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### Abstract

There has been very little prior research examining how the prescriptions of SAS No. 99 map into the auditors' fraud risk assessment process. SAS No. 99 asks the auditors to consider two major types of fraud (fraudulent financial reporting (FFR) and misappropriation of assets (MOA)) in the context of three major fraud risk factors (pressures, opportunities and rationalization). In this study we conduct an experiment to gain an understanding about the auditors' perceived responsibility for detecting FFR versus MOA. Then we examine how auditors associate the two fraud risk factors (pressures and opportunities) with the two potential types of frauds mentioned in SAS No.99. Additionally we also examine the extent which the client size of an auditor affects the auditors' perceived responsibility for detecting FFR and MOA and how the auditors associate pressures and opportunities with FFR and MOA. The results indicate that while all auditors focused equally on FFR; auditors of larger clients assessed a significantly lower responsibility for detecting MOA compared to FFR. On the other hand, auditors of smaller clients assumed equal responsibility for detecting FFR versus MOA. The results of this experiment also indicated that auditors of larger clients associated the risk of FFR more with high pressures, and the risk of MOA more with high opportunities, while auditors of smaller clients did not specifically associate the risk of FFR or MOA with either high pressures or high opportunities. Additionally the results suggest that auditors of larger clients assessed higher fraud risk and audit effort when pressure was high compared to when opportunity was high. This could be due to the fact that such auditors perceive greater responsibility for detecting FFR compared to MOA and they tend to associate high pressures with FFR and high opportunities with MOA. For the auditors engaged with smaller clients, there were no differences in the perceived responsibility for detecting FFR versus MOA, nor did they specifically associate FFR and MOA with either pressure or opportunity. As a result of which, there were no significant differences in their assessments of fraud risk and audit effort in the presence of high pressures or high opportunities.

## The Effects of Fraud Risk Factors and Client Characteristics on Audit Procedures

### INTRODUCTION

Fraud detection is among the highest priorities for the accounting profession and standard setters (Elliott 2002; PCAOB 2003, 2007, 2008). Statement on Auditing Standards (SAS) No. 99 *Consideration of Fraud in a Financial Statement Audit* requires that auditors consider two types of misstatements—misstatements arising from fraudulent financial reporting (FFR) and misstatements arising from misappropriation of assets (MOA)—while assessing the risk of fraud (AICPA 2002). However, the extent to which auditors focus on each of these types of fraud is not clear (DeZoort and Harrison 2008a, 2008b). Additionally SAS No. 99 requires the auditors to consider the risk of FFR and MOA in context of the pressures and opportunities experienced by a company. Neither SAS No. 99, nor prior research, provides auditors with significant guidance as to whether certain risk factors are more or less likely to be associated with FFR or MOA. Additionally, depending on the relative magnitude of the fraud and the typical characteristics of the fraud risk factors involved, there could be differences in the manner in which auditors of large and small clients perceive responsibility for detecting FFR versus MOA and also how they associate pressures and opportunities with the assessed risk of detecting FFR and MOA. Therefore in this study we conduct an experiment to gain an understanding about the auditors' perceived responsibility for detecting FFR versus MOA. Then we examine how auditors associate the two fraud risk factors (pressures and opportunities) with the two potential types of frauds mentioned in SAS No.99. Additionally we also examine the extent which the average client size of an auditor affects the auditors perceived responsibility for detecting FFR and MOA and also their association of pressures and opportunities with FFR and MOA. Such an

investigation will help in providing an insight into the auditors' fraud risk assessment process and eventually increase the effectiveness of the fraud risk assessment process.

Although SAS No. 99 requires that auditors focus on both FFR and MOA, most accounting research has focused on FFR and little is known about the extent to which auditors focus their efforts on the detection of MOA. While both FFR and MOA are problematic, research by the Association of Certified Fraud Examiners (ACFE) suggests that FFR is less common, but more costly, than MOA (ACFE 2006). Moreover, although instances of FFR are relatively infrequent, they can take on a high profile (e.g., Enron, WorldCom) and they can be extremely costly for the auditor involved (Beasley and Hermanson 2004; Palmrose 2007).

In this paper, we begin by examining the extent to which auditors perceive responsibility for the detection of FFR versus MOA. This is important because to the extent that auditors do not feel responsible for a specific type of fraud detection, they may not design audit programs to detect such frauds. For example, if FFR is more likely to result in larger losses, it may be the case that auditors focus more on its detection and attend less to the detection of the more common MOA-type frauds. This could be particularly relevant for auditors of large clients: for their clients it is less likely that the, on average, smaller MOA frauds would achieve the level of materiality. Yet, even for the largest clients, MOA can result in serious losses and be indicative of a general weakness in controls—which can result in misstated financial reports.<sup>1</sup>

In addition to investigating the auditor's perceived responsibility for detection of FFR versus MOA, we examine the extent to which auditors' associate pressures, and opportunities to commit fraud, with the risk of FFR and MOA. SAS No. 99 directs auditors to consider specific risk factors—including pressure and opportunity to commit fraud—when making fraud risk

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<sup>1</sup> For example, high profile frauds such as in DeLorean, Adelphia and Tyco involved misappropriation of assets by corporate executives.

assessments. However, neither SAS No. 99, nor prior research, provides auditors with significant guidance as to whether certain risk factors are more or less likely to be associated with FFR or MOA. Yet, this information could give us a valuable insight into the auditors' decision making process related to fraud and eventually help in improving this process. We also examine how the average client size of an auditor affects their association of pressures and opportunities with FFR and MOA.

