

The Differences In Perceived Level Of Fraud-Detecting Effectiveness Of SAS No. 99 Red Flags Between External And Internal Auditors

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ABSTRACT

The purpose of this study is to examine the differences and the causes for the differences between external and internal auditors regarding the perceived levels of fraud detection of the 42 red flags found in Statement of Auditing Standard (SAS) No. 99. SAS No. 99 requires the 42 red flags to be used in financial statement audits in order to detect fraudulent financial reporting activity. No differences were found between external and internal auditors with respect to overall perceptions. However, 17 of the 42 red flags had significant differences regarding the effectiveness of red flags in the detection of fraud. For the external auditors, the extent of use and exposure to red flags were significant predictors regarding perceived effectiveness. For internal auditors, perceived fraud-detecting effectiveness was a function of one's internal and total audit experience. Surprisingly, gender differences occurred with both external and internal auditors with females rating the red flag effectiveness consistently higher than male auditors. With the exception of two red flags, external auditors displayed a higher degree of consensus regarding the effectiveness rating of each red flag than internal auditors. When asked to identify the more effective red flags based on the SAS No. 99 categories, both groups of auditors perceived the attitude/rationalization red flag category as the most effective red flags.

INTRODUCTION

Auditors use many procedures in attesting to the accuracy of financial statements. One of the procedures is the use of red flags which might act as indicators that fraudulent financial reporting is occurring. For external auditors, the Statement on Auditing Standards (SAS) No. 82, *The Consideration of Fraud in a Financial Statement Audit* (AICPA, 2003) which superseded SAS No. 53, was one of the first statements that identified 25 fraud risk factors (red flags). This standard was later replaced by SAS No. 99 (AICPA, 2003) that requires auditors to use 42 red flags in financial statement audits to detect fraudulent financial reporting. For an internal auditor, the Institute of Internal Auditors (IIA) put forth the Statement on Internal Auditing Standards (SIAS) No. 3 (IIA, 2005) which stated that "internal auditors should have sufficient knowledge of fraud to be able to identify indicators (red flags) that fraud might have been committed." Both external and internal auditors, therefore, are expected to know and understand the importance and use of red flags in detecting fraud.

As a result of the demise of Enron and WorldCom, auditors' responsibilities to detect fraud have increased over time, and the tools to detect fraud should become even more important. Elliott (2002) further argues that unintentional errors will most likely be caught by technology, and that the future of the profession will hinge on the auditor's ability to detect fraud. In hindsight, are companies becoming so complex that fraudulent activity is now easily accomplished? It is most likely that red flags were present in these previously mentioned companies where fraudulent activity took place. So why weren't red flags acted upon by the auditors? Was it possible that neither external nor internal auditors knew that red flags existed? Did the auditors recognize the red flags but chose to ignore

them because they judged the red flags to be unimportant or of little consequence? Recent headlines demonstrate that the SEC will no longer tolerate this negligence (Scannel, 2006).

In order to prevent red flags from being viewed as simply a list of ineffective and unrelated cues (Asare and Wright, 2004) or being too long of a list, where dilution effects might occur due to irrelevant information (Waller and Zimbelman, 2003). The list of red flags found in SAS No. 99 is organized based on the fraud-triangle concept (Albrecht et al., 1995) which involves the interaction of the following three factors: incentive, opportunity, and attitude. Based on this fraud-triangle concept, Wilks and Zimbelman (2004) state “if fraud checklists incorporate this theory, auditors should be better able to process fraud cues.”

PURPOSE FOR THE STUDY

This study examines the perceived effectiveness of red flags in the detection of fraudulent financial statements between external and internal auditors. Based on the severe consequences of not recognizing red flags (Enron, WorldCom, and Arthur Andersen), it is important to understand the extent of use and perceived effectiveness of red flags. This study attempts to identify any differences between external and internal auditors in their perceived fraud-detecting effectiveness of SAS No. 99 red flags. In addition, we explore why some auditors would perceive red flags to be ineffective in detecting fraudulent activity, while others consider the same red flag as very effective in fraud detection.

PRIOR RESEARCH

The *use* of red flags as an audit tool has been researched extensively. However, the number of prior research studies examining the *perceived effectiveness* of red flags is limited. The following studies examine the wide range of red flag effectiveness among auditing professionals in the detection of fraudulent financial reporting activity.

Albrecht and Romney (1986) used audit partners in their study of red flags and management fraud. Their results showed that partners perceived that only one-third of the red flags were considered significant predictors of fraud. These significant red flags tended to be personal characteristics of management rather than company-specific variables. Indicators of fraud concerning management are the attitude/rationalization red flags stated in SAS No. 99.

In a study conducted by Heiman-Hoffman and Morgan (1996), external auditors from one of the then Big Six public accounting firms were asked to rank the thirty most important warning signs (i.e., red flags) of possible fraud. This study emphasized the fact that red flags or warning signs did carry different weights as perceived by the sample of auditors. The results showed the auditors tended to rate “management attitudes” as the most important category of red flags compared to other organizational factors. Within “management attitudes,” auditors identified the most important red flag to be client dishonesty. Management attitudes represent one of the three categories of red flags that are required to be used by external auditors in financial statement audits.

Pincus (1989) examined the efficacy use of red flags among auditors. In her study, Pincus found that only half of the respondents indicated they used red flag questionnaires to assist in their fraud assessment, since they considered red flags an important tool in the audit process. However, for the other respondents, one may conclude that non-use of red flag questionnaires indicates these auditors did not perceive red flags to be good indicators of fraudulent activity.

Hackenbrack (1993) explored the perceived importance of red flags among auditors with clients of varying sizes. His results showed a wide range of variance in the importance ratings of fraud risk factors. Differences in auditors' experiences between large and small clients were found to account for much of the variability in the ratings of red flags. Auditors assigned primarily to large-client engagements placed more emphasis on factors (red flags) relating to the opportunities of perpetrators to commit fraud than auditors examining small clients. Opportunities to commit fraud represent another category of SAS No. 99 red flags.

While the previously cited studies limit their samples to external auditors, other studies examining red flag importance include both internal and external auditors. Apostolou et al. (2001) surveyed both external and internal auditors. In this study, all auditors were asked to rate the importance of the twenty-five red flags found in SAS No. 82. Management characteristics and influence over the control environment were the highest rated indicators (red flags) by the sample of auditors. Interestingly, no significant differences were discovered between external and internal auditors. Also, no differences were found between CPA firms of different sizes regarding their perceived importance of these indicators.

