent research in the social sciences suggests that diminished trust by one or both parties in a relationship has potential negative consequences. Declining trust in long-term exchange relationships (such as the manager-investor relationship) results in increased transaction costs because people engage in self-protective actions due to the possible opportunistic behavior of others<sup>10</sup>. As trust declines, people become less willing to take risks, demand greater protections against the possibility of betrayal and insist on costly mechanisms to defend their interests<sup>11</sup>. This research suggest that investors are likely to bypass investment opportunities in firms managed by those for whom they have low levels of trust due to the additional risk introduced by the lack of trust.

The fallout from the recent accounting scandals, however, has been much more pervasive than suggested by the previous argument. Investor distrust has not been limited to the egregious firms (e.g., WorldCom or Enron) but instead has been extended to specific industries and even the entire market<sup>12</sup>. Academic research has long supported the importance of trust in the operation of capital markets. According to Arrow<sup>13</sup>, markets would not be able to function without some level of trust. Fukuyama<sup>14</sup> argues that trust or social capital is just as important as financial capital in facilitating the development of large business organizations that are necessary for economic expansion. As a result, it is of little

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<sup>10</sup> Limerick, D. and B. Cunningham: 1993, *Managing the New Organization*. Jossey-Bass, San Francisco.

<sup>11</sup> Williamson, O. E.: 1993, "Calculativeness, Trust, and Economic Organizations." *Journal of Law and Economics* 36: 453-486, at 482.

<sup>12</sup> Browning, E. S. and Jonathan Weil: 2002, "Burden of Doubt: Stocks Take a Beating as Accounting Worries Spread Beyond Enron." *The Wall Street Journal*, January 30: A1.

<sup>13</sup> Arrow, K. J.: 1973, *Information and Economic Behavior*. Federation of Swedish Industries, Stockholm, Sweden.

<sup>14</sup> Fukuyama, F.: 1995, *Trust: The Social Virtues and the Creation of Prosperity*. Simon and Shuster, New York, at 150.

surprise that restoring the publics' trust in the financial markets is often cited as the primary purpose of the CEO/CFO certification requirement.<sup>15 16</sup>

*What is trust?*

The issue of trust has received significant attention in the social science literature<sup>17</sup> and has been subject to a myriad of definitions and perspectives, some of which are particularly descriptive of the manager-investor relationship. Schlenker, et, al.<sup>18</sup> claim that trust is the "reliance upon information received from another person about uncertain environmental states and their accompanying outcomes in a risky situation." On a similar note, Lewis and Weigert<sup>19</sup> define that trust is confidence in the face of risk. Boon and Holmes<sup>20</sup> claim that trust is a state involving confident positive expectations about another's motives with respect to oneself in situations entailing risk. Several perspectives, or types, of trust have also been discussed in the social sciences literature. According to James<sup>21</sup>, trust can be viewed from two different perspectives. First, trust may be rational because the trustee has an economic incentive to be trustworthy. Often referred to as calculative trust, it is rational because a mental

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<sup>15</sup> Securities and Exchange Commission: 2002

<sup>16</sup> Weil, Jonathan: 2002, "Is Aug. 14 Filing Deadline a Nonevent?" *The Wall Street Journal* August 13: C1.

<sup>17</sup> Lewicki, Roy J. and Barbara B. Bunker: 1996, "Developing and Maintaining Trust in Work Relationships." in *Trust in Organizations*, R. Kramer and T. Tyler eds., Sage Publications, London: 114-139, at 115.

<sup>18</sup> Schlenker, B. R., B. Helm and J. T. Tedeshi: 1973, "The Effects of Personality and Situational Variables on Behavior Trust." *Journal of Personality and Social Psychology* 25: 419-427, at 419.

<sup>19</sup> Lewis, J. D. and A. Weigert: 1985, "Trust as a Social Reality." *Social Forces* 63: 967-985, at 969.

<sup>20</sup> Boon, S.D. and J. G. Holmes: 1991, "The Dynamics of Interpersonal Trust: Resolving Uncertainty in the Face of Risk." in R. A. Hinde and J. Groebel eds. *Cooperation and Prosocial Behavior*, Cambridge University Press, Cambridge U.K.: 190-211.