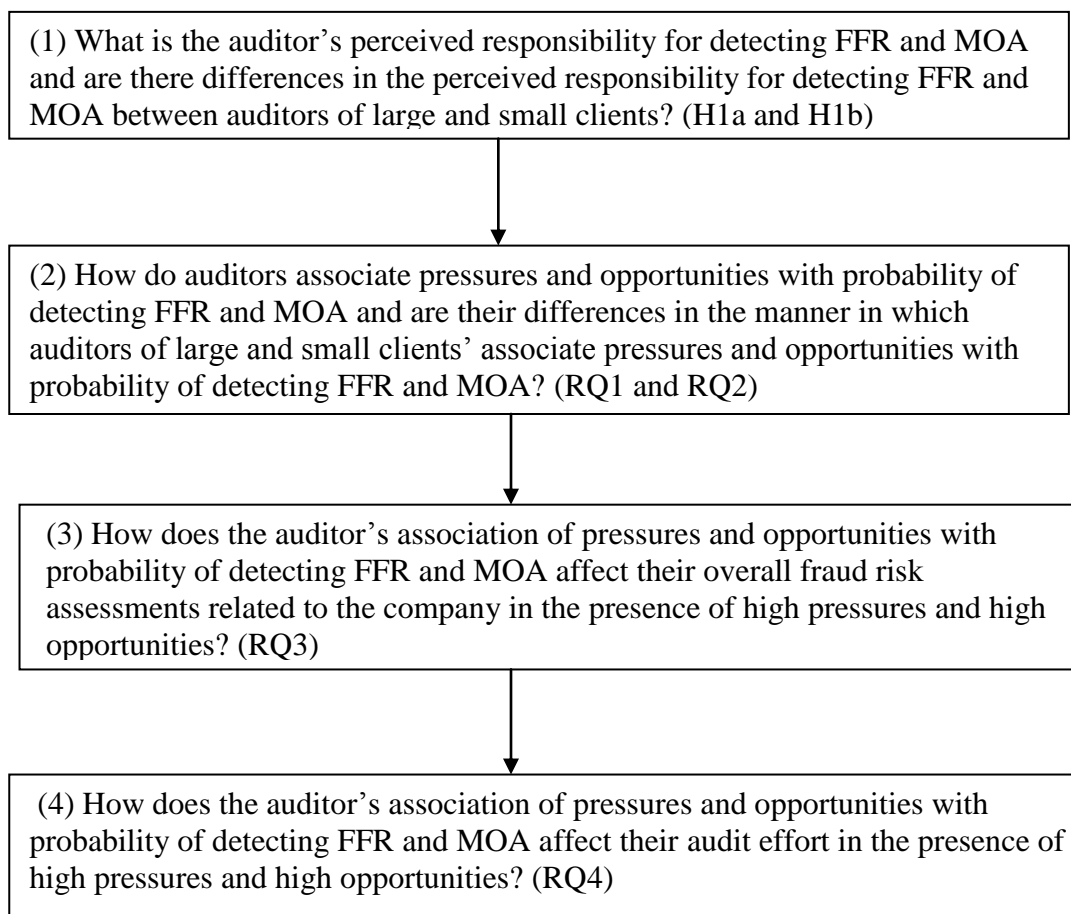
We conducted a 2 x 2 (pressure and opportunity are manipulated at high and low levels) between-subjects experiment and found that while all auditors focused equally on FFR; auditors of larger clients (compared to auditors of smaller clients) assessed a significantly lower responsibility for detecting MOA compared to FFR. On the other hand, auditors of smaller clients assumed equal responsibility for detecting FFR versus MOA. The results of this experiment also indicated that auditors of larger clients associated the risk of FFR more with high pressures, and the risk of MOA more with high opportunities, while auditors of smaller clients did not specifically associate the risk of FFR or MOA with either high pressures or high opportunities.

Given the findings of this experiment—that certain auditors perceived different levels of responsibility for detecting MOA versus FFR, and that certain auditors were more likely to associate MOA (FFR) with high opportunity (pressure) to commit fraud—we conducted an additional analysis on the data collected from the first experiment. In the additional analysis, we examined whether the significant differences in perceptions and associations detected in the initial analysis were related to auditors' fraud risk assessments and/or adjustments to audit effort.

The results of the additional analysis indicate that auditors of larger clients assessed higher fraud risk and audit effort when pressure was high compared to when opportunity was

high. This could be due to the fact that such auditors perceive greater responsibility for detecting FFR compared to MOA and they tend to associate high pressures with FFR and high opportunities with MOA. For the auditors engaged with smaller clients, there were no differences in the perceived responsibility for detecting FFR versus MOA, nor did they specifically associate FFR and MOA with either pressure or opportunity. As a result of which, there were no significant differences in their assessments of fraud risk and audit effort in the presence of high pressures or high opportunities. (See Figure 1 for detailed explanation of the issues examined in this study)

**Figure 1: Chronological Overview of Research Issues Examined**



## **AUDITORS' PERCEIVED RESPONSIBILITY FOR DETECTING DIFFERENT FRAUD TYPES AND ASSOCIATION OF DIFFERENT FRAUD TYPES WITH PRESSURES AND OPPORTUNITIES**

### **The Effect of Fraud Type and Client Type**

SAS No. 99 requires that the auditors consider two types of misstatements, FFR and MOA while assessing the risk of material misstatement or fraud. There has been no research till date which examines if auditors perceive equal responsibility for detecting FFR and MOA or, if there are differences in the perceived responsibility for detecting these types of frauds. It is important to examine this issue because the extent to which auditors do not feel responsible for a specific type of fraud detection, they may not design audit programs to detect such frauds. This in turn could reduce the overall effectiveness of the audit.

Prior research indicates that, although there are more instances of MOA than FFR (1,038 fraud cases were related to MOA, while only 120 cases were related to FFR), the economic magnitude of FFR is significantly greater than MOA (median loss in FFR cases was \$2 million, compared to \$150,000) (ACFE 2006). Moreover, it was the high profile FFR cases (e.g., WorldCom, Enron) that received the greatest press coverage and produced the largest legal consequences for accounting firms and motivated the passing of the Sarbanes-Oxley Act of 2002 (Beasley and Hermanson 2004; Palmrose 2007). However, according to SAS No. 99 no fraud is immaterial. According to SAS No. 99 even small frauds could be indicative of weaknesses in a company's operations which in turn could lead to larger frauds.

