

An Experimental Examination of why the Auditor's Opinion on the Effectiveness of Internal Controls Affects Assessed Stock Prices

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Abstract: As a result of the implementation of Sarbanes-Oxley, Section 404, there are three pieces of information related to internal controls that are disclosed to the public: management's assessment of internal controls, the auditor's opinion on management's assessment of internal controls, and the auditor's opinion on the effectiveness of internal controls. Arguably the most valued of these disclosures to investors is the auditor's opinion on the effectiveness of internal controls as it represents an independent assessment of the effectiveness of the control system over financial reporting. Choi and Jeter (1992) and Ashbaugh et al. (2005) provide inferences regarding the cause of the relation between modified audit opinions and stock price, and management disclosure of internal control information and earnings response coefficients, respectively. However, these archival studies are not able to directly measure the effect of modified audit opinions on investors' perceived earnings quality. The current study investigates whether either internal control opinion is value relevant and based on the results, possible reasons why the opinion on the effectiveness of internal controls affects the assessed stock price of a company. Results show that the opinion on the effectiveness of internal controls affects nonprofessional investors' perceptions of the risk of material misstatement (including the risk of earnings management), and the risk of future financial statement misstatement, which in turn affect the assessed stock price. Results also indicate that individual investors do not value the opinion on management's assessment of internal controls.

KEY WORDS: *Internal control reporting, audit opinions, mediation analysis, perceived earnings quality*

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I. Introduction

In an attempt to restore the widespread loss of investor confidence by means of improved accuracy and reliability of corporate disclosures and financial reporting, the U.S. Congress passed the Sarbanes-Oxley Act of 2002 (SOX). One of the major financial reporting reforms is the internal control reporting requirements of SOX, Section 404, and the Public Accounting Oversight Board (PCAOB) Standard No. 2.¹ As part of the financial statement audit, the standard requires that the auditor express two additional opinions related to a company's internal controls: (1) an opinion on management's assessment of the effectiveness of internal controls, and (2) an opinion on the effectiveness of internal controls.

The increase in non-professional investors in the market, compounded with the recent corporate scandals (e.g., Enron, WorldCom and Tyco), has increased the Security and Exchange Commission's (SEC) focus on the protection of non-professional investors (Securities Industry Association 2002; SEC 2003). One of the primary goals of SOX, Section 404, is to ensure that non-professional investors are provided with accurate and reliable financial information to make informed investment decisions (SEC 2002a; SEC 2002b; SEC 2003). In this study, two experiments are conducted in order to analyze the effect of the new internal control opinions on non-professional investors' valuation judgments. Experiment one directly examines whether the two new internal control audit opinions influence non-professional investors' equity valuation judgments. The results of experiment one are then tested in experiment two using mediation analysis to investigate why a relation exists.

¹ In this paper, we refer to the requirements of the SOX, Section 404, as specified in the PCAOB Auditing Standard No. 2. The requirements of PCAOB No. 2 are consistent with (and go beyond) that of SOX Section 404.

While there is limited empirical evidence regarding the association between internal control reporting and stock prices (Whisenant, Sankaraguruswamy, and Raghunandan 2003; Ashbaugh, Collins, and Kinney; 2005; Beneish, Billings, and Hodder 2005; De Franco, Guan, and Lu 2005), existing research has not directly examined what causes the relation between internal control reporting and stock prices. Additionally, none of these studies investigates the auditor's role in the disclosure of internal control news, as they do not analyze the association between each of the two mandatory internal control audit opinions and stock prices.² Rather, post-SOX archival studies provide initial evidence regarding the effect of internal control weakness/deficiency disclosures made by company management, pursuant to SOX Section 302, on stock prices with mixed results (Ashbaugh et al. 2005; Beneish et al. 2005; De Franco et al. 2005).^{3, 4}

Results from experiment one indicate that the auditor's opinion on the effectiveness of internal controls affects non-professional investors' stock price judgments. However, results suggest that the auditor's opinion on management's assessment of internal controls does not affect non-professional investors' stock price judgments. These results then direct the investigation in experiment two

Choi and Jeter (1992) and Ashbaugh et al. (2005) provide inferences regarding the cause of the relation between modified audit opinions and stock price, and management disclosure of

² Internal control reporting referred to in the current study encompasses all types of internal control disclosures/announcements, whether issued by management or by the independent auditors through the internal control opinions. The current study specifically examines one type of internal control reporting: the internal control opinions issued by a company's independent auditors.

³ SOX Section 302 requires the executive officer or officers of the company to certify the financial information filed annually and quarterly under the SEC Act of 1934. The certification includes acknowledgement of the responsibility of the establishment and maintenance of internal controls over financial reporting, in addition to assessing the internal control effectiveness.

⁴ Other archival studies addressing internal control reporting in the post-SOX environment exist. However, these studies investigate the characteristics of companies that have disclosed material weaknesses in internal controls in SEC filings (e.g., Bryan and Lilien 2005; Ge and McVay 2005).

internal control information and the stock price, respectively. However, these archival studies are not able to directly measure the effect of modified audit opinions on investors' perceived earnings quality. Based on the results of experiment one, experiment two tests some of the conjectures provided by Jeter and Choi (1992) and Ashbaugh et al. (2005) regarding why the relation between the opinion on the effectiveness of internal controls and stock prices exists.

Inferences made by Jeter and Choi (1992) and Ashbaugh et al. (2005) are either directly or indirectly related to the perceived quality of earnings; therefore, questions are developed to capture dimensions of perceived quality of earnings.⁵ Factor analyses reveal three distinct factors: (1) perceived risk of financial statement misstatement, (2) perceived risk that the auditor would not detect a misstatement, and (3) perceived risk that financial statements will be restated. Each of the factors retained are tested in a mediation model in order to provide evidence regarding the causes of the relation between the opinion on the effectiveness of internal controls and assessed stock prices. Results from experiment two show that the assessed risk of misstatement, which includes the risk of earnings management and the assessed risk of a financial statement restatement, explain some of the cause of the relation between the opinion on the effectiveness of internal controls and the assessed stock price. Additionally, the assessed risk of restatement partially explains this relation.

The current study makes several contributions to the existing auditing literature. First, the current study contributes to the existing audit opinion and internal control reporting literature by examining some of the causes of the relation between the effectiveness of internal control opinion and stock prices. This type of causation provides significant insight into the conjectures that have been made in the existing research on what drives the relation between audit opinions

⁵ It is acknowledged that the questions in experiment two are not designed to capture all of the dimensions of earnings quality.

and stock prices (Jeter and Choi 1992; Ashbaugh et al. 2005). The experimental setting allows for the measurement of several dimensions of investors' perceived earnings quality and direct testing of the mediating effect of investors' perceptions on non-professional investors' assessed stock price. Second, from a methodological perspective, the experimental design enables information conveyed in the internal control opinions to be specifically examined (Bailey 1982; Mutchler 1985; Maines 1994; Kennedy 1999). The current study uses experiments to isolate the effects of internal control opinions on non-professional investors' stock price valuations. Finally, the current study extends internal control reporting literature in that this is the first known study to examine the effect of the two new internal control audit opinions on non-professional investors' stock valuation judgments.