With respect to internal auditor research, Apostolou and Hassell (1993) surveyed 126 internal auditors to investigate red flags. The respondents were asked to rate the importance of red flags that might indicate the possible occurrence of management fraud. Similar to their latest research, the auditors were found to be very consistent in their judgments concerning no significant differences related to the importance of red flags.

Under a variety of hypothetical situations, Church et al. (2001) surveyed internal auditors' perceived importance of red flags. The results indicate that auditors considered fraud to be more probable under certain red flags such as income-surpassing expectations and managers' bonuses based on earnings.

Gramling and Myers (2003) examined internal auditors perceptions regarding 43 warning signs (red flags) categorized as follows: 14 represent incentive or pressure conditions, 16 represent opportunity conditions, and 13 represent attitude or rationalization conditions. Their results indicate the most important warning sign involves factors related to attitude or rationalization. Of the top 15 indicators, six represent attitude or rationalization conditions, three represent incentive conditions, and six represent opportunity conditions. In addition, four out of the six attitudes or rationalization conditions were rated as the most important of any red flag indicators.

Similar to Gramling and Myers (2003), a study conducted by Moyes et al. (2005) also asked internal auditors to rate the perceived importance of red flags based on SAS No. 99. In this study, the red flags were categorized into three groups: opportunities, incentives or pressures, and attitudes or rationalizations. The results show that internal auditors consistently rated red flags categorized as opportunity and attitudes/rationalizations as more effective in detecting fraudulent financial reporting activity than red flags labeled incentives/pressures.

In summary, the results from previous research are quite consistent. It is apparent that most auditors consider red flags to be an important part of the audit process. However, all red flags do not appear to be equally important. There appears to be some disparity among auditors regarding their agreement on the importance and use of red flags. SAS No. 99 requires that CPAs use 42 red flags in conducting financial statement audits. Internal auditors also use these red flags as well. This study will add to the body of knowledge by examining the perceptions of both external and internal auditors regarding SAS No. 99 red flags as fraudulent financial reporting indicators.

HYPOTHESES

Experience

Hackenbrack (1993) examined experience relative to an auditors' employment with large versus small clients rather than an individual auditor's overall audit experience. With most fraud being well hidden, it is theorized that it requires more experienced auditors who have developed the expertise that is necessary to use red flags correctly in order to recognize fraud. Relatively new and inexperienced auditors lack the intangible qualities accumulated over years of experience. Therefore, inexperienced auditors will not recognize in the same manner as experienced ones that red flags are effective for detecting red flags. The first hypothesis involves three types of work experience: external auditing experience, internal auditing experience, and total auditing experience.

H_{a1}: More experienced auditors will perceive red flags to be more effective in the detection of fraudulent financial statements than inexperienced auditors.

Training

While it is possible that experience is an important factor in perceived importance of red flags, Green and Calderon (1996) suggest that training is a viable option for enabling one to identify risk factors. Based on this, an auditor's training in the use of red flags should have a significant impact on the perceived effectiveness of red flags in detecting fraudulent activity. Therefore, it is theorized that auditors who have received red flag training should be able to recognize the importance of red flags in the detection of fraud more than auditors with little or no training. The second hypothesis includes three types of red flag training: conferences, in-house training, and CPE hours.

H_{a2}: Auditors with more red flag training will perceive red flags to be more effective in the detection of fraudulent financial statements than auditors with less training in the use of red flags.

Exposure to Red Flags

While it is likely that more experienced auditors should tend to have more exposure to red flags, this is not necessarily the case. Albrecht and Romney (1986) examined audit partners who should have a great deal of audit experience, yet they perceived only one-third of the red flags to be significant predictors of fraud. It is theorized that real exposure to red flags in the workplace will impact auditor's perception of the effectiveness of red flags versus one who has only a conceptual knowledge of red flags. In a study by Pincus (1989), one-half of the respondents admitted to using red flags and only those auditors who had used red flags felt that red flags were very effective in detecting fraudulent activity. As such, the third hypothesis deals with exploring exposure to red flags which includes the following: the extent of exposure, how often one uses red flags, the organization's effectiveness in using red flags, and the detection of fraud due to using red flags. The detection of red flags refers to the actual identification of a red flag during an audit and acting upon it. This type of exposure is more "hands on," and those auditors who have actually done this are most likely to perceive red flags as a very valuable tool in the detection of fraudulent activity. Therefore, it is theorized that users perceive red flags as very effective, while non-users will rate red flag effectiveness much lower.

H_{a3}: Auditors who have more exposure to red flags will perceive red flags to be more effective in the detection of fraudulent financial statements than auditors who have not been exposed to red flags.

Firm Size

While Heiman-Hoffman and Morgan (1996) and Apostolou et al. (2001) examined auditors from a then Big Six accounting firm, no other studies examined the relationship between the size of the firm that an auditor worked for and red flag effectiveness. Firm size is treated as a surrogate for the corporate culture inherent within all organizations. It is theorized that this corporate culture may have an impact on the auditor's perception of the effectiveness of red flags. As such, it is proposed that auditors from larger firms are most likely to perceive red flags as more effective due to the distinct corporate culture found in the large firms. In addition, the larger accounting firms are more likely to come across red flag indicators in the audit of large clients than the smaller firms. Thus, large firms should stress the importance of red flags more than small firms auditing smaller clients.

H_{a4}: Auditors from larger firms will perceive red flags to be more effective in the detection of fraudulent financial statements than auditors from smaller firms.

Gender

The literature is mixed concerning differences between male and females. There are no studies that examine the relationship between an auditor's gender and the perceived effectiveness of red flags. Could one gender identify a red flag whereas the other gender would not? Would both genders perceive red flags the same or differently? Foster et al. (2003) found that males and females are equally adept at technology, but significant differences occurred between genders when assessing controls. Would this indicate possible differences in red flag perceptions? Schwartz and Wallin (2002) reported that 'distance' from actual fraud occurrence impacts one's choice and over time, no

differences were found between male and females in the rate of fraudulent disclosures. In another study, Chung and Monroe (2001) concluded that females are more accurate decision makers in complex tasks than males. Is there enough evidence to suggest that gender might impact the perceived effectiveness of red flags? Would one gender ignore an obvious red flag? It might be the males that ignores rather than the females as many studies have found females to be more ethically sensitive than their male counterparts as found in Sweeney (1995) and Cohen et al. (1998). In accounting education at the university level, females are in the majority (Nelson et al., 2002) and will continue until they become the majority in a male-dominated profession. With females dominating the accounting major and more females entering the profession, audit teams will be a mix of both genders. Similar thinking is crucial and differences need to be identified. As such, the following hypothesis is examined.

