

Increasing Auditor Sensitivity to the Risk of Fraudulent Financial Reporting:
Assessing Incentives and Pressures on Top Management

by

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ABSTRACT

The ability of auditors to detect fraud, including intentional material misstatements in earnings, remains key to the credibility of audit firms and confidence in capital markets. The PCAOB concludes from its most recent inspections of public company audits that auditors often fail to assess and respond to risks of material misreporting by management. In a behavioral experiment, this study concludes that auditors can increase sensitivity to management motivation to misreport by actively seeking to transform identified risk factors focused on the organization, into factors focused on top managers, and to evaluate whether these manager-focused risk factors represent incentives for personal gain or pressures to avoid a personal loss on the managers. Currently, auditing standards use incentive and pressure as interchangeable constructs, but auditors in this study assess pressure on managers to avoid a loss as a greater risk than an incentive to managers to attain a gain. Results also demonstrate that auditors will be made more sensitive to fraudulent financial reporting risk when focusing on pressure on top managers, than they will be by engaging in a traditional process of assessing total fraud risk based on the three fraud triangle elements. This study is the first to propose a theoretical explanation for why prior studies reflect auditor insensitivity to organizational level fraud risk factors. This study is also the first to enhance knowledge about auditor risk assessment and decision-making through the application of prospect theory and through disaggregation of one of the three elements of the fraud triangle model, by differentiating between incentive and pressure for misreporting earnings.

1. INTRODUCTION

The ability of auditors to detect intentional material misstatements in earnings remains key to the credibility of audit firms and confidence in capital markets. Auditing standards require financial statement auditors to consider risk factors for fraudulent financial reporting, and standards have been periodically updated to meet perceived deficiencies in auditor fraud risk assessment process.¹ Most recently, the Public Company Accounting Oversight Board (PCAOB) issued its auditing standard AS No. 18 (PCAOB 2014) which requires public company auditors to obtain an understanding of senior management compensation arrangements that could lead to “incentives or pressures” to meet financial targets. AS No. 18 (PCAOB 2014) considers incentives and pressures on management within both fraudulent financial reporting and earnings management contexts. A company’s executive management is in a unique position to commit financial reporting fraud (PCAOB 2014) by overriding controls and acting in collusion with other employees (Center for Audit Quality 2010). The Securities and Exchange Commission identified the CEO or CFO as having some level of involvement in 89 percent of fraud cases between 1998 through 2007, up from 83 percent between 1987 through 1997 (COSO 2010). Some fraud risk factor examples in fraud auditing standards (SAS No. 99, AICPA 2002) focus directly on incentives and pressures on top managers, while others focus on organizational

¹ An extensive list of example fraud risk factors was first introduced into auditing standards with Statements on Auditing Standards (SAS) No. 82 (AICPA 1997). The organization of SAS No. 82 fraud risk factors was modified with the superseding standard, SAS No. 99 (AICPA 2002). The SAS No.99 examples of fraud risk factors were subsequently recodified into AU 316 for public company audits, AU-C 240 for private company audits and ISA 240 for in international auditing standards. Since SAS No. 99 is nearly identical to all of the recodifications of this fraud auditing standard, “SAS No. 99” will be used in this paper as an abbreviated reference to all of these auditing standards recodifications currently in use.

factors. However, reporting decisions are made by individual managers and groups of managers, not by the organization. Motivation to act can be held by managers, but not the by the organization itself. So a mental process is required before organizationally focused risk factors can be assessed for motivation impacts on top managers. Assimilating an understanding of executive compensation into organizationally-oriented fraud risk factor assessments requires additional cognitive effort by auditors. This research seeks to enhance auditor fraud risk assessment process for fraudulent financial reporting through extension of prior academic research and theory.

Some fraud risk assessment activities by auditors in the field are low quality efforts (Brazel et al. 2010). One of the most significant recurring areas of audit deficiencies identified by the PCAOB from its 2013 and 2014 inspections of audits is that auditors fail to assess and respond to risks of material misstatement (PCAOB 2015). Post implementation of the Sarbanes Oxley anti-fraud legislation, the average number of public company restatements for fraud has declined from a high of 59 in 2002, but still remained an average of 40 or more annually from 2003 to 2006 (Scholz 2014)². The number of public company material restatements, as summarized by Scholz (2014), has also declined from the post-Sarbanes Oxley financial reporting clean up period, but still remained at a level of hundreds annually through 2012. It is impossible to know how many of these misstatements are intentional, but from 2003 through 2012, 75.9 percent of material restatements were corrections of overstated earnings, while only 24.1percent were corrections of understated earnings. If these restatements were the result of unbiased random errors in reporting, one would expect the split between earnings decreasing

² Scholz (2014) reflects a decline in the number of fraud restatements during the years 2007 to 2012, but makes a statement that these years are likely incomplete due to the time lag necessary to identify fraudulent financial reporting through the source documents—the SECs Accounting and Audit Enforcement Releases (AAERs).

restatements and earnings increasing restatements to be in an approximately equal proportion. Intentionally misstated financial statements remain a significant concern for auditors, regulators and capital markets, and more research is needed to better understand causes of management fraud and ways to prevent and detect it (Center for Audit Quality 2010; COSO 2010). When it comes to detection of intentional misreporting, effective risk assessment and response by auditors is a high priority that needs to be addressed in audits (PCAOB 2015).

Prospect Theory (Kahneman and Tversky 1979) loss aversion can be used to predict that managers would feel a greater motivation to avoid a loss of wealth from some reference point than to realize and equal value gain in wealth from that same reference point. Many fraud risk factors in auditing standards communicate a direct or indirect motivation regarding such a gain or loss of top manager wealth. This study seeks to evaluate whether auditors perceive different levels of motivation for fraud, depending on whether fraud risk factors are framed as an incentive for gain or pressure to avoid a loss for top managers. This leads to the first research question:

Fraud Risk Factor Framing

Will auditors assess different levels of fraudulent financial reporting risk, and conduct different levels of risk-responsive audit procedures, when assessing motivation-for-fraud factors representing incentives to realize a gain versus pressure to avoid a loss?

In this study, the use of the word “incentive” means “incentive to realize a gain” from some reference point, and use of the word “pressure” means “pressure to avoid a loss” from the same reference point.

Most fraud risk factor examples for financial statement fraud motivation listed in auditing standards consist of risks focused on the organization.³ Yet, studies indicate that auditors often rate organizationally focused risk factors as being relatively less important to fraud risk

³ Eleven of 15 fraud risk factor examples in AU 316 (13 of 17 fraud risk factor examples in AU-C 240) relate to the organization and its industry generally. Only a few are fraud risk factors that relate to manager incentive/pressures.

assessment (Albrecht and Romney 1986; Apostolou et al. 2001; Wilks and Zimbelman 2004). A relatively unimportant organizationally focused risk factor from these studies could be considered relatively important to fraud risk assessment if it could be converted to a risk factor focused directly on top managers. This study seeks to compare differences between auditor risk assessment and auditor response to similar fraud risk factors focused on either the organization or on top managers in order to answer the following research question:

Fraud Risk Factor Focus

Will auditors assess different levels of fraudulent financial reporting risk, and conduct different levels of risk-responsive audit procedures, when assessing motivation-for-fraud factors focused on the organization versus on top managers, and will the fraud risk factor focus affect perceived differences between incentives and pressures?

Any failure to incorporate an understanding of compensation structure into risk assessment could prevent auditors from recognizing differences between compensation related incentives or pressures on top managers. This failure to incorporate an understanding of compensation structure into risk assessment is important when risk factors observed are focused on the organization, and compensation payoffs to top managers are aligned with financial performance payoffs to the organization. In that setting, organizational financial performance should directly result in payoffs (wealth gains or wealth losses) to top managers who hold large portfolios of company stock and options. This discussion leads to the following research question:

Executive Compensation Alignment with Organizational Payoffs

Does the level of alignment between compensation payoffs to top management and financial performance payoffs to the organization and its shareholders/owners affect auditor assessments of incentive and pressures when fraud risk factors are focused on the organization?

The objective of this study is to determine whether the level of risk assessments and audit work planned will vary based on whether audit risk factors are focused on the organization or on

top managers, and whether audit risk factors are framed as incentives or pressures, including compensation-related incentives or pressures. If framing and focus impact the level of risk assessed, then how can this insight be used to inform the fraud risk assessment process to maximize sensitivity to fraud risks? And since some incentives and pressures relate to compensation, what is the role of understanding executive compensation in these risk assessments? Accordingly, the implication for this research is as follows:

Research Implication Question

Given answers to the research questions above, how can auditors conduct fraud risk assessment procedures in a way to maximize their sensitivity to fraudulent financial reporting risk?

