THE EFFECT OF AN INTENTIONAL STRATEGY AND FORMING EXPECTATIONS ON AUDITORS' IDENTIFICATION OF FRAUD RISKS

by

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ABSTRACT

Statement on Auditing Standards No. 99, *Consideration of Fraud in a Financial Statement Audit*, requires auditors to identify their clients' fraud risks and select procedures to address those risks (AICPA 2002). Fraud-related tasks can be difficult because they require auditors to think and act strategically (Wilks and Zimbelman 2004a). It is therefore unclear whether auditors can effectively identify fraud risks and whether identifying relevant fraud risks is enough to allow auditors to identify procedures that will effectively target fraud. I experimentally investigate ways to help auditors identify relevant fraud risks (i.e., identify the ways management is most likely committing fraud). I also examine whether auditors who identify more relevant fraud risks subsequently identify more relevant audit procedures that target an actual fraud. I find that auditors who are prompted to explicitly link a client's fraud red flags and analytical procedure results to client management's goals identify a higher number of relevant fraud risks than auditors who are not prompted to link this information to client management's goals. The process of linking relevant information to management's goals is consistent with an "intentional strategy" (Dennett 1987) that can potentially help auditors detect fraud (Johnson et al. 1993). Auditors who are prompted to use this approach also identify a

higher percentage of relevant fraud risks (i.e., total relevant risks identified / total risks identified). Next, auditors who identify a higher number of relevant risks subsequently identify more relevant audit procedures and a higher percentage of relevant procedures. In contrast, auditors who identify a higher number of irrelevant risks identify a higher number of irrelevant procedures and a lower percentage of relevant procedures. Taken together, these results show the importance of helping auditors effectively identify the specific ways that management is most likely committing fraud, which is consistent with AICPA (2003) guidance. When auditors are able to identify a higher number of relevant fraud risks, they can then identify a higher number of procedures that target fraud. Finally, I find that auditors who identify a higher percentage of relevant procedures are less likely to consult with a forensic specialist.

INDEX WORDS: Fraud Risks; Intentional Strategy; Auditor Judgment; Fraud Procedures

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DEDICATION

To Jennifer – You're the Best

And

To Keith and Barb

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INTRODUCTION

Statement on Auditing Standards No. 99, *Consideration of Fraud in a Financial Statement Audit*, requires auditors to identify their clients' fraud risks – i.e., to identify ways they believe their clients could be committing financial statement fraud (AICPA 2002). Auditors identify these risks based on red flags (events or circumstances that increase the likelihood that fraud is occurring), analytical procedures, client inquiries, and other information (AICPA 2002). In effect, SAS 99 requires auditors to determine how and where they believe fraud might be occurring and select procedures to address those risks (AICPA 2002; AICPA 2003). However, auditors may have difficulty performing these tasks because they lack extensive experience with financial statement fraud and they do not appear to identify more effective procedures when they perceive fraud risk to be higher (Loebbecke et al. 1989; Asare and Wright 2004). In this study, I experimentally investigate two ways to enhance auditors' ability to perform the SAS 99 task of identifying a client's fraud risks. I also test whether auditors who identify more relevant fraud risks subsequently identify more audit procedures that target fraud.

I first investigate whether auditors identify more relevant fraud risks if they explicitly link relevant client information (e.g., red flags and analytical procedure results) to client management's goals.[1] The process of linking relevant information to management's goals is

[1] Management can adopt a variety of goals, including financial reporting goals (e.g., beat analyst expectations), strategic goals (e.g., increase customer satisfaction), public relations goals (e.g., decrease harmful emissions), etc. These goals may or may not lead management to commit financial statement fraud (e.g., it is unlikely that management can commit financial statement fraud in order to decrease harmful emissions or increase customer satisfaction). In this study I have participants focus on management goals that could lead management to commit fraud.

consistent with an "intentional strategy" (Dennett 1987) that can potentially help auditors detect fraud (Johnson et al. 1993). For instance, an auditor could first recognize that the client has not increased the allowance for doubtful accounts even though the client has drastically increased the credit limits of multiple customers. If the auditor is using an intentional strategy, he or she will evaluate this potential discrepancy in light of management goals, such as continuing a string of earnings increases. As a result, the auditor should recognize the potential fraud risk that the client could be recognizing sales by increasing credit limits for higher-risk customers while intentionally not recognizing enough bad debt expense.

In addition to considering the effect of using an intentional strategy approach, I also investigate whether requiring auditors to explicitly formulate and document independent expectations for a client's reported results (e.g., analytical procedure results) enhances the benefits of using an intentional strategy. Even though audit guidance instructs auditors to form independent expectations (AICPA 2006b), anecdotal evidence suggests auditors often fail to take this step when they perform SAS 99 analytical procedures (Fleming and Wortmann 2005). Auditors should form independent expectations when they attempt to identify fraud risks because this process can potentially enhance auditors' ability to recognize anomalies in the client's reported results (Kinney and Uecker 1982). If auditors recognize additional relevant anomalies, they can then link this additional information to management's goals when they use an intentional strategy approach to identify fraud risks.

I next examine whether auditors who identify more relevant fraud risks select more effective audit procedures. Even though this association appears obvious, prior research fails to find an association between auditors' overall fraud risk assessments and the effectiveness of auditors' planned procedures (Asare and Wright 2004). I argue that this result may be due to the

fact that auditors can assess overall fraud risk higher without having an adequate understanding about how and where fraud is most likely occurring. For example, auditors may suspect that management has low integrity and thus assess overall fraud risk high. However, even though they question management's integrity, auditors may still lack an accurate understanding of how management is most likely committing fraud. As a result, I expect that auditors will have to develop a good understanding of the ways that management is most likely committing fraud if they are going to be able to select procedures that target fraud, consistent with recent AICPA (2003) guidance.

Investigating ways to enhance auditors' ability to identify relevant fraud risks is important for at least two reasons. First, auditors should base their audit procedures and other planning decisions on the fraud risks they identify (AICPA 2002). If auditors fail to identify how and where management is most likely committing fraud, they will be less likely to perform audit procedures that target fraud (AICPA 2003). When auditors' procedures do not detect fraud when it is present, auditors face adverse consequences such as costly litigation (Palmrose 1987). Leaders in the audit profession also argue that auditors need to close the gap between what investors expect and what auditors can provide, including finding ways to improve auditors' ability to detect fraud (Nusbaum 2007); they also acknowledge that auditors must perform procedures that will detect fraud (Reilly 2007). I address these issues by investigating ways to enhance auditors' ability to identify specific fraud risks, which should facilitate their ability to select procedures that target fraud.

Second, auditors may have a difficult time identifying relevant fraud risks. Auditors potentially find this task difficult because they lack extensive experience with financial statement fraud and managers will intentionally deceive auditors (e.g., Loebbecke et al. 1989; Nieschwietz

et al. 2000). This limits their opportunities to develop an experience-based understanding of the patterns of information that reliably suggest fraud is occurring (Johnson et al. 1992). In addition, management conceals fraud, which means auditors must think and act strategically to detect fraud when it is present (AICPA 2002; Wilks and Zimbelman 2004a). Further, while current guidance instructs auditors to use different types of information (e.g., red flags and analytical procedures) to identify fraud risks, auditors sometimes struggle to successfully integrate information (Moeckel 1991). If auditors are unable to overcome these difficulties they will not be able to discern the most likely ways that management is committing fraud (i.e., identify relevant fraud risks). If auditors cannot recognize relevant fraud risks, they are not expected to identify effective procedures that will target fraud. Auditors may be able to overcome these obstacles by focusing on management's goals prior to identifying fraud risks.

Academics from a variety of disciplines argue that focusing on an individual's goals can provide insights on the actions the individual will take or has taken (Mawby and Mitchell 1986; Dennett 1987; Johnson et al. 1992). Johnson et al. (1992, 1993, and 2001) have developed an approach to financial statement fraud that recognizes that managements' goals can help auditors develop insights about deception; their approach is based on what can be referred to as an "intentional strategy" (Dennett 1987). I adapt the intentional strategy to the SAS 99 task of identifying fraud risks and expect that auditors who use an intentional strategy-based approach will more effectively implement this SAS 99 guidance. This strategy should facilitate less experienced auditors' identification of fraud risks because it allows them to use SAS 99-relevant cues they are familiar with, such as fraud red flags and analytical procedures. An intentional strategy also helps auditors by giving them a means (management's goals) to evaluate the inconsistencies they find (e.g., analytical procedure results that deviate from their expectations)

(Johnson et al. 1992). I also expect that auditors can use management goals to effectively interpret other relevant SAS 99 information (e.g., fraud red flags) and to combine different types of SAS 99 information (e.g., link analytics and red flags together) because these different sources of information can be related to management's goals.

I find that auditors who are prompted to use an intentional strategy identify a higher number of relevant fraud risks (i.e., risks that target an actual fraud) than auditors who are not prompted to use this approach. This finding suggests that auditors are better able to identify how and where management is most likely committing fraud when they link relevant information to management's goals. I do not find that requiring auditors to explicitly form and document independent expectations for a client's reported results enhances the benefits of using an intentional strategy.

Auditors prompted to use an intentional strategy also identify a higher percentage of relevant fraud risks (i.e., total relevant risks identified / total risks identified) but do not identify an overall higher number of fraud risks. Taken together, these results suggest that prompting auditors to use an intentional strategy helps them focus on relevant fraud risks rather than simply leading them to generate a higher number of fraud risks.

I also find that auditors who identify a higher number of relevant risks go on to identify a higher number of relevant procedures (i.e., procedures that target fraud) and a higher percentage of relevant procedures (total relevant procedures identified / total procedures identified). Additionally, auditors who identify more irrelevant fraud risks subsequently identify a higher number of irrelevant audit procedures (i.e., procedures that do not target fraud) and a lower percentage of relevant fraud procedures. These findings suggest that auditors who effectively identify how and where the client is most likely committing fraud can identify audit procedures

that target fraud but those who cannot will spend more time on ineffective procedures.

Finally, I also investigate how likely auditors are to consult with a forensic specialist and find that auditors are more likely to consult with a forensic specialist when they assess a client's overall fraud risk higher. This corroborates one of the results in Asare and Wright (2004). I extend Asare and Wright (2004) by finding that auditors are less likely to consult with a forensic specialist when they identify a higher percentage of relevant audit procedures. This finding is encouraging in that it suggests that when auditors' procedures are not focused on targeting fraud, auditors are more likely to seek assistance from specialists.

This study makes several important contributions. The fraud literature has primarily focused on auditors' use of fraud red flags and their overall fraud risk assessments but has largely ignored auditors' ability to identify specific fraud risks. For instance, researchers have investigated auditors' weighting or ranking of red flags (e.g., Hackenbrack 1993) and whether auditor experience or decomposing the fraud risk assessment into its components affects auditors' overall assessments of fraud risk (Knapp and Knapp 2001; Wilks and Zimbelman 2004b).[2] Primarily focusing on the use of red flags and assessing overall fraud risk is consistent with fraud guidance prior to SAS 99 (e.g., AICPA 1997). However, SAS 99 emphasizes that auditors should focus on the specific ways that management is committing fraud rather than simply assessing fraud risk (AICPA 2002; AICPA 2003). I extend the fraud literature by demonstrating one way (the intentional strategy) to enhance auditors' ability to identify specific fraud risks.

[2] One exception to this work is Carpenter (2007), who finds that brainstorming helps auditors recognize a higher number of quality fraud ideas. Brainstorming ideas are directly related to fraud risks because both ideas and fraud risks represent auditors' understanding of how and where fraud is most likely occurring and the brainstorming session is one source auditors use to identify the full set of fraud risks (AICPA 2002).

I also extend previous auditing work on the intentional strategy by Johnson et al. (1992, 1993, and 2001) in three important ways. First, this is the first study to systematically manipulate whether auditors are prompted to use an intentional strategy. Grazioli (2004) explains that while prior research asserts that requiring individuals to use others' goals to uncover potential deceit, no one has yet tested this assertion. Second, I examine whether the intentional strategy can improve the judgments of relatively inexperienced auditors. Prior intentional strategy studies have focused on audit partner judgments and their ability to detect fraud (Johnson et al. 1992, 1993), but the participants in my study have relatively less experience. It is important to look at less experienced auditors' decisions (e.g., senior auditors' decisions) because these auditors are often involved in initial risk and procedure judgments (Abdolmohammadi 1999). Third, I look at the effect of prompting auditors to use an intentional strategy during audit planning while prior studies have primarily investigated whether auditors use this type of approach during concurrent partner reviews (Johnson et al. 1992). It is important to examine the effect of this strategy during audit planning because if this strategy can help auditors identify more relevant risks, they should be in a better position to identify procedures that will target and ultimately uncover fraud at an earlier audit stage.

Experimental researchers have also examined whether auditors' overall fraud risk assessments are associated with their audit procedure decisions. Results of these studies generally suggest that auditors extend but do not change the nature of audit procedures or identify more effective procedures when they assess overall fraud risk higher (Zimbelman 1997; Glover et al. 2003; Asare and Wright 2004). One potential explanation for these findings is that auditors' overall fraud risk assessments do not reveal whether auditors understand how and where fraud is occurring. In other words, auditors can assess overall fraud risk higher, even

when fraud is occurring, without having a good understanding of how management is committing fraud. I extend this stream of literature by finding that auditors who identify more relevant fraud risks (ways that management is most likely committing fraud) identify more effective audit procedures. I also find that auditors who identify more irrelevant risks identify more irrelevant procedures. This extension is important because it suggests audit researchers and practitioners should focus on helping auditors identify relevant fraud risks rather than primarily focusing on auditors' overall risk assessments if they want to improve auditors' procedure decisions.

The results of this study also support current guidance that instructs auditors to identify fraud risks and select procedures to address the fraud risks they identify (AICPA 2002). I specifically find that when auditors identify relevant fraud risks using the information available during the audit (e.g., red flags and analytical procedures) they appear to select more procedures that target fraud. I likewise find that when auditors identify more irrelevant risks they identify more irrelevant procedures. Therefore, as standard setters consider how to revise current audit guidance on fraud, my results suggest that they should continue to encourage auditors to effectively identify how and where the client could be committing fraud before selecting procedures. The benefits of using an intentional strategy are also consistent with Wilks and Zimbelman's (2004a) argument that standards should direct auditors to think and act strategically during the audit.

Finally, I contribute to recent work that investigates financial auditors' propensity to consult with specialists (Asare and Wright 2004; Hunton et al. 2004). In addition to corroborating Asare and Wright's (2004) finding that auditors are more likely to consult with a forensic specialist when they assess overall fraud risk higher, I also find that auditors are less

likely to consult with a forensic specialist when they identify a higher percentage of procedures that target fraud. This finding is important in that it demonstrates that while auditors may be overconfident and therefore unlikely to consult in some areas, such as complex IT settings (Hunton et al. 2004), auditors may not be overconfident in their ability to finalize the list of planned audit procedures that address the possibility of fraud.

This study proceeds as follows. In Chapter 2, I discuss relevant theory and develop my hypotheses and research questions. I provide an overview of my research method in Chapter 3 and I discuss the tests of my hypotheses in Chapter 4. In Chapter 5, I discuss the limitations of this study and offer concluding remarks.