H_{a5}: There will be differences in the perceived level of effectiveness of red flags in the detection of fraudulent financial statements between male and female auditors.

External versus Internal Auditors

Apostolou et al. (2001) examined the perceptions of the effectiveness of fraud indicators and found no differences between external and internal auditors. This study examines these same groups to see if this is still true. While external and internal auditors essentially use the same audit tools in financial audits, it is proposed that internal auditors have a better working knowledge of what is happening in their organizations based on being exposed to financial information on a daily basis. This greater exposure may cause internal auditors to be more aware of occurrence of red flags. Therefore, internal auditor's perceptions may tend to be stronger than external auditor perceptions. On the basis of this, four hypotheses are examined. The first hypothesis examines the overall perceived effectiveness of all red flags. In general, internal auditors believe that red flags are more effective in detecting fraud in financial statements than external auditors.

H_{a6}: There will be differences in the overall perceived effectiveness of red flags in the detection of fraudulent financial statements between external and internal auditors.

The next hypothesis examines the extent of agreement among each group of auditors. An average rating can be very misleading without examining the distribution of responses from the auditors surveyed. A wider distribution of responses or a large standard deviation associated with each red flag may be indicative of a lack of agreement among the auditors, whereas a more narrow distribution of responses or a small variance may indicate a strong agreement among the auditors concerning their perceived level of fraud-detecting effectiveness of each red flag.

H_{a7}: There will be differences in the variance for each red flag's level of effectiveness in the detection of fraudulent financial statements between external and internal auditors.

Previous studies such as Apostolou and Hassell (1993), Church et al. (2001), Gramling and Myers (2003), and Moyes et al. (2005) indicate that all red flags are not equally weighted among and between external and internal auditors. This hypothesis examines the extent of agreement between external and internal auditors concerning which of the 42 red flags found in SAS No. 99 are the most effective versus those red flags identified as not effective.

H_{a8}: There will be differences in each red flag's perceived level of effectiveness in the detection of fraudulent financial statements between external and internal auditors.

SAS No. 99 categorizes the red flag indicators into three groups: attitude/rationalization, opportunity, and incentives/pressures. Previous studies (Heiman-Hoffman and Morgan (1996), Gramling and Myers (2003), Moyes et al. (2005) have consistently found that attitude/rationalization are the most effective red flags. Hackenbrack's (1993) results however, rated the opportunity red flags as most effective. Based on these classifications, this study examines the following hypotheses:

H_{a9}: There will be differences in each red flag's perceived level of effectiveness in the detection of fraudulent financial statements based on the three SAS No. 99 categories between external and internal auditors.

METHODOLOGY

Questionnaire

The questionnaire was designed based on 42 red flags identified in SAS No. 99 which fall into three categories: attitude/rationalizations, opportunity, and incentive/pressures. However, these red flags were randomly ordered in the questionnaire to avoid any bias by the respondents. Cox (1980) recommends a five-point to a nine-point scale as appropriate scaling when the respondents are sophisticated with respect to what is being measured. For this study, each red flag was evaluated by the auditors on a Likert scale with values from one to six ('not effective' to 'extremely effective') based on the perceived effectiveness of the red flag in detecting fraudulent financial activity.

The content, readability, and validity of the questionnaire were pilot tested by accounting professors and Texas CPA practitioners, whose suggestions were incorporated into the questionnaire. In addition, as a measure of internal validity, Cronbach's alpha was calculated for each group of auditor responses. A Cronbach's alpha value of 0.96 was found for the external auditor responses and a value of 0.97 calculated for the data from internal auditors. These values indicate a high degree of internal validity for a questionnaire of this type.

The questionnaire also contained demographic questions concerning the auditors' experiences with red flags, job title, work experience, educational background, certifications, gender, race, and income level.

Sample

The researchers purchased a list of its members from the AICPA, who were randomly scattered across the United States. Using both U.S. postal service and emails, 2,000 questionnaires were sent and data were collected over a 6-month period. There were 128¹ usable questionnaires representing a response rate of 6.4 percent, which is normal for this type of research given the size and complexity of the survey instrument.

For the internal auditors, the researchers posted the questionnaire to the Global Auditing Information Network (GAIN), an affiliation of the Institute of Internal Auditors (IIA). There are approximately 1,800 internal auditors who are members of GAIN and scattered across the United States. Survey data were collected over a six-month period, which resulted in 100 usable questionnaires from internal auditors representing a response rate of 5.6 percent. Both response rates are relatively low for two reasons: (1) the red flag questionnaire was very long in length, and (2) the red flags are a difficult subject for both external and internal auditors to understand and to be able to evaluate their effectiveness. Several auditors commented that they did not have the experience and expertise to judge the level of fraud-detecting effectiveness of the 42 red flags.

A test for non-response bias was conducted on samples of both the external and internal auditors to determine if sample responses were representative of the total population. For this test, late respondents were used as proxies for non-respondents (Oppenheim, 2001). Hotellings T² was used to test the equality of the multivariate means of the first and second mailings. The results of the test indicate no significant differences between early and late respondents. Therefore, non-response does not exist in this study.

Data Analysis

For each of 42 red flags listed on the questionnaire, the auditors would evaluate the level of fraud-detecting effectiveness of each red flag by selecting one of the six following responses (a six-point Likert scale):

- 1 Not Effective
- 2 Seldom Effective
- 3 Somewhat Effective

¹ Of the 128 usable responses, 17 did not work in public accounting. For statistical analyses purposes, 111 are classified as external auditors.

- 4 Mostly Effective
- 5 Very Effective
- 6 Extremely Effective

The auditor responses recorded on the received questionnaires were entered into a database. Then, a mean was calculated from all the responses from external auditors or internal auditors for each of the 42 red flags. Each mean represents the level of effectiveness of each red flag in detecting fraud perceived by external auditors or internal auditors. T-tests and the Wilcoxon Rank Sum² tests were conducted in order to determine whether significant differences existed between external and internal auditors with respect to their perceived level of effectiveness of red flags as predictors of fraudulent financial reporting activity.