Prior accounting and psychology literature suggests that items that are greater in magnitude and have greater consequences associated with them are more salient. The increased salience could have an effect on judgment and decision making of the auditor (DeZoort and Harrison 2007; Case 2006; Joe 2003; Plous 1993). For example, Joe (2003) found that increased

press coverage increased the salience of a company's problems and consequently increased auditor pessimism about the client's going concern prospects. Mutchler, Hopwood, and McKeown (1997) find that Wall Street Journal press coverage of a client's debt default was associated with an increased likelihood that auditors would issue a modified audit opinion but that press coverage did not necessarily increase the client's probability of bankruptcy. In an investigation of the representativeness and availability heuristic, Kahneman and Tversky (1972,1973) find that when making judgments under uncertainty, decision makers ignored the background or base rates of the occurrence of the event in the prediction task. Decision makers rather made probability judgments based on the similarity of an event to its parent population and the representativeness of the most salient features of the sample, or by the ease with which relevant instances could be recalled or imagined. Therefore, the higher press coverage, litigation risk, and cost associated with FFR, compared to MOA, could make FFR more salient than MOA and in turn this could make the auditor perceive more responsibility to detect frauds involving FFR. Conversely, given the relatively smaller economic magnitude and lesser consequences associated with MOA, auditors will perceive a lesser responsibility for detecting MOA compared to FFR. This is despite the fact that such a practice could reduce the effectiveness of the audit and also may result in the escalation of the magnitude of fraud in the future (Bazerman et al. 2002).

Another factor that could affect the auditors perceived responsibility for detecting fraud is the magnitude of the fraud in relation to the size of their clients or the "materiality" of the fraud in the context of the audit. As noted above, frauds involving FFR received the most publicity and produced the largest legal and economic consequences for accounting firms (Beasley and Hermanson 2004; Palmrose 2007). As a result such types of frauds maybe more salient to the



auditors. Therefore, even though the frequency of such frauds is low, it is possible that irrespective of the size of the client being audited, auditors will focus on detecting such fraud. However, the economic magnitude of MOA is significantly smaller than FFR (ACFE 2006). Hence it is possible that for auditors of larger companies, MOA may not be as significant or material as FFR. However, according to SAS No. 99 the auditor should not consider any fraud (irrespective of its size) to be immaterial because even small frauds could be indicative of some weaknesses in a company's operations. Hence, if the auditors of larger clients are letting factors like publicity and legal consequences affect their fraud risk assessment and feeling less responsible for detecting MOA then they may be violating the prescriptions of SAS No. 99.

For auditors of relatively smaller companies even relatively smaller frauds, involving MOA, could have a significant or material impact on the financial statements (Wells 2003; Nilsen 2010). As a result, it is likely that auditors of such companies would tend to focus on both, MOA and FFR. Hence, it is expected that auditors engaged with different types of clients will exhibit differences in perceived responsibility for detecting FFR versus MOA. Based on the above discussion we posit:

- H1a:** Auditors of large clients will perceive significantly more responsibility for detecting FFR compared to MOA.
- H1b:** Auditors of small clients will perceive equal responsibility for detecting FFR and MOA.

## Fraud Risk Factors: Pressures and Opportunities

The “Fraud Triangle” (SAS No. 99) lists three drivers of fraud: (1) perceived pressure (2) perceived opportunity and (3) rationalization.<sup>2, 3</sup> Pressures may occur in a company when financial stability or profitability is threatened by economic, industry, or operating conditions. The opportunities to commit fraud are usually provided by the nature of the industry and/or the company’s operations.<sup>4</sup> SAS No. 99 specifically requires the auditors to consider these fraud risk factors in the context of misstatements arising from both FFR and MOA. There is no prior research, which examines how auditors associate high pressures and opportunities with risk of FFR and MOA. An investigation of this issue could give us some valuable insights into the auditors’ fraud risk assessment process and eventually help in improving it.

Results of an ACFE (2006) report, suggest that a majority of the frauds related to FFR were driven by the company’s desire to appear more or less profitable. Prior research suggests that, under certain high pressure conditions, company managers will attempt to make the financial statements appear to be more profitable.<sup>5</sup> Auditors are aware of this possibility and therefore could assess a higher probability of FFR when pressure on management is high.

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<sup>2</sup> SAS No. 99 (also see Casabona and Grego 2003, p.18) gives several notable examples of pressures, opportunities, and rationalization.

<sup>3</sup> As the auditing standard suggests, it is difficult to observe management’s ability to rationalize because rationalization is a psychological factor unique to each individual. Conversely, auditors can more directly observe the pressures on management and opportunities to commit fraud (Carpenter and Reimers 2005). Therefore, in this paper we focus our attention on two of the three conditions mentioned in SAS No.99: pressures and opportunities.

<sup>4</sup> Prior research suggests that the existence of both pressures, for example, meeting earnings targets set by management or analysts, meeting targets to maximize compensation, meeting debt covenants (Healy 1985; Beatty and Weber 2003; Defond and Jiambalvo 1994; Skousen and Wright 2006) and opportunities, for example, lack of suitable controls, presence of complex transactions (Klein 2002; Dechow, Sloan and Sweeney 1996; Albrecht 2002; Beasley et al. 2000) can lead to inappropriate aggressive accounting (Hogan et al. 2008).

<sup>5</sup> E.g. meet earnings targets that increase their bonus payouts (Healy 1985; Guidry, Leone and Rock 1999), avoid violating debt covenants (DeFond and Jiambalvo 1994), avoiding earnings decreases (Burghstaler and Dichev 1997).

Further, SAS No. 99 indicates that people would commit fraud if they are subject to sufficient pressure. Therefore, managers' ability to override internal controls can lead to a heightened probability of FFR even if one observes strong controls and, presumably, low opportunities to commit FFR – if pressure on management is high.