Chapter 2

THEORY AND HYPOTHESES

2.1 Consideration of Fraud During the Audit

Auditors' consideration of the possibility of fraud during the audit includes the following three steps: 1) gather relevant information, 2) identify fraud risks, and 3) adjust the audit plan (AICPA 2002). Auditors begin by gathering relevant information, which includes identifying the fraud red flags that are present at the client, performing analytical procedures, holding a fraud brainstorming session, and interviewing client personnel and the audit committee about fraud-related matters (e.g., whether they know about any current fraud at the company) (AICPA 2002). Next, auditors use the information they gather to infer the risks that are present at the client. Finally, auditors change the audit plan to address the fraud risks they have identified (AICPA 2002). Figure 2.1 summarizes the steps that auditors can take to consider the possibility of fraud under SAS 99. In this study, I primarily focus on examining ways to facilitate auditors' ability to successfully complete phase II (identify the client's fraud risks).

Under SAS 99, auditors go beyond assessments of fraud risk by developing specific insights about how and where fraud is most likely occurring (AICPA 2002; AICPA 2003).[3] Under SAS 82, the previous fraud standard, auditors were primarily responsible for explicitly assessing a client's overall fraud risk (based on fraud red flags) and then adjusting the audit plan

[3] The clearest definition of fraud risks in SAS 99 comes from a discussion of the fraud brainstorming session: "*Discussion among engagement personnel regarding the* ***risks of material misstatement due to fraud****.* This section requires…audit team members to consider **how and where the entity's financial statements might be susceptible to material misstatement due to fraud**…" (AICPA 2002, 2, emphasis added).

to address the overall assessed fraud risk (AICPA 1997; Zimbelman 1997). An auditor's overall fraud risk assessment is the auditor's judgment of the probability that fraud is present at the client (AICPA 1997). While an overall assessment can help some audit planning decisions (Asare and Wright 2004), a key limitation of this assessment is that it does not reveal whether auditors have an adequate understanding of how and where fraud is most likely occurring. As a result, auditors can assess overall fraud risk high when fraud is present without understanding how a client is most likely committing fraud.

At this point it is important to differentiate between red flags and fraud risks. Red flags can be defined as general events or circumstances that reveal management's incentives and opportunities to commit fraud and management's attitude toward fraud (AICPA 2002). While the presence of these conditions increases the overall probability of fraud, they are noisy signals because their presence does not necessarily mean fraud is occurring (AICPA 2002). Furthermore, given that red flags are general conditions, they do not reveal how management is most likely to specifically commit fraud.[4] In contrast, fraud risks indicate the ways that an auditor believes management may be committing fraud (AICPA 2002). When auditors document fraud risks, they reveal their understanding of how management could most likely be committing fraud. Auditors combine a client's red flags with other information (e.g., analytical procedures) to develop insights about specific fraud risks (AICPA 2002). Table 2.1 provides definitions and examples of red flags, overall fraud risk assessments, and specific fraud risks.

[4] For example, Johnson et al. (1993, 473) point out fraud incentives "are not necessarily connected with the specific manipulation used for creating the deception." To illustrate, consider this red flag from SAS 99: "Significant portions of [management's] compensation [is] contingent upon achieving aggressive targets for stock price, operating results, financial position, or cash flow" (AICPA 2002, 85). While this red flag highlights an incentive to commit fraud, it does not reveal the methods (e.g., overstate revenues or understate expenses) they will use to commit fraud or the specific accounts (e.g., accounts receivable or R&D expense) they will to manipulate the accounting numbers.

2.2 Fraud Risk Identification

In this study I primarily focus on auditors' identification of fraud risks after they have gathered relevant information. Auditors face at least two major challenges when they identify specific, relevant fraud risks. First, prior research suggests auditors' judgments are influenced by patters of information (Brown and Solomon 1991; Hammersley 2006) and Bell and Wright (1997) argue that patterns may reveal risks that are not apparent in individual results. Using patterns is consistent with SAS 99's requirement that auditors gather information from a variety of sources – analytical procedures, red flags, client inquiries, etc. – to identify fraud risks. However, auditors may find it difficult to interpret this large set of information because they have limited direct experience with fraud and thus limited knowledge of relevant information patterns that reliably suggest fraud is occurring (Loebbecke et al. 1989; Johnson et al. 1992). Compounding this problem is the fact that auditors, particularly those with less auditing experience, may struggle to integrate information (Moeckel 1990; 1991). If auditors cannot effectively integrate or combine relevant information, it will be difficult for them to effectively infer risks from the information they gather.

The second challenge auditors face when they identify fraud risks is that management actively attempt to deceive auditors, which means that auditors must strategically evaluate and interpret the information they receive to detect fraud (Johnson et al. 1993; Nieschwietz et al. 2000; Wilks and Zimbelman 2004a). Zimbelman and Waller (1999) provide some initial evidence consistent with auditors being able to act strategically. Still, while auditors should strategically alter the nature of procedures to address fraud risks (AICPA 2002), prior research suggests that auditors do not strategically alter the nature of their planned audit procedures or identify more effective procedures when they assess overall fraud risk higher (e.g., Glover et al.

2003; Asare and Wright 2004). These findings are important because when auditors fail to think and act strategically, they are less likely to infer relevant fraud risks from the information they gather under SAS 99, which will likely make it more difficult for auditors to test for fraud.

2.3 Management Goals

Auditors may be able to overcome these challenges by combining and interpreting fraud-related information in light of client management's goals. In other words, they may be able to take SAS 99 guidance to gather relevant information (see phase I of figure 2.1) and tie the information to management's goals. This is because individuals must determine which actions they will take to obtain a goal and modify their actions if they initially fail to obtain a goal (Abraham and Sheeran 2003). Likewise, academics from a variety of disciplines assert that focusing on an individual's goals can provide insights on the actions – including deceptive actions – that individuals have taken or will take (e.g., Mawby and Mitchell 1986; Dennett 1987; Johnson et al. 1992). These points are relevant to financial reporting because management often adopts reporting goals and will thus have to take action – including potentially fraudulent action – in order to achieve their goals.

For instance, management will often adopt the goal of meeting or beating analyst expectations in order to increase their firm's stock price (e.g., Bartov et al. 2002; Kasznik and McNichols 2002). If client managers adopt this goal, they can attempt to beat the forecasts through their operating performance or other means, such as guiding analyst expectations downward (Matsumoto 2002). If management is still not able to achieve its goals using legitimate practices (and their goals are important enough), managers can commit fraud to meet their reporting goals.

I argue that management's goals are particularly useful to auditors when they identify fraud risks because these goals directly link to the incentive and attitude components of the fraud triangle. Audit standards and theory indicate that financial statement fraud is most likely to occur when the components of the fraud triangle – incentives, opportunities, and an attitude to commit fraud – are present (AICPA 2002; Albrecht 2003; Wilks and Zimbelman 2004a).[5] Management goals often result from the incentives that are imposed on management. For example, if a client's board gives a higher bonus when earnings increase over a prior period, client management has an *incentive* to increase earnings and will likely adopt the goal of increasing earnings.[6]

Likewise, if client managers have adopted a goal, they may manifest an *attitude* that demonstrates the importance of attaining their goal. For example, management may consistently argue with auditors over adjustments that decrease earnings, which could indicate that management intently focuses on increasing earnings.[7, 8] Despite the link between management's goals and the fraud triangle, it is an empirical question whether auditors will benefit by thinking

[5] SAS 99 defines these components as follows: "First, management or other employees have an *incentive* or are under *pressure*, which provides a reason to commit fraud. Second, circumstances exist—for example, the absence of controls, ineffective controls, or the ability of management to override controls—that provide an *opportunity* for a fraud to be perpetrated. Third, those involved are able to *rationalize* committing a fraudulent act. Some individuals possess an *attitude*, character, or set of ethical values that allow them to knowingly and intentionally commit a dishonest act" (AICPA 2002, ¶7).

[6] Some incentives may not lead management to adopt a goal. For example, if operating results are poor enough, it may be unrealistic, even if fraud is committed, for management to achieve a given incentive (such as reporting higher earnings to get a bonus) and so they will not adopt the goal of increasing earnings. Similarly, management may adopt goals even though no explicit incentive or pressure is in place.

[7] While incentive and attitude red flags may help auditors determine or recognize the implications of management's goals, auditors believe that attitude red flags are easier to manipulate than incentive red flags (Wilks and Zimbelman 2004a). As a result, if auditors try to discern management's goals based on attitude red flags alone, management may be able to conceal their true goals from the auditor.

[8] An aggressive attitude toward accounting could be indicative of an inherent characteristic of firm managers rather than the result of a specific goal. For instance, a manager may argue with an auditor over how to account for a given expense because a) booking the expense would decrease reported earnings or b) the manager simply likes to argue or always wants to be right.

about and linking relevant information to client management's goals before auditors identify fraud risks.

2.4 Intentional Strategy

In a series of papers, Johnson et al. (1992, 1993, and 2001) develop a theoretical approach to fraud detection that suggests auditors should use client management's goals to develop insights about potential fraud. Their work is based in part on what Dennett (1987) calls an "intentional strategy." In order to perform the initial steps of an intentional strategy, auditors form expectations for the client's reported results and look for "inconsistencies," which occur when their expectations for a client's reported results differ from the actual reported results; these inconsistencies signal possible management manipulations (Johnson et al. 1992, 1993; 2001; Grazioli et al. 2006). Auditors then determine which inconsistencies or other information are consistent with management achieving its goals (Johnson et al. 1993, 2001).

Despite the appeal of this strategy, there is a lack of direct evidence on the extent to which this strategy can help auditors, particularly less experienced auditors who will be making risk and procedure decisions while planning an engagement (Abdolmohammadi 1999). While a computer model using rules consistent with this strategy effectively detects fraud, an analysis of partners performing concurring partner review tasks suggests that most partners do not appear to consistently and successfully use an intentional strategy to detect fraud (Johnson et al. 1992). Moreover, there is no evidence that less experienced auditors (e.g., seniors and staff) can use this strategy to enhance their performance of audit planning tasks such as identifying fraud risks. Finally, Grazioli (2004, 169) states that while this strategy predicts that directing people to consider others' goals will help reveal deceit, "this claim has not yet been empirically

evaluated." [9] My study examines this claim by testing whether prompting auditors to use an approach based on some of the basic principles of an intentional strategy can improve auditor performance during audit planning. I specifically consider whether prompting auditors to use an intentional strategy can facilitate their ability to perform the SAS 99 task of identifying fraud risks.

As seen in Figure 2.1, in order to identify fraud risks auditors must gather and interpret a variety of information. There are several reasons why I expect that prompting less experienced auditors to use an intentional strategy-based approach will improve their ability to use the information they gather to identify relevant fraud risks. First, an intentional strategy can be used to break judgments down to SAS 99 cues less experienced auditors (e.g., audit seniors) will be familiar with and often use during audit planning, such as fraud red flags, and analytical procedures.[10] Second, an intentional strategy gives auditors a means (management's goals) to evaluate the inconsistencies they find (e.g., analytical procedure results that deviate from their expectations) (Johnson et al. 1992). Third, I expect that auditors can use management goals to effectively interpret other relevant SAS 99 information (e.g., fraud red flags) and to combine different types of SAS 99 information (e.g., link analytics and red flags together) because all of this information can relate to management's goals. I therefore propose the following hypothesis (all hypotheses are stated in the alternative form):

H1: Auditors who are prompted to use an intentional strategy will be more effective at identifying fraud risks than auditors who are not prompted to use this strategy.

[9] Johnson et al. (1993) do attempt to prompt two partner-level participants to consider factors related to the intentional strategy when they are not able to initially detect fraud.

[10] Auditors will be familiar with fraud red flags because they use them during the audit (Shelton et al. 2001) and they will be familiar with analytical procedures, which they perform during planning and substantive testing (Hirst and Koonce 1996). Auditors are often familiar with management's potential "intentions," (Johnson et al. 1992).

2.5 Forming and Documenting Independent Expectations

Auditors can form expectations about their clients in a variety of settings, including assessing the effectiveness of a client's controls (AICPA 2006a, 22), performing analytical procedures (McDaniel and Kinney 1995), or generating potential explanations for changes in accounting numbers (Koonce 1993). It is important for auditors to form independent expectations because relying on a client's reported information or a client's explanations when forming expectations can impair audit effectiveness (e.g., Biggs et al. 1995).[11] For instance, auditors tend to "anchor" on their clients' reported numbers and fail to revise adequately from this anchor when they form analytical procedure expectations, meaning that auditor expectations can be unduly close to the client's reported numbers (Tversky and Kahneman 1974; Kinney and Uecker 1982). If auditors anchor on a client's reported numbers, audit risk can increase because auditors may be more likely to inappropriately accept the client's reported results (Kinney and Uecker 1982; Biggs et al. 1995; Bell and Wright 1997).[12]

Given the potential benefits of forming independent expectations and the fact that audit guidance (AICPA 1988) instructs auditors to form expectations, auditors should form independent expectations without being explicitly told to do so. However, McDaniel and Kinney (1995) find that auditors make more effective decisions when they are explicitly instructed to form and document their expectations. They specifically find that auditors who are instructed to document their expectations for account balances are more likely to investigate accounts that

[11] Auditors should form these expectations based on information from the client's industry or prior period results, as well as relations among financial variables (AICPA 1988; Erickson et al. 2000). SAS 99 (AICPA 2002) also directs auditors to use analytical procedures as a basis for identifying fraud risks. However, PCAOB inspections (e.g., PCAOB 2006, 2007a, 2007b) find that auditors do not always effectively perform analytics. One potential way to improve auditors' performance of analytics is to require them to form independent expectations for the client's reported results and compare these expectations with the client's reported numbers (AICPA 1988; 2002; McDaniel and Kinney 1995). I thus use the analytic context to test the impact of forming expectations in a fraud setting.

[12] Forming expectations without a client's influence is important in fraud settings because clients will hide fraud. For instance clients will likely provide non-fraud explanations for unusual account fluctuations.

contain a misstatement (McDaniel and Kinney 1995). McDaniel and Kinney (1995) suggest that auditors may perform better when they explicitly form expectations because this process increases cognitive effort, which has previously been shown to improve performance (Abualsamh et al. 1990).

Despite McDaniel and Kinney's (1995) results, recent audit guidance and standards emphasize the importance of forming expectations and audit firms may currently emphasize forming expectations more in the current audit environment than they did in the past. For instance, SAS 99 (AICPA 2002) states that auditors form expectations to compare to the client's reported results to identify potential fraud and AICPA guidance states that "forming an expectation is the most important phase of the analytical procedure process" (AICPA 2006b, 1.16). In light of the emphasis current practice places on developing expectations, auditors may form expectations without being explicitly told to do so (i.e., auditors may not benefit from explicit instructions to form and document expectations in the current audit environment).

Nevertheless, if auditors continue to perform analytical procedures more effectively when they are explicitly required to form and document independent expectations, requiring auditors to form independent expectations may enhance the benefits they realize when they use an intentional strategy. When auditors use an intentional strategy, they first identify inconsistencies in the client's reported results (Johnson et al. 2001). If auditors can increase the number of relevant inconsistencies they recognize, they can then take these additional inconsistencies and link them to management's goals. Therefore, if forming independent expectations continues to decrease the likelihood that auditor expectations mirror the client's reported numbers (Uecker and Kinney 1982), I expect that forming and documenting independent expectations will help auditors recognize more inconsistencies that they can then link to management's goals. I

therefore predict that requiring auditors to form and document independent expectations will interact with a prompt to use an intentional strategy to help auditors identify fraud risks. This leads to the following ordinal interaction hypothesis, which is illustrated in Figure 2.2:

> **H2:** The benefit auditors receive from being prompted to use an intentional strategy will be greater when the auditors first formulate and document their independent expectations for a client's reported results.