<sup>21</sup> James, Harvey S.: 2002, "The Trust Paradox: A Survey of Economic Inquiries Into the Nature of Trust and Trustworthiness." *Journal of Economic Behavior and Organization* 47: 291-307, at 303.

calculation is made of the costs and benefits of relying on or trusting another party. Second, trust may be developed over time as the result of an ongoing relationship between the parties. Often referred to as personal trust, it does not involve any mental calculation but is in fact warranted because of the existence of a long-term personal relationship<sup>22 23 24</sup>. Given the structure of the capital markets and the fact for the most part, they lack personal relationships, it has been argued that calculative trust is descriptive of the trust in market-based exchanges<sup>25 26</sup> and thus describes the form of trust that may exist between investors and corporate executives.

### **Trust and accountability**

Calculative trust is driven by incentives that help to enforce compliance. These incentives can either be some type of reward for acting in a trustworthy manner or a punishment for violating that trust<sup>27 28</sup>. The CEO/CFO certification requirement may enhance trust because it holds the executives accountable for the validity of the financial statements and other financial information in the annual report by holding them personally liable for knowingly misstating this information.<sup>29</sup>

Accountability has been described as the expectation that one may be called on to justify their actions and if their justifications are not satisfactory, negative consequences will

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<sup>22</sup> James, Harvey S.: 2002, at 303

<sup>23</sup> Lewicki, Roy J. and Barbara B. Bunker: 1996, at 121.

<sup>24</sup> Williamson, O. E.: 1993, at 482.

<sup>25</sup> Lewicki, Roy J. and Barbara B. Bunker: 1996, at 120.

<sup>26</sup> Rousseau, M., Sim B. Sitkin, Ronald S. Burt, and Colin Camerer: 1998, "Not So Different After All: A Cross-Discipline View of Trust." *The Academy of Management Review* 23: 393-404, at 399.

<sup>27</sup> Lewicki, Roy J. and Barbara B. Bunker: 1996, at 119.

<sup>28</sup> Shapiro, D. L., B. H. Sheppard and L. Cheraskin: 1992, "Business on a Handshake." *Negotiation Journal* 8: 365-378.

<sup>29</sup> U.S. Congress: 2002, *Sarbanes-Oxley Act*, Washington D. C., at 806.

result.<sup>30</sup> While studies of accountability have typically focused on the actions of the individuals who were held accountable,<sup>31</sup> De Cremer and Dewitte (2002) suggest that accountability may also be an effective means to instill trust because the accountable party's actions are more visible and subject to social criticism.<sup>32</sup> Thus, the CEO/CFO certification may enhance investor confidence in a company's financial statements because of the increase in accountability imposed by Sarbanes-Oxley. However, for the certification requirement to enhance investor confidence, investors must be knowledgeable of this requirement and its associated penalties for violation. Therefore, we propose the following hypothesis:

**Hypothesis 1:** As knowledge of the CEO/CFO certification requirement increases, investors will be more confident in the accuracy of the financial statements.

The willingness of CEOs and CFOs, who certify the accuracy of the information in the annual report, to accept personal liability for this information may affect investors' perceptions of the accuracy of other information that is provided by the executives. While the financial statements reflect historical events that have already occurred, performance estimates are often made in press releases shortly after the annual report is made public. These estimates, or forward-looking statements, provide management's belief of the likelihood of the occurrence of a future event. If the CEO/CFO certification requirement enhances investor confidence in the accuracy of the financial statements, the

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<sup>30</sup> Lerner, Jennifer S. and Philip E. Tetlock: 1999, "Accounting for the Effects of Accountability." *Psychological Bulletin* 125: 255-275, at 255.

<sup>31</sup> Lerner and Tetlock: 1999, at 256.

<sup>32</sup> De Cremer, David and Siegfried Dewitte: 2002, "Effect of Trust and Accountability in Mixed-Motive Situations." *The Journal of Social Psychology* 142: 541-543, at 542.

requirement may also lend additional credibility to management's performance estimates. Therefore, we propose the following hypothesis:

**Hypothesis 2:** As knowledge of the CEO/CFO certification requirement increases, investors will be more confident in the accuracy of the management's performance estimates.

As stated earlier, the CEO/CFO certification requirement increases the accountability of the CEO and CFO by holding them personally liable for falsely endorsing the accuracy of the financial statements. Prior research has found that accountability can increase the work effort of the person that is held accountable.<sup>33 34</sup> In a study of the audit review process, auditors who knew they would be held accountable for their work by a reviewer documented more audit evidence than auditors who did not expect such a review.<sup>35</sup> Therefore, a reasonable expectation is that the CEO/CFO certification requirement will encourage these executives to more thoroughly review the annual report prior to its release.