It is important to know whether auditors make systematically different risk assessments for different types of fraud risk factors so that fraud risk assessment can be conducted in a way to maximize sensitivity⁴ to fraud risks. The level of risk assessed by the auditor should influence audit planning decisions made. “The auditor should design and perform further audit procedures whose nature, timing, and extent are responsive to the assessed risks of material misstatement due to fraud at the assertion level” (AICPA 2006, AU 318.07). Sensitivity to fraud risks should lead auditors to plan relatively less evidential work when risk factors are assessed as low and relatively more evidential work when risk factors are assessed as high.

The experiment in this study is specifically addressing motivation-for-fraud risk factors, which are labeled “incentives/pressures” in fraud auditing standards (SAS No. 99, AICPA 2002). The experiment sets SAS No. 99 attitude/rationalization fraud risk factors for financial statement fraud constant at low risk levels, sets SAS No. 99 opportunity fraud risk factors for financial statement fraud constant at high levels, and then manipulates two experimental factors for fraud motivation in a 2 X 2 factorial design: 1) motivation focus (organizational focus or individual top

⁴ Sensitivity is the ability to distinguish between high and low level risk (Wilks and Zimbelman 2004; Faver-Marchesi 2013; Zimbelman 1997).

manager focus) and 2) motivation frame (incentive for a gain or pressure to avoid a loss). In the experiment audit professionals assume the role of an audit manager reviewing audit work papers in a client audit case. Their initial work paper review consists of a risk assessment of fraud risk factors during audit planning prior to year-end. Participants consider fraud risk factors present in the case and assess risk levels for those factors. Four participant groups assess very similar factors for fraud motivation, which are framed in one of four ways in a between subjects experimental design. Also, two different management compensation structures are varied between groups receiving organizationally focused fraud risk factors. Additional case facts are then presented, including certain year-end account balances, and management explanation for those balances. This case information provides evidence of potential overstatement of revenues and accounts receivable by the client. Participants are then asked to consider case facts and their assessments of fraud risk, and to plan audit program steps to be responsive to case facts and their risk assessments.

I find that auditors rate motivation-for-fraud risk as greatest when fraud risk factors are framed as pressure to avoid a loss focused on top managers. Auditors also make more risk responsive audit planning decisions for certain audit procedures when fraud risk factors are framed as a pressure to avoid a loss, rather than as incentive for a gain, or under managerially focused risk factors.

These findings suggest that financial statement auditors can increase sensitivity to motivation-for-fraud risks by actively seeking to transform identified risk factors focused on the organization into risk factors that directly consider the impacts on top managers, and to evaluate whether these manager-focused risk factors represent incentives for personal gain, pressures to avoid a personal loss, or have no impact on top managers. Since managers make reporting

decisions, not the organization itself, the motivation impact of organizationally focused risk factors are of greatest risk assessment value when they are transformed so that auditors can understand their motivation impacts on top managers.

These findings contribute to both the academic literature and to practice. This study proposes a theoretical explanation and provides some evidence about why auditors in prior studies (Albrecht and Romney 1986; Apostolou 2001; Wilks and Zimbelman 2004) consider certain fraud risk factors focused on the organization or industry as relatively lower in relevance, and factors focused on management as relatively higher in relevance. Regarding risk assessment audit practice, Trompeter et al. (2013) observe that incentive and pressure are used interchangeably in auditing standards, but that the two could be different constructs and researchers should attempt to determine whether differences are important to fraud auditing. Regarding incentive and pressure outside of auditing contexts, the Center for Audit Quality (2010, p4) states: “Interestingly, academic research indicates that the desire to recoup or avoid losses is much more likely to motivate an individual to engage in activities that could lead to fraud than the desire for personal gain.”⁵ This current study responds to Trompeter et al. (2013) and to the Center for Audit Quality (2010) by providing evidence regarding these observations about incentive and pressure in a setting where auditors are considering management motivation to misreport. Results support that in auditing practice, attempting to identify risks representing pressure on top managers is a tangible way to increase sensitivity to fraud risks.

⁵ The referenced source of this academic research is a Rick and Loewenstein (2008) commentary and critique in the Journal of Marketing Research on a paper about honesty by Mazar et al. (2008) in the same journal. Rick and Loewenstein (2008) invoke prospect theory and the fraud triangle model in their commentary. Auditing was not the subject of these two articles.

The remainder of this dissertation is organized into six sections. The next section explains the evolution of fraud auditing standards and the incorporation of the fraud triangle model into auditing standards. Section 3 is a literature review of executive compensation and fraudulent financial reporting research. Section 4 develops hypotheses. Section 5 describes the research method. Section 6 describes results. The final section summarizes findings and discusses their implications.

2. LITERATURE REVIEW—FRAUD TRIANGLE AND RISK FACTORS IN AUDITING

2.1 The Evolution of the Fraud Triangle and Fraud Auditing Standards

The primary fraud auditing standards in place today come from Statements on Auditing Standards No. 99, Consideration of Fraud in a Financial Statement Audit, commonly referred to as SAS 99 (AICPA 2002). The original SAS No. 99 standard is currently codified in AU 316 for U.S. public company audits, AU-C240 for U.S. private company audits and ISA 240 for companies audited under international auditing standards. These standards outline an auditor's responsibilities for evaluating fraud risk when planning and executing a financial statement audit. Fraud risk factor examples in current auditing standards are organized and illustrated under the three categories of a fraud triangle model. A list of fraud risk factor examples in auditing standards is identical between AU 316, AU-C 240 and ISA 240. The three fraud triangle categorizations of fraud risk factors for fraudulent financial reporting from AU 316 are found in Appendix A of this dissertation. The three categories used in these standards are:

- 1) Incentives/Pressures, 2) Opportunities, and 3) Attitudes/Rationalizations.

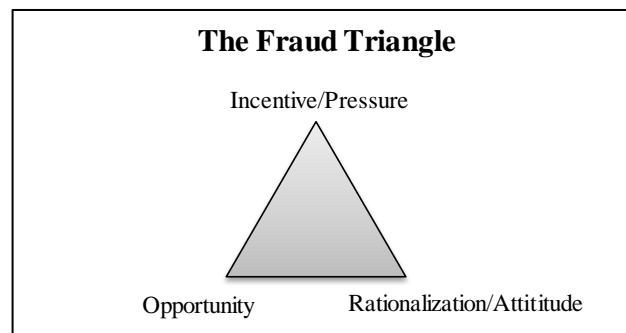


Figure 1: Fraud Triangle Categories in Current Auditing Standards

The fraud triangle is a decision aid designed to support an assessment of fraud risk, given the existence of observed indicators for fraud that fall under each of the three fraud triangle categories. Figure 2 below summarizes key developments in the birth of the fraud triangle concept and its evolution into a model influencing fraud risk assessment in current day auditing standards. The Fraud Triangle model is most commonly attributed to the work of criminologist Donald Cressey (1953), who conducted extensive multiple interviews of incarcerated individuals convicted of embezzlement crimes. Dr. Cressey modified his hypothesis throughout his period of interviews until it accurately described the situations of all of the embezzlers he interviewed (Cressey 1953). He concludes that the embezzlers each describe having: 1) a non-sharable financial problem, 2) an ability to secretly violate someone's trust, and 3) verbalizations reconciling a breach of trust with their own positive self-view. Dr. Cressey also observes that these same embezzlers did not commit such crimes during earlier periods in their lives when one of the three hypothesized elements was not present. The hypothesis supported by Cressey (1953) results in a descriptive model of all cases he observed, which were from known fraud convictions. Fraud models that follow, including the model that is currently known as the fraud triangle, are used as predictive models.

Dr. Cressey did not use the term "fraud triangle" in his work. Joseph Wells, who founded the Association of Certified Fraud Examiners ("ACFE"), met Dr. Cressey, and in 1985, asked him to appear in a fraud training video being produced by Wells, entitled "Embezzlement: The Thieves Within" (ACFE 1985).⁶ Dr. Cressey appears in the video, which for a time displays a triangle graphic. Dr. Cressey describes each of the three elements leading to embezzlement, and

⁶ Information about this video is supported by a May 21, 2015 email response to me from a representative of the ACFE.