2.6 Fraud Procedures

Several studies have investigated auditors' procedure decisions in fraud settings (e.g., Zimbelman 1997; Hoffman and Zimbelman 2007). Interestingly, while SAS 82 (AICPA 1997, 12) primarily instructs auditors to adjust audit procedures to address a client's overall fraud risk, several studies find that auditors who assess overall fraud risk higher are not more likely to change the nature of procedures or to identify more effective procedures (Zimbelman 1997; Glover et al. 2003; Asare and Wright 2004). One explanation for these results is that auditors may not be aware of how to effectively alter audit procedures for fraud (Zimbelman 1997). An alternative explanation is that auditors may assess overall fraud risk high without understanding how and where fraud is most likely occurring. Even when auditors assess overall fraud risk high and fraud is present, if they do not understand how fraud is most likely occurring they are unlikely to effectively adjust audit procedures. Thus, auditors should seek to determine how and where fraud is likely occurring before they select audit procedures (AICPA 2003).

One potential way to improve the link between auditors' fraud risk assessments and their selection of audit procedures is to decompose the overall fraud risk assessment into individual fraud risks. For example, assume an auditor has assessed overall fraud risk high at the financial statement level. The auditor can break this overall assessment down into the individual risks

(e.g., identified risks could include potentially fraudulent channel stuffing or credit approvals) that contribute to the overall fraud risk. Auditors can then identify procedures to address the specific risks they have identified.

Results of prior studies provide mixed results on whether auditors benefit from decomposing their judgments. For instance, Jiambalvo and Waller (1984) find that auditors' overall assessments of acceptable risk are not significantly different if they directly assess this risk or separately assess each risk component. In contrast, Zimbelman (1997) finds that decomposing misstatement risk assessments into error and fraud components increases the attention auditors pay to fraud-related information. Finally, Wilks and Zimbelman (2004b) find that auditors are more responsive to differences in fraud opportunity and fraud incentive risks when they expect to separately assess components of fraud risk (attitude, opportunity, and incentive) before they make an assessment of overall fraud risk. However, their result only holds in a lower risk scenario (Wilks and Zimbelman 2004b), which suggests that circumstances may affect whether auditors benefit from decomposing this judgment.

SAS 99's (AICPA 2002) guidance that auditors should select procedures based on the fraud risks they identify essentially decomposes procedure decisions down from the overall risk level to the specific risk level. Given that decomposition is not always helpful, it is an empirical question whether auditors will benefit from selecting procedures to address specific fraud risks, particularly when they are unlikely to improve procedures when they assess overall fraud risk higher. SAS 99 implementation guidance (AICPA 2003) argues that auditors should determine how and where fraud is occurring before selecting audit procedures. I therefore anticipate that if auditors are able to identify fraud risks that relate to fraud they will be able to identify procedures that target fraud. This expectation leads to my final hypothesis:

H3: Auditors who are more effective at identifying relevant fraud risks will be more effective at identifying relevant fraud-related audit procedures.

2.7 Forensic Specialist Consultation

In addition to my formal hypotheses, I also examine auditors' decisions to consult with a forensic specialist in the current audit environment. Given that fraud is a complicated setting in which auditors must think and act strategically (Wilks and Zimbelman 2004a), auditors may not always feel confident in their ability to perform fraud-related tasks and thus may seek the help of specialists to address the possibility of fraud during the audit. SAS 73 explains "an auditor may encounter complex or subjective matters potentially material to the financial statements. Such matters may require special skill or knowledge and in the auditor's judgment require using the work of a specialist to obtain competent evidential matter" (AICPA 1994, 6).

Recent audit research examines auditors' decisions to consult with specialists (Asare and Wright 2004; Hunton et al. 2004). Hunton et al. (2004) find that auditors may be overconfident in their own abilities because they are no more likely to consult with IT specialists in a highly-complex technology setting even though the auditors do not appear to assess risks as effectively as specialists in this setting. Asare and Wright (2004) find evidence that auditors are more willing to consult with forensic specialists when they assess overall fraud risk higher, but do not find that auditors who form better plans are more or less likely to consult with specialists.

Similar to Asare and Wright (2004), I investigate auditors' decisions to consult with forensic specialists. The AICPA Forensic and Litigation Services Committee and Fraud Task Force suggest that forensic specialists can help auditors fulfill their responsibility for fraud as these professionals employ "special skills" and a unique "mindset" (AICPA 2004, 6, 13-14). Nevertheless, while SAS 99 suggests auditors should consider whether to include specialists in

the fraud brainstorming session, a recent study finds that forensic specialists are often not included in fraud brainstorming sessions (Brazel et al. 2008).

Given that my study focuses on auditors' identification and response to specific fraud risks, it is important to note that SAS 99 also advises auditors to consider using the help of a specialist to respond effectively to the specific risks the auditor identifies. SAS 99 states "the auditor may respond to an identified risk of material misstatement due to fraud by assigning additional persons with specialized skill and knowledge, such as forensic…specialists" (AICPA 2002, 50). Auditors can implement this guidance by consulting with forensic specialists in order to either 1) identify effective procedures to test the identified risks or 2) determine if the procedures the auditor has already identified will effectively test the identified risks.

As discussed previously, prior research suggests that auditors often do not alter the nature of procedures or select effective procedures when they assess overall fraud risk higher (Zimbelman 1997; Asare and Wright 2004). SAS 99 implementation guidance also notes that research findings suggest auditors can identify red flags but do not effectively test the red flags they identify (AICPA 2003). In light of these recent findings and guidance, auditors may be more sensitive to the difficulty of selecting procedures to address fraud risks and thus be more willing to seek help from specialists. Forensic specialists can potentially help auditors with their procedure decisions (e.g., AICPA 2004; Asare and Wright 2004). In my study, auditors can improve their audit plans by either 1) identifying more procedures that target fraud or 2) identifying fewer ineffective procedures (i.e., procedures that do not target fraud). I therefore investigate whether an auditor's decision to consult with a forensic specialist is influenced by the number of relevant and irrelevant procedures the auditor identifies.

> **RQ1:** Are auditors more likely to consult with a forensic specialist if they identify less relevant procedures or more irrelevant procedures?

Figure 2.1: Auditors' Consideration of Financial Statement Fraud

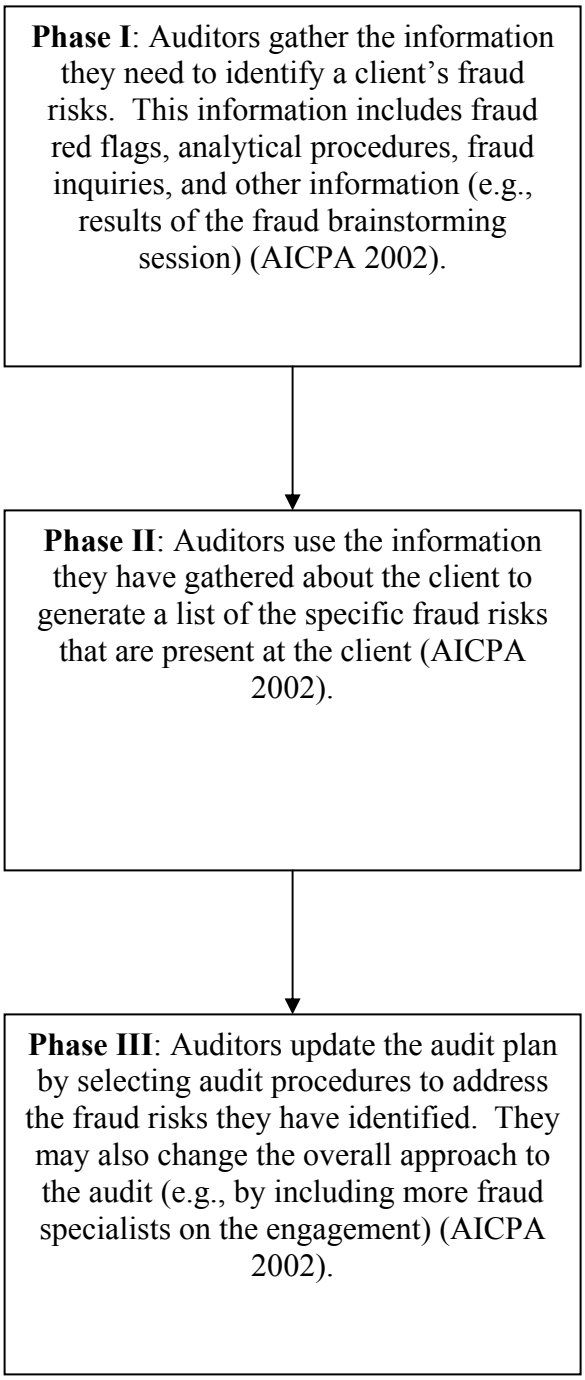

Figure 2.2: Predicted Interaction for H2

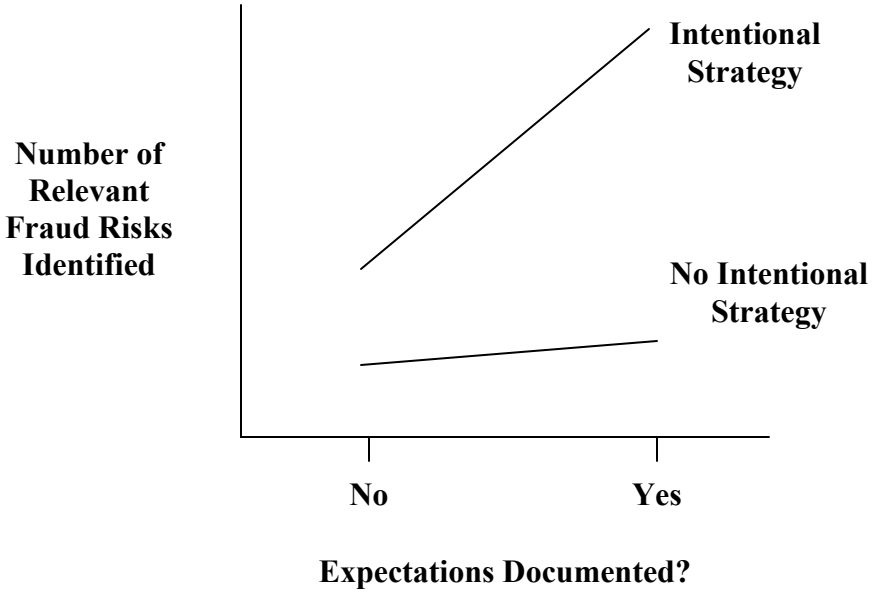

Table 2.1: Definitions and Examples of Fraud Red Flags, Overall Fraud Risk Assessments, and Fraud Risks

Category	Definition	Examples
Red Flags	"[E]vents or conditions that indicate incentives/pressures to perpetrate fraud, opportunities to carry out the fraud, or attitudes/rationalizations to justify a fraudulent action. Such events or conditions… do not necessarily indicate the existence of fraud; however, they often are present in circumstances where fraud exists" (AICPA 2002, 31).	a. "Operating losses making the threat of bankruptcy, foreclosure, or hostile takeover imminent." b. "Personal guarantees of debts of the entity." c. "Ineffective board of directors or audit committee oversight over the financial reporting process and internal control." d. "Frequent disputes with the current or predecessor auditor on accounting, auditing, or reporting matters." (AICPA 2002, 85)
Overall Fraud Risk Assessment	"[T]he risk of material misstatement of the financial statements due to fraud…" (AICPA 1997, 12).	a. On a scale from 0 (No fraud risk) to 100 (High fraud risk), what is the likelihood that fraud is occurring at this company? b. Overall fraud risk at this client is (circle one): Low Medium High
Fraud Risks	"[H]ow and where the entity's financial statements might be susceptible to material misstatement due to fraud…" (AICPA 2002, 02).	a. Management intentionally does not recognize enough bad debt expense in the period. b. Management is recognizing sales in the current period that are not shipped until the next period. c. Management is creating fictitious sales invoices to increase revenues. d. Management is counting goods on consignment as legitimate sales.

Chapter 3

RESEARCH METHOD

3.1 Participants

Eighty-eight practicing auditors participated in this study. Participants are from each of the Big 4 accounting firms (83%) and from a regional firm (17%). The average experience of the participants is 31.98 months (standard deviation = 17.88 months). Participants complete the study in a training session (40%) or are given the case through a firm contact to complete on their own (60%). I drop two participants from the analysis because they did not follow instructions and I drop a third because the participant did not list any audit procedures to address the risks the participant identified.[13] As a result, eighty-five responses are used in the analysis.

The remaining eighty-five participants have an average of 31.79 months of audit experience (median = 27 months), 83 percent are Big 4 auditors, and 56 percent are CPAs.[14] Additionally, these participants have encountered an average of 3.2 material errors in the previous three years and 9.4 percent of the participants have experienced a material fraud in the previous three years. Demographic information for these participants is found in Table 3.1.

[13] In untabulated results, including these participants does not significantly alter the inferences drawn in this study except when I investigate my research question (see section 4.7). Specifically, the coefficient on the percentage of irrelevant procedures is marginally significant (p = .101) and the coefficient on the number of irrelevant procedures an auditor identifies is no longer significant (p = .193).

[14] Five of the these participants have less than one year of auditing experience. Excluding these participants from the analysis does not affect the inferences drawn for each of the hypothesis tests with the exception of one test for H1 (see section 4.3). When these inexperienced auditors are excluded, remaining participants who are prompted to use an intentional strategy still identify a higher number of relevant risks (p = 0.03), but these participants do not identify a significantly higher percentage of relevant risks (p =.117).

3.2 Research Design

This study uses a 2 x 2 between-participant research design to test H1 and H2. I first manipulate whether or not participants are required to explicitly form and document their independent expectations for a client's reported results. I then manipulate whether or not participants are prompted to use an intentional strategy before they identify the client's fraud risks. I also use regression analysis to test H3 and investigate my research question. The primary dependent variables for my analysis are the number of relevant fraud risks auditors identify (H1 and H2) and the number of relevant procedures they identify (H3). The independent and dependent variables are discussed in detail below.

3.3 Task

I modify Asare and Wright's (2004) experimental instrument to investigate my research questions. This case was developed with the help of experienced practitioners and is based on details from a Security and Exchange Commission (SEC) Accounting and Auditing Enforcement Release (AAER) of a fraudulent company (SEC 1997; Asare and Wright 2004). The modified case asks participants to assess overall fraud risk, identify the client's specific fraud risks, and to identify procedures to address the identified risks. Participants also indicate how likely they are to consult with a forensic specialist on this engagement and provide demographic information. I pilot tested the instrument with 23 Big 4 audit seniors and used the results of the pilot to modify the instrument before running the study. Pilot study participant responses are not included in the study's analysis.

Figure 3.1 illustrates the steps participants take to complete the case. Participants begin by reading background information on the client, including the client's management, industry,

revenue cycle, and details about the marketing strategy that was the center of the fraud. They then receive 1) a list of fraud red flags (organized according to the fraud triangle) that are present and absent at the client and 2) a set of analytical procedure results (financial ratios) that are based on the client's actual reported (fraudulent) numbers. Participants who form independent analytical procedure expectations document their expectations for the client's current period results before seeing these results, while the other participants do not document these expectations. Auditors who use an intentional strategy complete four steps (discussed below) to prompt them to use this strategy while the remaining participants do not complete these steps. Next, participants assess overall fraud risk, list the fraud risks they believe are present at the client, and list audit procedures to address each of the risks they identify. Finally, participants indicate how likely they are to consult with a forensic specialist for this client and respond to additional materials, including demographic questions.