In order to examine the within-group level of agreement for each red flag, the variance for each of the 42 red flags by each auditor group was calculated. The variance will indicate the dispersion of responses and show whether or not some degree of agreement has been reached concerning the effectiveness of each red flag. For example, the higher the variance, the less agreement among the group of auditors exists.

Regression analysis was conducted as a method for determining the reason why an auditor might choose a particular level of effectiveness for a given red flag. An aggregate mean was calculated based on every auditor's response to a specific red flag within external auditors, internal auditors, and both groups combined. These calculated means represent the overall perceived level of effectiveness rating of each red flag and act as the dependent variable. The following reported demographic items act as independent variables that might provide insight concerning why differences in perception may exist: various types of experience, training and conferences, exposure to red flags, use of red flags, firm size, and gender. The regression analysis was run three separate times: (1) with external auditors only, (2) with internal auditors only, and (3) external and internal auditors combined.

For each of the three SAS No. 99 categories of red flags which included opportunity (OP), incentive or pressures (IP), and attitudes or rationalizations (AR), a mean was calculated individually for each red flag and aggregately for all the red flags. On an aggregate level, an overall mean for all 42 red flags was computed from all the responses of each group of auditors. For each auditor group, this overall mean represented the average level of fraud-detecting effectiveness of 42 red flags as a group. Each individual red flag was tested against the overall mean using a t-test in order to classify them as most effective, effective, and less effective. Red flags rated as most effective in detecting fraud had significantly higher means than the overall mean. Other red flags, where no significant differences were found when the mean of each red flag was compared to the overall mean, were rated as effective in detecting fraud. The remaining red flags that had means significantly lower than the overall mean were rated as less effective in detecting fraud.

RESULTS

Demographic Information

As shown in Table 1, the sample of auditors exhibits a wide range of backgrounds. When asked about their exposure to red flags, 69 percent of external auditors and 69 percent of internal auditors were at least 'moderately' exposed to red flags. When asked how often they used red flags, 'frequently' was cited by 52 percent of external auditors and 50 percent of internal auditors. A much larger percentage of internal auditors (76 percent) compared to external auditors (58 percent) stated they have used red flags to detect fraud. Conferences that instruct how to use red flags to detect fraud were attended by 48 percent of the external auditors and 54 percent of the internal auditors. Employers that offered in-house training on red flags to detect fraud were attended by 29 percent of the external auditors and 20 percent of the internal auditors. Slightly more internal auditors attended red flag conferences than external auditors, whereas slightly more external auditors attended red flag in-house training provided by employers

² The Wilcoxon Rank Sum test is the non-parametric version of the t-test. Both tests were run and in only 3 (out of 42) red flags did the t-test results indicate a significant difference and the Wilcoxon test indicated non-significance or vice-versa. The researchers felt this would not have any major impact on the final results of this study.

than internal auditors. The number of CPE hours on red flags was generally the same between the two groups of auditors. With regard to “How effective is your organization in using red flags,” considering the responses from ‘seldom’ to ‘somewhat’ represented 56 percent of the external auditors and 41 percent of the internal auditors, but including the responses from ‘seldom’ to ‘mostly’ represented 80 percent of the external auditors and 83 percent of the internal auditors.

Importantly, 58 percent of the external auditors indicated that they have used red flags to detect fraud compared to 76 percent of the internal auditors. More internal auditors used red flags for detecting fraud than external auditors, whereas the employers of external and internal auditors had generally similar levels of organizational effectiveness in using red flags to detect fraud.

As to professional certification, 100 percent of the external auditors were CPAs with 4 percent being CIAs and 3 percent being CMAs. In comparison, 68 percent of the internal auditors were CPAs with 35 percent being CIAs and 2 percent being CMAs. While only a few of the external auditors held multiple certifications, many of the internal auditors held ‘CPA’ and ‘CIA’ certificates as well as other certifications. Eighty-four percent of external auditors were at the ‘manager’ level or higher, while 69 percent of internal auditors were ‘manager’ level or higher. With respect to experience, 73 percent of external auditors and 73 percent of internal auditors had at least 10 years of auditing experience, as well as, 47 percent of external auditors and 39 percent of the internal auditors had more than 20 years of auditing experience. Slightly more external auditors are in management and extremely experienced in the auditing profession compared to internal auditors.

As for education, all the external and internal auditors graduated with bachelor degrees with master and doctoral degrees held by 34 percent of the external auditors and 29 percent of the internal auditors. Eighty-five percent of the external auditors and 76 percent of the internal auditors pursued a major in Accounting. Slightly more external auditors have graduate degrees and majored in Accounting than internal auditors. With respect to gender, 20 percent of the external auditors and 28 percent of the internal auditors were females working within a male-dominated auditing profession.

Hypothesis One: Experience

In this hypothesis, it was postulated that an auditor’s experience would have a significant impact on their perception of the effectiveness of red flags. It was further theorized that the more experience an auditor had or the higher position they had in their firm, the more they would know and understand the importance of red flags and also tend to agree more regarding those red flags identified as more effective versus those red flags identified as less effective. The results of the statistical analysis are somewhat inconclusive for external auditors. Table 2 shows the results of testing for external auditors and it appears that neither experience nor job position has very much if any effect on one’s perceived level of fraud-detecting effectiveness of red flags. Surprisingly, it appears external auditing experience, internal auditing experience, and total audit work experience has little if any impact on an external auditor’s perceived effectiveness of red flags in detecting fraud. Even, the job position of the external auditor has influence upon one’s perception of the fraud-detecting effectiveness of red flags. Although, at the 10 percent level of significance, one may consider that total audit work experience ($p = .1149$) may be marginally significant to the external auditors’ perceived fraud-detecting effectiveness of red flags. In Table 1, 58 percent of external auditors indicated that they had detected fraud by using red flags. Evidently, 42 percent of the external auditors have detected fraud using red flags and may not be convinced of their fraud detecting effectiveness. The researchers feel further examination needs to be conducted in this area.