From a practical perspective, the results of the current study have implications for regulators and company executives. First, the results suggest that the internal control audit opinions accomplish at least one of the objectives desired by regulators: namely, the effectiveness of internal controls opinion provides information to investors. Second, results indicate that the opinion on management's assessment is not of value to non-professional investors.⁶ Third, results also demonstrate to company executives the importance their current and potential investors place on effective internal controls, in addition to some non-professional investor perceptions that affect their assessed stock prices. Knowing the cause of non-professional investors' concerns helps to then determine ways to manage such concerns.

The remainder of this paper is organized as follows. Section 2 presents the hypothesis development, research design, and results for experiment one. Section 3 presents the hypothesis

⁶ While the opinion on management's assessment might not affect non-professional investors' stock price valuations, it is recognized that this does not mean the report serves no purpose. The act of management having to perform an assessment of internal controls might improve financial reporting quality through the overall improvement of internal controls within the company.

development, research design, and results for experiment two. Section 4 presents the discussion and conclusion.

II. Hypotheses Development: Experiment One

Prior to the implementation of PCAOB Standard No. 2, auditors typically did not communicate issues relating to the effectiveness of internal controls to the public.⁷ If auditors found significant deficiencies in the design or operation of internal controls, the auditors were required to report these deficiencies to the audit committee.⁸ The existence of significant deficiencies in the financial reporting process did not necessarily warrant qualifying an audit opinion. If the auditors were unable to rely on internal controls to gain assurance on the financial statement assertions, the auditors could still render an unqualified audit opinion by gathering evidence through additional substantive tests of transactions and account balances.

Following the aftermath of several corporate scandals and widespread decrease in investor confidence, regulators advocate that effective internal control systems will lead to more reliable financial information, which will help non-professional investors make more informed investment decisions (SEC 2003). The implementation of PCAOB Standard No. 2 changes this audit system from merely reporting the financial outcome to the public, to also publicly reporting about the financial reporting process. Under this new reporting system, a material weakness in internal controls must be disclosed to the public via the internal control opinions.^{9, 10} Prior to the standard, the internal control information would not have been disclosed to the public.

⁷ Although the Public Oversight Board (POB) and the Board of Directors of the AICPA recommended that firms report on the effectiveness of internal controls, relatively few firms followed the recommendation. For instance, Raghunandan and Rama's (1994) study shows that only 6 of the Fortune 100 companies reported specifically on the effectiveness of internal controls.

⁸ This is in accordance with the American Institute of Certified Public Accountants (AICPA) Statement on Auditing Standards, No. 60, *Communication of Internal Control Related Matters Noted in an Audit* (AICPA, 2005).

⁹ Material weakness in internal controls is defined as "a significant deficiency or combination of significant deficiencies, that results in more than a remote likelihood that a material misstatement of the annual or interim financial statements will not be prevented or detected" (PCAOB 2004, p. A-10).

PCAOB Standard No. 2 requires companies to file an annual internal control report (filed along with the company's audited annual financial statements) which includes statements from management concerning the effectiveness of the firm's internal control over financial reporting. Furthermore, the company's external auditors must attest to the assertions made by management regarding the effectiveness of internal controls, which includes evaluating the process that management went through to make their internal control assessment (PCAOB 2004, p. A-5). The external auditors must also express an opinion on the effectiveness of these controls. The new internal control reporting requirements are part of the SEC's aggressive efforts to protect investors from corporate fraud and to reassure them that corporate failures, like Enron, will not recur (SEC 2002a; SEC 2002b; SEC 2003).

The underlying assumption behind the mandatory internal control audit opinions is that these two internal control opinions will affect non-professional investors' investment judgments, especially when material weaknesses exist. If so, then the internal control opinions should affect investors' assessed value of the company.

Management's Internal Control Assessment

Pre-PCAOB Standard No. 2 auditor-client disagreements reported in Form 8-K filings, typically communicated disputes over accounting principles, accounting practices, and financial statement disclosures. One of the new internal control opinions is the auditor's opinion on managements' assessment of internal controls. This new opinion provides another form of disclosure (i.e., opinion within the annual report) in which the auditor communicates a different type of auditor-client disagreement (i.e., effectiveness of internal controls).

¹⁰ According to PCAOB Auditing Standard No. 2, in the event that the auditor identifies one or more material weaknesses in internal control over financial reporting, "the auditor must express an adverse opinion on the company's internal control over financial reporting" (PCAOB 2004, p. A-75). Prior to the implementation of PCAOB Auditing Standard No. 2, these material weaknesses usually remained private information, unless they warranted a modified financial statement audit opinion.

An adverse opinion on managements' assessment of internal controls indicates that the auditor and management do not agree on the effectiveness of internal controls. Literature on auditor-client disagreements indicates that disclosures about such disagreements convey negative information to market participants (Smith and Nichols 1982; Defond and Jiambalvo 1993; Dhaliwal, Schatzberg, and Trombley 1993).¹¹ Smith and Nichols (1982) find that the market reacted more negatively to 8-K filings announcing both a change in auditor and auditor-client disagreements than to 8-K filings announcing only a change in auditor.

Unlike Smith and Nichols (1982), who focus on the market reaction to news of auditor-client disagreements, Defond and Jiambalvo (1993) and Dhaliwal et al. (1993) examine the factors which often lead to auditor-client disagreements. The results from Dhaliwal et al.'s study indicate a negative correlation between the company's economic performance (i.e., poorer operating performance, higher debt levels, and significantly lower stock returns) and the likelihood of auditor-client disagreements. Similarly, the empirical results in Defond and Jiambalvo's study show that companies with announcements of auditor-client disagreements are more likely to violate debt covenants, have higher leverage, and have decreasing earnings.

Following the auditor-client disagreement literature, the first hypothesis examines the relation between revised stock price assessments and the type of auditor's opinion on management's assessment of internal controls (unqualified vs. adverse). An adverse opinion issued on management's assessment of internal controls constitutes a disagreement between the

¹¹ According to the SEC, "disagreements are defined as disputes that occur at the decision-making level and involve accounting principles or practices, financial statement disclosures, or auditing scope or procedures" (Dhaliwal et al. 1993).

auditor and the client related to the effectiveness of internal controls.¹² The auditor-client disagreement research leads to the following hypothesis:

H₁: The assessed stock price will be lower when the auditor issues an adverse opinion on management's assessment of internal controls than when he/she issues an unqualified opinion.

Internal Control Effectiveness

Most of the pre-SOX internal control reporting literature has examined investors' demand for such reporting with limited consideration for the effect of internal control reporting on non-professional investors' equity valuations (e.g., Cox and Wichmann 1993; McMullen, Raghunandan, and Rama 1996; Hermanson 2000). A few studies have examined the association between internal control reporting by company management and stock prices (Whisenant et al. 2003; Beneish et al. 2005; De Franco et al. 2005; Ashbaugh et al. 2005).