3.4 Independent Variables

I manipulate two independent variables for my tests of H1 and H2. The first manipulates whether auditors explicitly form and document their expectations for analytical procedures for the client's reported numbers. Auditors in this condition receive a set of eight financial ratios that are based on the client's performance through the end of the third quarter in the current period.[15] The case also indicates that these third quarter ratios are based on numbers that have been reviewed. Based on the information in the case, participants are asked to document whether they expect each financial ratio at the end of the current period (i.e., the annual results

[15] Financial ratios (and changes in these ratios) may help reveal potential fraud (Albrecht 2003; Wells 2004). Persons (1995) finds that some financial ratios differ between fraud and no-fraud firms and Calderon and Green's (1994) results suggest analyst forecast analytics can effectively signal fraud when it is present. Finally, Erickson et al. (2000) argue that some key analytics could have helped auditors see the Lincoln Savings and Loan fraud.

for the current period) to be significantly higher (↑), significantly lower (↓), or similar to (=) the third quarter ratios.[16] Once they document their expectations, participants transfer their documented expectations to a subsequent page. This page lists the same eight financial ratios for three separate periods – the current annual period (unaudited), the current period third quarter (reviewed) and the previous year's annual ratios (audited). The remaining participants receive these eight financial ratios for all three periods without explicitly forming and documenting expectations for the current year annual results. As a result, all participants receive the same financial ratios for the same periods when completing the case but those who form and document expectations document their expectations before seeing the current period annual results.

I also manipulate whether auditors complete four steps that aim to prompt them to use an intentional strategy-based approach to combine relevant client information before identifying the client's fraud risks. When auditors use an intentional strategy, they begin by looking for inconsistencies in the client's reported results (e.g., Johnson et al. 2001). I operationalize this step by asking participants to refer to the analytical procedure results they previously encountered and to indicate which of these results deviate from their expectations. Next, auditors link relevant client information to client management's goals (Johnson et al. 1993, 2001). In order to operationalize this step, I ask participants to identify and list up to three goals that they believe could lead management to commit fraud. These auditors then list the fraud red flags and analytical procedure results that are consistent with each management goal they previously listed.[17] The other participants do not complete these steps. As a result, while

[16] Participants in Hirst and Koonce's (1996) field investigation report that they perform substantive analytical procedures by forming expectations for the direction and magnitude of changes from a prior period balance. In order to maintain simplicity I have auditors indicate whether they anticipate *significant* increases or decreases, rather than having them separately state a direction and magnitude.

[17] Given time constraints, I limit the amount and type of information I ask auditors to link to management's goals. During an actual audit, auditors will have access to multiple information cues, each of which can be compared with management's goals to reveal potential fraud risks.

participants who are prompted to use an intentional strategy complete additional steps, they do not receive any more information about the company than those who are not prompted to use this strategy.

3.5 Dependent Variables

My primary dependent variable for Hypotheses 1 and 2 is the number of unique relevant fraud risks auditors identify. In order to collect this variable, I ask participants to list the specific ways that they believe management could be committing fraud. Along with an independent coder who has previous audit experience and who was blind to experimental conditions, we code participant responses as relevant if they relate to (i.e., target) the actual fraud that the case is based on. Our agreement on the coding of risks (relevant or irrelevant) is 89.6% (Cohen's Kappa = 0.791, p-value < 0.01) and we mutually resolve any differences. We code responses as relevant if they relate to the fraud in the experimental case, consistent with Carpenter's (2007) coding for brainstorming ideas and Asare and Wright's (2004) coding of audit procedures. Importantly, the number of relevant fraud risks identified also serves as the primary independent variable of interest when I test H3.

While it is important to investigate whether auditors are able to determine relevant fraud risks, counting the number of relevant risks is potentially problematic because an intentional strategy approach may lead auditors to simply list a higher number of total (relevant and irrelevant) ways that management could be committing fraud. As a result, I use the percent of relevant risks identified – calculated as total relevant risks identified / total risks identified – as an alternative dependent variable for H1 and H2.

My primary dependent variable for Hypothesis 3 is the number of unique relevant procedures auditors identify. I collect this variable by asking participants to list up to three specific audit procedures to address each of the fraud risks they identify. Along with the same independent coder who was blind to experimental conditions and who has prior audit experience, we code participants' procedures as relevant if the procedures would effectively target the actual fraud that occurred in the case (i.e., the SEC (1997) AAER fraud). We derive the list of effective procedures from several sources. Asare and Wright (2004) include a list of effective audit procedures for the fraud that the case is based on. Hoffman and Zimbelman (2007) use the same fraud in their study and they discuss procedures and changes to those procedures that would effectively target the case fraud. We develop our list of effective procedures using the procedures discussed in these papers and also code other procedures as relevant if they could reasonably be expected to target the case fraud.

Our agreement on the coding of procedures (relevant or not relevant) is 85.7% (Cohen's Kappa = .713, p-value < 0.01) and we mutually resolve any differences. I also use the percentage of relevant procedures identified (total relevant procedures identified / total procedures identified) as an alternative dependent variable for H3 to address the possibility that auditors who identify more relevant risks simply list a higher number of total (relevant and irrelevant) procedures.

Finally, in order to investigate my research question about auditors' consultation of forensic specialists, I have auditors respond to the following scenario, which is modified from Asare and Wright (2004):

> Assume that the engagement partner wants your opinion on the necessity of conferring with a forensic specialist to finalize the proposed audit plan. The available forensic specialist is very experienced with fraud risk situations. **How likely would you be to consult with this forensic specialist**? (Mark the scale below)

Participants indicate how likely they are to consult with the forensic specialist on a scale from 0 (Certainly will not consult) to 100 (Certainly will consult). Their responses to this scale are used as the dependent variable for the analysis of my research question.

In addition to using the percentage of relevant procedures auditors identify as an alternative dependent variable for H3, I use this variable as the independent variable when investigating auditors' consultation decisions. This measure is relevant to my research question because it takes into account the number of relevant and irrelevant procedures that auditors identify. Asare and Wright (2004) measure the effectiveness of audit plans as the number of relevant procedures auditors identify and they find that auditors' decision to consult is not significantly affected by the effectiveness of their audit plans. However, their measure does not recognize that auditors' consultation decision may be affected by the number of ineffective procedures auditors identify.

To the extent that auditors sense that they are identifying procedures that are potentially ineffective (i.e., procedures that potentially do not target fraud), auditors may be more willing to consult with specialists to finalize their audit plan. My measure can help reveal whether auditors' decisions to consult with specialists is influenced by the degree to which they realize they are identifying relevant or potentially irrelevant procedures. As an alternative test, I also estimate a second regression, replacing the percentage of relevant procedures auditors identify with the number of relevant and the number of irrelevant procedures they identify.

Figure 3.1: Overview of Experimental Task

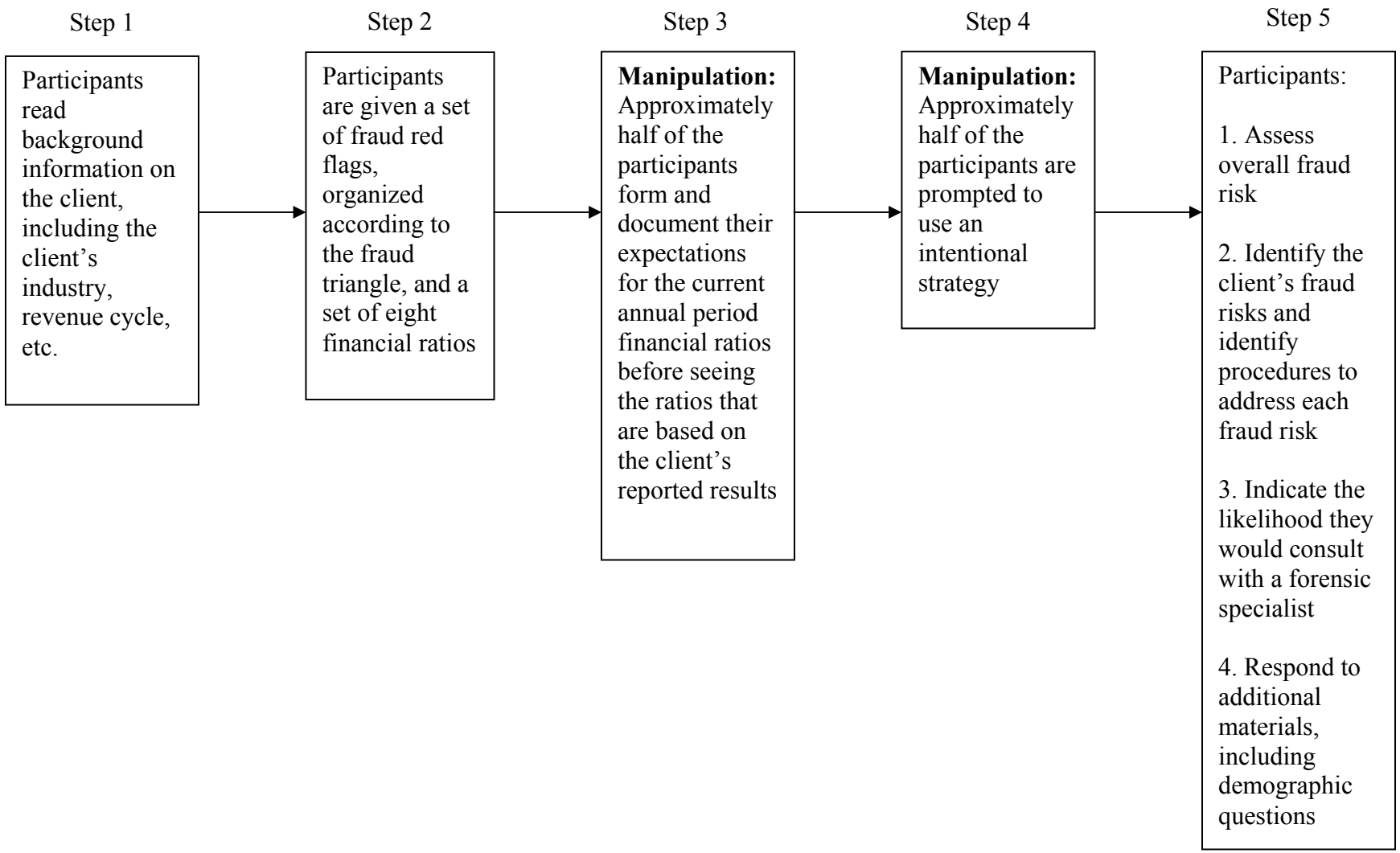

Table 3.1: Participant Demographics

Variable	Mean	Min	Max	S.D.
Experience	31.789	2.000	106.000	18.024
CPA	0.560	0.000	1.000	0.499
Fraud Experience	0.094	0.000	1.000	0.294
Material Error Experience	3.200	0.000	25.000	4.820

Where:

Experience: an auditor's number of months of auditing experience

CPA: an indicator variable for whether an auditor is a CPA or not (1 = yes, 0 = no)

Fraud Experience: the number of material frauds that an auditor has encountered in the last three years

Material Error Experience: the number of material errors that an auditor has encountered in the last three years

Chapter 4

RESULTS

4.1 Descriptive Statistics

Descriptive statistics are reported in Table 4.1. On average, participants identify 1.91 relevant risks and 2.07 irrelevant risks. Given that performing fraud-related audit tasks is difficult, it is not surprising that on average auditors recognize a small number of fraud risks. The total number of risks identified (3.98) by these participants is consistent with Carpenter (2007), who finds that less experienced auditors (staff and seniors) identify an average of about 4.63 total fraud brainstorming ideas on their own. However, while my participants identify an average of 1.91 relevant fraud risks, Carpenter's (2007) less experienced participants identify an average of about .50 relevant brainstorming ideas. This difference is most likely due to either the focus of my study being on ways to improve less experienced auditors' identification of relevant fraud risks or to differences between the cases used in the two studies.

The average overall fraud risk assessment is 54.41 on a scale from 0 ("Certain fraud does not exist") to 100 ("Certain fraud does exist"). These assessments are reasonable for two reasons. First, this case is based on an actual fraud and so it is encouraging that participants did not rate the overall risk of fraud lower, even though fraud is a rare occurrence. Second, the average overall fraud risk assessment made by my participants is similar to the average fraud risk assessment (across conditions) reported in Asare and Wright (2004). Their participants had an average assessment of 5.09 out of 10 (1 = low risk; 10 = high risk) in a case where fraud was also present. The average likelihood that auditors will consult with a forensic specialist is 63.63 on a

scale from 0 (Certainly will not consult) to 100 (Certainly will consult). Asare and Wright's (2004) participants had an average likelihood of consultation of 5.24 (on a scale from "1 = no necessity to consult" to "10 = high necessity to consult"). One reason my participants' appear more likely to consult on average is that I conducted my experiment after SAS 99 was implemented while Asare and Wright's (2004) study was completed prior to the issuance of this standard. SAS 99 emphasizes that auditors may need to seek forensic specialist consultation to help address the specific risks auditors identify.

Finally, my participants identify an average of 3.68 relevant procedures and 3.41 irrelevant procedures. On average, Asare and Wright's (2004) participants identify 2.64 relevant procedures. Again, these numbers are roughly equivalent and any difference may be due to the additional step that my participants took to identify fraud risks before identifying fraud procedures or due to firm training in the current SAS 99 environment.

4.2 Manipulation Checks

Auditors who are required to form and document expectations and who are prompted to use an intentional strategy have more material to work through in the case than participants who are not in these conditions; therefore, these participants should take more time to complete the case. Additionally, McDaniel and Kinney (1995) suggest that the benefits of explicit instructions to form expectations may be due to increased cognitive effort, which they link to the time taken to complete a task. Similarly, if auditors are more likely to deeply process information when they use an intentional strategy, they can reasonably be expected to take more time to complete the case when they are prompted to use an intentional strategy. I therefore test whether participants in the two experimental conditions take more time to complete the case.

In order to test whether participants take more time to complete the case when they are required to form and document expectations or when they are prompted to use an intentional strategy, I compute an ANCOVA with document expectations (yes or no) and use of an intentional strategy (yes or no) as independent variables.[18] The dependent variable for this analysis is the number of minutes participants take to complete the case.[19]

As seen in Panel A of Table 4.2, participants who explicitly form and document independent expectations take an average of 40.78 minutes to complete the case while those who do not explicitly form and document their expectations take an average of 40.83 minutes to complete the case. The difference between these conditions is not significant ($p = 0.27$; see Panel B of Table 4.2). Participants who are prompted to use an intentional strategy take an average of 46.13 minutes to complete the case while those who are not prompted to use an intentional strategy only take an average of 35.85 minutes to complete the case (see Panel A of Table 4.2). The results in Panel B of Table 4.2 indicate that the difference between these conditions is significant ($p = 0.00$).

I also expect that requiring auditors to form and document independent expectations for the client's reported results will help auditors identify more inconsistencies, consistent with prior theory and research (e.g., Tversky and Kahneman 1974; Kinney and Uecker 1982). As an additional manipulation check, I am able to test this expectation by examining the responses of participants who are prompted to use an intentional strategy because these participants list the

[18] I include an indicator variable for whether participants complete the case in a training session (1 = yes, 0 = no) as a covariate in each analysis of variance to control for any effect this difference in setting may have. Excluding this covariate does not affect the inferences drawn for these tests.

[19] Four participants did not provide enough information to determine the time they spent on the task and one participant noted that he or she was consistently interrupted. These five participants are not included in this manipulation check. Another participant was dropped from this check because this participant took 180 minutes for the task while the average time was about 43 minutes. If this participant is included in the time manipulation check, the p-value for intentional strategy is still marginally significant ($p = 0.09$). While this participant is included in the hypothesis tests, excluding the participant does not significantly alter the inferences drawn for these tests.

analytical procedure results that deviate from their expectations and the analytical procedures that are consistent with management attaining its goals.