For internal auditors, experience does make a difference in one’s perceptions of red flags. In Table 2, internal auditing experience ($p = .0591$) and total audit work experience ($p = .0865$) influenced the internal auditors’ perception of the fraud-detecting effectiveness of red flags. Further analysis of this situation found that more experienced internal auditors tend to rate the effectiveness of red flags higher than less experienced internal auditors. It is interesting to note that opposite findings occurred between external and internal auditors for the experience variable. In Table 1, 76 percent of the internal auditors have used red flags to detect fraud compared to 58 percent of

the external auditors. Internal auditing experience may involve more fraud detection using red flags than external auditing experience.

In addition, internal auditors work all year in the environment of their corporate employers, whereas external auditors conduct audits at number corporate clients during the year. Internal auditors perform compliance, operational and financial statement audits, while the external auditors conduct primarily financial statement audits. Internal auditing experience is more diversified in different types of audits than external auditor experience, and internal auditors are more knowledgeable about the accounting system of their employers than the external auditors. More diversified audit experience and more knowledge of the accounting system may explain partially why internal auditing experience enhances one's perception of the fraud-detecting effectiveness of red flags.

Hypothesis Two: Training

Red flag training included conferences, in-house training, and CPE hours taken by auditors. It is theorized that training specifically on red flags would sensitize auditors concerning the importance, use, and effectiveness of red flags, so that auditors trained in the use of red flags would perceive the red flags to be more important than those auditors with little training. As shown in Table 2, no significances in perceived fraud-detecting effectiveness were found among the various levels of training for either group of auditors. These findings pose an interesting question: does red flag training matter? It would seem contrary to believe that training would not help an auditor with the use of red flags. At the same time, both external and internal auditors as respondents commented that understanding the nature of red flags and evaluating the fraud-detecting effectiveness of red flags was difficult. Considering the difficulty associated with red flags, it is conceivable that auditors do not learn how to use red flags from simply attending conferences and in-house training.

Hypothesis Three: Exposure to Red Flags

In this hypothesis, exposure to red flags included the following: the extent of exposure, how often red flags are used, an organization's effectiveness in using red flags, and the use of red flags to detect fraud. Table 2 shows that external auditors' perceived effectiveness of red flags is significant with the following variables: extent of exposure to red flags, how often you use red flags, the organization effectiveness in using red flags, and used red flags to detect fraud. In contrast, internal auditors' perceived fraud-detecting effectiveness of red flags is not significant with these above mentioned variables.

As mentioned before external auditors tend conduct financial statement audits for numerous corporate clients. In compliance with SAS No. 99, the external auditors are required to use these 42 red flags in performing these audits with the objective of detecting any occurrence of fraudulent financial reporting activity. In conducting financial statement audits, the individual external auditors are increasing both their exposure to red flags and the frequency in using these red flags, which explains the significant relation with their perceived fraud-detecting effectiveness of red flags with the extent of their exposure to red flags and how often they use red flags. In addition, as external auditors carry out more financial statement audits, the individual external auditors will, on the average, discover more occurrences of fraudulent activities, which will improve the effectiveness of both external auditors and their organizations in using red flags to detect fraud. In contrast, internal auditors do not have as strong of a professional standard that requires the usage of red flags during the performance of financial statement audits, and thus, it may possibly explain why the internal auditors' perceived effectiveness of red flags in detecting fraud was not significant with the four previously mentioned variables.

It might be argued that exposure to red flags and one's experience might be correlated in the fact that as one gains more experience in the audit field, one is likely to be more exposed to the use of red flags. The results of this study indicate that these appear to be two separate variables. Note in hypothesis 1, experience was a significant factor with internal auditors but not significant with external auditors. For instance, exposure to red flags was expected to be very significant for internal auditors, but the results show the opposite effect. For external auditors, exposure to red flags impacts their perception of the effectiveness of red flags in detecting fraud.

One of the questions asked of the auditors was “Have you ever used red flags to detect fraud?” As shown in Table 2, not only were significances found for the group of external auditors but those that responded ‘yes’ to this question tended to perceive higher levels of red flag effectiveness than those external auditors who responded ‘no’ to this question.

For the internal auditors, the significant findings found in hypothesis 1 regarding experience and the non-significant findings for this hypothesis are surprising and unexpected. It was theorized that internal audit experience may include some exposure to red flags³ due to the nature of the work which affects an internal auditor’s perception. However, this finding does not appear to be the case, and some other factor inherent in internal audit work accounts for the variation in perceived effectiveness and not exposure to red flags.

Hypothesis Four: Firm Size

Table 2 shows that no significances were found for external auditors with regard to the size of the firm that the auditor works with. This finding is consistent with the results from Apostolou et al. (2001). Due to the fact the firm size question on the questionnaire was written more applicable to CPA firms and not applicable to the organizations that employ internal auditors. For this reason, the internal auditors did not answer this question. It was theorized that the larger firms would tend to place more emphasis on red flags due to their client base, thus increasing the importance and perceived effectiveness. Also, larger firms possess more financial resources to pay for conferences and in-house training designed to teach how to use red flags for detecting fraud. Furthermore, the larger firms, which represent international and national CPA firms, require their external auditors to hold both a master of accounting degree and CPA license as well as to be competent and knowledgeable about all the auditing and accounting standards. For all these above stated reasons, one would expect external auditors employed with larger firms to recognize more the fraud-detecting effectiveness of red flags than external auditors employed with smaller firms. In contrast, auditors in smaller firms might not emphasize the use of red flags due to less complex audits of smaller clients. This theory was not supported by the data. External auditors may still be learning how to use red flags effectively to detect fraud, since the relatively new SAS No. 99 became mandatory as of December 15, 2002. For this reason, external auditors at larger firms might recognize the fraud-detecting effectiveness of red flags more than external auditors at smaller firms in the upcoming decade.

Hypothesis Five: Gender

It is not surprising that significances were found between male and female auditors for both external and internal auditor groups as exhibited in Table 2. What is surprising is that females perceive red flags to be more effective than their male counterparts. For the external auditors, females had a mean of 4.32 whereas males had a mean of 4.00. For internal auditors, females again rated red flags higher (4.21 versus 3.88, respectively). Females’ tendency to be more attentive to details and the fact that female accounting students have outperformed male accounting students may be possible reasons for this outcome. Another explanation might be the more cautious nature of female versus male. Therefore, females more than males might tend to regard red flags as much more effective in order to detect fraud and avoid serious ramifications if the fraudulent activity was occurring but was not detected.