Whisenant et al. (2003) provide the only study pre-SOX that examines the market reaction to disclosures of internal control weaknesses. They examine the informativeness of internal control weaknesses, as reported in the Form 8-K filings, in the two fiscal years or interim period preceding an auditor change. Using an event study methodology to examine stock price reactions to internal control weakness disclosures, their results suggest that internal control news is not informative as indicated by the lack of a market reaction to this news.

Ashbaugh et al. (2005), Beneish et al. (2005), and De Franco et al. (2005) examine the informativeness of internal control weakness/deficiency disclosures made by management with mixed results.¹³ In these studies, the internal control disclosures are based on SEC filings and

¹² If the client does not believe there is a problem with the internal controls related to financial reporting, then there is likely to be fewer resources expended to change the internal controls to the auditor's satisfaction than if the client agreed with the quality of the internal controls.

¹³ Ashbaugh et al. (2005) and De Franco et al. (2005) use the same data set of firms that disclosed internal control deficiencies from November 2003 through December 2004 pursuant to SOX Section 302. However, the different sampling technique and control variables used in these studies contributed to the mixed results.

announcements made by companies from November 2003 through December 2004 pursuant to SOX Section 302 requirements prior to the issuance of the new opinions. These studies yielded mixed results. Ashbaugh et al. (2005) find no significant association between internal control disclosures and stock prices; however, the disclosure did reduce the earnings response coefficient indicating that the market discounted the quality of earnings in the future due to the uncertainty related to the internal control weaknesses/deficiencies. On the other hand, Beneish et al. (2005) and De Franco et al. (2005) find that disclosures of internal control weaknesses/deficiencies are associated with negative market reactions. De Franco et al. performed additional analysis in which they obtained internal deficiency announcements made by 22 companies in 2005, subsequent to the internal control reporting deadline. They find that internal control deficiency disclosures are associated with negative stock returns. In the existing studies there is no role being played by the auditor with respect to the disclosure of internal control information.

The second hypothesis addresses the effects of the auditor's opinion on the effectiveness of internal controls on non-professional investors' assessment of stock prices. If this internal control opinion provides financial statement users with additional information regarding the likelihood of a material misstatement in the financial statements, then it should be reflected in their stock price judgments. If the internal controls are determined to be ineffective (effective) then the risk of material misstatement is increased (decreased). An increase (decrease) in the risk of material misstatement should decrease (increase) the assessed stock price as it increases the uncertainty in the value of the company. The information communicated in the opinion on the effectiveness of internal controls leads to the following hypothesis:

H₂: The assessed stock price will be lower when the auditor issues an adverse opinion on the effectiveness of internal controls than when he/she issues an unqualified opinion.

Design

Experiment one uses a 2x2x2 between subjects design (see Table 1). The independent variables are the financial statement audit opinion (unqualified and unqualified with an explanatory paragraph), the auditor's opinion on management's assessment of internal controls (unqualified and adverse), and the auditor's opinion on the effectiveness of internal controls (unqualified and adverse).¹⁴ Each participant receives one combination of the three opinions (See Appendix 1 for the actual opinion manipulations). Although the design creates eight experimental conditions, only six of the conditions are tested. If the internal control opinion on management's assessment is adverse, the auditor cannot issue an unqualified opinion on the effectiveness of the internal controls. Therefore, the two types of financial statement audit opinions cannot appear with an adverse opinion on management's assessment and an unqualified opinion on the effectiveness of internal controls. Given these two combinations cannot happen in practice, they were not included in the experiment. Figure 1 illustrates the audit opinion decision tree for the three audit opinions starting with management's report on the effectiveness of internal control.

[Insert Figure 1 and Table 1 about here]

In addition to the six treatment conditions, discussed above, there is a control condition for each of the financial statement opinion levels (unqualified vs. unqualified with an explanatory paragraph). Participants assigned to a control condition do not receive the two internal control opinions. The primary purpose of the control groups is to test whether the internal control opinions are perceived by non-professional investors to be informative beyond the financial statement opinion alone.

¹⁴ The inclusion of the financial statement opinion at two levels was to make certain any effect of the internal control opinions was not dependent on the type of financial statement opinion with which it was issued.

The individual's equity valuation judgment is operationalized in the experiment by the stock price that is provided by each participant after receiving all the audit opinions. This stock price (i.e., second stock price) is used as the dependent variable. An assessed stock price provided by each participant, prior to the receipt of the audit opinions, is included as a covariate.

Participants

Study participants are 253 MBA and graduate accounting students at two different state universities. The mean self-assessed investment knowledge is 3.92 (std. deviation = 2.27) on a 0-10 scale with 0 being very low investment knowledge and 10 being very high investment knowledge. The mean self-assessed investment experience is 2.94 (std. deviation = 2.39) on a 0-10 scale with 0 being very low investment experience and 10 being very high investment experience. The mean years of full-time work experience is 4.88 (std. deviation = 4.76). The demographic information on the participants is summarized in Table 2, Panel A.¹⁵

[Insert Table 2 about here]

Task

The participants first read a brief background of the hypothetical company. Next the release of third quarter results is provided, including the closing stock price before the release of third quarter results, projections for the fourth quarter, and annual earnings. After reading this information the participant provides what he/she believes the closing stock price will be for the day following the release of information. Participants also are asked to provide a judgment of the risk that the current year unaudited financial information is materially misstated. The judgment is made on a nine point scale with one being "very low risk of material misstatement," and nine being "very high risk of material misstatement." Following these judgments, the participant,

¹⁵ Participants were randomly assigned to the treatment conditions and there were no differences in work experience, investment knowledge, or investment experience across treatment conditions. Furthermore, participant's major (accounting versus all other majors) was not significant when included in the analyses of results.

except for those in one of the control groups, is provided with the year-end actual earnings and the three audit opinions: opinion on the financial statements, opinion on management's assessment of internal controls, and opinion on the effectiveness of internal controls.^{16, 17} Following the receipt of the information, the participants provide their assessed closing stock price for the day.

The participant is then asked to provide a judgment as to the risk of future material misstatements in the financial statements on the same one to nine scale that was used for the judgment related to the risk that a material misstatement exists in the current year financial statements. This judgment is solicited in order to determine if the internal control opinions impact the participant's perceived risk of future misstatement which in turn leads to a change in the stock price.

After making a judgment of the risk of future misstatement, the participants complete a post-experimental questionnaire. The questionnaire includes manipulation checks and questions related to investment knowledge and experience, level of education completed, and years of full-time work experience.¹⁸

Manipulation checks

The manipulation check questions require the participant to recall which audit opinions he/she was given (without turning back to the previous pages). 90.51% of the participants

¹⁶ The year-end actual earnings are the same as what was forecasted and is constant across all conditions.

¹⁷ The actual audit opinions for each condition are provided as a reference for the participant if they choose to read them.

¹⁸ The self-assessed level of investment knowledge and investment experience, and the number of years of full-time work experience, are included in the model to test for possible covariation. None of these variables is significant, and therefore, are not included in the analysis. Additionally, the results from a recent study by Elliott et al. (2004) suggest that using graduate business students as a proxy for non-professional investors is valid, but researchers should carefully align experimental tasks with the appropriate educational level and/or work experience. They show that MBA students with significant work experience (i.e., greater than five years) do not perform significantly different from non-professional investors when making an investment-related judgment/decision. When included in the model, the level of education completed is not significant, and therefore, is not included in the analysis.

correctly identified the type of opinion on management's assessment of internal controls they had received. 94.47% of the participants correctly identified the type of opinion on the effectiveness of internal controls they had received.