Source		Condition A	Condition B	Condition C	Fraud as a Function of A, B & C	Context of Fraud	Changes From Prior Model(s)
Criminologist study of embezzlers in prison (Cressey 1953)	Non-sharable financial problem	Ability to violate trust secretly	Verbalizations reconciling the act with positive self-view	Prerequisite perspective: All three conditions must be present before embezzlement occurs.	Asset misappropriation by individuals	First documented depiction of a triangle graphic in connection with a fraud model, although the triangle was not called the "fraud triangle."	
Fraud education video (ACFE 1985)	Unsharable financial problem	Access to funds	Rationalization	Prerequisite perspective: All three conditions must be present before embezzlement occurs.	Asset misappropriation by individuals	Scope expands from embezzlement, specifically, to business fraud, generally. Focus shifts from unobservable conditions of individuals to observable conditions of individuals and organizations. This also includes an increased focus on observable integrity characteristics of individual employees or managers.	
Big 8 firm affiliate (Peat, Marwick, Mitchell & Co. Foundation) sponsored fraud research (Albrecht et al. 1982)	Situational pressures	Opportunities to commit fraud	Personal integrity	Probabilistic perspective: A relational probability risk weighting between the three conditions for fraud is described, such that a high risk in one or two conditions can outweigh a low risk in other fraud conditions(s). Taken together, the three factor categories form an indication of fraud risk. This model is called the fraud scale.	Asset misappropriation by individuals	Observes that pressure and opportunities are based on perceptions, which could vary between different individuals' perceptions of the same situation. Also observes that some pressures are not always financial. This article contains the first documented use of the term "Fraud Triangle."	
Article regarding fraud in government entities (Albrecht 1991)	Perceived pressure	Perceived opportunity	Rationalization	Prerequisite perspective: Article refers to other unspecified research, and states that all three conditions must occur together before there is fraud.	Asset misappropriation by individuals	Proposes adding "Incentive" to "Pressure," as one of the three elements for fraud.	
Comment letter by Big 8 firm to the Exposure Draft for SAS 82 (Arthur Andersen 1996)	Incentives and Pressures	Opportunities (Vulnerabilities--effect of internal controls)	Integrity of management	Probabilistic perspective: The three conditions together are described as forming the environment in which fraud may occur.	Fraudulent financial reporting in organizations	"Incentives/Pressures" treated as a single fraud triangle category. "Attitudes" added to "Rationalizations." "Attitudes/Rationalizations" treated as a single fraud triangle category.	
Statement on Auditing Standards No. 99 (AICPA 2002)	Incentives/ Pressures	Opportunities	Attitudes/ Rationalizations	Probabilistic perspective: These three conditions are generally (emphasis added) present when fraud exists (AU 316.33)	Both asset misappropriation by individuals and fraudulent financial reporting in organizations		

Figure 2: Evolution of the Fraud Triangle Model

the following three phrases appear at the bottom of the screen view: 1) Unsharable financial problem, 2) Access to funds, and 3) Rationalization. However, the first documented use of the term “fraud triangle” appeared later in an article about fraud in government entities (Albrecht 1991) in which the fraud triangle elements are described as: 1) perceived pressures, 2) perceived opportunities, and 3) rationalization. The use of the word “perceived” in fraud triangle labels emphasize that perceptions of the same situations can vary between people, and that it is an individual’s perception of fraud elements that determine potentially fraudulent behavior.

The perspective taken by fraud models shifted from the initial prerequisite perspective (all three elements of the fraud triangle must be present before fraud is perpetrated) to a probabilistic perspective, supported by results of a study of corporate fraud sponsored by an affiliate of a Big 8 firm, the Peat, Marwick, Mitchell & Co. Foundation (the “Albrecht Study”). Initial models of fraud by Cressey (1953) and Cressey and Wells (ACFE 1985) originally stated that all three elements of fraud must be present in order for fraud to occur. The Albrecht Study (Albrecht et al. 1980; Albrecht et al. 1982) resulted in a probabilistic “fraud scale” model, where evidence of each of the three fraud elements was weighted to determine a likelihood of the existence of fraud in a given setting. The researchers in the Albrecht Study drew on more than 50 government agencies and private sources of information leading to a review of 52 different company fraud events. The authors of the Albrecht Study describe its objectives as:

- 1) To conduct an extensive review of all fraud-related literature;*
- 2) To identify individual, organizational, and societal factors that suggest a high probability of fraud;*
- 3) To validate these factors by comparing them to past cases of fraud; and*
- 4) To organize the factors into early-warning systems that can be used to detect and deter fraud.*

Other differences also evolved between initial fraud models and later ones. Compared to the specific Cressey (1953) hypothesis about embezzlement, the Albrecht Study expands the scope of financial crimes considered to a much broader set, including financial statement fraud. The output from the Albrecht Study is a list of red flags (indicators) for fraud categorized by: 1) situational pressure, 2) opportunity, and 3) personal integrity (Albrecht et al. 1982). These red flags are also sub-grouped between personal and company indicators of fraud.⁷ The Albrecht Study first identifies potential red flags for fraud and then searches details from known fraud cases for confirmation or disconfirmation of the presence of each red flag. Unlike Cressey's (1953) three categories which are considered necessary for fraud, the Albrecht Study describes the three categories in the framework of a fraud scale, such that the three categories interact or are weighted against one another so that high risk in one or two categories could outweigh lower risk in another category (Albrecht et al. 1980; Albrecht et al. 1982; and Albrecht 2014).

In summary, the original fraud model of Cressey (1953) undergoes a shift in perspective in a number of ways after the Albrecht Study (Albrecht et al. 1980; Albrecht et al. 1982), as reflected in Exhibit 2, and that shift in perspective survives to the current day fraud triangle model used to categorize fraud risk factors in current auditing standards. The original model (Cressey 1953) was descriptive of a sample of known fraud events, while today's fraud triangle model is used predictively, in settings where the presence of fraud is unknown. In the original model (Cressey 1953) the three elements of fraud existing together concurrently were considered prerequisites for the conduct of a fraudulent act, while today's model is probabilistic and presence of any of the elements of fraud are said to be indicators that fraud may exist. In the

⁷ The subgroups for personal and company indicators of fraud are similar to the subgroups used for fraud risk factors in current auditing standards, which are currently labeled as risk factors arising from misappropriation of assets and risk factors arising from fraudulent financial reporting.

original fraud model (Cressey 1953) embezzlement was the crime studied, while the current fraud triangle model is applied to a wide variety of financial crimes (Albrecht et al. 2012, p. 34), including asset misappropriation, corruption and fraudulent financial reporting. In the original fraud model (Cressey 1953) the three elements of fraud are unobservable, while in the current fraud triangle model fraud risk factors are observable indicators of fraud risk.

2.2 The “Expectation Gap” Drives Fraud Auditing Standards

During the 1990s, the expectation gap between auditors and financial statement users regarding auditors’ responsibility to detect fraud continued to challenge the auditing profession (AICPA 1993). An exposure draft for a new proposed statement on auditing standards, Consideration of Fraud in a Financial Statement Audit (AICPA 1996) was issued. The objective of this proposed auditing standard was to propose more detailed guidance to auditors on their responsibilities for detecting fraud in financial statements. The exposure draft for this standard, which eventually became SAS No. 82 (AICPA 1997), presents fraud risk factors from both academic and practical research (AICPA 1996). The SAS No. 82 fraud risk factor examples are the same ones still present in auditing standards today (SAS No. 99, AICPA 2002 in AU 316, AU-C 240, and ISA 240). Many of the Albrecht Study red flags for fraud were incorporated into these auditing standards. Dr. Albrecht influenced the fraud risk factor content of the SAS No. 82 exposure draft and final standard through his service on the SAS No. 82 Fraud Task Force which made recommendations to the AICPA Auditing Standards Board for this exposure draft. However, fraud risk factors in SAS No. 82 were grouped under the following three categories: 1) management’s characteristics and influence over the control environment, 2) industry conditions, and 3) operating characteristics and financial stability, rather than under the three fraud triangle model categories. As a member of the fraud task force, Dr. Albrecht advocated for use of the

fraud triangle model categories to organize the fraud risk factor examples listed in SAS No. 82, but did not prevail because the fraud triangle model was not yet well known, as it is today.⁸

When SAS No. 99 (AICPA 2002), also entitled Consideration of Fraud in a Financial Statement Audit, superseded SAS No. 82 (AICPA 1997), the fraud triangle model became the framework for categorizing fraud risk factors in the auditing standard. The example fraud risk factors in SAS No. 99 (and still codified in current auditing standards for public company, private company, and international standards) are primarily comprised of the same fraud risk factor examples presented in SAS No. 82 (AICPA 1997).