Hypotheses Six: Aggregate Mean of External and Internal Auditors

A list of the 42 red flags found in SAS No. 99 is shown in Table 3 with the red flags in descending order from most effective to least effective as perceived by external auditors. In addition, the list of the 42 SAS No. 99 red flags is included for the internal auditors. The aggregate mean for all 42 red flags by external auditors is slightly higher at 4.11, while the aggregate mean for internal auditors is 3.98. No statistical differences were found between these groups of auditors with respect to the overall mean (p -value = 0.2370).

³ While it was theorized that some exposure to red flags might be part of an internal auditor’s experience, they were regarded as two separate variables. Correlation coefficients were run for all variables and when examining experience versus ‘extent of exposure,’ ‘how often do you use red flags,’ ‘organization effective in use of red flags,’ and ‘have you used red flags to detect fraud,’ the correlation coefficients were .133, .116, .164, and .169, respectively with none of the coefficients being significant.

Hypothesis Seven: Level of Agreement among External and Internal Auditors

This hypothesis examines the extent of the distribution of responses for each red flag by each of the two auditor group. On the questionnaire, the values of one to six were the possible answers as to the level of fraud-detecting effectiveness indicated by each auditor. It was theorized that red flags with lower aggregate means may have wider dispersion of auditor responses (larger variances) or less agreement among auditors. In the same way, other red flags with higher aggregate means may have narrower dispersion of auditor responses (smaller variances) or more agreement among auditors. As a measure of this dispersion, the variance was calculated for each of the 42 SAS No. 99 red flags for both external and internal auditors as shown in Table 3. In Table 3, it was expected as the aggregate means decrease proceeding the right columns indicating lower perceived levels of fraud-detecting effectiveness, the variances or dispersion of auditor responses would tend to generally decrease indicating reducing agreements among auditor responses. In reviewing the means and variances, the inverse relationship between the auditors' perceived level of fraud-detecting effectiveness and the extent of agreement among the auditors' responses, as anticipated, did not happen. In reality, there is no identifiable relationship appears between the means and variances for 42 red flags.

Hypothesis Eight: Individual Red Flag Effectiveness

As shown in Table 3, 17 of the 42 red flags have significant differences between external and internal auditors are found concerning the perceived level of effectiveness. The t-tests were used to determine these 17 significant differences that are indicated by asterisks in Table 3. Four of these 17 red flags are regarded by the auditors as the most effective red flags, but significant differences exist between the two groups. The red flag with the highest level of fraud-detecting effectiveness perceived by external auditors is "known history of security violations," while the red flag with highest level of effectiveness red flag perceived by internal auditors is "restrictions placed on the auditor." These significant differences indicate that the external and internal auditors disagree as to the perceived level of fraud-detecting effectiveness of each of the 17 red flags.

Hypothesis Nine: SAS No. 99 Categories

The top portion of Table 4 shows the 42 red flags divided into the three SAS No. categories: attitude or rationalization (AR), opportunity (OP), and incentive or pressure (IP), and subdivided the red flags into three levels of fraud-detecting effectiveness perceived by each auditor group: more effective, effective, and less effective.⁴ SAS No. 99 classified the red flags as follows: 12 attitude or rationalization red flags, 14 opportunity red flags, and 16 incentive or pressure red flags. The external auditors perceived 15 red flags as more effective, another 15 red flags as effective, and the remaining 12 red flags as less effective in detecting fraud. In comparison, the internal auditors perceived 12 red flags as more effective, another 11 red flags as effective, and the remaining 19 red flags as less effective in detecting fraud. The top portion of Table 4 classifies the 42 red flags into the three SAS No. 99 categories and then groups the red flags into the three level of fraud-detecting effectiveness for each auditor group. Consistent with previous studies, the results of this study show that both groups of auditors identified AR red flags (external auditors: 4.40 and internal auditors: 4.32) as most effective in detecting fraud, with the OP red flags (external auditors: 4.16 and internal auditors: 4.12) were deemed the second most effective, and the IP red flags (external auditors: 3.77 and internal auditors: 3.47) ranked the as least effective fraud indicators. Within each of the three SAS No. 99 categories, the external auditors perceive the red flags as slightly more effective in detecting fraud than the internal auditors which is evident in the above stated means.

The middle and bottom portions of Table 4 show only those particular red flags that were perceived by either the external or internal auditors as being more effective in detecting fraud. External auditors identified seven of 12 AR red flags, six of 14 OP red flags, and only two of 16 IP red flags as more effective for detecting fraud. Likewise, the internal auditors identified eight of 12 AR red flags, three of 14 OP red flags, and one of 16 red flags as being more effective in detecting fraud. Internal auditors had a slightly larger number of AR red flags (eight) identified as

⁴ A complete list of SAS No. 99 red flags identified by the auditors as 'more effective,' 'average effective,' and 'less effective,' is available from the authors.

more effective but were considerably lower than external auditors with only three OP and one IP red flag as being more effective.

Among the more effective attitude/rationalization red flags shown in the middle portion of Table 4, “Known history of violations of securities law” was considered the most effective by both external and internal auditors, although the external auditors (5.22) perceived this red flag having slightly higher fraud-detecting effectiveness than internal auditors (4.89). External auditors, who conduct financial statement audits would naturally be more knowledgeable about securities law, would consider violations of such law as more indicative of fraud than internal auditors.

Among the more effective opportunity red flags shown in the bottom portion of Table 4, “Significant, unusual, or highly complex transactions” was considered the most effective by both external and internal auditors, although the external auditors (4.16) perceived this red flag as barely having higher fraud-detecting effectiveness than internal auditors (4.12). The internal auditors which most likely are associated with these complex transactions of their employers than the external auditors, and thus, internal auditors may consider such complex transactions as possibly involving potential fraudulent activity more than external auditors.

Among the more effective incentive/pressure red flags shown in the bottom of Table 4, “Excessive pressure on operating management to meet financial targets exerted by board of directors or chief executive officers” was considered by both external and internal auditors, although the external auditors perceived this red flag as having slightly higher fraud-detecting effectiveness than the internal auditors. The external auditors possessing more of an outside perspective than the internal auditors would be more likely to notice excessive pressure exerted from directors or executive officers down to the lower managers over operations. Such excessive pressure may be indicative of the occurrence of fraudulent activity.