The majority of frauds related to MOA are driven by the desire to gain a personal benefit by either stealing or misusing the company's assets (ACFE 2006). When auditors observe high opportunities, then in the absence of significant pressure, they could assume that the probability of FFR is significantly lower; if there is no apparent visible high pressure on the management to report fraudulently, management is not likely to do so. However, the management could use the opportunities available to them to misappropriate assets for some personal benefits (e.g., Adelphia, Tyco), and hence, the risk associated with MOA could be assessed to be high. Therefore, to investigate this issue we posit the following research question:

**RQ1:** How do auditors' associate high pressures and opportunities with the risk of FFR and MOA?

According to H1a and H1b there could be differences in perceived responsibility for detecting FFR versus MOA for auditors of small and large clients. Similarly, there could be differences in the manner in which auditors of large and small clients associate the probability of detecting FFR and MOA with high pressures and opportunities. These differences could arise due to differences in internal control structures, ownership structures, materiality and magnitude of frauds involved etc. However, there is no prior literature that investigates this issue. Therefore we posit the following question to investigate this issue:

**RQ2:** Are there differences in the manner in which auditors of larger clients and smaller clients' associate high pressures and opportunities with the risk of FFR and MOA?

## EXPERIMENT

### *Design and Participants*

We conducted an experiment using a 2 (high versus low pressure) x 2 (high versus low opportunity) between-subjects design to examine our hypotheses and research questions. We adapted certain sections of the instruments employed by O'Donnell and Schultz (2005). A total of ninety-eight CPAs participated in the experiment. On an average they reported over 6 years of experience (mean years of experience = 6.74; standard deviation = 2.34 years). Fifty-four CPAs were currently employed with a Big 4 firm; while the remaining forty-four CPAs were currently employed by regional accounting firms. For the purpose of our analysis, auditors whose clients had average annual sales of \$500 million or more were classified as auditors of larger clients, while auditors whose clients had average annual sales of less than \$500 million were classified as auditors of smaller clients.

### *Materials and Procedures*

The items used to operationalize the pressures and opportunities were adapted from those reported as significant in prior research (Moyes et al. 2006; Apostolou et al. 2001; and Wilks and Zimelman 2004). The high pressures on management are operationalized by the presence of aggressive bonus targets and earnings targets set by analysts and, high competition experienced by the company. The high opportunities are operationalized by the wide geographic spread of the company, the presence of complex accounting transactions and estimates, weak monitoring of internal controls, and the presence of affiliated directors on the board of directors.

In a pre-test, which was conducted two months before the actual experiment, we asked 78 practitioners and Masters of Accounting students to rate these pressures and opportunities on an 11 point Likert scale to examine if the ratings for the level of pressures and opportunities were

statistically identical.<sup>6</sup> The results indicate that while the average rating for high pressures was 7.37, the average rating for high opportunities was 7.29. Similarly the average rating for low pressures was 4.29 and that for low opportunities was 4.21. The results indicate that there was no significant difference between ratings of high (low) pressure and high (low) opportunity while there was a significant difference between ratings of high and low pressure and high and low opportunity. This pre-test experiment enables us to ensure that we used the appropriate manipulations to operationalize high and low pressures and opportunities in our actual experiments.

As part of the actual experiment, participants first answered questions related to perceived responsibility for detecting FFR and MOA. We measured the responses to these questions on a scale of 0 (low) to 10 (high). Participants were then assigned to one of the four experimental conditions and assessed (1) probability of discovering FFR and MOA, and (2) overall risk of fraud. These responses were measured on a scale of 0 (low) to 10 (high). Participants also responded to a question related to adjustment in audit effort. This variable was measured on a scale of -5 (significantly decrease audit effort) to +5 (significantly increase audit effort), with 0 as the midpoint (do not adjust audit effort). The measured change in planned audit effort was used to observe if differences in risk assessments led to differences in audit effort.

### ***Manipulation Checks***

Participants were asked to rate the overall level of pressures and opportunities that were present in the cases and list the pressures and opportunities that influenced their fraud risk assessments. This data was categorized by treatment as a check to determine whether the participants were basing their responses on the pressures and opportunities listed in the

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<sup>6</sup> The pre-test participants did not participate in the actual experiment.

respective treatments. Ninety out of the ninety-eight participants were able to list a majority of the high pressures and/or high opportunities that were present in the respective treatments and correctly assess the level of pressures and opportunities embedded in the cases. The responses of the eight participants who failed to list the appropriate pressures and opportunities were not included in the analysis. Finally, as shown in Table 1, the high pressure/high opportunity and low pressure/low opportunity treatments are the most extreme data points. This indicates that our manipulation of pressures and opportunities was effective.

### ***Tests of Hypotheses and Research Questions***

H1a and H1b posit that auditors of large clients will perceive greater responsibility for detecting FFR versus MOA whereas auditors of small clients will perceive equal responsibility for detecting FFR versus MOA. The results indicate that external auditors in general perceived a significantly higher responsibility for detecting FFR compared to MOA (8.09 versus 6.98;  $t = 10.00$ ,  $p < 0.01$ ) (Table 1, Panel B).

**TABLE 1**

| <b><u>Panel A: Descriptive Statistics</u></b>  |                     |                     |                |
|--|---------------------|---------------------|----------------|
|  | <u>Large Client</u> | <u>Small Client</u> | <u>Total</u>   |
| Perceived responsibility for detecting FFR   | 8.07                | 8.12                | 8.09           |
| Perceived responsibility for detecting MOA   | 6.28                | 7.85                | 6.98           |
| <b><u>Panel B: t-test examining difference between responsibility for detecting FFR and MOA</u></b>  |                     |                     |                |
|  | <u>Mean (SD)</u>    | <u>t</u>            | <u>p-value</u> |
| FFR – MOA  | 1.11 (1.05)         | 10.00               | <0.001         |
| <b><u>Panel C: t-test analysis examining difference between perceived responsibility for detecting FFR and MOA for auditors of Large and Small Clients</u></b> |                     |                     |                |
|  | <u>Mean (SD)</u>    | <u>t</u>            | <u>p-value</u> |
| Large Clients (FFR-MOA)  | 1.74 (0.87)         | 12.21               | <0.001         |
| Small Clients (FFR-MOA)  | 0.27 (0.98)         | 0.68                | 0.14           |

\*\*significant at  $p < 0.01$

The results of a t-test analysis (Table 1, Panel C) indicate that auditors of large clients are significantly more likely to perceive a higher responsibility for detecting FFR compared to MOA, while auditors of small clients perceive equal responsibility for detecting FFR versus MOA. These results support H1a and H1b. The overall results suggest that auditors of small and large clients focus on FFR due to the greater salience and higher litigation risk associated with such frauds. However, auditors of larger clients tend to focus less on MOA (than the auditors of smaller clients) because their magnitude tends to be relatively smaller and less material and they do not get the same publicity or create the same litigation risk as FFR.