2.3 The Incentive/Pressure Fraud Triangle Category

The text of the SAS No. 82 exposure draft adds discussion of management *incentives* for fraud to that of management *pressure* for fraud (AICPA 1996, p. 16, 19, 20, 25). In an Arthur Andersen (1996) comment letter to this exposure draft, this Big 8 firm recommends that fraud risk factors should be categorized under: 1) incentives and pressures, 2) opportunities (or internal control vulnerabilities), and 3) integrity of management. This Arthur Andersen recommendation was not adopted in the final version of SAS 82. However, the “incentives and pressure” category recommendation is consistent with the “incentive/pressure” description for that fraud triangle category used to organize fraud risk factor examples in SAS No. 99 (AICPA 2002). SAS No. 99 does not differentiate between incentives or pressures in its categorization of fraud risk factors, and SAS No. 99 fraud task force members do not recall differentiating between incentive and pressures at the time of their deliberations.⁹

⁸ This statement is based on a June 1, 2015 email response to me from Dr. W. Steve Albrecht, reflecting on his service on the Fraud Task Force for SAS No. 82.

⁹ Based on email responses to me from the SAS No. 99 Fraud Task Force chair, David Landsittel on May 5, 2015, and from Fraud Task Force members Dr. Zoe-Vonna Palmrose on April 29, 2015, and Dr. Mark Beasley on April 10, 2015.

2.4 Criticism of the Fraud Triangle Model

Although SAS No. 99 does not specifically use the term “fraud triangle,” much of the SAS No. 99 auditing standard was inspired by this fraud triangle conceptualization developed and promoted by the Association of Certified Fraud Examiners (“ACFE”) (Morales et al. 2014). The ACFE is a significant association of fraud-fighting professionals, with 75,000 members, a professional certification program, frequent continuing education seminars and conferences, an extensive network of local chapters, and a variety of fraud-fighting publications, including a practice journal called *Fraud Magazine* (ACFE 2015). The ACFE uses this extensive network of resources to promote its vision of the fraud triangle, which it legitimizes through its attributions to the academic work of criminologist Donald Cressey (Morales et al. 2014). The publication of SAS No. 99 in 2002 led to a proliferation of fraud triangle awareness, as evidenced by the number of documents referring to the fraud triangle identified in a review of fraud triangle literature performed by Morales et al. (2014). They find 223 publications making reference to the fraud triangle in academic and business literature from 2002 to 2011, up from 19 references from 1979 to 2001. Today the accounting standards setters, the Big 4 firms, the accounting profession, and the ACFE are actively involved in promoting and diffusing the fraud triangle concept, which remains accepted without question,¹⁰ although Morales et al. (2014) believe that empirical tests of the practical effectiveness of the fraud triangle model are scarce and unconvincing.

Morales et al. (2014) conclude that the fraud triangle has evolved through a series of translations and interpretations, and the attributions of the current day fraud triangle to the work of Donald Cressey are contradicted by important differences between the fraud triangle used in

¹⁰ Expanded models, such as the fraud diamond (Wolfe 2004) and the fraud pentagon (Crowe Horwath LLP 2016) have subsequently been proposed, but these models incorporate the three elements of the fraud triangle and add other components.

auditing standards and the work originally published by Cressey.¹¹ Cressey concluded that the motivation for embezzlements was a “nonsharable problem,” while the SAS No. 99 category for fraud motivation is “Incentives/Pressures.” While the “nonsharable problems” identified by Cressey were private to each embezzler, specific pressures to meet financial targets, incentive compensation for meeting such targets, and quantification of the targets themselves at companies are often open to observation, especially in public companies. Cressey’s causal view has been abandoned in favor of the notion of risk (Morales et al. 2014). This transformation of Cressey’s (1953) descriptive, prerequisite, unobservable, embezzlement-specific hypothesis into the predictive, probabilistic, observable, broad perspective of the fraud triangle is necessary for application of the fraud triangle to an audit environment. There is little evidence to support the fraud triangle as a general “theory” of financial crime (Donegan and Ganon 2008).

The proceeding critique of the fraud triangle is not intended to discredit its usefulness, but rather, to support the need to understand the evolution of the fraud triangle and to ask whether there are opportunities to further develop the fraud triangle for application to auditing tasks. There is evidence that asking auditors to think more deeply about the fraud triangle when assessing risk, by disaggregating risk assessments into the three fraud triangle elements, increases auditor sensitivity to fraud risk (Wilks and Zimbelman 2004; Favere-Marchesi 2013). This current study evaluates the impact of asking auditors to further disaggregate risk assessments for motivation for fraud, the incentive/pressure category of the fraud triangle in current auditing standards.

¹¹ The central criticism by Morales et al. (2014) is the fraud triangle model exclusion of sociological explanations of fraud such as differential association, a theory about of how fraud is learned from others.

2.5 Fraud Risk Factors in Auditing Standards

Following the issuance of SAS No. 82 (AICPA 1997) the Accounting Standards Board of the AICPA committed to study the impact of the standard on auditing practice. Appendix B to this study summarizes research published beginning 1986 on subjects related to auditor fraud risk assessment and fraud risk factors. Early studies in Appendix B conclude that many fraud risk factors proposed were not considered important by auditors (Albrecht and Romney 1986; Apostolou et al. 2001), and that a checklist of fraud risks can have a dysfunctional effect on auditor consideration of fraud (Pincus 1989). Zimbelman (1997) finds that auditor attention on SAS No. 82 fraud risk factors increased attention to fraud uniformly, but the nature of testing by auditors was not responsively different to low versus high fraud risk cases.

The appendix B studies reflect mixed results regarding auditor response to fraud risks identified. Auditors often identified increased fraud risk but did not change the nature or extent of testing in response to the increased fraud risk (Wright and Bedard 2000; Glover et al. 2003; Asare and Wright 2004). Regarding SAS No.99 fraud risk assessment using the fraud triangle categories, Wilks and Zimbelman (2004) and Favere-Marchesi (2013) find that disaggregating fraud risk assessments into the three fraud triangle categorizations can make auditors more sensitive to fraud risks.¹² Hammersley (2011) finds that auditor responsiveness to fraud risks partially depends on the diagnosticity of fraud risk factors and to auditor fraud knowledge.

When SAS No. 99 (AICPA 2002) superseded SAS No. 82 (1997), the fraud triangle became integrated into fraud risk assessment guidance in auditing standards. Although current auditing standards present the risk factors for fraud motivation as a single category

¹² This finding in both of these studies is in a setting where fraud risk is considered low. In a high fraud risk setting, disaggregation of risks into fraud triangle categories is not necessary to elicit relatively greater fraud risk assessments.

(Incentives/Pressures), this present study investigates whether auditors make different risk assessments and auditing decisions when top managers are under a pressure to avoid a potential loss, rather than under an incentive for a potential gain. Even in his original work, Cressey (1953) recognized a difference between two types of non-sharable problems,¹³ which he called “status-seeking/gaining” or “status-maintaining” (Cressey 1953, pp. 36, 53, 75). Status-seeking can be fulfilled by realizing an incentive for a potential gain, while status-maintaining is characterized by a desire to avoid a potential loss. Cressey found the more common driver of embezzlement to be status-maintaining non-shareable problems, rather than status-gaining non-sharable problems (Cressey 1953, p.53). The root sources of status maintaining non-sharable problems included violations of ascribed obligations, problems resulting from personal failure, and problems resulting from business reversals (Cressey 1953, pp. 36-52). Status is often measured in terms of wealth and compensation. Auditors in this current study are asked to assess their perceptions of fraud risks associated with status-gaining incentives for gain, or status-maintaining pressures of avoiding a potential loss.

¹³ Gains or losses could be financial or nonfinancial in nature (Cressey 1953, p 35).

3. LITERATURE REVIEW—EXECUTIVE COMPENSATION AND FRAUD

3.1 Consideration of Executive Compensation in Fraud Auditing Standards

Auditing standards include few fraud risk factor examples that directly reference management compensation. An example of a fraud risk factor example focused on compensation from SAS No. 99 (AICPA 2002, AU 316.85) follows:

Significant portions of [management's] compensation (for example, bonuses, stock options, and earn-out arrangements) being contingent upon achieving aggressive targets for stock price, operating results, financial position, or cash flow.

More recently issued public company auditing standards make additional requirements of auditors to consider executive compensation. PCAOB auditing standards concerning auditor consideration of executive compensation as a potential motivator of financial statement fraud are primarily contained in the following PCAOB standards: (1) AS No. 12 – Identifying and Assessing Risks of Material Misstatements (PCAOB 2010a), (2) AS No. 18 – Related Parties, Amendments to Certain PCAOB Auditing Standards, and Other Amendments (PCAOB 2014), and (3) AS No. 14 – Evaluating Audit Results (PCAOB 2010b). Between 2010 and 2014, the PCAOB increased auditing requirements regarding the consideration of executive compensation in fraud risk assessment.