CONCLUSIONS

It is evident from this study that the perceived effectiveness of SAS No. 99 red flags in detecting fraudulent financial statements varies widely but is consistent with previous research findings. External auditors seem to perceive red flags as more effective generally in detecting fraud than internal auditors. For external auditors, significant indicators of red flag effectiveness were found with variables that measured actual “hands-on” use of red flags such as exposure to red flags, how often one uses red flags, the organization’s effectiveness with red flags, and the use of red flags to detect fraud. For internal auditors, the amount of internal auditing experience directly impacted one’s perception of the effectiveness of red flags. In general, more experienced internal auditors perceived the 42 red flags as being more effective in detecting fraud than less experienced internal auditors. For both external and internal auditors, gender also accounted for differences in perceptions. Surprisingly, female auditors rated the red flags consistently more effective in the detection of fraudulent activity than male auditors. Based on significant differences, the external auditors and internal auditors disagreed about the perceived level of fraud-detecting effectiveness of 17 out of the 42 SAS No. 99 red flags. Based on the fraud-triangle and consistent with previous studies, it is apparent that both external and internal auditors perceived the attitude/rationalizations (AR) red flags to be the more effective red flags than opportunity (OP) red flags, which were also perceived to be more effective than the incentive/pressure (IP) red flags. Given the post-Enron mentality of the government and stockholders, the discovery of fraudulent activity rests squarely on the shoulders of the audit professionals. Further research into why auditors have such varied opinions concerning these audit tools like red flags need to be conducted to insure the proper use of red flags in future audits.

As in all studies, there are some limitations which that must be recognized. Even though the questionnaire was pre-tested and validated, it is still possible that some misinterpretation of the questions might have occurred. While the size of this sample is adequate and acceptable for this type of research, the response rates were low and it is possible the sample might not be representative of the population of auditors in the United States. In addition, all of the self-reported demographic information is true and accurate without question.

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Table 1
Demographics on External and Internal Auditors (%)

	External Auditors					Internal Auditors				
	None	Slightly	Moderately	Extensive	Extreme	None	Slightly	Moderately	Extensive	Extreme
What is your exposure to red flags?	6	26	43	23	2	3	28	41	25	3
How often do you use red flags?	Never	Rarely	Occasionally	Frequently	Always	Never	Rarely	Occasionally	Frequently	Always
	10	7	31	37	15	4	12	34	36	14
Have you ever used red flags to detect fraud?	Yes	No				Yes	No			
	58	42				76	24			
Attended conferences on fraud detection using red flags?	Yes	No				Yes	No			
	48	52				54	46			
Has firm offered in-house red flag training?	Yes	No				Yes	No			
	29	71				20	80			
CPE hours on red flags and fraud detection?	<=10	11-15	16-20	21-25	>25	<=10	11-15	16-20	21-25	>25
	52	16	14	3	15	42	5	18	10	25
How effective is firm in using red flags?	Seldom	Somewhat	Mostly	Very	Extremely	Seldom	Somewhat	Mostly	Very	Extremely
	22	34	24	17	3	16	23	42	11	8
Position in firm	Partner	Manager	Senior	Staff		Director	Manager	Senior	Staff	
	62	22	12	4		50	19	7	24	
Professional Certifications	CPA	CIA	CMA	CFE	Others	CPA	CIA	CMA	CFE	Others
	100	4	3	5	5	68	35	2	14	27
Total years in any auditing field	< 5	6-10	11-15	16-20	> 20	< 5	6-10	11-15	16-20	> 20
	14	13	14	12	47	9	18	17	17	39
Firm size	Big 4	Top 25	Regional	Local						
	25	8	11	56						
College degrees	BS/BA	MBA/MS	PhD	Other		BS/BA	MBA/MS	PhD	Other	
	100	26	8	0		100	28	1	0	
Undergraduate major	Actg	Finance	Other business	Non-business		Actg	Finance	Other business	Non-business	
	85	0	5	10		76	1	7	16	
Gender	Male	Female				Male	Female			
	80	20				72	28			

		External (p-values)	Internal (p-values)	Combined (p-values)
H₁	Experience			
	External auditing experience	.1389	.9178	n/a
	Internal auditing experience	.9232	.0591	n/a
	Total audit work experience	.1149	.0865	.5806
	Position	.2673	.4117	n/a
H₂	Training			
	Conferences with red flag training	.5973	.5532	.9207
	In-house red flag training	.5746	.6880	.9856
	CPE hours on red flags	.2160	.2329	.7550
H₃	Exposure			
	Extent of exposure to red flags	.0092	.7168	.0494
	How often you use red flags	.0214	.1519	.0166
	Organization effectiveness in using red flags	.0417	.7103	.0905
	Used red flags to detect fraud	.0835	.1298	.0993
H₄	Firm size	.2837	n/a	n/a
H₅	Gender	.0863	.0910	.0184

Red Flag	External		Sig	Internal	
	Mean	Var		Mean	Var
Known history of violations of securities law, or claims against the entity, its senior management, or board members alleging fraud or violations of securities laws	5.22	1.086	**	4.89	1.914
Domineering management behavior in dealing with the auditor, especially involving attempts to influence the scope of the auditor's work	4.90	1.131		5.00	1.374
Significant, unusual, or highly complex transactions, especially occurring close to year end that pose difficult "substance over form" questions	4.87	.992		4.94	1.404
Formal or informal restrictions on the auditor that inappropriately limit his access to people or information or limit his ability to communicate effectively with the board of directors or the audit committee	4.80	1.268	*	5.02	1.326
Significant related-party transactions not in the ordinary course of business or with related entities are not audited or audited by another firm	4.71	1.010		4.68	1.765
Frequent disputes with the current or predecessor auditor on accounting, auditing, or reporting matters	4.58	1.230	*	4.36	1.683
Recurring attempts by management to justify marginal or inappropriate accounting on the basis of materiality	4.56	1.169		4.36	1.526
Inadequate monitoring of significant internal controls	4.55	1.147	*	4.37	1.604
Domination of management by a single person or small group in a nonowner-managed business without compensating controls	4.48	1.324		4.66	1.566
Excessive pressure on operating management or personnel to meet financial targets (sales and profitability incentive goals) exerted by board of directors or chief executive officers	4.45	1.274		4.27	1.475
Significant bank accounts or subsidiary or branch operations in tax-haven jurisdictions for which there appears to be no clear business justification	4.40	1.656		4.29	1.959
Ineffective accounting and information systems, including situations involving reportable conditions	4.35	1.349		4.37	1.543
Significant portions of management's compensation, represented by bonuses and stock options, being contingent upon achieving aggressive targets for stock price, operating results, financial position, or cash flow	4.32	1.227		4.22	1.971
Management failure to correct known reportable conditions in internal controls in a timely basis	4.30	1.156		4.26	1.481
A practice used by management of committing to analysts, creditors, and other third parties to achieve aggressive or unrealistic forecasts	4.29	1.057		4.08	1.891
Excessive interest by management in maintaining or increasing the entity's stock price or earnings trend	4.23	1.479	**	3.78	2.135