The results are analyzed to see if participants who failed even one manipulation check question responded to the treatments differently from participants who correctly answered all three questions. Excluding participants who did not correctly respond to all three manipulation check questions does not change any of the conclusions drawn from the results. This result suggests that even though some participants failed the manipulation checks (i.e., a memory test), they were able to acquire and integrate the audit opinion information in a manner consistent with the participants who passed all three manipulation checks. Therefore, no participants were excluded from the analyses.

Results

An ANCOVA is used to test H_1 and H_2 with the stock price provided by the participant after receiving the audit opinions as the dependent variable and the stock price provided by the participant prior to receiving the audit opinions as the covariate. As reported in Table 3, the first price is significant in explaining some of the variance of the second price ($F = 5.04, p = 0.03$).¹⁹ The current risk of material misstatement assessed by each participant was included in the model as a covariate; however, it was not significant nor did it have an impact on the inferences on the independent variables. Therefore, the current risk variable is not included in the tests of the hypotheses. The future risk of misstatement was also included in the model to test to see if it had

¹⁹ Interacting the first price (covariate) in the model with the independent variables indicates that there is a significant interaction between the covariate and the levels of both internal control opinions. As identified by Hutcheson and Sofroniou (1999) homogeneity of regression violations decrease test power and lead to more conservative results from ANCOVA. Comparing the means of the first price between the participants in each condition indicates none of the groups are significantly different at $p < 0.10$. Therefore, there is not a concern that the results are driven by the first stock price and it is believed that the missing cells in the design are causing the spurious result.

an affect on the stock price; however, since it was not significant and did not impact any of the independent variables, it is not included in the analysis.²⁰ Also, the effect of the internal control opinions on the stock price was not different based on the type of financial statement opinion (no significant interaction). If the results are in the predicted direction, then one-tailed p-values are reported. If the results are not in the predicted direction, then two-tailed p-values are reported.

[Insert Table 3 about here]

H₁ predicts that the assessed stock price will be lower when the opinion on management's assessment of internal controls is adverse as compared to unqualified. As reported in Table 3, there is not a statistically significant main effect of the opinion on managements' assessment of internal controls on the assessed stock price ($F = 0.12$, $p = 0.36$, one-tailed); thus, H₁ is not supported.

H₂ predicts that the assessed stock price will be lower when an opinion on the effectiveness of internal controls is adverse as compared to unqualified. As reported in Table 3, there is a statistically significant main effect of the opinion on the effectiveness of internal controls on the assessed stock price ($F = 31.96$, $p < 0.01$, one-tailed); thus, H₂ is supported.²¹

III. Hypotheses Development: Experiment Two

²⁰ Additional analyses indicate that the future risk of misstatement is not a significant mediator variable with respect to the relation between any of the audit opinions and the assessed stock price. Other possible mediator variables are the focus of experiment two.

²¹ A comparison of each control group (absent the internal control opinions) with the treatment groups (with the internal control opinions) suggest that the internal control opinions are perceived by non-professional investors to be informative beyond the financial statement opinion alone when a standard unqualified opinion is issued. The perceived informativeness appears to be primarily associated with the addition of an adverse opinion on the effectiveness of internal controls. Further comparison of the unqualified opinion on management's assessment coupled with an adverse opinion on the effectiveness of internal controls condition versus the condition that involves an adverse opinion for both internal control opinions shows the two conditions are not significantly different regardless of the financial statement opinion ($t = 0.72$, $p = 0.47$; $t = 0.12$, $p = 0.90$, respectively). Combining this result with the significant difference between the control conditions and the adverse effectiveness condition supports the conclusion that the relation between non-professional investors' assessed stock price and the internal control opinions is primarily associated with the internal control effectiveness opinion. The control group analysis also provides evidence supporting H₁ and H₂.

The results from experiment one show that the opinion on the effectiveness of internal controls provides information that influences non-professional investors' equity valuations. Results also indicate that the opinion on managements' assessment of internal controls did not affect non-professional investors' equity valuations. Based on the results of experiment one, the objective of experiment two is to provide empirical evidence regarding some possible causes (i.e., mediation variables) that explain the relation between the opinion on the effectiveness of internal controls and assessed stock prices.

Mediating Variables: Identifying and Developing Measurement

Prior archival studies have established a direct relation between accounting information and market reaction, as measured by changes in stock prices. However, few studies have directly examined the extent to which individual's perception of earnings quality accounts for this relation. Instead, previous studies have provided conjectures to explain the relation between audit opinions and stock prices (Choi and Jeter 1992; Ashbaugh et al. 2005). According to Baron and Kenny (1986), a dependent variable can be affected directly by an independent variable or indirectly by a mediating variable; therefore, in this study conjectures made in previous studies are tested in order to determine the cause of the relation between the opinion on the effectiveness of internal controls and the assessed stock price.

Using archival data, Choi and Jeter (1992) show that there is a relation between the financial statement audit opinion and stock prices. They conjecture that the cause of the relation includes the three following possible explanations: (1) a qualified opinion causes investors to decrease the value placed on future earnings announcements, (2) the qualified opinion increases the uncertainty in current earnings, and (3) the uncertainty in current earnings is an indicator of uncertainty of future earnings. Ashbaugh et al. (2005) use archival data to show that there is a

relation between management's internal control disclosures, pursuant to SOX Section 302, and stock prices. Similar to Choi and Jeter, they conjecture that the cause of the relation relates to the uncertainty of earnings in addition to indications of earnings management. Ashbaugh et al. also show that there are more earnings restatements for companies that disclose internal control deficiencies or material weaknesses. They conclude that internal control disclosures indicating poor internal controls lead to poor future performance.

Using the conjectures provided by Choi and Jeter (1992) and Ashbaugh et al. (2005), an instrument is developed for experiment two to measure possible variables that mediate the relation between the opinion on the effectiveness of internal controls and stock prices. Since each of the inferences made in the existing literature is either directly or indirectly related to the perceived quality of earnings, twelve questions were developed to capture dimensions of perceived quality of earnings (See Appendix 2 for the questions that were asked).²² Consistent with the methods described by Churchill (1979) the questions were first pretested in order to determine if the questions capture a construct related to the perceived quality of earnings.²³

Following the Eigenvalue-greater-than-one rule (Sharma 1996), pretest exploratory factor analysis (EFA) results revealed two expected constructs: (1) perceived risk that existing financial statements contain material misstatements, and (2) perceived risk that future financial statements will contain material misstatements. The EFA results also revealed one unexpected construct: perceived risk that the auditor would not detect a misstatement. Although it is apparent that the three questions related to past, present, and future risk that material errors in the financial

²² Prior to running the pretest, two accounting professors and one advanced accounting doctoral student examined the appropriateness of the twelve questions generated by the researchers.