AS No. 12 (PCAOB 2010a), before being amended in 2014, states that the auditor should “consider” performing procedures such as: “Obtaining an understanding of compensation arrangements with senior management, including incentive compensation arrangements, changes or adjustments to these arrangements, and special bonuses.” (PCAOB 2010a, p. A5 – 5) This

standard also highlights the importance of understanding company performance measures, such as those that form the basis for contractual commitments or incentive compensation arrangements, because these can affect the risk of material misstatement by creating incentives or pressures for management to manipulate accounts or disclosures in order to achieve certain performance targets. AS No. 12 also reiterates the SAS No. 99 events or conditions representing fraud risk factors, including indications of : “(1) an incentive or pressure to perpetrate fraud, (2) an opportunity to carry out the fraud, or (3) an attitude or rationalization that justifies the fraudulent action.” (PCAOB 2010a, p. A5 – 27)

AS No. 18 (PCAOB 2014) amends the AS No. 12 (PCAOB 2010a) recommendation to consider executive compensation, by making it a requirement to obtain an understanding of the company’s financial transactions and relationship with its executive officers. The new standard states that these procedures should include reading employment and compensation contracts and proxy statements involving executive compensation. These procedures are designed to support the auditor’s assessment of management bias or risk of material misstatement such as the risk that management might seek accounting results solely to boost its own compensation. AS No. 18 states: “A company’s financial relationships and transactions with its executive officers (as one example, executive compensation) can create incentives and pressures for executive officers to meet financial targets, which can result in risks of material misstatements of a company’s financial statements.” (PCAOB 2014, p.5)

AS No. 14 (PCAOB 2010b) also states that qualitative factors to be considered by the auditor in evaluation of materiality of uncorrected misstatements include: “A misstatement that has the effect of increasing management’s compensation, for example, by satisfying the requirements for the award of bonuses or other forms of incentive compensation.” (PCAOB

2010b, p. A7 – 17) “Likewise, an understanding of compensation arrangements with senior management often can provide important information about incentives and pressures on management to manipulate the financial statements.” (PCAOB 2010b, p. A10 – 33)

3.2 Research on Executive Compensation and Auditing

Dikolli et al. (2004) experimentally find that audit risk is assessed relatively higher and more extensive audit plans are selected, for clients who pay executive bonuses based on financial performance measures, rather than on non-financial performance measures. They cannot determine whether these results are attributable to differences between financial versus non-financial performance measures or to the ease with which financial performance measure could be manipulated by management.

Archival research demonstrates that it is executive ownership of equity positions in the company managed, not current compensation and bonuses, which have the most significant impact on change in executive wealth at public companies (Hall and Liebman 1998; Core and Guay 1999; Core et al. 2003; Billings et al. 2014). This fact implies that stock and option ownership incentives should be of interest to auditors assessing fraud risk associated with executive compensation incentives.

Kannan et al. (2014) find no association between audit fees (reflecting the cost, quantity and quality of audit effort) and CEO and CFO delta incentives (defined as the sensitivity of the change in value of executive stock and option portfolios to changes in stock price).¹⁴ Billings et al. (2014) find that CFO delta equity ownership incentives, but not CEO delta equity ownership

¹⁴ Kannan et al. (2014) also consider the relationship between audit fees and vega incentives (the sensitivity of the value of executive stock and option portfolios to stock return volatility). The vega results are mixed and Guay (1999) states that vegas are subject to estimation problems and vegas in this context are almost always economically insignificant.

incentives are associated with audit effort, as proxied by the pricing of audit services, suggesting increasing audit risk with increasing CFO equity ownership incentives. CFO influence, measured as the proportion of CFO compensation relative to the other top four executives, is also associated with audit fees, but premium audit fees are not associated with CEO influence, suggesting that auditors perceive a risk of CFOs engaging in earnings manipulations in response to their own equity incentives.

3.3 Research on Executive Compensation and Financial Statement Fraud

Numerous studies evaluate various executive compensation components, and whether executive compensation is associated with intentional misstatements of company earnings by executives. One might expect that top executives could be motivated to overstate company earnings in order to increase their own performance-based compensation, such as bonus, stock and option grants, and changes in the value of stock and stock options owned. Conversely, a highly compensated executive could be reluctant to overstate earnings due to risk of discovery and resulting restatements, which might threaten the continued employment of the executive.¹⁵ Even when an executive is reluctant to misstate earnings, the size of the impact of earnings on certain compensation components could become so large that he/she would succumb to the temptation to intentionally cause an earnings misstatement. Figure 3 summarizes studies analyzing whether executive compensation is associated with intentional misstatements of

¹⁵ Hennes et al. (2008) find that during the 13 months surrounding a fraud restatements, 49 percent of CEOs and 64 percent of CFOs turnover their positions (compared to 8 percent and 12 percent, respectively, for error restatements). They also find that during a four year period surrounding fraud restatements, 91 percent of companies have turnover in either their CEO or CFO.

earnings. Overall, these study results are mixed, regarding whether specific compensation components are associated with intentional earnings misstatements.¹⁶

Bonus Plans

Holthausen et al. (1995) find that managers manipulate earnings downward during a current period once bonuses reach a maximum payout level under a compensation plan for that period, consistent with bonus earnings management research by Healy (1985); but unlike Healy (1985), Holthausen et al. (1995) do not find that managers manipulate current earnings for a period downward when minimum bonus targets are unreachable for that period. However, Core et al. (2003) conclude that very little of a CEOs total compensation incentives come from cash pay (salary and bonus), and that the largest balance of public company CEO compensations is comprised of equity ownership of stock and options of the company managed. This leads one to consider the following studies.

Stock and Stock Options Plans

Johnson et al. (2009) study compensation and SEC Accounting and Auditing Enforcement Releases (AAERs) and find that the financial reporting misconduct described in AAERs is associated with executive stock ownership (but not with executive ownership of restricted stock). Erickson et al. (2006) find no association between executive stock and option portfolio delta¹⁷ and AAERs. They conclude that equity holdings do not provide

¹⁶ There is a larger body of research focused on executive compensation and earnings management, in which case a bias in reported earnings is unintentional or is not described as fraud. However the earnings management studies summarized in Figure 3 are focused on intentional misstatements or indicators of intentional misstatements of earnings.

¹⁷ Portfolio delta is described as the change in a manager's wealth from stock and option ownership relative to a change in price of the stock of the company managed.