Unrealistic profitability or trend level expectations by management in overly optimistic press releases or annual report messages	4.18	1.206	*	3.97	1.634
Recurring negative cash flows from operations or an inability to generate cash flows while reporting earnings and earnings growth	4.18	1.308	**	3.77	1.913
Ineffective communication, implementation, support, or enforcement of the entity's values or ethical standards by management or the communication of inappropriate values or ethical standards	4.17	1.361	*	4.54	1.509
High turnover rates or employment of ineffective accounting, internal audit, or information technology staff	4.17	1.447		4.28	1.307
Ineffective board of directors or audit committee oversight over the financial reporting process and internal control system	4.12	1.486		4.34	1.677
Assets, liabilities, revenues, or expenses based on significant estimates that involve subjective judgments or uncertainties that are difficult to corroborate	4.10	1.179		4.11	1.544
Unrealistic profitability or trend level expectations of investment analysts, institutional investors, significant creditors or other external parties in overly optimistic press releases or annual report messages	4.07	1.215	*	3.70	1.819
Unreasonable demands on the auditor, such as unreasonable time constraints regarding the completion of the audit or the issuance of the auditor's report	4.05	1.447		3.86	1.959
Difficulty in determining the organization or individuals that have controlling interest in the entity	3.99	1.556		3.98	1.732
Perceived or real adverse effects of reporting poor financial results on significant pending transactions, such as business combinations or contract awards	3.98	1.258	*	3.69	1.452
Nonfinancial management's excessive participation in the selection of accounting principles or the determination of significant estimates	3.98	1.386		4.04	1.794
Rapid growth or unusual profitability, especially compared to that of other companies in the same industry	3.98	1.346		3.99	1.825
Overly complex organizational structure involving unusual legal entities or managerial lines of authority	3.94	1.313		3.76	1.941
High turnover of chief executive officers or board directors	3.89	1.686		3.86	1.859
Operating losses making imminent threat of bankruptcy or foreclosure, or hostile takeover.	3.84	1.594	*	3.56	2.005
An interest by management employing inappropriate means to minimize reported earnings for tax-motivated reasons	3.80	1.339	*	4.23	2.094
Marginal ability to meet exchange listing requirements or debt repayment	3.79	1.269	*	3.47	1.592
Management and/or board directors holding significant financial interests in the entity	3.70	1.675		3.50	2.314
Management and/or board directors have personally guaranteed significant debts of the entity	3.63	1.743		3.71	2.253
A strong financial presence or ability to dominate a certain industry sector that allows the entity to dictate terms or conditions to suppliers or customers that may result in inappropriate or not arm's length transactions	3.47	1.307		3.45	1.817
Need to obtain additional debt or equity financing of major research and development or capital expenditures to stay competitive	3.47	1.441	***	2.89	1.393
High degree of competition or market saturation, accompanied by declining margins	3.38	1.189	*	3.12	1.408
Significant declines in customer demand and increasing business failures in the industry or overall economy	3.37	.960	*	3.03	1.673
Significant operations located or conducted across international borders in jurisdictions where differing business environments and cultures exist	3.23	1.445	*	2.90	1.510
High vulnerability to rapid changes in technology, product obsolescence, or interest rates	3.21	1.034		3.15	1.725
New accounting, statutory, or regulatory requirements	2.76	.951		2.62	1.239
* significant below .10 ** significant below .01 *** significant below .001					

Table 4						
SAS No. 99 Categories of Red Flags						
	Attitude or Rationalization (12 red flags)		Opportunity (14 red flags)		Incentives or Pressures (16 red flags)	
	External	Internal	External	Internal	External	Internal
More Effective	7	8	6	3	2	1
Effective	4	3	6	4	5	4
Less Effective	1	1	2	7	9	11
Average	4.40	4.32	4.16	4.12	3.77	3.47
More Effective Attitude / Rationalization Red Flags					External Mean	Internal Mean
Known history of violations of securities law, or claims against the entity, its senior management, or board members alleging fraud or violations of securities laws					5.22	4.89
Domineering management behavior in dealing with the auditor, especially involving attempts to influence the scope of the auditor's work					4.90	5.00
Formal or informal restrictions on the auditor that inappropriately limit his access to people or information or limit his ability to communicate effectively with the board of directors or the audit committee					4.87	5.02
Frequent disputes with the current or predecessor auditor on accounting, auditing, or reporting matters					4.80	4.36
Recurring attempts by management to justify marginal or inappropriate accounting on the basis of materiality					4.71	4.36
Management failure to correct known reportable conditions in internal controls in a timely basis					4.58	4.26
A practice used by management of committing to analysts, creditors, and other third parties to achieve aggressive or unrealistic forecasts					4.56	4.08
Excessive interest by management in maintaining or increasing the entity's stock price or earnings trend					---	3.78
More Effective Opportunity Red Flags						
Significant, unusual, or highly complex transactions, especially occurring close to year end that pose difficult "substance over form" questions					4.87	4.94
Significant related-party transactions not in the ordinary course of business or with related entities are not audited or audited by another firm					4.71	4.68
Inadequate monitoring of significant internal controls					4.55	4.37
Domination of management by a single person or small group in a nonowner-managed business without compensating controls					4.48	---
Significant bank accounts or subsidiary or branch operations in tax-haven jurisdictions for which there appears to be no clear business justification					4.40	---
Ineffective accounting and information systems, including situations involving reportable conditions					4.35	---
More Effective Incentives / Pressures Red Flags						
Excessive pressure on operating management or personnel to meet financial targets (sales and profitability incentive goals) exerted by board of directors or chief executive officers					4.45	4.27
Significant portions of management's compensation, represented by bonuses and stock options, being contingent upon achieving aggressive targets for stock price, operating results, financial position, or cash flow					4.32	---

NOTES