²³ 56 accounting undergraduate and graduate students from one state university participated in the pretest.

statement will go undetected is a measurement of audit quality rather than earnings quality, there were no changes made to the questions.²⁴

With no changes made to the initial twelve questions, the final data reveal four factors with eigenvalues greater than 1.00. While the Eigenvalue-greater-than-one rule is often used to determine the number of factors to retain, Sharma (1996) suggests that examining the scree plot and conducting a parallel analysis can also provide insight into the number of factors to retain. Reviewing the scree plot together with the parallel plot suggests that three factors should be retained (i.e., the point where the two graphs intersect). Additionally, reviewing the values presented in the varimax rotated factor pattern reveals that two of the three questions loading on factor four also load relatively high on factor one and the correlation between factor 1 and factor four is relatively high (0.35). Therefore, only the first three factors will be retained for the hypotheses development and the mediation analysis.

Although the loading patterns of the final data are not exactly the same as the pretest data, they do not significantly change the underlying constructs obtained from the pretest data. The final data EFA results suggest three factors: (1) perceived risk of financial statement misstatement (Factor 1),²⁵ (2) perceived risk that the auditor fails detect a misstatement (Factor 2),²⁶ and (3) perceived risk that financial statements will be restated (Factor 3).²⁷ The reliability test for each of the three factors reveals coefficient alpha's of 0.85, 0.80, and 0.73 for factors

²⁴ It is recognized that Churchill (1979) discusses the method to be used when developing a new construct that differs slightly from the method used in the current study. In the current study the primary goal is not to develop a single construct representing the perceived quality of earnings. The primary goal of the current study is to uncover one or more possible mediating variables that can provide insight as to why the relation between the opinion on the effectiveness of internal controls and stock prices exists. The pretest results were not exactly as expected based on the factor loadings; however, the loadings were intuitively appealing and were very close to expectations.

²⁵ Based on the factor loadings, the first factor includes the responses to the questions of the past, current and future assessments of the risk of material misstatement and the risk that management has manipulated earnings.

²⁶ Based on the factor loadings, the second factor includes the responses to the questions of the past, current, and future assessments of the risk that the auditors will fail to detect a material misstatement.

²⁷ Based on the factor loadings, the third factor includes the responses to the questions of the past, current, and future assessments of the risk that the financial statements will be restated.

one, two, and three, respectively. The coefficient alpha's for all three factors are above the widely used rule-of-thumb of 0.70, therefore, suggesting scale reliability (Hatcher 2003).

Hypotheses Development

In this section, hypotheses are developed for each of the three factors (i.e., mediating variables) retained. In order to empirically test Choi and Jeter's (1992) and Ashbaugh et al.'s (2005) conjectures with regard to the causes of the relation between audit opinions and stock prices, the hypotheses are developed to directly predict and test the degree to which each of the mediating variables explains the relation between the opinion on the effectiveness of internal controls and stock prices.

The first factor retained is the perceived risk of financial statement misstatement. In this context, risk of financial statement misstatement could include both a misstatement that is an error and a misstatement that represents management manipulating earnings. Particularly from an internal control perspective, the risk that errors and/or earnings manipulation is not detected by proper internal controls would lead to an expectation that the risk of financial statement misstatement would mediate the effect between the opinion on the effectiveness of internal controls and the stock price. Such a relation between the perceived risk of financial statement misstatement and the stock price provides a prediction of mediation on the relation between the opinion on the effectiveness of internal controls and the assessed stock price. This predicted mediation leads to the hypothesis that follows (See Panel A of Figure 2 for the predicted mediation).

H₃: The effect of the opinion on the effectiveness of internal controls will be mediated by the assessed risk of financial statement misstatement.

[Insert Figure 2 about here]

The second factor retained is the risk that the auditor fails to detect a material misstatement. One of the components of the audit risk model used by auditors in planning the audit is detection risk.²⁸ Considering the meaning of detection risk, if investors perceive there to exist a high risk that the auditor will fail to detect a material misstatement, then that should decrease their assessed stock valuation. Such a relation between the perceived risk that the auditor will fail to detect a material misstatement and the stock price provides a prediction of mediation on the relation between the opinion on the effectiveness of internal controls and the assessed stock price. This predicted mediation leads to the hypothesis that follows (See Panel A of Figure 2 for the predicted mediation).

H₄: The effect of the opinion on the effectiveness of internal controls will be mediated by the assessed risk that the auditors will fail to detect misstatements.

The third factor retained is the risk of financial statement restatement. Ashbaugh et al. (2005) find that companies that disclose internal control deficiencies or material weaknesses are more likely to have a financial statement restatement. Such a relation between the perceived risk of future financial statement restatement and stock price provides a prediction of mediation on the relation between the opinion on the effectiveness of internal controls and the assessed stock price. This predicted mediation leads to the hypothesis that follows (See Panel A of Figure 2 for the predicted mediation).

H₅: The effect of the opinion on the effectiveness of internal controls will be mediated by the assessed risk of financial statement restatement.

Design and Task

²⁸ It is recognized that research has shown that auditors do not necessarily follow the exact audit risk model proposed in the audit standards (e.g., Kinney 1989; Leslie 1984; Vandervelde et al. 2005). The theoretical idea of the audit risk model in the existing research still recognizes detection risk to be a component of the risk model being used.

The task for experiment two was the same as the task for experiment one, except that only the opinion on the effectiveness of internal controls was manipulated (the other two audit opinions were held constant) and instead of the one question used in experiment one related to future uncertainty, there were twelve questions (See Appendix 2 for the questions asked in experiment two). The twelve questions involved repeating four questions with the only changes being the period referred to in the question (past, current, or future), and the source of uncertainty referred to in the question (material misstatement, manipulated earnings, material errors not detected, and financial statement restatement). The participants responded to the questions after providing the stock price following the audit opinion information. Following the questions, the participants completed the same post-experiment questionnaire used in experiment one, except that there was only one manipulation check question and there were some additional questions asked in order to measure investment experience. The additional questions included an estimate of how many times the participant had bought or sold stock, whether or not he/she had an IRA, and if the participant had an IRA, whether he/she had individual stocks in the IRA.

Participants

Study participants in Experiment two are 91 MBA students from one state university. The mean self-assessed investment knowledge is 3.53 (std. deviation = 2.11) on a 0-10 scale with 0 being very low investment knowledge and 10 being very high investment knowledge. The mean self-assessed investment experience is 2.77 (std. deviation = 2.32) on a 0-10 scale with 0 being very low investment experience and 10 being very high investment experience. The mean number of times participants have bought or sold share of stock is 4.27 (std. deviation = 8.89). 34 out of the 91 participants have an IRA. Of the participants with an IRA, 10 participants have individual stocks in their IRA. The mean years of full-time work experience is 3.89 years (std.

deviation = 3.00). The demographic information on the participants is summarized in Table 2, Panel B.

Manipulation checks

The manipulation check question in experiment two requires the participant to recall which opinion on the effectiveness of internal controls he/she was given (without turning back to previous pages). 82.4% (17.6%) of the participants correctly (incorrectly) identified the type of effectiveness of internal controls opinion they had received. The results with and without the participants who failed the manipulation check did not change the conclusions drawn from the results. Therefore, no participants were excluded from the mediation analyses.