In untabulated results, I find that auditors who form and document their expectations (do not form and document their expectations) list an average of 2.91 (3.44) analytical procedures that deviate from their expectations and 6.91 (7.56) analytical procedures that are consistent with management's goals. Neither the difference in the number of analytical procedure results that deviate from expectations ($p = 0.62$) nor the difference in the number of analytical procedures considered consistent with management's goals ($p = 0.48$) is significant. This means that requiring auditors to explicitly form and document their expectations did not lead them to identify more anomalies that they could then tie to management's goals. As a result, the anticipated benefit of explicitly forming and documenting expectations for auditors who use an intentional strategy (H2) may not be realized.

4.3 Hypothesis 1

In order for Hypothesis 1 to be supported, auditors who are prompted to use an intentional strategy have to identify significantly more relevant fraud risks than auditors who are not prompted to use this strategy. Panel A of Table 4.3 shows that participants who are prompted to use an intentional strategy identify an average of 2.26 relevant risks while those who are not prompted to use an intentional strategy identify an average of 1.61 relevant risks. The results of an ANCOVA with the intentional strategy prompt (yes or no) and the requirement to form and document independent expectations (yes or no) as between-participant factors are shown in Panel B of Table 4.3. These results reveal that the difference in the number of relevant risks identified between participants who use an intentional strategy and those who do not is

significant ($p = 0.01$), which supports H1. These results are consistent with auditors developing better insights about how the client could be committing fraud when they first link relevant client information (red flags and analytical procedures) to client management's goals.

Another explanation for the results in the preceding paragraph is that prompting auditors to use an intentional strategy could simply increase their concerns about fraud and lead them to identify more total (relevant or irrelevant) fraud risks. As a result, I also test H1 by considering the percentage of relevant risks participants identify and the total number of risks participants identify. As seen in Panel A of Table 4.4, participants who are prompted to use an intentional strategy identify a higher percentage of relevant risks (52%) than participants who do not use an intentional strategy (40%). Results of a between-participants ANCOVA (see Panel B of Table 4.4) show that this difference is significant ($p = 0.04$). Finally, as seen in Panel A of Table 4.5, participants who are prompted to use an intentional strategy identify an average of 4.05 total fraud risks, while participants who are not prompted to use an intentional strategy identify an average of 3.91 total fraud risks. The results of a between-participants ANCOVA in Panel B of Table 4.5 show that this difference is not significant ($p = 0.43$). Taken together, these results provide evidence that prompting auditors to use an intentional strategy helps them focus on relevant fraud risks rather than simply increasing the total number of risks they identify.

Interestingly, the main effect for document expectations on total fraud risks identified is marginally significant, suggesting that auditors who do not explicitly form and document independent expectations identify a higher number of fraud risks. Furthermore, auditors who do not explicitly form and document expectations do not identify a significantly higher number of relevant risks (see Table 4.3), which could mean that auditors who do not form and document expectations may identify a higher number of irrelevant risks. In untabulated results I compute

an ANCOVA with the intentional strategy prompt (yes or no) and the requirement to form and document independent expectations (yes or no) as between-participant factors and the number of irrelevant risks auditors identify as the dependent variable. While participants who do not form and document expectations identify a higher average number of irrelevant risks (mean = 2.18) than participants who explicitly form and document expectations (mean = 1.98), the main effect for the requirement to form and document expectations is not significant ($p = 0.50$).

4.4 Hypothesis 2

Hypothesis 2 predicts that auditors will benefit more from using an intentional strategy when they first form and document independent expectations for a client's reported results. In order for H2 to be supported, auditors who are both prompted to use an intentional strategy and are asked to form and document independent expectations must identify a significantly higher number of relevant risks than auditors who are prompted to use an intentional strategy but do not form and document expectations (see Figure 2.2). Hypothesis 2 is not supported. As seen in Panel A of Table 4.3, auditors who are prompted to use an intentional strategy and who form and document expectations do not identify more relevant risks (mean = 2.00) than auditors who are prompted to use an intentional strategy but do not form and document expectations (mean = 2.63). Similarly, auditors who are prompted to use an intentional strategy and who form and document expectations do not identify a significantly higher percentage of relevant risks (mean = 47%) than auditors who are prompted to use an intentional strategy but do not form and document expectations (mean = 59%) (see Panel A of Table 4.4).

As discussed previously, auditors who are prompted to form and document independent expectations do not take longer to complete the case and do not identify more analytical

procedures that deviate from their expectations than participants who are not prompted to form and document independent expectations. Because auditing standards direct auditors to develop expectations for analytical procedures, auditors who were not asked to explicitly form independent expectations may have done so even though they were not explicitly instructed to form expectations. This possibility provides one potential explanation for why auditors who did not document their expectations did not take a significantly different amount of time to complete the case and why they recognize a similar number of analytical procedures that deviate from their expectations.

4.5 Hypothesis 3

Hypothesis 3 predicts that auditors who identify more relevant risks will identify more effective audit procedures. In order for this hypothesis to hold, the number of relevant fraud risks auditors identify must be positively and significantly correlated with the number of relevant fraud procedures they identify. As seen in Table 4.6, the Pearson and the Spearman correlations between these variables are positive and significant (both p-values < 0.01). Furthermore, given that auditors can assess overall fraud risk high without having an adequate understanding of how fraud is occurring (and given that prior research fails to find an association between overall risk assessments and the identification of effective procedures), I do not expect the association between auditors' overall fraud risk assessments and the number of relevant procedures they identify to be significant. Table 4.6 shows that neither the Pearson nor Spearman correlations between overall fraud risk and number of relevant procedures auditors identify is significant (both p-values $> .05$).

In order to formally test H3, I regress the number of relevant procedures participants identify on the number of relevant risks they identify, their overall fraud risk assessments, and several control variables. I control for other variables that could influence the number of relevant procedures auditors identify because this analysis is no longer based on randomized conditions. The regression I estimate to test H3 is found in equation 1:

$$RelProcs = \alpha + \beta_1 RelRisks + \beta_2 OverallFrRisk + \beta_3 Experience + \beta_4 RevRecExperience + \beta_5 Industry + \beta_6 Big4 + \beta_7 Training + \beta_8 Time + \varepsilon \quad (1)$$

Where:

RelProcs is the number of procedures an auditor identifies that target fraud.

RelRisks is the number of risks an auditor identifies that relate to the actual case fraud.

OverallFrRisk is an auditor's overall fraud risk assessment on a scale from 0 (Certain fraud does not exist) to 100 (Certain fraud does exist).

Experience is an auditor's number of months of auditing experience.

RevRecExperience is an auditor's revenue recognition experience on a scale from 0 (No prior experience) to 10 (Deal with this issue often).

Industry is an indicator variable for whether an auditor primarily works in an industry related to the case study (e.g., consumer products or manufacturing) (1 = yes, 0 = no).

Big4 is an indicator variable for whether an auditor is from a Big 4 firm (1 = yes, 0 = no).

Training is an indicator variable for whether an auditor completes the case in a training session (1 = yes, 0 = no).

Time is the number of minutes an auditor spends completing the case.

Hypothesis 3 will be supported if the coefficient on the number of relevant risks participants identify is positive and significant after controlling for other factors that can influence the number of relevant procedures auditors identify. Because auditors can assess overall fraud risk high without having an adequate understanding of how fraud is occurring (and because prior research does not find an association between overall risk assessments and the

identification of effective procedures), I do not expect the coefficient on overall fraud risk to be significant.

I also control for several variables that may affect the likelihood that participants identify relevant procedures. I expect that auditors who have more audit experience, those who deal with revenue recognition issues on a regular basis, or those who primarily work in an industry that is related to the case will be more likely to identify relevant procedures because of their exposure to similar tasks. I also expect that participants who spend more time on the case are arguably more likely to identify relevant procedures because they are more involved in the case. Finally, I control for whether the auditors come from a Big 4 firm and whether the participants complete the case during training in order to control for any differences due to audit firm size and differences due to the setting in which participants complete the case.

Table 4.6 reveals that there are significant correlations between the independent and control variables and between control variables. For instance, the number of relevant risks auditors identify is negatively correlated with completing the case in a training session ($p < 0.05$) and auditor experience is positively correlated with the degree to which an auditor deals with revenue recognition issues on a regular basis ($p < 0.01$). Given that there are significant correlations between several of these variables, I look at the variable inflation factors (VIFs) to determine if my model could be affected by multicollinearity. Montgomery et al. (2001) suggest that VIFs above 5.00 are a reasonable cutoff for concerns about multicollinearity. I find that all of the VIFs are below 2.00 and so multicollinearity is not a concern for this model. I also examine the VIFs for each of the regressions discussed below and find that none of them have any variables with a VIF score over 2.00.

The results of equation 1 are found in Table 4.7. As predicted, the coefficient on relevant risks is positive and significant ($p = 0.00$), consistent with the expectation that auditors who develop a better understanding of the ways that management could be committing fraud are in a better position to identify procedures that will effectively target fraud. Table 4.7 also shows that, consistent with prior research, the coefficient on overall fraud risk is not significant ($p = 0.17$). The results in Table 4.7 also indicate that the number of months of audit experience an auditor has or the extent to which an auditor deals with revenue recognition issues on a regular basis both increase, on average, the number of relevant procedures auditors identify. While the coefficients on both working in a related industry and the amount of time taken to complete the task are positive (as expected), neither of these coefficients is significant.

As an alternative test of Hypothesis 3, I re-estimate equation 1 using the percentage of relevant procedures auditors identify (total relevant procedures identified / total procedures identified) as the dependent variable. The results of this regression are found in Table 4.8. I again find that the coefficient on relevant risks is positive and significant ($p = 0.00$), and that the coefficient on overall fraud risk is not significant ($p = 0.13$). These results are consistent with auditors focusing a higher percentage of their effort on procedures that will target fraud when they first identify a higher number of relevant fraud risks.

4.6 Irrelevant Risks and Procedures

As an additional analysis, I examine whether auditors identify more irrelevant procedures when they identify more irrelevant risks. I specifically regress the number of irrelevant procedures participants identify on the number of irrelevant risks they identify, their overall

fraud risk assessments, and the same control variables used in equation 1. This regression is shown in equation 2.

$$IrrelProcs = \alpha + \beta_1 IrrelRisks + \beta_2 OverallFrRisk + \beta_3 Experience + \beta_4 RevRecExperience + \beta_5 Industry + \beta_6 Big4 + \beta_7 Training + \beta_8 Time + \varepsilon \quad (2)$$

Where:

IrrelProcs is the number of procedures an auditor identifies that do not target fraud.

IrrelRisks is the number of risks an auditor identifies that do not target fraud.

OverallFrRisk is an auditor's overall fraud risk assessment on a scale from 0 (Certain fraud does not exist) to 100 (Certain fraud does exist).

Experience is an auditor's number of months of auditing experience.

RevRecExperience is an auditor's revenue recognition experience on a scale from 0 (No prior experience) to 10 (Deal with this issue often).

Industry is an indicator variable for whether an auditor primarily works in an industry related to the case study (e.g., consumer products or manufacturing) (1 = yes, 0 = no).

Big4 is an indicator variable for whether an auditor is from a Big 4 firm (1 = yes, 0 = no).

Training is an indicator variable for whether an auditor completes the case in a training session (1 = yes, 0 = no).

Time is the number of minutes an auditor spends completing the case.

The results of equation 2 are found in Table 4.9. As expected, the coefficient on irrelevant risks is positive and significant ($p = 0.00$), consistent with the notion that auditors who do not develop a good understanding of the ways that management is most likely committing fraud identify more procedures that will not target fraud. Table 4.9 also shows that, consistent with prior research, the coefficient on overall fraud risk is not significant ($p = 0.28$) and none of the control variables significantly influences the number of irrelevant procedures that auditors identify. For instance, even though auditors who have more experience or deal with revenue

recognition issues on a regular basis are expected to be in a better position to avoid irrelevant procedures, they do not identify significantly less irrelevant procedures.

I also examine the effect of auditors' identification of irrelevant risks on the percentage of relevant procedures they identify by using the percentage of relevant procedures auditors identify as the dependent variable in equation 2. The results of this test can be found in Table 4.10. Not surprisingly, the coefficient on irrelevant risks is negative and significant ($p = 0.00$) and the coefficient on overall fraud risk is not significant ($p = 0.37$); as auditors identify a higher number of irrelevant risks, they identify a significantly lower percentage of audit procedures that will target fraud.

4.7 Consultation of a Forensic Specialist

In order to investigate the likelihood that auditors will consult with forensic specialists, I regress the likelihood that auditors will consult on the percentage of relevant procedures that auditors identify (total relevant procedures identified / total procedures identified), their overall fraud risk assessments, and several control variables.

I control for auditors' experience and the extent to which they deal with revenue recognition on a regular basis because auditors may be less likely to consult when they regularly deal with the tasks in this case. I also control for whether the auditors primarily work in an industry related to the firm in the case because these auditors may be more confident in this setting. I also include variables for whether the auditors complete the case in a training session and the amount of time auditors take to complete the task to control for any effect the case setting or amount of time they spend on the case may have on auditors' consultation decision. Finally, I include an indicator variable for whether auditors are from a Big 4 firm to control for

any effect firm size may have on the consultation decision (e.g., Big 4 firms have more resources and specialists, which may make consultation more likely). The regression used to investigate my research questions is found in equation 3:

$$Consult = \alpha + \beta_1 PercentRelProcs + \beta_2 OverallFrRisk + \beta_3 Experience + \beta_4 RevRecExperience + \beta_5 Industry + \beta_6 Big4 + \beta_7 Training + \beta_8 Time + \varepsilon \quad (3)$$

Where:

Consult is the likelihood an auditor will consult with a forensic specialist on a scale from 0 (Certainly will not consult) to 100 (Certainly will consult).

PercentRelProcs is the percentage of procedures an auditor identifies that target fraud (total relevant procedures identified / total procedures identified)

OverallFrRisk is an auditor's overall fraud risk assessment on a scale from 0 (Certain fraud does not exist) to 100 (Certain fraud does exist).

Experience is an auditor's number of months of auditing experience.

RevRecExperience is an auditor's revenue recognition experience on a scale from 0 (No prior experience) to 10 (Deal with this issue often).

Industry is an indicator variable for whether an auditor primarily works in an industry related to the case study (e.g., consumer products or manufacturing) (1 = yes, 0 = no).

Big4 is an indicator variable for whether an auditor is from a Big 4 firm (1 = yes, 0 = no).

Training is an indicator variable for whether an auditor completes the case in a training session (1 = yes, 0 = no).

Time is the number of minutes an auditor spends completing the case.

The results of equation 3 are found in Table 4.11. The coefficient on the percentage of relevant procedures that auditors identify is negative and marginally significant ($p = 0.08$), which suggests that auditors are less (more) likely to consult when their audit plans are more (less) effective. The coefficient on the overall fraud risk assessment is positive and significant ($p =$

0.00), which corroborates Asare and Wright's (2004) results and suggests that auditors are more likely to consult with a forensic specialist when they perceive overall fraud risk to be higher.

The control variables in Table 4.11 also provide some interesting information. For instance, while I expect auditors with more experience to be less likely to consult, auditor experience significantly increases auditors' propensity to consult. One explanation for this result is that auditors with more experience may have more experience consulting with specialists and are therefore more willing to do so. Also, Big 4 auditors appear more likely to consult, possibly because these firms have more specialists or specialist consultation is more common at these larger firms.