Author(s), Year and Journal	Title	Compensation Component(s)	Fraud Proxy	Research Method	Sample	Conclusions
Holthausen et al. 1995; Journal of Accounting and Economics	Annual Bonus Schemes and the Manipulation of Earnings	Bonus	Discretionary accruals evidence of earnings manipulation	Comparison of discretionary accruals when performance is below, within, or above the bonus target window	443 firm years from 1982 to 1984 and from 1987 to 1991. Executive compensation data was from a confidential HR consulting database. Company financial data was from Compustat.	Like Healy (1985), authors find that managers manipulate earnings downward when bonuses are above maximum payout targets, but unlike Healy (1985), do not find that managers manipulate earnings downward when minimum bonus targets are unreachably.
Gillett and Uddin 2005; Auditing	CFO Intenitions of Fraudulent Financial Reporting	Percent of compensation dependent on company's reported performance	Intention to pre-bill shipments in connection with hypothetical cases	Structural equation modeling	Survey data from 139 CFOs	Compensation structure is not a good indicator of intention to misreport. CFOs of larger firms are more likely to report fraudulently.
Burns and Kedia 2006; Journal of Financial Economics	The Impact of Performance-based Compensation on Misreporting	Portfolio delta and component deltas	Restatements and their magnitudes	Pooled logistic regression, pooled OLS regression	ExecuComp 1995-2002	Sensitivity of CEO option portfolio to stock price (portfolio delta) is positively related to propensity to misreport. Other compensation forms are not associated with misreporting.
O'Connor et al 2006; Academy of Management	Do CEO Stock Options Prevent or Promote Fraudulent Financial Reporting?	Option Value	Restatements	Matched pair regression (on year, industry, sales, income, option vesting)	65 firm years plus matches from 2000-2004	Option value is associated with restatements when: 1) CEO is the board chair and sole option holder; 2) CEO and other board members
Denis et al. 2006; Journal of Corporate Finance	Is There a Dark Side to Incentive Compensation?	Stock options	Class action lawsuits (90% of which are for material misstatements)	Matched pair regression between fraud- and non-fraud-allegation companies	358 companies with class action lawsuits from 1993 to 2002, for which there is data available from Compustat's ExecuComp database.	Stock option incentives are associated with fraud allegations.
Erickson et al. 2006; Journal of Accounting	Is There a Link between Executive Equity Incentives and Accounting Fraud?	Portfolio delta of a variety of equity incentives, including options and stock	SEC AAERs*	Matched pair regression (year, industry, assets) & logistic regression	50 firm years plus two matches for each AAER* firm, from 1996-2003	No association is found between portfolio delta and AAERs. Equity holdings do not provide incentives to misreport.
Efendi et al 2007; Journal of Accounting Research	Why do corporate managers misstate financial statements? The Role of Option Compensation and Other Factors	Component value, option intrinsic value, option delta	Restatements	Matched pair regression (on year, industry, assets)	95 firm years plus matches, 2001-2002	Restatements associated with option intrinsic value and ??option delta. ??, but no relation between the CEO's portfolio delta and accounting restatements.
Harris and Bromley 2007; Organization	Incentives to Cheat: The Influence of Executive Compensation and Firm	Option and bonus as % of total comp	Restatements	Matched pair regression (on year, industry, sales)	434 firm years plus matches 1997-2002	Restatements associated with scaled option value
Johnson et al 2009; Review of Finance	Managerial Incentives and Corporate Fraud: The Sources of Incentives Matter	Portfolio delta and component deltas	SEC AAERs*	Matched pair regression (on year, industry, revenues)	53 firm years plus matches, 1992-2001	AAERs associated only with unrestricted stock.
Armstrong et al 2010; Journal of Accounting Research	Chief Executive Officer Equity Incentives and Accounting Irregularities	Equity-based holdings and compensation	Restatements, shareholder litigation, and AAERs*	Propensity score matching on characteristics of contracting environment	CEO equity incentives between 2001 and 2005 from Equilar, and 13,706 manipulation restatements, accounting lawsuits, and AAERs*	No association found between CEO equity compensation portfolio delta and accounting irregularities; some evidence found that irregularities are less frequent at firms with CEOs having relatively higher levels of equity-based compensation.
Armstrong et al 2013; Journal of Financial Economics	The relation between equity incentives and misreporting: The role of risk-taking incentives	Total cash compensation, sensitivity of manager wealth to changes in stock price and stock variability	Absolute discretionary accruals, accounting restatements, and AAERs*	Regression analysis with and without matched-sample	20,445 firm years from 1992-2009 from the intersection of ExecuComp, Compustat, Audit Analytics and SEC AAERs*	A strong association is found between Vega effects of compensation (sensitivity of wealth to changes in stock risk) and misreporting, which subsume the delta effects (sensitivity of wealth to change in stock price).

* AAERs are Accounting and Auditing Enforcement Releases of the Securities and Exchange Commission (SEC)

Figure 3: Summary of Compensation and Fraudulent Financial Reporting Literature

incentives to misreport. Johnson et al. (2009) find that stock holdings—not options holdings—are associated with financial statement fraud. They also find that this management fraud is more often committed following declines in company performance. A period of decline in performance represents a period when the managed firm is in a loss position relative to an expectations reference point of recent earnings levels. This loss position from a reference point is consistent with the concept of the loss domain described by Kahneman and Tversky (1979) under prospect theory.

Denis et al. (2006) find that stock option incentives to managers are associated with fraud allegations against their companies managed. Burnes and Kedia (2006) conclude that the sensitivity of CEO option portfolios to stock price (portfolio delta) is positively related to propensity to misreport. Other forms of compensation are not found to be associated with misreporting. Harris and Bromiley (2007) find that earnings restatements are associated with option value as a percent of total compensation for managers. Efendi et al. (2007) find that restatements are associated with option intrinsic value and option delta, but that there is no association between the CEO's portfolio delta and restatements. Armstrong et al. (2013) find a strong association between vega¹⁸ effects of compensation and misreporting, which subsumes the delta effects of compensation structure.

O'Connor et al. (2006) find that option value owned by the CEO is associated with restatements under certain conditions: when the CEO is the board chair and sole option holder, and when the CEO and other board members receive options. Armstrong et al. (2010) find no association between CEO equity compensation portfolio delta and accounting irregularities, and

¹⁸ Armstrong et al. (2013) define vega effects as the sensitivity of a manager's wealth to changes in stock volatility, and defines delta effects as the sensitivity of a manager's wealth to changes in stock price.

find some evidence that irregularities are less frequent at firms where CEO's have relatively higher levels of equity-based compensation. Gillett and Uddin (2005) find that compensation structure is not a good indicator of manager intention to misreport, but that CFOs of larger firms are more likely to report fraudulently.

The contradictory results of these studies comparing compensation components and misreporting leads one to seek additional omitted variables as an explanation. Figure 3 reveals that many of the studies use restatements as a proxy for fraud, but do not differentiate between fraud and nonfraud restatements.¹⁹ Whether there is management intention to mislead is an omitted variable in many of these studies because it is difficult to detect. These study findings (except for Johnson et al. 2009) also do not differentiate between periods of increasing or decreasing earnings when comparing compensation components to misreporting, and such comparisons are difficult because stock and option incentives relate to multiple periods which often include both increasing and decreasing earnings periods. Prospect theory (Kahneman and Tversky 1979) explains that managers will have a greater motivation to avoid reporting losses than to realize equal value gains. So, distinguishing between periods of increasing or decreasing earnings in these compensation and fraud studies is also a potential source of omitted variable in the analyses.

Taken together, the compensation and fraud research demonstrates evidence that various compensation components can have a statistically significant association with various proxies for financial statement fraud. One goal of this study is to determine whether financial statement auditors incorporate their knowledge of top management compensation structure into their fraud risk assessments, and what are the benefits of doing so.

¹⁹ The primary factor that distinguishes fraud from error is whether the action that results in a misstatement is intentional or unintentional (AICPA, 2002, AU 316.05).

4. HYPOTHESIS DEVELOPMENT

4.1 Fraud Risk Factor Usefulness

The terms “red flags for fraud” and “fraud risk factors” have been used interchangeably over time, with the term “fraud risk factor” becoming the more common term used upon the issuance of SAS No. 99 (AICPA 2002). McKey (2010) states that current fraud audit approaches are predicated on the belief that specific identified fraud risks, in the form of red flags for fraud, help predict overall risk of fraud. Pincus (1989) observes that practitioners and standards setters refer to red flags as indicators of fraud. However, Albrecht and Romney (1986) find that of the 87 red flags that they identify as being used by audit firms in practice at the time, only one-third are considered by auditors to be significant predictors of fraud cases. Hogan et al. (2008) reviews financial statement fraud literature and observes that while red flags for fraud are observed frequently, their presence usually does not lead to a conclusion of fraud. This fact could understandably desensitize auditors using red flag checklists. Pincus (1989) and Hogan et al. (2008) conclude that red flag checklists for fraud can be dysfunctional because auditors fail to expand their thinking beyond the checklist.

The usefulness of fraud risk factors assessed in auditing literature has depended on what risk factors are used and how auditors have used them. Pincus (1989) finds that use of a red flag checklist increases the comprehensiveness and uniformity of data acquisition, but in a case where fraud is present, auditors using a checklist of red flags assess fraud risk lower than auditors without the checklist. Boritz and Timoshenko (2014) conclude that appropriately designed and

adequately customized checklists, applied strategically, can be effective. Apostolou et al. (2001) asked auditors to rate the relative importance of fraud risk factors from SAS No. 82 (AICPA 1997),²⁰ and they find auditors indicate that factors related to management characteristics and influence over the control environment were twice as important as operating and financial characteristics of the organization, and were four times more important than industry condition characteristics. These relative importance levels attributed to categories of fraud risk factors were not significantly different between Big 5 auditors, regional/local auditors and internal auditors, and were not related to the years of audit experience. Zimbelman (1997) initially finds that prior to the issuance of SAS No. 82, auditors were not sensitive to high versus low fraud risk cases when using SAS No. 82 fraud risk factors, but rather, inefficiently increased overall planned testing irrespective of fraud risk assessment levels. Glover et al. (2003) find that, two years after implementation of SAS No. 82, auditors became more sensitive to differences in fraud risk levels indicated by SAS No. 82 fraud risk factors.