While the effect of accountability on the accountable party's work effort is interesting, we are interested in understanding how accountability affects investors' perceptions. Given the intuitiveness of the results that found that accountability could increase work effort, we would expect that investors who are knowledgeable of the CEO/CFO certification requirement would believe that these executives were more diligent in their review of

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<sup>33</sup> Koonce, Lisa, Urton Anderson and Garry Marchant: 1995, "Justifications of Decisions in Auditing." *Journal of Accounting Research* 53: 369-384, at 381.

<sup>34</sup> Tetlock, Philip E.: 1985, "Accountability: The Neglected Social Context of Judgment and Choice." *Research in Organizational Behavior* 7: 297-332, at 319.

<sup>35</sup> Koonce, et. al., at 381.

the annual report prior to its release. Therefore, we propose the following hypothesis:

**Hypothesis 3:** As knowledge of the CEO/CFO certification increases, individuals will believe that the CEO and CFO were more diligent in their review of the financial statements.

If investors who are knowledgeable of the CEO/CFO certification requirement were more confident in the accuracy of the financial statements and managements' performance estimates, this would imply that managements' credibility was enhanced by the certification process. An interesting question that arises is whether this enhanced credibility also causes investors to believe that management is more ethical.

According to Dasgupta, people will "invest resources for the purpose of building a reputation for honesty."<sup>36</sup> Lewicki and Bunker argue that although a businessperson may not be honest, there is economic incentive for them to have a reputation for being honest.<sup>37</sup> Rau found that while cooperative behavior increased in the later rounds of a prisoner's dilemma game, students' moral reasoning declined.<sup>38</sup> Therefore, while holding someone accountable for their actions may elicit honest behavior, it does not necessarily make them more ethical. This is consistent with Kohlberg's Theory of Moral Development which categorizes behavior driven primarily by fear of punishment in the lowest level of ethical or moral reasoning.<sup>39 40</sup> Indeed, in discussing the impact

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<sup>36</sup> Dasgupta, P.: 1988, "Trust as a Commodity." in *Trust: Making and Breaking Cooperative Relations*, D. Gambetta ed., Basil Blackwell, Cambridge MA: 49-72, at 70.

<sup>37</sup> Lewicki, Roy J. and Barbara B. Bunker: 1996, at 120.

<sup>38</sup> Rau, Stephen E.: 2003, "The Impact of the Repeated Prisoner's Dilemma Game on Cooperative Behavior and Moral Reasoning." *Journal of Accounting and Finance Research* 11: 42-50, at 48.

<sup>39</sup> Kohlberg, L.: 1981, *Essays in Moral Development, Volume I: The Philosophy of Moral Development*. Harper & Row, New York.

of Sarbanes-Oxley on the accounting profession, Ezzell argues that legislative and regulatory changes will not restore the profession's core values of trust, integrity, and objectivity.<sup>41</sup> Thus, although knowledge of the certification requirement may increase investor confidence in the financial information reported, sophisticated investors will likely understand that holding an individual accountable for their actions does not necessarily make them ethical in substance. Therefore, we propose the following hypothesis:

**Hypothesis 4:** As knowledge of the CEO/CFO certification increases, individuals will not believe that the CEO and CFO are more ethical.

## METHODOLOGY

### Participants

Our subject group consisted of 135 MBA students from two AACSB accredited universities. All participants had completed the financial accounting requirement of their program and thus were knowledgeable about basic accounting principles, the financial statements, and the role of accounting information in investment decisions.

### Design and Materials

We test our hypotheses using a between-subjects design. All subjects were asked to read through a package of information that was taken from an annual report of a publicly traded company and to answer a series of questions regarding this company. The annual report information included the three main financial statements (income statement, balance sheet, and statement of cash flows), the audit report, and the CEO's letter to stockholders. In addition, a set of selected financial ratios were calculated from the

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<sup>40</sup> Kohlberg, L.: 1984, *Essays in Moral Development, Volume II: The Psychology of Moral Development*. Harper & Row, New York.

<sup>41</sup> Ezzell, W.: 2003, "Standing Up For What We Stand For." *Journal of Accountancy* 195: 57-59, at 58.

financial statements and were also included with the information package.