Results

Mediation analysis is used to test hypotheses H₃-H₅ with each of the factors from the factor analysis being represented as one of the mediating variables: risk of financial statement misstatement, risk that the auditors will fail to detect a financial statement misstatement, and the risk that the existing financial statements will be restated in the future.

In order for mediation to exist in this audit opinion setting, the following three criteria must be met (adapted from Baron and Kenny 1986): (1) the opinion on the effectiveness of internal controls affects the mediator variable (path A in Panel A of Figure 2),²⁹ (2) the mediator variable affects the stock price (path B in Panel A of Figure 2), and (3) the mediator variable affects the stock price even in the presence of the opinion on the effectiveness of internal controls (path C in Panel A of Figure 2). If all three of these criteria are met, then the effect of the opinion on the effectiveness of internal controls on the stock price will be less in the presence of the mediator variable. Following testing these criteria, the significance of the mediator

²⁹ The mediator variable here includes each of the three factors identified for the hypotheses, independently.

variable is tested by multiplying the coefficients of Path A and Path B and dividing by the pooled standard error of path A*B.

As explained in the previous sections, the factor analysis resulted in three factors to be used in the mediation analyses. Given the results of the factor analysis, the mean responses to the questions of the respective factors will be used in the mediation analyses to test H₃-H₅.³⁰ In order to test for the mediation hypothesized, the three criteria identified by Baron and Kenny (1986) are examined (as identified previously). If the relations are in the predicted direction, one-tailed p-values are reported. If the relations are not in the predicted direction, two-tailed p-values are reported.

H₃ predicts that the risk of material misstatement will mediate the relation between the opinion on the effectiveness of internal controls and the assessed stock price. As shown by Path A (Figure 2 Panel B), the opinion on the effectiveness of internal controls significantly affects the assessed risk of financial statement misstatement ($t = 2.85$, $p < 0.001$, one-tailed). As shown by Path B (Figure 2 Panel B), the risk of financial statement misstatement significantly affects the assessed stock price ($t = -3.06$, $p = 0.001$, one-tailed). As shown by Path C (Figure 2 Panel B), the risk of financial statement misstatement still significantly affects the assessed stock price when the opinion on the effectiveness of internal controls is included in the regression ($t = -2.04$, $p = 0.022$, one-tailed). Therefore, all three necessary criteria for full mediation to exist are satisfied. Additionally, the test statistic for the magnitude of the mediation effect is significant ($t = -2.09$, $p = 0.018$, one-tailed). Based on the mediation analysis, the assessed risk of financial

³⁰ Prior to testing for mediation, the relation of the opinion on the effectiveness of internal controls and the stock price that was found in experiment one must also be tested in experiment two. If there is not a significant relation between the opinion on the effectiveness of internal controls and the assessed stock price in experiment two, then there is not a relation to test for mediation. Using a t-test to test the difference between the assessed stock price in each opinion on the effectiveness of internal controls level, shows that the assessed stock price is significantly greater when an unqualified opinion is issued versus when an adverse opinion is issued ($t = 4.45$, $p < 0.001$)

statement misstatement fully mediates the relation between the opinion on the effectiveness of internal controls and the assessed stock price. Thus, H₃ is supported.

H₄ predicts that the risk that the auditor will fail to detect a financial statement misstatement will mediate the relation between the opinion on the effectiveness of internal controls and the assessed stock price. The opinion on the effectiveness of internal controls does not significantly affect the risk that the auditor will fail to detect a financial statement misstatement ($t = 0.62$, $p = 0.268$, one-tailed).³¹ The risk that the auditor will fail to detect a financial statement misstatement does not significantly affect the assessed stock price ($t = -0.25$, $p = 0.402$, one-tailed). Given that the risk that the auditor will fail to detect a financial statement misstatement does not significantly affect the assessed stock price, then it is not necessary to test whether it is significant when the opinion on the effectiveness of internal controls is included in the regression. Therefore, none of the three criteria for mediation are satisfied. Further, the test statistic to test the significance of the mediation effect is not statistically significant ($t = -0.23$, $p = 0.204$, one-tailed). Based on the mediation analysis, the assessed risk that the auditor will fail to detect a financial statement misstatement, does not mediate the relation between the opinion on the effectiveness of internal controls and the assessed stock price. Thus, H₄ is not supported.

H₅ predicts that the risk that the financial statements will eventually be restated will mediate the relation between the opinion on the effectiveness of internal controls and the assessed stock price. As shown by Path A (Figure 2 Panel C), the opinion on the effectiveness of internal controls significantly affects the risk that the financial statements will eventually be restated ($t = 2.49$, $p = 0.007$, one-tailed). As shown by Path B (Figure 2 Panel C), the risk that the financial statements will eventually be restated marginally significantly affects the assessed stock

³¹ The results for the mediation of the risk that a material error will not be detected are not shown in a figure, because it is not found to be a mediating variable.

price ($t = -1.60$, $p = 0.055$, one-tailed). As shown by Path C (Figure 2 Panel C), the risk that the financial statements will eventually be restated does not significantly affect the assessed stock price when the opinion on the effectiveness of internal controls is included in the regression model ($t = -0.61$, $p = 0.271$, one-tailed). Therefore, criterion three for mediation is not satisfied and criterion two is marginally satisfied. However, the test statistic to test the significance of the mediation effect is statistically significant ($t = -1.35$, $p = 0.044$, one-tailed). Based on the mediation analysis, the assessed risk that the financial statements will eventually be restated partially mediates the relation between the opinion on the effectiveness of internal controls and the assessed stock price. Thus, H_5 is supported.

IV. Discussion and Conclusion

Following the series of corporate scandals that started with Enron in 2001, Congress and regulators redirected their focus to the protection of non-professional investors. They advocate that an increased focus on a company's internal controls will result in more accurate and reliable financial reporting (including disclosures), which in turn will enable investors to make more informed investment decisions (SEC 2002a; SEC 2003; PCAOB 2004). This is the first known study to provide empirical evidence regarding the influence of each of the new internal control audit opinions on non-professional investors' equity valuation judgments.

The new internal control reporting requirements of SOX, Section 404, and PCAOB Standard No. 2 are consistent with recent shifts in emphasis of public accounting firms from financial outcome-based audits to more process-oriented audits. The two internal control opinions issued as part of the financial statement audit are intended to provide information about the financial reporting process.

Results from this paper show that the auditor's opinion on the effectiveness of internal controls is perceived to be informative by non-professional investors, as reflected by differing assessed stock prices. However, results also show that the auditor's opinion on management's assessment of internal controls is not considered to be informative by non-professional investors. These results indicate that non-professional investors are concerned about the internal control process by which the company arrived at the financial outcome; however, they do not value the opinion on management's assessment.