RQ1 and RQ2 examine how the external auditors differentially relate the presence of pressures and opportunities to risk of finding FFR and MOA, and how auditors of large and small clients may differ in this respect. The results of a 2 x 2 ANOVA analysis indicate that pressures, opportunities and client type (small or large) have a significant effect on the assessed probability of discovering MOA. However, with respect to FFR, only pressures and opportunities are significant (Table 2, Panel C).

TABLE 2

**Panel A: Mean assessed probability of FFR and MOA by treatment for auditors of Large Clients**

|                    | <u>HP/HO<sup>1</sup></u> | <u>HP/LO<sup>1</sup></u> | <u>LP/HO<sup>1</sup></u> | <u>LP/LO<sup>1</sup></u> |
|--------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Probability Of FFR | 7.57                     | 7.01                     | 4.89                     | 2.75                     |
| Probability Of MOA | 7.63                     | 4.69                     | 6.23                     | 3.81                     |

**Panel B: Mean assessed probability of FFR and MOA by treatment for auditors of Small Clients**

|                    | <u>HP/HO<sup>1</sup></u> | <u>HP/LO<sup>1</sup></u> | <u>LP/HO<sup>1</sup></u> | <u>LP/LO<sup>1</sup></u> |
|--------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Probability Of FFR | 7.54                     | 6.76                     | 6.02                     | 3.05                     |
| Probability Of MOA | 7.68                     | 6.36                     | 6.43                     | 3.98                     |

**Panel C: 2 x ANOVA analysis examining the effect of pressures and opportunities on assessed probability of FFR**

|                        | <u>df</u> | <u>MS</u> | <u>F-stats</u> |
|------------------------|-----------|-----------|----------------|
| Pressure               | 1         | 232.23    | 192.41**       |
| Opportunity            | 1         | 42.47     | 35.18**        |
| Pressure x Opportunity | 1         | 13.55     | 10.89**        |
| Client Size            | 1         | 2.58      | 2.47           |
| Error                  | 85        | 1.21      |                |

**Panel D: 2 x 2 ANOVA analysis examining the effect of pressures and opportunities on probability of discovering MOA**

|                        | <u>df</u> | <u>MS</u> | <u>F-stats</u> |
|------------------------|-----------|-----------|----------------|
| Pressure               | 1         | 50.59     | 73.72**        |
| Opportunity            | 1         | 115.81    | 167.28**       |
| Pressure x Opportunity | 1         | 12.13     | 11.91**        |
| Client Size            | 1         | 28.94     | 41.92**        |
| Error                  | 85        |           |                |

**Panel E: Paired Sample t-test examining relationship between pressures and opportunities and assessed probability of FFR and MOA (Auditors of Large Clients)**

|   | <u>M (SD)</u> | <u>t</u> | <u>p-value</u> |
|---|---------------|----------|----------------|
| Probability of detecting FFR versus MOA for HP/HO | 0.07 (0.56)   | 0.16     | 0.88           |
| Probability of detecting FFR versus MOA for HP/LO | 2.18 (1.06)   | 8.608    | <0.01          |
| Probability of detecting FFR versus MOA for LP/HO | -1.31 (0.96)  | 6.186    | <0.01          |
| Probability of detecting FFR versus MOA for LP/LO | -0.98 (1.02)  | 3.508    | <0.05          |

**Panel F: Paired Sample t-test examining relationship between pressures and opportunities and assessed probability of FFR and MOA (Auditors of Small Clients)**

|   | <u>M (SD)</u> | <u>t</u> | <u>p-value</u> |
|---|---------------|----------|----------------|
| Probability of detecting FFR versus MOA for HP/HO | 0.06 (0.64)   | 0.09     | 0.92           |
| Probability of detecting FFR versus MOA for HP/LO | 0.10 (0.71)   | 0.21     | 0.85           |
| Probability of detecting FFR versus MOA for LP/HO | 0.45 (0.68)   | 1.193    | 0.09           |
| Probability of detecting FFR versus MOA for LP/LO | -0.92 (0.92)  | 3.523    | <0.05          |

<sup>1</sup>HP/HO = High Pressure / High Opportunity: HP/LO = High Pressure / Low Opportunity  
LP/HO = Low Pressure / High Opportunity: LP/LO = Low Pressure / Low Opportunity



The results of a paired sample t-test (Table 2 Panel E) indicate that in the high pressure/high opportunity (HP/HO) auditors of large clients did not indicate a significant difference in probability of discovering MOA or FFR (7.57 versus 7.63). However, in the high pressure/low opportunity (HP/LO) treatments auditors of larger companies assessed a significantly higher likelihood ( $t = 8.608$ ;  $p < 0.01$ ) of discovering FFR compared to MOA ( $M = 7.01$  versus  $M = 4.69$ ; Table 2, Panel A). Similarly in the low pressure/ high opportunity (LP/HO) treatment auditors of larger companies assessed a significantly higher likelihood ( $t = 6.186$ ;  $p < 0.01$ ) of discovering MOA compared to FFR ( $M = 6.23$  versus  $M = 4.89$ ; Table 2, Panel A). These results indicate that auditors of larger clients associate a higher risk of FFR with high pressures and a higher risk of MOA with high opportunities. The results of a t-test analysis (Table 2, Panel F) indicate that as far as the auditors of smaller clients are concerned, there were no differences in the auditors' assessed probability for discovering FFR or MOA in the HP/HO, HP/LO and LP/HO treatments. These results indicate that such auditors do not specifically associate high pressures or high opportunities with either FFR or MOA.<sup>7</sup>