Certification was one of our primary independent variables and has two levels: Present and Absent. Along with the information from the annual report, subjects in the Present condition also received the signed statements of the CEO and CFO certifying that they had thoroughly reviewed the annual report and that they believe there are no material misstatements in the annual report. Attached to the certifications was a brief description of the certification requirement and a summarization of the penalties of violating this provision of the Act. The description was printed on colored paper and stapled to the CEO and CFO certifications, and then placed on top of the other materials in the information package. These steps were taken to ensure that subjects in the Present condition did not overlook the certifications and understood their ramifications. Subjects in the Absent condition did not receive the certifications.

A second between-subject independent variable was Company, which also had two levels: Tyco, and Texas Instruments (hereafter TI). These two companies were chosen to determine whether the impact of the CEO/CFO certification on subjects' confidence in the financial statements is partially dependent on whether the company had recently been investigated for financial statement fraud. Tyco has received a significant amount of press regarding the improprieties of its former executive officers and had been under investigation for financial statement fraud. An electronic search on TI revealed no evidence that TI had been investigated for financial statement fraud or had restated its earnings in the four years prior to this study.

A third between-subjects variable is Knowledge. Knowledge is a self-reported measure of how much subjects know about the CEO/CFO certification requirement. This variable was included for two reasons. First, Knowledge is used as a dependent variable in a manipulation check to determine whether subjects in the Present condition felt that they were more familiar with the CEO/CFO certification requirement than subjects in the Absent

condition. Second, Knowledge is used as a covariate in our analysis of the impact of the CEO/CFO certification on investor confidence. Although Certification is an independent variable in this analysis, it is important to also include Knowledge as a covariate because the MBA students who participated in our study were exposed to many of the provisions of the Sarbanes-Oxley Act in their coursework. Thus, the experimental manipulation Certification may not fully explain our subjects' knowledge of the CEO/CFO certification requirement and therefore may not fully explain any observed differences in the dependent variables of interest.

### **Procedures**

The experiment was administered during the subjects' regularly scheduled classes. Subjects were randomly assigned to one of the four treatment conditions determined by Certification (Present or Absent) and Company (Tyco or TI). Each subject received a large envelope containing two smaller envelopes, A and B. Subjects were to complete the requirements of Envelope A before proceeding to Envelope B. Once Envelope A was completed and subjects began working on the requirements of Envelope B, they were not allowed to return to the contents of Envelope A.

Envelope A contained the CEO/CFO certifications (Present condition only), financial statements, audit report, CEO's letter, and the financial ratios for one of the two companies, Tyco or TI. Envelope A also contained a questionnaire that was designed to address our hypotheses (see Table 1 and Endnote A). Envelope B contained a post-experimental questionnaire that collected demographic data as well as subjects' self-assessment of their knowledge of the CEO/CFO certification.

### **Results**

#### *Preliminary Analysis*

As a manipulation check, an ANOVA was performed to determine whether the presence of the CEO/CFO certification in

the experimental materials had an effect on subjects' self-reported knowledge of the CEO/CFO certification requirement. The dependent variable, Knowledge, is subjects' responses to the question "How familiar are you with the CEO/CFO Certification requirements of the Sarbanes-Oxley Act?" Subjects recorded their responses to this question on an eleven point scale with 0 labeled as "Not at all Familiar" and 1.0 labeled as "Very Familiar". The results indicate that Certification had a significant effect on Knowledge ( $F = 8.60$ ,  $p = .004$ ). Further analysis indicates that subjects in the Present condition (mean = .478) rated themselves as significantly more familiar with the CEO/CFO certification requirements than subjects in the Absent condition (mean = .308;  $t = 2.93$ ,  $p = .004$ ).

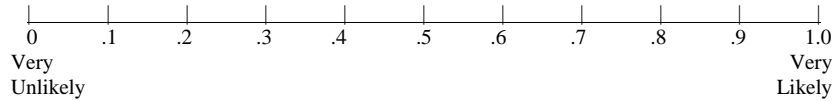
#### *Main Analysis*

Hypothesis 1 investigates whether investors' confidence in the accuracy of financial statements increases as their knowledge of the CEO/CFO certification requirement increases. An ANCOVA was performed with Confidence as the dependent variable, Certification and Company are the independent variables, and Knowledge is the covariate. Confidence is measured by subjects' responses to the question "What is the likelihood that the company's (Tyco or Texas Instruments) financial statements contain an untrue statement of material fact or omit a material fact?" Subjects recorded their responses on an eleven point scale with 0 labeled as "very unlikely" and 1.0 labeled as "very likely" (see Table 1, Panel A). The results indicate that neither Certification nor Company had a significant effect on Confidence ( $F = .483$ ,  $p = .488$ ;  $F = .011$ ,  $p = .919$  respectively). However, Knowledge was significantly correlated with Confidence ( $F = 9.33$ ,  $p = .003$ ). A closer examination of the sign of the beta revealed that the relationship between Knowledge and Confidence is consistent with Hypothesis 1. As subjects' self-reported knowledge of the CEO/CFO certification requirement increased, they were more confident that the financial statements were free of material errors. Thus, Hypothesis 1 is supported.