Choi and Jeter (1992), Ashbaugh et al. (2005), and Baneish et al. (2005) make conjectures regarding the cause of the relation between audit opinions and stock prices. Results from this paper show support for some of the conjectures related to perceived quality of earnings and the risk of restatement. The effect of the non-professional investors' perceptions is intuitively appealing when considering what the opinion on the effectiveness of internal controls represents. The opinion on the effectiveness of internal controls represents an assessment of the risk that a material misstatement could go undetected by the company's internal control system, thus, appearing on the financial statements. A signal of a problem with the internal controls might not indicate the current financial statements have a problem, but it increases the risk of a misstatement both in the past, current, and future financial statements. If there is an undetected misstatement in the past or current financial statements, then that increases the risk of a financial statement restatement.

The current study is subject to several limitations. First, the MBA and MACC students served as a proxy for non-professional investors. To the extent that the participants are not representative of non-professional investors, the stock price relations may be different from what would be observed in the stock market. However, given that the participants' level of graduate

education and investment knowledge or experience did not affect the results, the participants appear to be representative of non-professional investors. Second, the information provided to participants was limited to certain financial information, which did not include a full set of financial statements. Providing participants with additional financial statement information might have affected the assessed valuation provided by each participant. However, given that the current study analyzes the revision in the stock price based on the opinions issued, the actual stock price dollar amount is not critical when drawing conclusions from the results. Finally, testing the mediation effect provides the opportunity to examine the psychological process underlying the effect the opinion on the effectiveness of internal controls has on non-professional investors' assessed stock price. There might be factors other than those tested in this study that also mediate the relation between the effectiveness of internal control opinion and the assessed stock price.

Appendix 1: Treatments

Treatment: Financial Statement Opinions

Unqualified:

On January 31, 2005, the external auditors issued the following opinion for YS Industries for Fiscal 2004 (last year):

An **unqualified financial statement audit opinion**. This means the auditor concluded that the financial statements are presented fairly in all material respects.

Unqualified with explanatory paragraph:

On January 31, 2005, the external auditors issued the following opinion for YS Industries for Fiscal 2004 (last year):

An **unqualified financial statement audit opinion with an explanatory paragraph**. This means the auditor concluded that the financial statements are presented fairly in all material respects, with emphasis given for a material uncertainty concerning pending litigation.

Treatment: Opinion on Management's Assessment of Internal Controls

Unqualified:

On January 31, 2005, the external auditors issued the following opinion for YS Industries for Fiscal 2004 (last year):

An **unqualified opinion on management's assessment of internal controls**. This means the auditor agrees with management's assessment of internal controls.

Adverse:

On January 31, 2005, the external auditors issued the following opinion for YS Industries for Fiscal 2004 (last year):

An **adverse opinion on management's assessment of internal controls**. This means the auditor does not agree with management's assessment of internal controls.

Treatment: Opinion on the Effectiveness of Internal Controls

Unqualified:

On January 31, 2005, the external auditors issued the following opinion for YS Industries for Fiscal 2004 (last year):

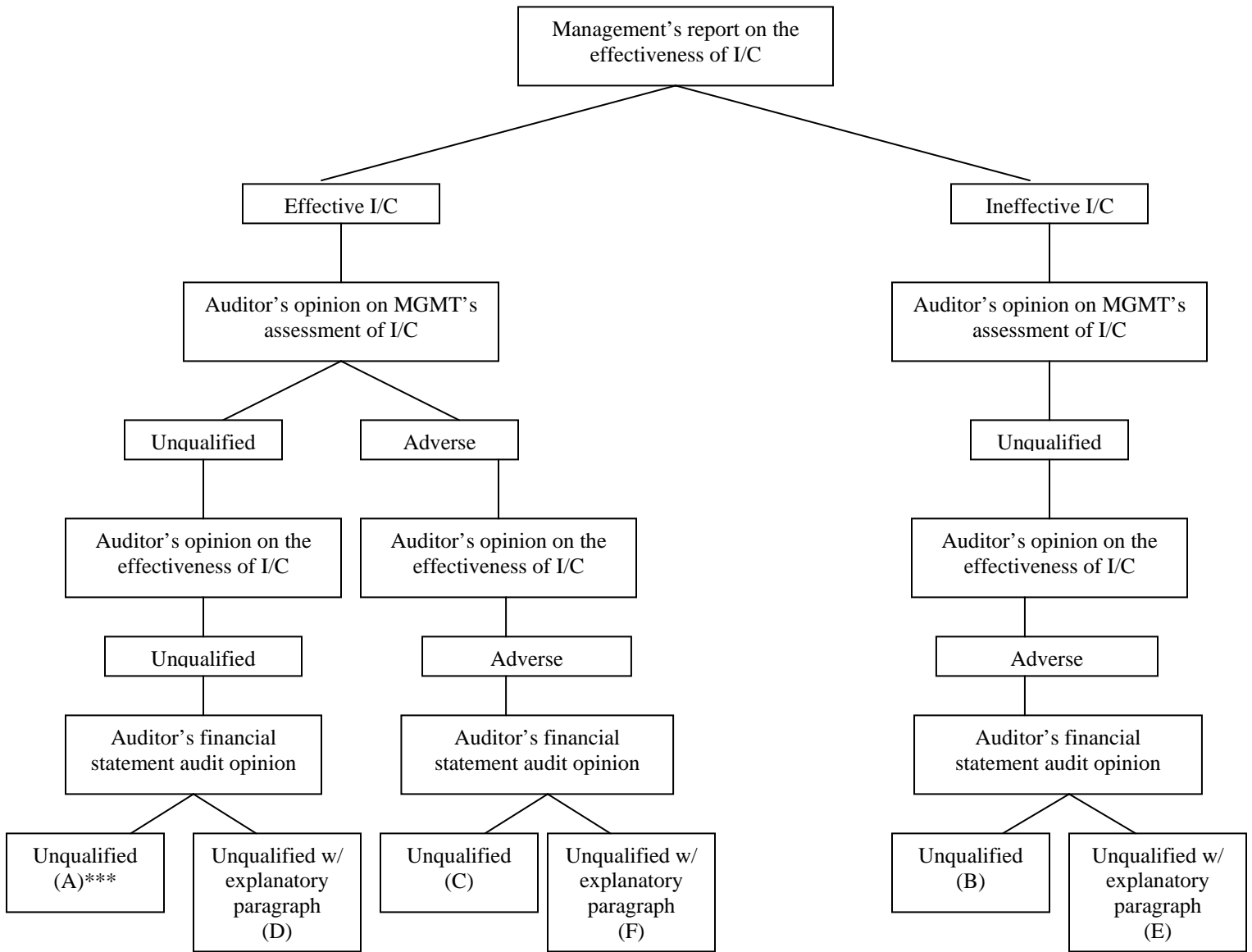
An **unqualified opinion on the effectiveness of internal controls**. This means the auditor concluded that there are no material weaknesses in the internal controls.

Adverse:

On January 31, 2005, the external auditors issued the following opinion for YS Industries for Fiscal 2004 (last year):

An **adverse opinion on the effectiveness of internal controls**. This means the auditor concluded that there are material weaknesses in the internal controls (in this case related to the processing of intercompany transactions).