### ADDITIONAL ANALYSIS

SAS No. 99 directs auditors to assess the risk of material misstatements in terms of the three fraud risk factors (opportunities, pressures, and rationalizations). Additionally, the standard specifically prescribes that “the auditor should not assume that all three conditions must be

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<sup>7</sup> In the low pressure/ low opportunity (LP/LO) treatments auditors of large and small clients assesses significantly lower risk of MOA and FFR. However, when pressure and opportunities are both low they assess higher risk of MOA compared to FFR. This could be because in a relatively large client there could always be some risk of the employees or management misappropriating assets for personal gain.

observed or evident before concluding that there are identified risks related to misstatements. Although the risk of material misstatement due to fraud may be highest when all three fraud conditions are observed or evident, the auditor cannot assume that, the inability to observe one or two of these conditions means there is less risk of material misstatement due to fraud” (AICPA AU 316.35). The standard also forewarns auditors that the presence of *any one* set of fraud risk factors alone (pressures, opportunities, or rationalizations) could be a dominant cause of fraud. Hence, when presented with *any* of these fraud risk factors, the auditors should be skeptical about the presence of material misstatements and should consider adequate measures to investigate for the presence of material misstatements.

The results related to RQ1 and RQ 2 in the first experiment indicate that auditors of larger companies *relate high pressures more with FFR and high opportunities more with MOA*. Based on these results we hypothesize that they will be relatively more (less) sensitive to the presence of high pressures (high opportunities) while assessing fraud risk.

In this study almost all of the participants who were classified as auditors of large clients were Big 4 auditors. To substantiate our hypotheses, we used data from Audit Analytics to examine the frequency with which Big 4 auditors encounter weak internal controls (which creates opportunities) leading to the issuing of a qualified 404 opinion. The results of our analysis indicate that Big 4 observed a qualified 404 opinion for only 2.4% of their clients. Since auditors of larger clients very rarely encounter high opportunities they could underweight opportunities or focus less on opportunities while assessing fraud risk and audit effort.

Another significant reason that could affect auditors (of larger clients) sensitivity to pressures and opportunities is the fact that management of large clients under high pressure to meet goals or targets can “create” opportunities where none exist or none are apparent and

observable to the auditor (AICPA 2005; SAS No.99). For example, although internal control over financial reporting may appear to be well-designed and effective, controls that are otherwise effective can be overridden by management in every entity<sup>8</sup>. Many financial statement frauds have been perpetrated by intentional override by senior management of what might otherwise appear to be effective internal controls (AICPA 2005; SAS No. 99).

The results tabulated in Tables 1 and 2 indicate that the auditors of smaller clients perceive equal responsibility for detecting MOA and FFR and also that such auditors (unlike the auditors of larger clients) do not associate the presence of pressures or opportunities with any one particular type of fraud (FFR or MOA). We hypothesize that differences observed in fraud risk assessments for the auditors of larger companies (in the presence of pressures and opportunities) arise because of differences in perceived responsibility for detecting different fraud types and association of different fraud types with either pressures or opportunities. If such differences do not exist for the auditors of smaller clients, there will be no difference in their fraud risk assessments in the presence of pressures and opportunities.

To substantiate our hypotheses, we use data from Audit Analytics to examine the frequency with which Non-Big 4 auditors (the majority of the participants classified as auditors of smaller companies are from regional firms) encounter weak internal controls (which creates opportunities) leading to the issuing of a qualified 404 opinion. The results of our analysis indicate that Non-Big 4 auditors observed a qualified 404 opinion for approximately 25.5% of their clients. If auditors of smaller clients encounter high opportunities more than the auditors of larger companies, they would be likely to focus more on high opportunities while assessing fraud

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<sup>8</sup> According to Cullinan and Sutton (2002) the increased emphasis on development of control systems may not be very helpful in detecting fraud because most material frauds originate at the top levels of the organization, where controls and systems are least prevalent and effective.

risk and audit effort. Based on the above discussion, we evaluate the following research question:

**RQ3:** Will auditors of larger clients assess relatively greater fraud risk in the presence of high pressures than in the presence of high opportunities, but auditors of smaller clients will assess the same level of fraud risk in the presence of high pressures or high opportunities?

Prior research indicates that auditors are likely to spend greater effort and charge higher fees when dealing with companies that are perceived to be more likely to employ aggressive accounting practices, compared to companies that are not perceived to employ such practices (Simunic 1980; Simunic and Stein 1996; Bedard and Johnston 2004; Phillips 1999). Therefore, the auditors' effort should be high in the presence of high pressures or opportunities as either could suggest an environment susceptible to fraud. However, for the auditors of larger companies, their fraud risk assessments are expected to be higher in the presence of high pressures compared to high opportunities. This suggests that such auditors perceive companies experiencing high pressures to be more risky than those experiencing high opportunities. As a result, the auditors of larger clients will expend greater effort while auditing companies perceived to have high pressures compared to companies perceived to have high opportunities. The auditors of smaller clients are expected to be equally sensitive to pressures and opportunities while assessing fraud risk. As a result, they will perceive companies with high pressures and high opportunities to be equally risky. Therefore, there will be no significant difference in their effort under high pressure and high opportunity scenarios; accordingly we evaluate the following research question.

**RQ4:** Will auditors of larger clients spend greater audit effort in the presence of high pressures than in the presence of high opportunities but auditors of smaller clients will spend equal effort in the presence of high pressures and high opportunities?

### **Results**

RQ3 addresses whether auditors of larger clients will assess relatively greater fraud risk in the presence of high pressures than in the presence of high opportunities, while auditors of smaller companies will assess fraud risk equally in the presence of high pressures or high opportunities. The results of an ANOVA analysis (Table 3, Panel C) indicate that pressures, opportunities and client type have a significant effect on fraud risk assessments, and that there is a significant interaction between pressures and opportunities across the four treatments for fraud risk assessments. The means reported in Table 3 (Panel A) and the results of a t-test analysis reported in Table 4 (Panel A) indicate that auditors of larger companies assessed similar fraud risk in the high pressure/ high opportunity (HP/HO) and high pressures/ low opportunity (HP/LO) treatment (7.64 and 7.43). However they assessed a significantly lower fraud risk for the low pressure/ high opportunity treatment (LP/HO) compared to the HP/HO and HP/ LO treatments. The results also indicate that the HP/HO and LP/LO treatments induced the highest and lowest risk assessments respectively.