As an alternative test of my research question, I re-run equation 3 substituting in the number of relevant and irrelevant procedures auditors identify for the percentage of relevant procedures that auditors identify. The results of this analysis are found in Table 4.12. Again, consistent with Asare and Wright (2004), auditors are more likely to consult when they assess overall fraud risk higher ($p = 0.00$). Furthermore, auditors' decision to consult is not affected by the number of relevant procedures they identify ($p = 0.64$). This finding corroborates Asare and Wright's (2004) result that the effectiveness of an audit plan does not affect their consultation decision when the effectiveness of an audit plan is measured by the number of relevant procedures auditors identify. However, the coefficient on the number of irrelevant procedures auditors identify in my analysis is positive and marginally significant ($p = 0.08$), suggesting that auditors are more likely to consult with specialists when they identify a higher number of procedures that do not effectively target fraud. This result could be due to auditors having a sense that they are identifying potentially ineffective procedures and therefore want specialist help to finalize the audit plan.

4.8 Sensitivity Analysis

I re-run my ANCOVA with the intentional strategy prompt (yes or no) and the requirement to form and document independent expectations (yes or no) as between-participant factors along with additional covariates that control for other factors that could affect the number of relevant risks auditors identify and the percentage of relevant risks they identify. Specifically, in addition to the training covariate used in the initial analysis, I compute iterations of the ANCOVA controlling for auditor experience, whether the auditors come from an industry related to the case study, whether they come from a Big 4 accounting firm, and the extent to which they deal with revenue recognition issues on a regular basis. I also compute iterations of the ANCOVA to control for effects of each individual audit firm. The only minor change in the inferences drawn previously is that when I include a covariate for whether the auditors primarily work in an industry related to the case, the main effect for intentional strategy on the percentage of relevant fraud risks auditors identify is marginally significant ($p = 0.06$) rather than being significant at the conventional $p = 0.05$ level.

Table 4.1: Descriptive Statistics

	Mean	Std. Deviation	Min	Max
Relevant Risks	1.91	1.43	0	6
Irrelevant Risks	2.07	1.32	0	6
Percent Relevant Risks	0.46	0.30	0	1
Relevant Procedures	3.68	2.24	0	10
Irrelevant Procedures	3.41	2.22	0	12
Percent Relevant Procedures	0.51	0.24	0	1
Overall Fraud Risk	54.41	17.74	15	95
Consult	63.63	25.52	1	100

Where:

Relevant Risks are risks that relate to the actual case fraud

Irrelevant risks are risks that did not relate to the actual case fraud

Percent relevant risks is computed as (total relevant risks identified ÷ total risks identified)

Relevant Procedures are audit procedures that target the actual case fraud

Irrelevant procedures are audit procedures that do not target the actual case fraud

Percent relevant procedures is computed as (total relevant procedures identified total procedures identified)
Overall fraud risk is participants' overall fraud risk assessment on a scale from 0 (Certain fraud does not exist) to 100 (Certain fraud does exist).
Consult: the likelihood that auditors will consult with a forensic specialist on a scale from 0 (Certainly will not consult) to 100 (Certainly will consult)

Table 4.2: Manipulation Check - Number of Minutes to Complete the Case

Panel A: Mean (Standard Deviation) Number of Minutes to Complete the Case

		Documented Expectations		
		Yes	No	Average
Used an Intentional Strategy	Yes	44.23 (11.52) n = 22	48.75 (23.99) n = 16	46.13 (17.72) n = 38
	No	37.32 (12.39) n = 22	34.16 (11.42) n = 19	35.85 (11.91) n = 41
	Average	40.78 (12.33) n = 44	40.83 (19.43) n = 35	

Panel B: Between-Participant ANCOVA of Intentional Strategy and Form/Document Expectations on Number of Minutes to Complete the Case

Source	DF	Mean Square	F	p-value
Intentional Strategy	1	2463.41	13.78	0.000
Document Expectations	1	224.10	1.26	0.266
Intentional Strategy * Document Expectations	1	266.08	1.49	0.226
Error	79	178.54		

Table 4.3: Number of Relevant Risks Identified

Panel A: Mean (Standard Deviation) Number of Relevant Risks Identified

		Documented Expectations		
		Yes	No	Average
Used an Intentional Strategy	Yes	2.00 (1.48) n = 23	2.63 (1.50) n = 16	2.26 (1.50) n = 39
	No	1.63 (1.24) n = 24	1.59 (1.40) n = 22	1.61 (1.31) n = 46
	Average	1.81 (1.36) n = 47	2.03 (1.52) n = 38	

Panel B: Between-Participant ANCOVA of Intentional Strategy and Form/Document Expectations on Number of Relevant Fraud Risks Identified

Source	DF	Mean Square	F	p-value
Intentional Strategy	1	12.01	6.58	0.012
Document Expectations	1	3.32	1.82	0.182
Intentional Strategy * Document Expectations	1	2.44	1.34	0.251
Error	80	1.83		

Table 4.4: Percentage of Relevant Risks Identified

Panel A: Mean (Standard Deviation) Percentage of Relevant Fraud Risks Identified

		Documented Expectations		
		Yes	No	Average
Used an Intentional Strategy	Yes	0.47 (0.24) n = 23	0.59 (0.27) n = 16	0.52 (0.26) n = 39
	No	0.42 (0.33) n = 24	0.38 (0.31) n = 22	0.40 (0.32) n = 46
	Average	0.45 (0.29) n = 47	0.47 (0.31) n = 38	

Panel B: Between-Participant ANCOVA of Intentional Strategy and Form/Document Expectations on the Percentage of Relevant Fraud Risks Identified

Source	DF	Mean Square	F	p-value
Intentional Strategy	1	0.36	4.20	0.044
Document Expectations	1	0.04	0.43	0.515
Intentional Strategy * Document Expectations	1	0.13	1.47	0.229
Error	80	0.09		

Table 4.5: Total Number of Risks Identified

Panel A: Mean (Standard Deviation) Total Number of Risks Identified

		Documented Expectations		
		Yes	No	Average
Used an Intentional Strategy	Yes	3.74 (1.66) n = 23	4.50 (1.90) n = 16	4.05 (1.78) n = 39
	No	3.83 (1.43) n = 24	4.00 (1.66) n = 22	3.91 (1.53) n = 46
	Average	3.79 (1.53) n = 47	4.21 (1.76) n = 38	

Panel B: Between-Participant ANCOVA of Intentional Strategy and Form/Document Expectations on the Total Number of Fraud Risks Identified

Source	DF	Mean Square	F	p-value
Intentional Strategy	1	1.585	0.635	0.428
Document Expectations	1	7.324	2.933	0.091
Intentional Strategy * Document Expectations	1	2.051	0.821	0.368
Error	80	2.497		

Table 4.6: Correlations Between Dependent, Independent, and Control Variables for Regression Analyses^

	Rel Risks	Irrel Risks	Overall FrRisk	Rel Procs	Irrel Procs	Percent Rel Procs	Consult	Exper	Rev Rec Exper	Indus	Big4	Train	Time
RelRisks		-.298**	0.095	.533**	0.008	.318**	0.123	-0.017	0.073	0.196	0.064	-.231*	.342**
Irrel Risks	-.288**		0.096	-0.023	.612**	-.390**	0.128	-0.088	0.008	-0.105	-0.129	-0.134	0.085
Overall FrRisk	0.062	0.101		0.000	0.06	-0.078	.506**	0.168	0.159	0.045	0.204	0.158	0.082
RelProcs	.542**	-0.077	-0.009		-0.025	.680**	-0.111	.225*	.417**	0.204	-0.138	-0.084	0.196
IrrelProcs	0.016	.638**	0.084	-0.062		-.644**	0.13	-0.211	-0.042	0.013	-0.054	-0.149	0.099
PercentRelProcs	.332**	-.408**	-0.068	.682**	-.564**		-0.199	.270*	.295**	0.117	-0.061	0.046	0.047
Consult	0.061	0.143	.473**	-0.132	0.182	-.228*		0.057	-0.127	-0.022	.431**	-0.007	0.069
Exper	0.077	-0.12	0.205	.339**	-0.176	.288**	0.107		.409**	-0.088	-0.165	0.198	-0.185
RevRecExper	0.04	-0.041	0.164	.415**	-0.113	.265*	-0.133	.463**		0.145	-0.182	0.1	-0.099
Indus	0.178	-0.072	0.05	0.209	-0.003	0.116	0.01	-0.087	0.134		0.143	0.06	-0.078
Big4	0.035	-0.055	0.204	-0.149	-0.036	-0.073	.456**	-0.129	-0.2	0.143		.360**	-0.08
Train	-.239*	-0.079	0.166	-0.096	-0.134	0.049	0.005	0.149	0.11	0.06	.360**		-.457**
Time	0.199	0.137	-0.028	0.081	0.134	-0.026	-0.032	-0.126	-.245*	0.077	0.016	-.359**	

^Spearman (Pearson) Correlations above (below) diagonal
**$p < 0.01$
*$p < 0.05$
Where: *RelRisks* is the number of risks an auditor identifies that relate to the actual case fraud. *IrrelRisks* is the number of risks an auditor identifies that do not target fraud. *OverallFrRisk* is an auditor's overall fraud risk assessment on a scale from 0 (Certain fraud does not exist) to 100 (Certain fraud does exist). *RelProcs* is the number of procedures an auditor identifies that target fraud. *IrrelProcs* is the number of procedures an auditor identifies that do not target fraud.

Table 4.6 (Continued)
PercentRelProcs: the percentage of procedures an auditor identifies that target fraud (total relevant procedures identified / total procedures identified). *Consult* is the likelihood an auditor will consult with a forensic specialist on a scale from 0 (Certainly will not consult) to 100 (Certainly will consult). *Experience* is an auditor's number of months of auditing experience. *RevRecExperience* is an auditor's revenue recognition experience on a scale from 0 (No prior experience) to 10 (Deal with this issue often). *Industry* is an indicator variable for whether an auditor primarily works in an industry related to the case study (e.g., consumer or industrial products, manufacturing, etc.) (1 = yes, 0 = no). *Big4* is an indicator variable for whether an auditor is from a Big 4 firm (1 = yes, 0 = no). *Training* is an indicator variable for whether an auditor completes the case in a training session (1 = yes, 0 = no). *Time* is the number of minutes an auditor spends completing the case.

Table 4.7: Determinants of the Number of Relevant Procedures Identified

$$RelProcs = \alpha + \beta_1 RelRisks + \beta_2 OverallFrRisk + \beta_3 Experience + \beta_4 RevRecExperience + \beta_5 Industry + \beta_6 Big4 + \beta_7 Training + \beta_8 Time + \varepsilon$$

Variable	Expected Sign	Coefficient	(p-value)
Intercept	?	0.572	0.545
RelRisks (H3)	+	0.803	0.000
OverallFrRisk	n.s.	-0.016	0.166
Experience	+	0.023	0.053
RevRecExperience	+	0.286	0.002
Industry	+	0.504	0.227
Big4	?	-0.581	0.310
Training	?	0.301	0.510
Time	+	0.010	0.291

R-squared: 0.535 Adjusted R-squared: 0.482

Where:

RelProcs: the number of procedures auditors identify that target fraud

RelRisks: the number of risks auditors identify that relate to the actual case fraud

OverallFrRisk: auditors' overall fraud risk assessment on a scale from 0 (Certain fraud does not exist) to 100 (Certain fraud does exist)

Experience: auditors' number of months of auditing experience

RevRecExperience: auditors' revenue recognition experience on a scale from 0 (No prior experience) to 10 (Deal with this issue often)

Industry: indicator variable indicating whether the auditor primarily works in an industry related to the case study (e.g., consumer or industrial products, manufacturing, etc.) (1 = yes, 0 = no)

Big4: indicator variable indicating whether the auditor is from a Big 4 firm (1 = yes, 0 = no)

Training: indicator variable indicating whether auditor completed the case in a training session (1 = yes, 0 = no)

Table 4.8: Determinants of the Percentage of Relevant Procedures Identified

$$PercentRelProcs = \alpha + \beta_1 RelRisks + \beta_2 OverallFrRisk + \beta_3 Experience + \beta_4 RevRecExperience + \beta_5 Industry + \beta_6 Big4 + \beta_7 Training + \beta_8 Time + \varepsilon$$

Variable	Expected Sign	Coefficient	(p-value)
Intercept	?	0.337	0.008
RelRisks (H3)	+	0.057	0.003
OverallFrRisk	n.s.	-0.002	0.126
Experience	+	0.003	0.047
RevRecExperience	+	0.013	0.257
Industry	+	0.049	0.370
Big4	?	-0.021	0.777
Training	?	0.075	0.216
Time	+	0.000	0.876

R-squared: 0.273 Adjusted R-squared: 0.190

Where:

PercentRelProcs: the percentage of procedures auditors identify that target fraud (total relevant procedures identified / total procedures identified)

RelRisks: the number of risks auditors identify that relate to the actual case fraud

OverallFrRisk: auditors' overall fraud risk assessment on a scale from 0 (Certain fraud does not exist) to 100 (Certain fraud does exist)

Experience: auditors' number of months of auditing experience

RevRecExperience: auditors' revenue recognition experience on a scale from 0 (No prior experience) to 10 (Deal with this issue often)

Industry: indicator variable indicating whether the auditor primarily works in an industry related to the case study (e.g., consumer or industrial products, manufacturing, etc.) (1 = yes, 0 = no)

Big4: indicator variable indicating whether the auditor is from a Big 4 firm (1 = yes, 0 = no)

Training: indicator variable indicating whether auditor completed the case in a training session (1 = yes, 0 = no)

Time: the number of minutes auditors spent completing the case

Table 4.9: Determinants of the Number of Irrelevant Procedures Identified

$$IrrelProcs = \alpha + \beta_1 IrrelRisks + \beta_2 OverallFrRisk + \beta_3 Experience + \beta_4 RevRecExperience + \beta_5 Industry + \beta_6 Big4 + \beta_7 Training + \beta_8 Time + \varepsilon$$

Variable	Expected Sign	Coefficient	(p-value)
Intercept	?	1.221	0.270
IrrelRisks	+	1.040	0.000
OverallFrRisk	n.s.	0.014	0.278
Experience	–	-0.009	0.494
RevRecExperience	–	-0.023	0.591
Industry	–	0.053	0.725
Big4	?	-0.284	0.659
Training	?	-0.173	0.731
Time	–	0.001	0.912

R-squared: 0.408 Adjusted R-squared: 0.341

Where:

IrrelProcs: the number of procedures auditors identify that do not target fraud.

IrrelRisks: the number of risks auditors identify that do not target fraud.

OverallFrRisk: auditors' overall fraud risk assessment on a scale from 0 (Certain fraud does not exist) to 100 (Certain fraud does exist)

Experience: auditors' number of months of auditing experience

RevRecExperience: auditors' revenue recognition experience on a scale from 0 (No prior experience) to 10 (Deal with this issue often)

Industry: indicator variable indicating whether the auditor primarily works in an industry related to the case study (e.g., consumer or industrial products, manufacturing, etc.) (1 = yes, 0 = no)

Big4: indicator variable indicating whether the auditor is from a Big 4 firm (1 = yes, 0 = no)

Training: indicator variable indicating whether auditor completed the case in a training session (1 = yes, 0 = no)

Time: the number of minutes auditors spent completing the case

Table 4.10: Determinants of the Percentage of Relevant Procedures Identified

$$PerecentRelProcs = \alpha + \beta_1 IrrelRisks + \beta_2 OverallFrRisk + \beta_3 Experience + \beta_4 RevRecExperience + \beta_5 Industry + \beta_6 Big4 + \beta_7 Training + \beta_8 Time + \varepsilon$$

Variable	Expected Sign	Coefficient	(p-value)
Intercept	?	0.517	0.000
IrrelRisks	–	-0.079	0.000
OverallFrRisk	n.s.	-0.001	0.368
Experience	+	0.003	0.067
RevRecExperience	+	0.016	0.135
Industry	+	0.060	0.243
Big4	?	-0.021	0.767
Training	?	0.027	0.631
Time	+	0.001	0.292

R-squared: 0.348 Adjusted R-squared: 0.274

Where:

PercentRelProcs: the percentage of procedures auditors identify that target fraud (total relevant procedures identified / total procedures identified)

IrrelRisks: the number of risks auditors identify that do not target fraud.