**Table 1**  
Survey Questions Used to Assess the Stated Hypotheses

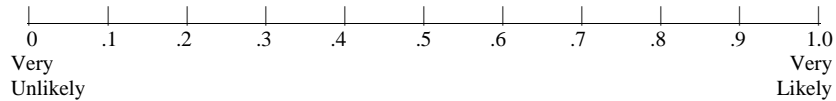
**Panel A: Hypothesis 1**

What is the likelihood that (the company's) 2002 financial statements contain an untrue statement of material fact or omitted a material fact?

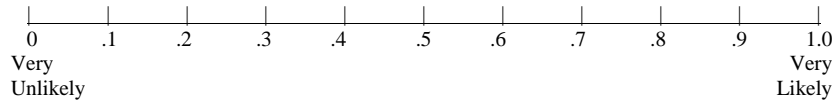


**Panel B: Hypothesis 2**

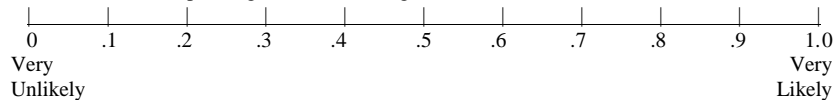
In a recent press release, management of (the company) stated that expected EPS (earnings per share) for the next quarter would be \$0.08, plus or minus a few cents. What is the likelihood that this earnings goal will be achieved?



In a recent press release, management of (the company) stated that they expected revenue to increase in 2003. What is the likelihood that revenue will increase in 2003?

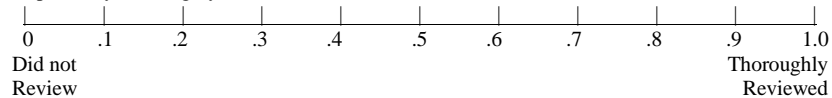


In a recent press release, management of (the company) stated that through cost cutting measures, the company expected operating income and margins to increase in 2003. What is the likelihood that operating income and margins will increase in 2003?

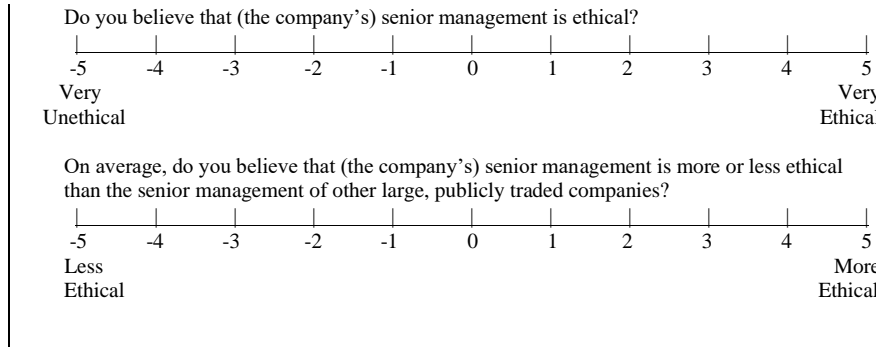


**Panel C: Hypothesis 3**

Do you think that (name of CEO) and (name of CFO), (the company's) CEO and CFO respectively, thoroughly reviewed the 2002 financial statements?