The results of the t-test analysis (Table 4, Panel A) indicate that there is a significant drop in risk assessments (relative to the HP/HO treatment) when pressures are lowered but there is no effect on risk assessments (relative to the HP/HO treatments) when opportunities are lowered.

This analysis allows us to isolate the effects of high pressures and high opportunities on the auditors' (of large companies) fraud risk assessments. These results suggest that for the auditors of large companies, the presence of high pressures (in conjunction with low opportunities) leads to a higher risk assessment than the presence of high opportunities (in conjunction with low pressures). Based on these results it can be inferred that because auditors of larger companies assume a higher responsibility for detecting FFR (see H1 and H2) and because they associate FFR with pressures, they tend to be more sensitive to the presence of high pressures than high opportunities while assessing fraud risk.

A similar analysis conducted for the auditors of smaller clients indicate that such auditors do not assess risk differently in the presence of high pressures or high opportunities (Table 3 Panel B; Table 4, Panel B). Their risk assessments were equally high when any one set of fraud risk factors (pressure or opportunity) was high. Such auditors did not exhibit significant differences in the perceived responsibility for detecting FFR and MOA, nor did they associate FFR or MOA with any particular fraud risk factor (namely pressure and opportunity). Hence, their risk assessments were equally sensitive to the presence of both, high pressures and high opportunities.

TABLE 3

**Panel A: Mean fraud risk assessment and audit effort for auditors of Large Clients**

|   | <u>HP/HO</u> <sup>1</sup> | <u>HP/LO</u> <sup>1</sup> | <u>LP/HO</u> <sup>1</sup> | <u>LP/LO</u> <sup>1</sup> |
|---|---------------------------|---------------------------|---------------------------|---------------------------|
| Assessed Overall Fraud Risk                   | 7.54                      | 7.41                      | 5.47                      | 4.36                      |
| Planned Increase in Audit Effort <sup>a</sup> | 2.94                      | 2.73                      | 1.40                      | 1.02                      |

**Panel B: Mean fraud risk assessment and audit effort for auditors of Small Clients**

|   | <u>HP/HO</u> <sup>1</sup> | <u>HP/LO</u> <sup>1</sup> | <u>LP/HO</u> <sup>1</sup> | <u>LP/LO</u> <sup>1</sup> |
|---|---------------------------|---------------------------|---------------------------|---------------------------|
| Assessed Overall Fraud Risk                   | 7.21                      | 7.26                      | 6.91                      | 4.19                      |
| Planned Increase in Audit Effort <sup>a</sup> | 2.78                      | 2.64                      | 2.49                      | 1.02                      |

**Panel C: 2 x 2 ANOVA Examining the Relationship between Pressures, Opportunities, and Client Size on Fraud Risk Assessments**

|                                      | <u>df</u> | <u>MS</u> | <u>F-stats</u> |
|--------------------------------------|-----------|-----------|----------------|
| Pressure                             | 1         | 65.97     | 78.46**        |
| Opportunity                          | 1         | 52.75     | 62.49**        |
| Client Size                          | 1         | 4.25      | 5.12*          |
| Client Size x Pressure               | 1         | 0.82      | 0.99           |
| Client Size x Opportunity            | 1         | 0.87      | 1.05           |
| Pressure x Opportunity               | 1         | 4.35      | 5.33*          |
| Client Size x Pressure x Opportunity | 1         | 0.77      | 0.34           |
| Error                                | 89        | 0.83      |                |

**Panel D: 2 x 2 ANOVA Examining the Relationship between Pressures and Opportunities on Audit Effort**

|                                      | <u>df</u> | <u>MS</u> | <u>F-stats</u> |
|--------------------------------------|-----------|-----------|----------------|
| Pressure                             | 1         | 31.35     | 56.37**        |
| Opportunity                          | 1         | 7.81      | 12.49**        |
| Client Size                          | 1         | 2.43      | 4.37*          |
| Client Size x Pressure               | 1         | 0.93      | 0.99           |
| Client Size x Opportunity            | 1         | 0.71      | 0.56           |
| Pressure x Opportunity               | 1         | 3.85      | 6.92**         |
| Client Size x Pressure x Opportunity | 1         | 1.12      | 1.27           |
| Error                                | 89        | 0.83      |                |

<sup>1</sup>HP/HO = High Pressure / High Opportunity: HP/LO = High Pressure / Low Opportunity

LP/HO = Low Pressure / High Opportunity: LP/LO = Low Pressure / Low Opportunity

<sup>a</sup> Audit effort is measured on a scale of -5 to +5

Note:  $n = 90$ . Model is 2 x 2 factorial with pressure (high versus low) and opportunity (high versus low) and auditor type as covariate

P x O is defined as the interaction between the Pressure and the Opportunity variables

\*  $p < 0.05$ , \*\* $p < 0.01$

TABLE 4

**Panel A: Paired Sample t-test examining differences in fraud risk assessment for auditors of Large Clients**

|             | <u>M (SD)</u> | <u>t</u> | <u>p-value</u> |
|-------------|---------------|----------|----------------|
| HP/HO-HP/LO | 0.17          | 0.65     | 0.517          |
| HP/HO-LP/HO | 2.37          | 8.56     | <0.01          |
| HP/LO-LP/HO | 2.16          | 7.51     | <0.01          |

**Panel B: Paired Sample t-test examining differences in fraud risk assessment for auditors of Small Clients**

|             | <u>M (SD)</u> | <u>t</u> | <u>p-value</u> |
|-------------|---------------|----------|----------------|
| HP/HO-HP/LO | -0.09         | 0.46     | 0.738          |
| HP/HO-LP/HO | 0.29          | 1.02     | 0.298          |
| HP/LO-LP/HO | 0.37          | 1.28     | 0.177          |