OverallFrRisk: auditors' overall fraud risk assessment on a scale from 0 (Certain fraud does not exist) to 100 (Certain fraud does exist)

Experience: auditors' number of months of auditing experience

RevRecExperience: auditors' revenue recognition experience on a scale from 0 (No prior experience) to 10 (Deal with this issue often)

Industry: indicator variable indicating whether the auditor primarily works in an industry related to the case study (e.g., consumer or industrial products, manufacturing, etc.) (1 = yes, 0 = no)

Big4: indicator variable indicating whether the auditor is from a Big 4 firm (1 = yes, 0 = no)

Training: indicator variable indicating whether auditor completed the case in a training session (1 = yes, 0 = no)

Time: the number of minutes auditors spent completing the case

Table 4.11: Determinants of Consultation of a Forensic Specialist

$$Consult = \alpha + \beta_1 PercentRelProcs + \beta_2 OverallFrRisk + \beta_3 Experience + \beta_4 RevRecExperience + \beta_5 Industry + \beta_6 Big4 + \beta_7 Training + \beta_8 Time + \varepsilon$$

Variable	Expected Sign	Coefficient	(p-value)
Intercept	?	26.060	0.037
PercentRelProcs	−	-18.461	0.081
OverallFrRisk	+	0.579	0.00
Experience	−	0.341	0.022
RevRecExperience	−	-1.592	0.140
Industry	−	0.127	0.980
Big4	?	30.616	0.000
Training	?	-14.174	0.011
Time	?	-0.163	0.153

R-squared: 0.472 Adjusted R-squared: 0.411

Where:

Consult: the likelihood that auditors will consult with a forensic specialist on a scale from 0 (Certainly will not consult) to 100 (Certainly will consult)

PercentRelProcs is the percentage of procedures auditors identify that target fraud (total relevant procedures identified / total procedures identified)

OverallFrRisk: auditors' overall fraud risk assessment on a scale from 0 (Certain fraud does not exist) to 100 (Certain fraud does exist)

Experience: auditors' number of months of auditing experience

RevRecExperience: auditors' revenue recognition experience on a scale from 0 (No prior experience) to 10 (Deal with this issue often)

Industry: indicator variable indicating whether the auditor primarily works in an industry related to the case study (e.g., consumer or industrial products, manufacturing, etc.) (1 = yes, 0 = no)

Big4: indicator variable indicating whether the auditor is from a Big 4 firm (1 = yes, 0 = no)

Training: indicator variable indicating whether auditor completed the case in a training session (1 = yes, 0 = no)

Time: the number of minutes auditors spent completing the case

Table 4.12: Determinants of Consultation of a Forensic Specialist

$$Consult = \alpha + \beta_1 RelProcs + \beta_2 IrrelProcs + \beta_3 OverallFrRisk + \beta_4 Experience + \beta_5 RevRecExperience + \beta_6 Industry + \beta_7 Big4 + \beta_8 Training + \beta_9 Time + \varepsilon$$

Variable	Expected Sign	Coefficient	(p-value)
Intercept	?	14.121	0.245
RelProcs	−	-0.575	0.635
IrrelProcs	+	1.815	0.084
OverallFrRisk	+	0.568	0.000
Experience	−	0.331	0.028
RevRecExperience	−	-1.649	0.145
Industry	−	-0.579	0.910
Big4	?	31.394	0.000
Training	?	-14.458	0.010
Time	?	-0.182	0.118

R-squared: 0.474 Adjusted R-squared: 0.404

Where:

Consult: the likelihood that auditors will consult with a forensic specialist on a scale from 0 (Certainly will not consult) to 100 (Certainly will consult)

RelProcs: the number of procedures auditors identify that target fraud

IrrelProcs: the number of procedures auditors identify that do not target fraud

OverallFrRisk: auditors' overall fraud risk assessment on a scale from 0 (Certain fraud does not exist) to 100 (Certain fraud does exist)

Experience: auditors' number of months of auditing experience

RevRecExperience: auditors' revenue recognition experience on a scale from 0 (No prior experience) to 10 (Deal with this issue often)

Industry: indicator variable indicating whether the auditor primarily works in an industry related to the case study (e.g., consumer or industrial products, manufacturing, etc.) (1 = yes, 0 = no)

Big4: indicator variable indicating whether the auditor is from a Big 4 firm (1 = yes, 0 = no)

Training: indicator variable indicating whether auditor completed the case in a training session (1 = yes, 0 = no)

Time: the number of minutes auditors spent completing the case

Chapter 5

CONCLUSION

This study investigates whether prompting auditors to link relevant, available information (analytical procedures and fraud red flags) to client management's goals helps auditors identify more relevant fraud risks. The process of linking relevant information to management goals is based on the principles of an "intentional strategy" (Dennett 1987; Johnson et al. 1993). I also investigate whether instructing auditors to formulate and document independent expectations for analytical procedures that are based on a client's reported results enhances the benefits of using an intentional strategy. Accurately identifying fraud risks is essential to detecting fraud because auditors will select audit procedures based on the risks they identify (AICPA 2002). Hence, this study also considers whether auditors who identify a higher number of relevant fraud risks identify a higher number of procedures that target fraud. Finally, practitioners argue that forensic specialists can potentially help auditors fulfill their responsibility for fraud (AICPA 2004). I therefore examine whether auditors' decision to consult with a forensic specialist is affected by the effectiveness of the procedures auditors identify.

I find that auditors identify a higher number of relevant fraud risks when they are prompted to use an intentional strategy. This result is consistent with auditors more effectively identifying fraud risks when they link relevant client information to client management's goals. While my evidence suggests auditors can benefit from using an intentional strategy when they identify fraud risks, I do not find that the benefits of this approach are greater when auditors are also required to form and document independent expectations for a client's reported results.

I do find that auditors identify a higher percentage of relevant fraud risks (total relevant risks identified / total risks identified) but do not identify a higher number of total risks when they are prompted to use an intentional strategy. These results suggest that an intentional strategy helps auditors focus on relevant ways that management could be committing fraud rather than simply leading them to generate a higher number of ways that management could be committing fraud.

Next, I find that auditors who identify a higher number of relevant (irrelevant) risks identify a higher number of audit procedures that target (do not target) an actual fraud. Furthermore, when auditors identify a higher number of relevant (irrelevant) fraud risks, they subsequently identify a higher (lower) percentage of procedures that target fraud (calculated as total relevant procedures identified / total procedures identified). Furthermore, auditors' overall fraud risk assessments do not influence the effectiveness of the procedures auditors identify. These results are consistent with SAS 99's guidance that auditors should select audit procedures to address the fraud risks they identify (AICPA 2002). They also suggest that audit researchers and audit firms should seek to facilitate auditors' identification of specific, relevant fraud risks rather than only focusing on improving auditors' overall fraud risk assessments.

Finally, in supplemental analysis I find that auditors are less likely to consult with a forensic specialist when they identify a higher percentage of relevant audit procedures. This finding is encouraging in that it suggests auditors are more likely to seek assistance when they are identifying procedures that do not target fraud. I also find that auditors who assess overall fraud risk higher are more likely to consult with a forensic specialist, which corroborates previous work by Asare and Wright (2004).

This study contributes to the audit literature in several ways. First, it is important to help auditors identify relevant fraud risks because identifying these risks is a potentially difficult task. While prior research finds that auditors use information patterns for decisions in their domains of expertise (Hammersley 2006), it is difficult for auditors to form and interpret relevant patterns related to fraud because they often lack direct experience with fraud (Loebbecke et al. 1989; Johnson et al. 1992). Furthermore, less experienced auditors often struggle to integrate information (e.g., Moeckel 1990). I extend the fraud literature by investigating whether requiring auditors to link SAS 99 relevant information (analytical procedures and fraud red flags) to management's goals facilitates their ability to identify relevant fraud risks. This study's findings suggest that auditors who go through the process of linking client information to management's goals ultimately recognize a higher number and a higher percentage of relevant fraud risks.

Second, I extend the intentional strategy literature. Johnson et al. (e.g., 1992, 1993) primarily examine the intentional strategy using computer models and considering whether partners use an intentional strategy-type approach when they perform a concurring partner review. My study is the first to systematically manipulate whether auditors are prompted to use an intentional strategy by using management goals to develop insights about fraud; Grazioli (2004) explains that no prior research tests whether directing people to focus on others' goals can help individuals discover deceit. I also examine whether the intentional strategy can improve the judgments of relatively inexperienced auditors when they perform audit planning tasks. While the participants in my study have relatively less experience than the partners in previous studies, I show that less experienced participants can benefit from a prompt to use an intentional strategy.

I also show that these benefits can be realized when auditors perform the SAS 99 task of using available client-related information to identify relevant fraud risks.

Third, while prior research has shown that auditors extend audit testing when they assess overall fraud risk higher, this research also suggests that auditors do not alter the nature of audit procedures or identify more effective procedures when they assess overall fraud risk higher (e.g., Zimbelman 1997; Asare and Wright 2004). Rather than select procedures in response to an overall fraud risk assessment, current audit guidance explains that auditors should instead try to discern how and where fraud is occurring before selecting procedures (AICPA 2003). Consistent with this view, I extend the literature on audit procedures by finding that auditors who document more relevant ways that the client is committing fraud subsequently identify more effective procedures (i.e., procedures that target an actual fraud). I also find that auditors who identify more irrelevant fraud risks subsequently identify more ineffective audit procedures. These findings provide initial support for the emphasis SAS 99 puts on identifying fraud risks and selecting procedures to address these risks.

This study has several limitations. I only give auditors limited materials and tell them to complete the case individually. In practice, auditors can consult with firm materials or other auditors. Also, the auditors, on average, completed the case in less than an hour. Even though auditors are accustomed to time constraints, they would likely take a longer time to make the judgments they are asked to make in this case. Nevertheless, I expect that an intentional strategy should continue to help auditors who have more information because it continues to provide a way to effectively combine the information. Similarly, auditors who take more time to link the information to management's goals may be able to perform an intentional strategy process more effectively and thus achieve greater benefits from using this strategy.

Another limitation of this study is that when auditors were asked about consulting with a forensic specialist, there was no salient cost of consultation. Auditors who face real costs when they consult (i.e., a lower profit margin on the engagement) may be hesitant to consult (Hunton et al. 2004), even when they sense that their audit procedures may not be effective. At the same time, Wilks and Zimbelman (2004b) argue that auditors are currently more concerned about audit effectiveness than efficiency when dealing with fraud, and so auditors may continue to consult even when they face real costs. Finally, I only consider the impact of an intentional strategy and documenting expectations in a setting where fraud has occurred. This study does not develop or test insights regarding the impact of these factors in non-fraud settings.

These limitations provide some interesting avenues for future research. For example, it would be interesting to investigate whether an intentional strategy-based approach continues to be an effective method of prompting auditors to consider the possibility of fraud when fraud is not present. It would also be interesting to investigate whether auditors are still more likely to consult with forensic specialists when they identify less effective audit procedures if they face high budget pressure.

Researchers may also want to consider whether an intentional strategy approach can be used with other strategic-based audit approaches. For example, I argue and find results consistent with auditors benefiting from an intentional strategy during the second phase of an auditor's consideration of fraud – when they identify fraud risks (see Figure 2.1). Concurrent research by Hoffman and Zimbelman (2007) finds that auditors who are prompted to reason strategically are more likely to effectively update standard audit procedures, which would correspond to the third phase of an auditor's consideration of fraud in Figure 2.1. Future research could investigate whether auditors who use an intentional strategy to identify relevant

fraud risks during the second phase of their consideration of fraud make better use of those risks if they subsequently reason strategically during the third phase of their consideration of fraud. Such a strategic approach throughout the audit is consistent with the argument that auditing standards should seek to help auditors think and act strategically as they attempt to effectively address the possibility of fraud (Wilks and Zimbelman 2004a).

It is also important to note how this study can aid practitioners. My finding that auditors can identify a higher number and percentage of relevant fraud risks when they link relevant information to client management's goals suggests that auditors can improve the effectiveness of audit planning when they use this approach. Importantly, this approach is not costly to implement. The primary incremental cost of this strategy is that it requires auditors to spend time and effort determining management's primary goals and then to link the information they already gather under SAS 99 to these goals.

Another finding that can aid practice is that auditors who identify a higher number of relevant fraud risks are able to identify a higher number and percentage of audit procedures that target fraud. This finding is consistent with the ideas expressed in recent AICPA (2003) guidance and suggests that firms should seek to facilitate their auditors' ability to identify fraud risks because these risks – both relevant and irrelevant – influence the effectiveness of audit procedures. Although I do not explicitly test whether auditors identify more relevant procedures when they identify these procedures based on specific fraud risks rather than an overall fraud risk assessment, I expect that auditors are in a better position to identify relevant procedures when they are testing specific risks rather than an overall fraud risk. Future research can investigate whether this is the case.

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APPENDIX A

Participant Consent Form

Consent Form – Audit Study

This research study*, Audit Planning for Precision Equipment, Inc.,* is being conducted by Chad Simon, a Ph D student, and Professor Michael Bamber from the University of Georgia. Its purpose is to examine how auditors make judgments during audit planning. Your participation in the study is important, and we thank you for taking time from your busy schedule to assist us.

If you agree to participate in this study, you will be asked to read information about a company, make some audit judgments and answer brief questions about yourself and your experience. Please read the information carefully and answer all questions in the order presented. Please complete the study on your own in one sitting and do not seek outside information while completing the study. We estimate that it will take less than an hour in total to complete this study. Your responses are anonymous and will not be shared with your employer. They will be anonymous in our data files, and any publications or presentations of findings will include only aggregated data.

Your participation in this study is voluntary. You may refuse to participate or discontinue participation at any time without penalty or loss of benefits to which you are otherwise entitled.

While there may be no direct benefits to you of participating in this study, your participation is valuable in helping us learn more about auditor judgments. There are no known risks or discomforts associated with this research.

If you have questions about the study, please contact Chad Simon (csimon@uga.edu or 706-542-3742) or Michael Bamber (mbamber@uga.edu or 706-542-3601).

Please keep this copy of the consent form for your future reference.

Additional questions or problems regarding your rights as a research participant should be addressed to The Chairperson, Institutional Review Board, University of Georgia, 612 Boyd Graduate Studies Research Center, Athens, Georgia 30602-7411; Telephone (706) 542-3199; E-Mail Address IRB@uga.edu

APPENDIX B

Instrument for Participants who did not Form and Document Expectations or Use an Intentional Strategy

Audit Planning for Precision Equipment, Inc.

Audit Planning for Precision Equipment, Inc.

Assume that you have been assigned by your firm to plan the audit program for the revenue cycle of Precision Equipment, Inc. for the year ended December 31, 2006. The following information has been gathered about the client's business, industry, and revenue cycle. At the end of the information, you will be responsible for completing several planning tasks.

Please put your start time here:_____

PART I: Background Information on Precision Equipment, Inc.

Precision Equipment, Inc. (a publicly traded corporation) is headquartered in Woonsocket, Rhode Island and was founded in 1965. It employs about 20,000 people and maintains operations in 9 countries outside the United States. The company develops, manufactures, and markets medical measurement products.