SAS No. 99 reflects nearly all of the same fraud risk factor examples as SAS No. 82, except that SAS No. 99 reorganizes them under the three categories of the fraud triangle model: opportunity, attitude/rationalization, and incentive/pressure (motivation) to commit fraud. Wilks and Zimbelman (2004) find that auditors who make three separate fraud triangle model element risk assessments are more sensitive to opportunity and incentive/pressure fraud risk factors than auditors that make only a single overall fraud risk assessment. Favere-Marchesi (2013) finds that auditors who make three separate fraud triangle model element risk assessments are more sensitive to opportunity and incentive/pressure fraud risk factors than are auditors who only

²⁰ SAS No. 82 was superseded by SAS No. 99 in 2002. Both standards, titled *Considerations for Fraud in a Financial Statement Audit*, list approximately the same fraud risk factor examples for financial statement fraud, but in SAS No. 82, these factors are grouped in the following categories: 1) management's characteristics and influence over the control environment, 2) industry conditions, and 3) operating characteristics and financial stability.

categorize fraud risk factors into the three fraud triangle model categories before making a single overall fraud risk assessment.

4.2 Fraud Risk Factor Focus: Individual or Organizational

The Wilks and Zimbelman (2004) and the Favere-Marchesi (2013) studies measure differences in fraud risk assessment ratings between high fraud risk and low fraud risk cases. Their definition of high versus low fraud risk is important to the fraud risk factor focus research question of this current study. These two prior studies rely on construction of high versus low fraud cases based on a pilot study described by Wilks and Zimbelman (2004). This pilot study asked 12 practicing audit managers from three of the Big 5 firms to rate the importance of 40 fraud risk factors obtained from the exposure draft version of SAS No. 99. Risk factors that were considered relatively unimportant in the pilot study were used to build the low risk case, while risk factors that were considered relatively important in the pilot study were added to build the high risk case. Following are the fraud risk factors presented by Wilks and Zimbelman (2004) in the low fraud risk case:

- High degree of competition, market saturation, or declining margins
- Significant declines in customer demand
- Need to obtain debt or equity financing
- Marginal ability to meet debt repayment or debt covenant requirements.

Following are the fraud risk factors presented by Wilks and Zimbelman (2004) in the high fraud risk case:

- Significant portions of management's compensation being contingent upon aggressive targets for stock price, operating results, financial position, or cash flow
- Management's personal guarantee of significant debts of the entity
- Excessive pressure on management to meet financial targets.

When evaluating motivation for fraud, the fraud risk factors considered to be relatively unimportant by auditors were ones that describe potential impacts on the organization, while the

fraud risk factors considered to be relatively important were ones that describe potential impact on individual managers. Wilks and Zimbelman (2004) do not identify this fact and do not explain why auditors view certain fraud risk factors as relatively unimportant, and others as relatively important.

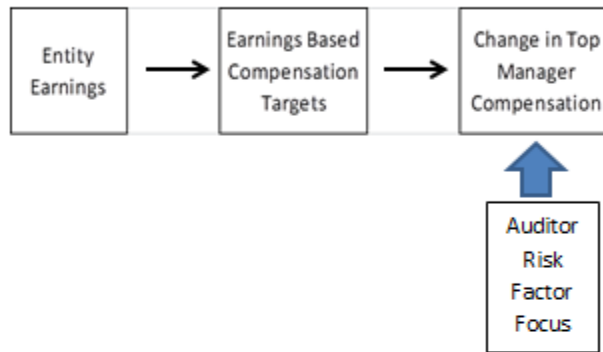
Mental model theory provides a potential explanation for why auditors perceive some fraud risk factors as important, while others are perceived as relatively unimportant. “A mental model is a representation of some domain or situation that supports understanding, reasoning, and prediction” (Markman and Gentner 2001, p228). “To this end, human reasoners tend to generate a conclusion that maintains the information conveyed by the premises, that re-express it more parsimoniously, and that establish something not originally explicit” (Johnson-Laird and Byrne 1991, p194). Mental models are subjective, internal representations of a system of causal relations that are qualitative, incomplete and substitute more familiar attributes for attributes that would be present in a more formal scientific model (Markman and Gentner 2001; Krishnan et al. 2005). Mental models are likely to include short causal chains, while omitting steps in longer, more complex causal chains (Krishnan et al. 2005).

A red flag for fraud, or fraud risk factor, is the initial step in an auditor’s mental model about a fraud hypothesis. Since a decision to misreport earnings is made by an individual manager or managers, not an organization, a fraud risk factor that describes a condition impacting the organization invokes a less direct, more complex mental model of misreporting motivation than does a fraud risk factor that directly describes a potential impact on individual managers. For example, a fraud risk factor could explicitly state that missing an entity earnings target that also serves as a CFO compensation benchmark would lead to a decrease in CFO compensation. This is a short and direct mental model for misreporting motivation of the CFO.

Contrast that example with a more complex one. Consider an observed fraud risk factor of increasing industry competitiveness, which would lead to pressure on product pricing, which would reduce product margins, which could in turn decrease entity earnings, which are a benchmark for CFO compensation targets, which would negatively impact CFO compensation. This is a less direct mental model about how the initial fraud risk factor, industry

Panel A

Direct Path: Auditor Focus on Change in Top Manager Factors as a Motivation for Fraud



Panel B

Indirect Path: Auditor Focus on Organizational Factors as a Motivation for Fraud

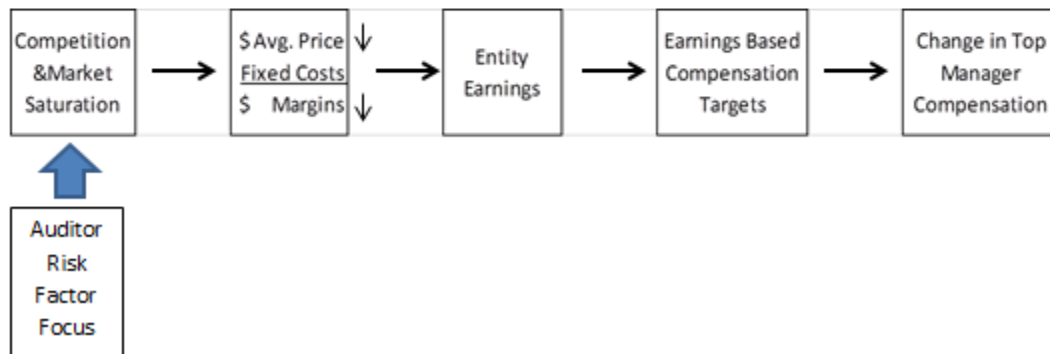


Figure 4: Direct and Indirect Mental Model Examples

competitiveness, could impact CFO motivation to misreport. In an experiment involving accounting judgments, Farrell et al. (2007) note that adding links in the causal chain of a mental model adds to the complexity of the mental representation, placing greater demands on working memory. They also note that an increased number of logical steps within a mental model make it more complex and uncertain.

Most financial statement fraud is perpetrated by, or at least involves, the very top levels of management (Beasley et al. 2010; Perri 2013; PCAOB 2014). Considering the mental model concept of directness as applied to fraud risk factors and motivation for fraud decisions, and considering the lack of reaction to organizational level fraud risk factors in studies (Albrecht and Romney 1986; Apostolou 2001; Wilks and Zimbelman 2004), auditors are expected to more easily process misreporting risks that directly affect managers responsible for the reporting. Conversely, auditors are expected to have more difficulty processing misreporting risks that affect the organization, but only indirectly affect managers responsible for reporting. Therefore, risks for which the impact on the reporting manager can more easily be processed and identified are expected to be rated as relatively greater risks, and risks for which the impact on the reporting manager are less easily processed and identified are expected to be rated as relatively lower risks.

4.3 Fraud Risk Factor Motivation Type: Incentive or Pressure

Studies have identified differences between positive and negative framing of audit assertions on auditors' behavior. Fukukawa and Mock (2011) find that auditors evaluating a negatively stated audit assertion (such as: "Test whether there is a material misstatement in the recording of sales transactions") exhibit more skepticism than auditors who are given the same audit step stated positively (such as: "Test whether sales transactions are accurately recorded").

Bedard and Graham (2002) find that auditors using a decision aid with a negative orientation find more fraud risks than those using a decision aid with a positive orientation. Schema theory (Alba and Hasher 1983) explains that expectations brought to a task influence how information is used, and more negative expectations lead to relatively more use of negative information. This relatively greater attention to negative information is consistent with a prediction that a fraud risk factor indicating a pressure to avoid a potential loss will receive a relatively greater risk assessment from an auditor than a fraud risk factor indicating incentive for a gain.