**Panel C: Paired Sample t-test examining differences in audit effort for auditors of Large Clients**

|             | <u>M (SD)</u> | <u>t</u> | <u>p-value</u> |
|-------------|---------------|----------|----------------|
| HP/HO-HP/LO | 0.22          | 1.00     | 0.328          |
| HP/HO-LP/HO | 1.46          | 6.942    | <0.01          |
| HP/LO-LP/HO | 1.29          | 6.896    | <0.01          |

**Panel D: Paired Sample t-test examining differences in audit effort for auditors of Small Clients**

|             | <u>M (SD)</u> | <u>t</u> | <u>p-value</u> |
|-------------|---------------|----------|----------------|
| HP/HO-HP/LO | 0.19          | 0.96     | 0.358          |
| HP/HO-LP/HO | 0.26          | 1.12     | 0.296          |
| HP/LO-LP/HO | 0.08          | 0.42     | 0.789          |

HP/HO = High Pressure / High Opportunity: HP/LO = High Pressure / Low Opportunity  
 LP/HO = Low Pressure / High Opportunity: LP/LO = Low Pressure / Low Opportunity



RQ4 posits if auditors of larger clients assess a significantly greater fraud risk in the presence of high pressures compared to high opportunities, their planned increase in audit effort when pressures are high will be significantly greater than that when opportunities are high. The results of a two-way ANOVA (Table 3, Panel D) indicate that pressures, opportunities, and client size have a significant effect on audit effort. The results also indicate a significant pressure by opportunity interaction affecting audit effort. The means reported in Table 3 (Panel A) and the t-test results reported in Table 4 (Panel C) suggest that for such auditors, there is no difference in planned increase in audit effort across the HP/HO and HP/LO treatments. However, there is a significant difference in planned increase in audit effort for the LP/HO treatments compared to the HP/HO and LP/HO treatments (Table 3, Panel A, 1.40 versus 2.94 and 2.73; Table 4, Panel C). These results indicate that there is no decrease in audit effort (compared to the HP/HO treatment) when opportunities are lowered. However, when pressures are lowered, audit effort significantly drops in comparison to the HP/HO treatment. Based on these results it can be inferred that since auditors of larger companies associate a higher risk with high pressures compared to high opportunity, their planned increase in effort is higher for high pressures scenarios compared to high opportunity scenarios. These results provide support for the predictions of H4. The results in Table 3 (Panel A) also indicate that auditors assessed the highest increase in audit effort for the HP/HO treatment and assessed the lowest increase in audit effort for the LP/LO treatments. This suggests an effective manipulation of the pressures and opportunities across the treatments.

The means reported in Table 3 (Panel B) and the t-test analysis in Table 4 (Panel D) indicate that there is no significant difference in assessed effort for auditors of smaller companies across the three treatments where any one of pressures or opportunities is high. These results

indicate that since such auditors assesses equal risk for both pressures and opportunities, they consider scenarios where either one of pressures or opportunities is high to be equally risky. As a result, there are no significant differences in their assessed effort when any one of these factors (pressures or opportunities) is high.

## CONCLUSION

SAS No. 99 lists two major categories of fraud namely FFR and MOA and asks the auditors to assess the risk of these frauds in the context of three major fraud risk factors (pressures, opportunities and rationalization). This study is one of the first to examine the extent to which auditors feel responsible for detecting FFR and MOA and the extent to which risk of FFR and MOA is associated with presence of high pressures and/or opportunities. We then examine how the perceived responsibility for detecting FFR and MOA and association of pressures and opportunities with FFR and MOA effect auditors' fraud risk assessment and audit effort in the presence of different levels of pressures and opportunities. Additionally this study also examines how the auditors' average client size affects their decisions related to the fraud risk assessment process.

The results of this study indicate that all auditors perceived equal responsibility for detecting FFR because of the greater salience and litigation risk associated with FFR. However auditors of larger clients (compared to auditors of smaller clients) assessed a significantly lower responsibility for detecting MOA compared to FFR. This could be because FFR is more likely to be material for larger clients compared to smaller clients, whereas MOA could be of relatively smaller magnitude and relatively immaterial for larger clients. On the other hand, auditors of smaller clients assumed equal responsibility for detecting FFR versus MOA. For auditors of

relatively smaller companies even relatively smaller frauds, involving MOA, could have a significant or material impact on the financial statements (Wells 2003; Nilsen 2010). The results also indicate that auditors of larger clients associate the risk of FFR more with high pressures, and the risk of MOA more with high opportunities, while auditors of smaller clients did not specifically associate the risk of FFR or MOA with either high pressures or high opportunities.

In the additional analysis, we examined whether the significant differences in perceptions and associations detected in the initial analysis were related to auditors' fraud risk assessments and/or adjustments to audit effort. The results of the additional analysis indicate that auditors of larger clients assessed higher fraud risk and audit effort when pressure was high compared to when opportunity was high. This could be due to the fact that such auditors perceive greater responsibility for detecting FFR compared to MOA and they tend to associate high pressures with FFR and high opportunities with MOA. For the auditors engaged with smaller clients, there were no differences in the perceived responsibility for detecting FFR versus MOA, nor did they specifically associate FFR and MOA with either pressure or opportunity. As a result of which, there were no significant differences in their assessments of fraud risk and audit effort in the presence of high pressures or high opportunities.

The findings of this study provide insights into the auditors' fraud risk assessment process and could provide valuable guidance to practitioners in developing audit programs and standards in the future. The findings could also have uncovered a potential shortcoming in the fraud risk assessment process of auditors or large clients: namely their relative lack of sensitivity to opportunities while assessing fraud risk. Future research should try and conduct a sensitivity analysis to examine specific reasons as to why auditors of large clients associate pressures with FFR and opportunities with MOA. Future research should also examine if any techniques

mentioned by the standards such as group brainstorming or any other techniques, could be used to make auditors focus equally on pressures and opportunities. Additionally researchers should conduct a sensitivity analysis to identify specific pressures and opportunities which have the greatest potential of driving fraudulent behavior.

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