Precision's principal customers are hospitals, physicians, nursing homes, and mass merchandisers. The company's products and services are marketed through independent distribution channels and directly to end-users. The company's industry segments are competitive, both in the United States and abroad. Competitive factors include product performance, availability, technology, and price. The company believes that its reputation for high quality is an important positive competitive factor.

Top management is compensated through a base salary (50%), an earnings-based bonus plan (30%) and stock options (20%). As with most public companies in the client's industry, there is significant pressure for management to meet analysts' earnings forecasts. Management places great importance on achieving or exceeding sales and other financial forecasts. The company has met or exceeded sales goals for 12 consecutive quarters. Furthermore, management is well-respected in the business community and turnover among top management has been infrequent.

Since the mid-1990s, the company has been undergoing substantial changes and faces major strategic challenges. The company's business has historically centered on the sale of analog instruments. However, in the late 1990s, digital instruments gained popularity in the market. A late entrant in the digital market, the company wants to devote more effort to increasing its sales in this critical and growing market segment. At the same time, the company wants to continue to maximize its traditional analog devices sales, which—while diminishing over time—continue to account for most (70%) of Precision's revenues.

Information about Prior and Current Years' Audits

Your firm has audited the company since 1995 and has issued a standard unqualified report each year. A review of prior years' workpapers indicated that only a few material adjusting entries were required. The client, however, has always been cooperative in handling these errors. Based on a review of current standards, you have determined that there were no significant changes in

accounting or auditing standards that would affect this year's audit. Materiality for planning purposes has been set at $8,000,000.

Your firm's past experience with Precision indicates that management uses sound judgment in its estimates and preparation of financial statements and has a positive attitude about developing a reliable control environment. The control system is reliable in recording routine transactions and the segregation of duties is adequate. The board of directors and members of the audit committee meet regularly.

Industry Analysis

Considered the most complex and diversified area in the health-care industry, the medical products and devices category encompasses more than 130,000 different items, ranging from simple gauze pads to sophisticated electronic diagnostic machines that can cost several million dollars. Standard and Poors project a moderation in growth in the coming years. Total dollar shipments of all medical and dental equipment and supplies are expected to rise 7.4% to $40 billion, following increases of 8.2% and 12.9% in 2005 and 2004, respectively. The primary explanations are cost-containment pressures in primary markets and heightened scrutiny by the FDA in its approval of new products. Sales to hospitals and physicians have slowed due in part to controls imposed by managed care providers. Reflecting these and other negative developments, the shares of most medical equipment manufacturers have been in decline following a peak at the end of 2004. Proposed cutbacks in Medicare coverage and payment policies represent another negative factor confronting the industry.

While the US remains the world’s largest supplier of medical products by a wide margin, this dominance is slipping. It is expected that customers (independent distributors and hospitals) are likely to be big winners as manufacturers provide innovative and lucrative incentives to market their products in what is becoming a very competitive field.

The Revenue Cycle

The revenue cycle includes the following steps. First, customer orders are received by mail, telephone, or fax and entered into the system through a standardized entry interface. The system then generates a total for the order and compares this with outstanding receivables and credit limits. If the total of the order plus outstanding amounts due would put the customer over the credit limit, the transaction is written out on a special credit report, which is transmitted twice a day to the credit department for review. The order-entry application also accesses the inventory file to determine whether the goods are on hand. The system generates a packing slip and items are packed in the warehouse for shipment. The application also develops a pre-invoice at the same time the packing slip is generated and an invoice is printed when the goods are shipped. Revenue is recognized when products are shipped to customers.

The company has also established Electronic Data Interchange (EDI) with 12 of its major customers. EDI means direct input of sales orders, matching orders with inventory for prompt shipment and electronically invoicing the customers for merchandise as shipments are made. In

all cases, an invoice is electronically generated when evidence of shipment matches the customer's purchase order.

The company's normal payment terms have been similar to the industry, i.e., n/45 days. Bad debts estimates have also been close to the industry average. Prior year audits and interim testing in the current year (completed in September 2006) confirmed that the computer and manual controls over the processing of routine revenue transactions are in place and effective.

Roll-Forward Tests

Discussions with the controller and interim tests of controls indicate that there have been no changes in the revenue cycle since the prior year. Additionally, roll forward tests confirmed the controls were functioning as assessed at interim. The only change since interim was the implementation of a marketing program in November in response to distributor incentives granted by key competitors. The marketing program increased revenue and net income by $22 million and $9.2 million, respectively. Discussions with key company personnel revealed that Precision Equipment felt it was necessary to take this action in response to market changes and competitor actions. You have gathered the following information about the client's new marketing strategy.

Marketing Strategy

In late 2006, management decided that marketing responsibilities should be reallocated among its sales channels to meet strategic goals. The company's products, both analog and digital, had been sold to end-users through a sales force of employees and through authorized distributors, who purchased products for resale to end-users. Management believed that by giving the distributors primary responsibility for the analog segment, the company's direct sales force could devote increased efforts to digital product sales.

In November 2006, Precision began to shift analog sales responsibility to distributors by launching a new marketing program that asked distributors to purchase a set amount of analog systems. The minimum amount was based on the inventory of analog devices (1.8 million units) divided by the pro-rata share of overall distributor sales. Precision encouraged participation in the program by offering profit-sharing opportunities to distributors and by offering incentives to end-users to buy analog systems from distributors. As part of this program, Precision required each distributor to sign a promissory note that required all amounts owed to Precision, including the November Program purchases, to be satisfied in full by June 2007. The notes required distributors to make payments on their Program balances to coincide with expected product sell-through and to make a "balloon" payment for any remaining balance in June 2007. Precision estimated the final payment would be approximately 70% of the program purchases.

On November 13, 2006, Precision held a meeting with its distributors to introduce the program. The program was largely successful with multiple distributors signing up for large orders of analog systems. Additional distributors also signed up for orders over the next several weeks. On December 10, 2006, the controller wrote a memo to request credit limit increases for 11 distributors. The memo described the results and strategic benefits of the November promotion, the intended reliance upon promissory notes to secure the distributors credit balances, and the

payment history and status of the 11 distributors. Top management approved the requested credit limit increases. Finally, several distributors indicated, during and after the November 13 meeting, that they did not have sufficient capacity to store the additional products. As an accommodation to these distributors, Precision arranged to hire freight forwarders and warehouse facilities. At this point, management was quite pleased with the success of the marketing program and believes its continued impact will depend on how competitors respond.

Part II. Fraud 'Red Flags' and Analytical Procedures

An audit senior has completed the following red flag checklist. Consistent with SAS 99, this checklist is organized according to client management's incentives, opportunities, and attitude to commit fraud. Please review this list to improve your understanding of the client.

	Present?	
Incentive Fraud Red Flags	Yes	No
1. Recurring negative cash flows from operations or an inability to generate cash flows from operations while reporting earnings and earnings growth.		X
2. Operating losses making the threat of bankruptcy, foreclosure, or hostile takeover imminent.		X
3. High vulnerability to rapid changes, such as changes in technology, interest rates, or product obsolescence and resulting decreasing margins.	X	
4. Perceived or real adverse effects of reporting poor financial results on significant pending transactions, such as business combinations or contract awards.		X
5. Marginal ability to meet exchange listing requirements or debt repayment or other debt covenant requirements.		X
6. Significant portions of management's compensation being contingent upon achieving aggressive targets for stock price, operating results, financial position, or cash flow.	X	
7. New accounting, statutory, or regulatory requirements.		X
8. Need to obtain additional debt or equity financing to stay competitive – including financing of major research and development or capital expenditures.		X
9. Personal guarantees of debts of the entity.		X

	Present?	
Opportunity Fraud Red Flags	Yes	No
10. Significant bank accounts or subsidiary or branch operations in tax-haven jurisdictions for which there appears to be no clear business justification.		X
11. Inadequate monitoring of controls, including automated controls and controls over interim financial reporting (where external reporting is required).		X
12. Significant, unusual, or highly complex transactions, especially those close to year end that pose difficult "substance over form" questions.	X	

13. Difficulty in determining the organization or individuals that have controlling interest in the entity.		X
14. Overly complex organizational structure involving unusual legal entities or managerial lines of authority.		X
15. Significant operations located or conducted across international borders where differing business environments and cultures exist.	X	
16. Ineffective board of directors or audit committee oversight over the financial reporting process and internal control.		X
17. Ineffective accounting and information systems including situations involving reportable conditions.		X
18. High turnover of senior management, counsel, or board members.		X

	Present?	
Attitude Fraud Red Flags	Yes	No
19. Formal or informal restrictions on the auditor that inappropriately limit access to people or information or the ability to communicate effectively with the board of directors or audit committee.		X
20. Excessive interest by management in maintaining or increasing the entity's stock price or earnings trend.	X	
21. An interest by management in employing inappropriate means to minimize reported earnings for tax-motivated reasons.		X
22. Frequent disputes with the current or predecessor auditor on accounting, auditing, or reporting matters.		X
23. Known history of violations of securities laws or other laws and regulations, or claims against the entity, its senior management, or board members alleging fraud or violations of laws and regulations.		X
24. A practice by management of committing to analysts, creditors, and other third parties to achieve aggressive or unrealistic forecasts.	X	
25. 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.		X
26. Management failing to correct known reportable conditions on a timely basis.		X
27. Unreasonable demands on the auditor, such as unreasonable time constraints regarding the completion of the audit or the issuance of the auditor's reports.		X

Analytical Procedures

Analytical procedure results related to the revenue cycle are provided below. These results are based on the prior period annual numbers (12/31/05), numbers that reflect the client's performance through the 3rd quarter of the current year (9/30/06), and annual numbers for the current period (12/31/06).

Ratio	12/31/05 (audited)	9/30/06 (reviewed)	12/31/06 (unaudited)
1. Current ratio: current assets / current liabilities	1.909	1.485	1.962
2. Quick ratio: (current assets – inventory) / current liabilities	1.415	1.016	1.546
3. Age of inventory: 360 days / inventory turnover	129.368	182.314	127.159
4. Age of A/R: 360 days / accounts receivable turnover	58.418	94.295	74.026
5. Uncollectible A/R: allowance / total accounts receivable	0.041	0.041	0.040
6. Gross margin: (net sales – cost of sales) / net sales	0.544	0.554	0.551
7. Profit margin on sales: net income / net sales	0.100	0.098	0.084
8. Return on equity: net income / stockholders' equity	0.191	0.145	0.169

Part III: Overall Fraud Risk Assessment, Identification of Fraud Risks, and Selection of Fraud Procedures

Fraud Risk Assessment

Please assess overall fraud risk for this client by marking the scale below with an X.

0--------10--------20--------30--------40--------50--------60--------70--------80--------90--------100

Certain fraud does not exist

Certain fraud does exist

Specific Fraud Risks

Given the information you know about this client, please list in column A **the specific ways** that you believe management could be committing fraud. In column B, please list **up to three specific audit procedures** that address each potential fraud identified in column A.

Column A: Potential frauds (Please be as specific as possible)	**Column B: Specific procedures that address each potential fraud**
1.	
2.	
3.	

Column A: Potential frauds (Please be as specific as possible)	**Column B: Specific procedures that address each potential fraud**
4.	
5.	
6.	

Part IV: Forensic Specialist Consultation

Need for Consultation

Assume that the engagement partner wants your opinion on the necessity of conferring with a forensic specialist to finalize the proposed audit plan. The available forensic specialist is very experienced with fraud risk situations. **How likely would you be to consult with this forensic specialist**? (Mark the scale below)

0-------10-------20-------30-------40-------50-------60-------70-------80-------90-------100

Certainly will not consult

Certainly will consult

PART V: Final Questions

Please put your end time here:_____

AT THIS POINT, DO NOT GO BACK AND CHANGE ANY ANSWERS IN THE CASE

Years of auditing experience: _____years _____months

Indicate with an X your professional certifications below:
CPA ___ CFE ___ Other, please specify ___

In what industry do you have the most experience?
_____years experience in _____industry.

How much experience do you have with revenue recognition issues? (Mark the scale below with an X):

0---------1---------2---------3---------4---------5---------6---------7---------8---------9---------10
No prior experience — Deal with this issue often

How hard did you work on this case? (Mark the scale below with an X)

0---------1---------2---------3---------4---------5---------6---------7---------8---------9---------10
Not hard at all — Extremely hard

Number of audits that you were a part of in the last three years on which:
Material errors were detected _____ Material fraud was detected _____

What do you believe were management's primary goals in this case, if any, that could have led them to commit fraud? List up to three goals.

1.

2.

3.

THANK YOU FOR PARTICIPATING!

APPENDIX C

Form and Document Independent Expectations Manipulation

Part II Task 1

Analytical Procedures

Analytical procedure results related to the revenue cycle are provided below. These results reflect the client's performance through the 3rd quarter of the current year (9/30/06).

Before considering the client's current period annual numbers (12/31/06), you should form expectations for these numbers. Therefore, **based on the information in this case,** please document whether you expect each analytical procedure result for **12/31/06 to be significantly higher than (↑), significantly lower than (↓), or approximately equal to (=) each 9/30/06 result**.

Ratio	9/30/06 (reviewed)	Document your expectations for 12/31/06 relative to 9/30/06 (↑ , ↓ , or =)
1. Current ratio: current assets / current liabilities	1.485	
2. Quick ratio: (current assets – inventory) / current liabilities	1.016	
3. Age of inventory: 360 days / inventory turnover	182.314	
4. Age of A/R: 360 days / accounts receivable turnover	94.295	
5. Uncollectible A/R: allowance / total accounts receivable	0.041	
6. Gross margin: (net sales – cost of sales) / net sales	0.554	
7. Profit margin on sales: net income / net sales	0.098	
8. Return on equity: net income / stockholders' equity	0.145	

Please make sure you enter your expectations on the previous page before proceeding to the next page.

Part II Task 1 Continued

Please copy your expectations from page 6 into the third column below. This process will allow you to compare your expectations to the actual analytical procedure results that are based on the client's annual numbers for the current period (12/31/06). Results based on the prior period annual numbers (12/31/05) are also provided.

Ratio	12/31/05 (audited)	9/30/06 (reviewed)	Your expectation (↑, ↓ , or =) from page 6 for 12/31/06 relative to 9/30/06	12/31/06 (unaudited)
1. Current ratio: current assets / current liabilities	1.909	1.485		1.962
2. Quick ratio: (current assets – inventory) / current liabilities	1.415	1.016		1.546
3. Age of inventory: 360 days / inventory turnover	129.368	182.314		127.159
4. Age of A/R: 360 days / accounts receivable turnover	58.418	94.295		74.026
5. Uncollectible A/R: allowance / total accounts receivable	0.041	0.041		0.040
6. Gross margin: (net sales – cost of sales) / net sales	0.544	0.554		0.551
7. Profit margin on sales: net income / net sales	0.100	0.098		0.084
8. Return on equity: net income / stockholders' equity	0.191	0.145		0.169

APPENDIX D

Intentional Strategy Manipulation

Part II Task 2 – Please complete the following 4 steps

Step 1. Which analytical procedure result(s) from page 8, if any, were not in line with your expectations? For your convenience, you only need to list the analytical procedure result number(s) (1-8) from page 8.

Step 2. List three management goals that you believe could lead Precision Equipment's management to commit fraud.

Goal 1 –

Goal 2 –

Goal 3 –

Management Goals (from above)	**Step 3. Red Flags:** List the number (1-27) corresponding to the red flag(s) from the checklist on pages 4-5, if any, that are consistent with each management goal.	**Step 4. Analytical Procedures**: List the number (1-8) corresponding to the analytical procedure result(s) from page 8, if any, that are consistent with management attaining each goal.
Goal 1		
Goal 2		
Goal 3		