**Panel D: Hypothesis 4**



Hypothesis 2 investigates whether investors' confidence in the accuracy of management's performance objectives increases as their knowledge of the CEO/CFO certification requirement increases. Subjects were asked to assess the likelihood that management would achieve each of three stated objectives related to earnings per share (EPS), revenues (REV), and expenses (EXP) (see Table 1, Panel B). Subjects recorded their responses on three eleven point scales with 0 labeled as "Very Unlikely" and 1.0 labeled as "Very Likely." An ANCOVA was performed with EPS, REV, and EXP as the dependent variables, Certification and Company as the independent variables, and Knowledge as the covariate. Similar to the analysis of Hypothesis 1, the results indicate that although Certification and Company did not have a significant effect on any of the performance objectives (EPS, REV, and EXP; all  $p$ 's > .30), Knowledge was significantly correlated with all three performance objectives (EPS:  $F = 4.95$ ,  $p = .028$ ; REV:  $F = 9.25$ ,  $p = .003$ ; EXP:  $F = 3.99$ ,  $p = .048$ ). A closer examination of the sign of each beta value revealed that the relationship between Knowledge and the performance objectives is consistent with Hypothesis 2. As self-reported knowledge of the CEO/CFO certification requirement increased, the subjects were more confident that management would achieve its performance estimates. Thus, Hypothesis 2 is supported.

Hypothesis 3 investigates whether investors' belief that management is diligent in their review of the financial statements

increases as their knowledge of the CEO/CFO certification requirement increases. An ANCOVA was performed with Diligence as the dependent variable, Certification and Company as the independent variables, and Knowledge as the covariate. Diligence is measured by subjects' assessments of how thoroughly management reviewed the financial statements (see Table 1, Panel C). Subjects recorded their responses on an eleven point scale with 0 labeled as "Did not Review" and 1.0 labeled as "Thoroughly Reviewed". Similar to the analysis of Hypotheses 1 and 2, the results indicate that although Certification and Company did not have a significant effect on Diligence ( $F = 2.55$ ,  $p = .113$ ;  $F = .345$ ,  $p = .558$  respectively), Knowledge was significantly correlated with Diligence ( $F = 8.21$ ,  $p = .005$ ). Once again, the sign of the beta value revealed that the relationship between Knowledge and Diligence is consistent with Hypothesis 3. As subjects' self-reported knowledge of the CEO/CFO certification requirement increased, they believed that management was more diligent in their review of the financial statements. Thus, Hypothesis 3 is supported.

Hypothesis 4 predicts that investors' belief that management is ethical will not change as their knowledge of the CEO/CFO certification requirement increases. An ANCOVA was performed with Ethics as the dependent variable, Certification and Company as the independent variables, and Knowledge as the covariate. The variable Ethics was measured by subjects' responses to two questions (see Table 1, Panel D). The first question asked: "Do you believe that the company's (Tyco or Texas Instruments) senior management is ethical." Subjects recorded their responses on an eleven point scale with -5 labeled "Very Unethical" and 5 labeled as "Very Ethical." The second question that was used to assess subjects' perception of how ethical senior management was "On average, do you believe that the company's (Tyco or Texas Instruments) senior management is more or less ethical than the senior management of other large, publicly traded companies?" Subjects recorded their responses to this question on an eleven point scale with -5 labeled "Less

Unethical” and 5 labeled as “More Ethical.” Similar to the analysis of the first three hypotheses, the results indicate that Certification and Company did not have a significant effect on either measure of Ethics (all p’s >.22). However, unlike the analysis of the first three hypotheses and consistent with Hypothesis 4, Knowledge was not significantly correlated with either measure of Ethics (both p’s > .75). Thus, Hypothesis 4 is supported.

### CONCLUSIONS AND IMPLICATIONS

The Sarbanes-Oxley Act requires the CEO’s and CFO’s of publicly traded companies to certify that their financial statements are free of material misstatements. Prior to the act, executives maintained responsibility for the preparation of the financial statements in accordance with generally accepted accounting principles and communicated this to shareholders via the management letter. Sarbanes-Oxley has significantly altered the stakes of irresponsibility in this regard by imposing substantive penalties on CEOs and CFOs who knowingly violate this legislation. By holding CEO’s and CFO’s more accountable for the contents of the financial statements, Congress and the SEC hoped to restore investor confidence in the financial markets.<sup>42 43 44</sup> Given the importance of investor confidence or trust in maintaining the efficient operation of capital markets,<sup>45 46 47</sup> the purpose of our study was to empirically test whether the CEO/CFO certification requirement of Sarbanes-Oxley has any impact on investor confidence in the accuracy of financial statements.

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<sup>42</sup> Securities and Exchange Commission: 2002

<sup>43</sup> Weil, Jonathan: 2002, at C1.

<sup>44</sup> Corporate Finance: 2002, “Sarbanes-Oxley: A New Era Dawns.” September: 6.

<sup>45</sup> Arrow, K. J.: 1973

<sup>46</sup> Williamson, O. E.: 1993, at 485.