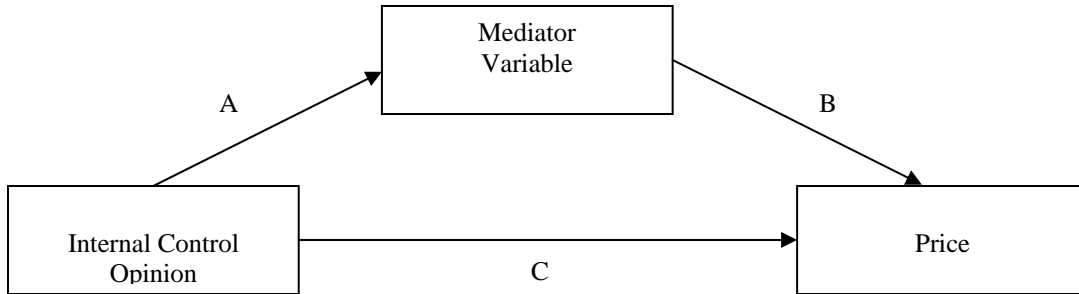
Figure 1: Audit Opinion Decision Diagram



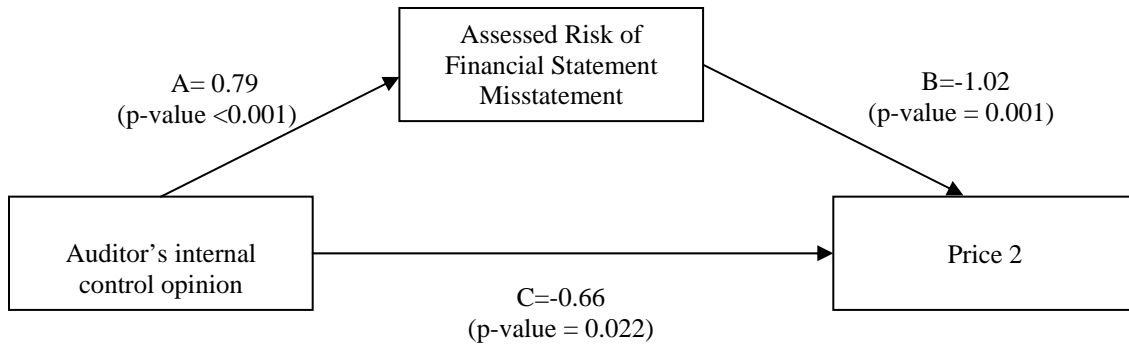
***These letters correspond to the cell letters in Panel A of Table 1.

Figure 2: Mediation Model – risk of misstatement

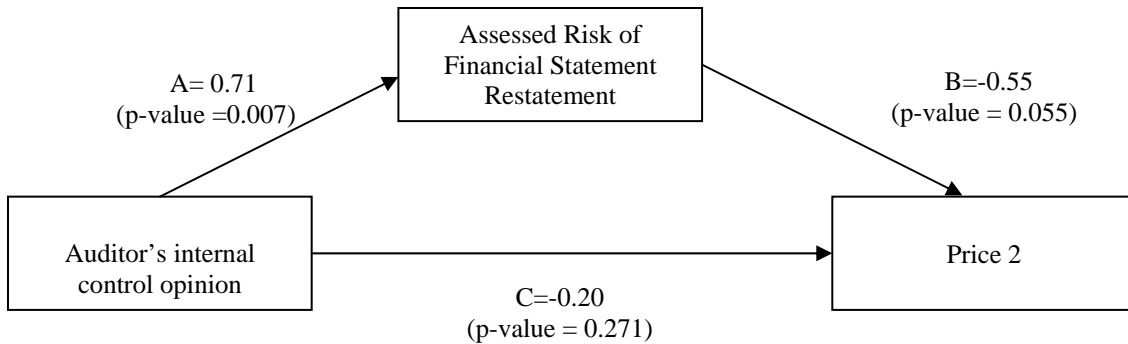
Panel A: Expected mediation model



Panel B: Observed mediation model – Risk of Financial Statement Misstatement (H₃)



Panel C: Observed mediation model – Risk of Financial Statement Restatement (H₅)



NOTE: All p-values are one-tailed.

Table 1: 2x2x2 Research Design

		Opinion on Management’s Assessment of Internal Controls				Control Groups
		Unqualified		Adverse		
		Opinion on the Effectiveness of Internal Controls				
		Unqualified	Adverse	Unqualified	Adverse	
F/S Opinion	Unqualified	A \$32.60* (n = 32)	B \$27.95 (n = 34)	N/A**	C \$27.27 (n = 33)	G \$33.01 (n = 27)
	Unqualified with explanatory paragraph	D \$30.28 (n = 35)	E \$26.51 (n = 36)	N/A**	F \$26.33 (n = 28)	H \$28.82 (n = 28)

* Each cell mean represents the stock price after all the information (e.g., relevant financial information, an audit opinion and both internal control opinions) is presented.

** This combination of opinions is not possible per PCAOB Standard No. 2.

Table 2: Demographic Statistics**Panel A: Experiment One**

<u>Demographic</u>	<u>Mean (Std. Deviation)</u>
Investment knowledge (on a 0 – 10 scale with 0 being very low investment knowledge and 10 being very high investment knowledge)	3.92 (2.27)
Investment experience (0 being very low investment experience and 10 being very high investment experience)	2.94 (2.39)
Highest level of education completed (number of participants)	Bachelors = 89 Some Masters courses = 131 Masters = 23 Law = 3 Doctorate = 2 Other = 5
Major (Accounting or other: number of participants) ³²	Accounting = 49 Other = 203
Years of full-time work experience	4.88 (4.76)

Panel B: Experiment Two

<u>Demographic</u>	<u>Mean (Std. Deviation)</u>
Investment knowledge (on a 0 – 10 scale with 0 being very low investment knowledge and 10 being very high investment knowledge)	3.53 (2.11)
Investment experience (0 being very low investment experience and 10 being very high investment experience)	2.77 (2.32)
Number of times stock was purchased or sold	4.27 (8.89)
IRA	34
Stocks in IRA	10
Highest level of education completed (number of participants)	Bachelors = 26 Some Masters courses = 48 Masters = 11 Law = 2 Doctorate = 0 Other = 3
Major (Accounting or other: number of participants)	Accounting = 3 Other = 87
Years of full-time work experience	3.89 (3.00)

³² One participant did not answer this question, so the total does not agree with the total participants used in the analysis of the results.

Table 3: Summary ANCOVA

The stock price provided after the audit opinions is the dependent variable for all analyses.

<u>Source</u>	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p>F</u>
F/S	76.94	1	76.94	3.75	0.05
MGMT	2.53	1	2.53	0.12	0.72
IC_Effect	655.69	1	655.69	31.96	<.01
F/S*MGMT	3.22	1	3.22	0.16	0.69
F/S*IC_Effect	6.16	1	6.16	0.30	0.59
PRICE1	103.39	1	103.39	5.04	0.03
Residual	3,918.54	191	20.52		

F/S = Financial statement audit opinion

MGMT = Opinion on management's assessment of internal controls

IC_Effect = Opinion on the effectiveness of internal controls

PRICE1 = First assessed stock price

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