<sup>47</sup> Fukuyama, F.: 1995, at 150.

Our results suggest that the CEO/CFO certification requirement of the Sarbanes-Oxley Act can have a positive impact on investor confidence. Subjects who reported a higher level of knowledge of the certification requirement believed that financial statements were less likely to contain an untrue statement or omit a material fact. In addition, subjects with a higher level of knowledge of the certification requirement also believed that senior management was more diligent in their review of the financial statements than subjects with a lower level of knowledge of the certification requirement. Taken together, these results indicate that subjects who are aware of the certification requirements believe that senior management is taking the certification process seriously enough to expend more effort to ensure the accuracy of the financial statements.

The results of our study are important because they provide some initial empirical evidence that suggests that the CEO/CFO certification requirement of the Sarbanes-Oxley legislation was successful in achieving its intended effects. More importantly, the results provide additional insights as to how the certification requirement may be even more effective in restoring investor confidence. Given that knowledge of the certification requirement was positively related to investor confidence, educating the investing public of these requirements may further enhance overall confidence in the markets.

Academia should be particularly responsive to this issue by incorporating discussions of the certification requirements in both undergraduate and graduate curriculums. This effort has two potential benefits. First, a thorough understanding of the gravity of the certification requirement and its implications may influence business students' personal conduct throughout their careers. Indeed, Noel Tichy, Director of the Global Leadership Program at the University of Michigan's School of Business recently argued that courses emphasizing corporate responsibility "can raise expectations and try to instill a code of conduct that global

companies can use.”<sup>48</sup> Secondly, today’s business students will likely be tomorrow’s investors in the capital markets—either in a private or a professional capacity. Our results suggest that increasing their understanding of the certification requirements will serve to enhance their confidence as future investors. Academic institutions should not be the only educational source for the CEO/CFO requirements. Informational advertisements sponsored by Congress, the SEC, the stock exchanges, corporations, or any one of a number of professional organization could promote the requirement and the accountability that it imposes on executives for the contents of the financial statements.

Our results also suggest that knowledge of the certification requirement does not enhance investors’ perceptions of the ethicality of senior management. Although this result is not surprising, what is particularly troubling is the relatively neutral mean ethicality rating of the corporate executives in our study. Subjects were asked whether they believed that senior management was ethical. On a scale with endpoints labeled as “very unethical” (-5) and “very ethical” (5), the mean rating on this question was only slightly positive (0.85). These results suggest that while the accountability imposed by Sarbanes-Oxley has enhanced the credibility of corporate financial statements and performance estimates, corporate executives still suffer from a perceived lack of credibility in ethics. If corporate executives could enhance their reputations for being ethical, this could further enhance investor confidence in financial reporting.

Our study represents an initial attempt to empirically assess the effectiveness of the CEO/CFO certification requirement of Sarbanes-Oxley. While we do provide evidence that suggests the legislation is achieving its desired effects, more research is needed in this area. Our subjects were MBA students, most of whom were aware of the certification requirements of the Act and the penalties for violation. Future research could investigate the impact of the certification requirement on the perceptions of professionals in the

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<sup>48</sup> Flanigan, James: 2003, “Instilling Boardroom Ethics, Starting in the Classroom.” *Los Angeles Times*, September 10: C1.

finance industry who rely on the financial statements and forward looking statements of corporate executives to make daily investment decisions.

Future research could also investigate the costs associated with the CEO/CFO certification requirement. Many companies report that division heads must now sign off on their units' results before the CEO and CFO will certify overall results.<sup>49</sup> This additional accountability at the division level would logically cause greater scrutiny over the financial results within each division. While this additional scrutiny should create more accurate financial reports, it will also increase the overall costs associated with financial reporting. Indeed, a white-collar crime attorney recently stated that in order "to avoid misstating \$500,000 of revenues, a company might spend \$5 million in staff work, counseling and legal fees."<sup>50</sup> Therefore, before we can judge the success of the certification requirements of Sarbanes-Oxley, we need to have a better understanding of both the costs and benefits of the requirement.

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<sup>49</sup> Petruno and Mulligan, 2003, at A1.

<sup>50</sup> Flanigan, James: 2003, at C1.

**Endnote**

- A. Two versions of the questionnaire were used to determine if there were any confounding effects due to the order of the questions. Because the order of the questions did not affect any of our variables of interest, we report our findings without further consideration of the order manipulation.