Additional insight to the preceding explanation for the direction of auditor attention, is to understand how loss aversion in human nature can affect management decision-making, and to observe whether auditor fraud risk assessments is influenced by differences between incentive for a gain versus a pressure of a loss for managers. Prospect theory (Kahneman and Tversky 1979) provides an explanation of individual decision making under risk, which is developed for simple prospects with monetary outcomes under uncertainty, but can be extended to more involved choices. An essential feature of prospect theory is that decision motivation for potential payoff choices are driven by potential changes in wealth or welfare from a given reference point. A salient characteristic of attitudes to changes in welfare is that losses loom larger than gains in human minds. This is described as a value function (utility per dollar function) that is steeper for losses than for gains.

Prospect theory can be used to predict that a manager would have a greater motivation to avoid declines in compensation, welfare and reputation, than to attain equivalent increases in compensation, welfare or reputation. Prospect theory, then, also suggests that a top manager facing a decision about whether to misreport earnings would face greater psychological motivation to do so under pressure to avoid a negative outcome from a reference point, than

under an incentive to produce an equivalent value positive outcome from the same reference point. Individual level reference point examples include current level of compensation or wealth. Organizational level reference point examples include attaining positive earnings, expected earnings or target stock valuation. Studies demonstrate that managers, laborers, gamblers and other decision-makers exhibit behavior described by prospect theory in many settings, including: finance, insurance, industrial organization, labor supply, negotiations, investing, and other settings (Barberis 2013). This dissertation seeks not to predict management behavior, but rather, to determine whether auditor evaluation of fraud risk factors is intuitively influenced by these prospect theory explanations of human loss aversion that could affect the degree of management motivation to misreport.

It is reasonable to ask whether an auditor's intuition about human nature could impact his/her thinking about auditee manager motivation. Kahneman (2011) describes that humans exhibit two systems of thinking. The fast system, or System 1, operates automatically and quickly, with little or no effort or sense of voluntary control. System 1 is driven by both emotion and unconscious recall of human experience. The slow system, or System 2, allocates attention to the effortful mental activities that are demanded of it, including logic and computations. The difference in auditor assessment of management's motivation driven by the desire to avoid a potential loss, rather than realize a potential gain, is expected to relate to the auditors own unconscious knowledge of human loss aversion as controlled by System 1 thinking.

4.4 Interaction of Fraud Risk Factor Focus and Motivation Type

Prospect theory explains risk-reward decision-making of individuals and suggests that auditors would assess pressures of loss impacting individual top managers differently than incentives for a gain to those managers. However, as described in the preceding Fraud Risk

Factor Focus section of this paper, the mental model for fraud motivation is more direct for risk factors focused on managers, and less direct for risk factors focused on the organization generally. This concept of mental model directness suggests that any difference between auditor perception of misreporting risk under pressure versus incentive would be least difficult to identify when fraud risk factors are focused directly on top managers, and more difficult to identify when fraud risk factors are focused on the organization. Therefore, whether fraud risk factors indicating pressures are assessed as higher risks than those indicating incentives, should depend on whether the fraud risk factor is focused on the organization or on individual top managers, leading to the following interaction hypotheses for risk assessment:

H1a: Auditors will **assess motivation-for-misreporting** risks as being greater when they are framed as pressures to avoid potential losses than when they are framed as incentives for potential gains, when these risks are focused on top managers, but not when they are focused on the organization.

Likewise, the link between risk assessment and audit planning leads to the following hypothesis:

H1b: Auditors will **make more extensive risk-responsive audit planning decisions** when motivation-for-misreporting risks are framed as pressures to avoid potential losses rather than when they are framed as incentives for potential gains, when these risks are focused on top managers, but not when they are focused on the organization.

4.5 Incentive and Pressure in Executive Compensation

Agency theory supports linking top executive wealth to the value of the firm being managed in order to reduce costs that arise when agents (managers) pursue their own interests rather than the interests of the owners (shareholders) of the firm (Jensen and Meckling 1976). This alignment is achieved when compensation for top managers is structured in such ways that payoffs to top managers are highly aligned with financial performance payoffs to the organization and its shareholders. When payoffs are so aligned, auditors should assess fraud risk

factors focused on the organization as being one-and-the-same as fraud risk factors focused on individual top managers. However, the indirectness of the mental model for fraud motivation for risk factors focused on the organization, if great enough, will prevent auditors from incorporating their knowledge of high executive compensation alignment into auditor risk assessments.

Auditors should incorporate the degree of compensation alignment into their judgments and decision-making processes, but the indirectness of the mental model for compensation incentives and pressures supports a prediction that they will not. Therefore, H2a predicts that auditors will not incorporate knowledge of high compensation alignment between the organization and top managers, and will assess organizationally focused risk factors no differently than when there is minimal compensation alignment between the organization and its top managers. The term “highly aligned” (“minimally aligned”) in hypotheses 2a and 2b means that compensation payoffs to top managers are highly aligned (minimally aligned) with financial statement payoffs to the organization and its shareholders/owners.

H2a: When fraud risk factors are focused on the organization, auditors will **assess motivation-for-fraud risk** no differently, whether top manager compensation is highly aligned or minimally aligned.

Similarly, H2b predicts that when management has high compensation alignment auditors will make audit planning decisions which are no different than when management has low compensation alignment.

H2b: When fraud risk factors are focused on the organization, auditors will **make audit planning decisions** that are no different, whether top manager compensation is highly aligned or minimally aligned.

These hypotheses will be tested in an experimental setting described in the following section.

5. RESEARCH METHOD

5.1 Participants

Recruitment of experimental participants was initiated by request to the alumni advisory council boards to the schools of accountancy at two public universities, one in the southeastern U.S. and one in the central U.S. Representatives of public accounting firms serving on these advisory boards agreed to email a link for the online study instrument to auditing/assurance seniors, managers and senior managers at their firms. Under this distribution method, eight partners and two staff level positions also completed the study instrument and their results are included in analysis. One firm elected not to participate in the electronic distribution of the research study, but instead, had 31 senior associates complete a paper version of the study at an annual training meeting conducted by the firm. This distribution and collection of the paper version of the instrument was conducted by the principal investigator and author of this study. The electronic and paper instruments are identical, except as described under the “Experimental Instrument” subheading to follow. The manipulated treatment conditions in this between subjects experiment were randomly distributed to participants under both, the electronic and the paper instrument delivery processes for the study.

Participants are 132 auditing/assurance professionals from U.S. offices of public accounting firms.²¹ Sixty-two (47.3%) are employed by Big 4 firms; 59 (45.0%) by national or

²¹ Participant demographic statistics and percent of total statistics are based on 131 responses to the demographic questions. A total of 137 participants started the experiment, but five of those did not complete a sufficient portion of the experiment to enable collection of a single dependent variable.

regional firms; and 10 (7.7%) by single office firms. The mean years of public accounting experience is 5.8 years, with the following breakdown by position:

Table 1: Number of Public Accounting Firm Participants by Position and Firm Size

	Total Participants	Participants From		
		Big 4 Firms	National/ Regional Firms	Single Office Firms
Staff	2	1	0	1
Senior	71	47	19	5
Manager	33	10	20	3
Senior Manager	15	3	11	1
Director	2	0	2	0
Partner	8	1	7	0
Total	131	62	59	10

One hundred twenty participants (91.6%) report that their firms conduct audits of public companies while the remainder of participants were unsure or did not respond. Sixty eight (51.9%) reported having worked on at least one engagement in a public company setting within the past year. Participants report a mean of 3.0 as the number of engagements during their career in which they have investigated potentially material misstatements of earnings that were suspected to have been intentional. The audit experience of the participants qualifies them for the context of this study. There are no significant differences in dependent variable means across position levels.

Table 2 that follows reflects that there was not a significant difference in mean motivation-for-fraud risk assessments between Big 4 and non-Big 4 firm participants. However, there were significant differences between these two groups for five of eight dependent variable measures of auditor decisions.

Table 2: Dependent Variable Measures for Big 4 versus Non-Big 4 Firm Participants

Dependent Variables (a)	Big 4 Firm Participants			Non-Big 4 Firm Participants			Mean	
	Mean	(Standard deviation)	n =	Mean	(Standard deviation)	n =	Difference	Sig. (b)
Motivation-for-fraud risk assessment	7.7	(1.6)	61	8.1	(1.4)	69	(.4)	.145
Number of positive confirmations to distributors	51	(31)	60	51	(29)	69	0	.989
Percentage of positive confirmations to distributors (% of total confirmations)	47%	(.07)	59	49%	(.08)	69	(2%)	.175
Difference in % of sub cash examined for A/R from dist. less from non-dist.	1%	(.04)	61	3%	(.07)	69	(2%)	.134
Number of days past year-end to examine subsequent cash receipts	54	(15)	61	59	(13)	69	(5)	.026 *
Number of days past year-end to examine sales returns	53	(15)	61	58	(13)	69	3	.046 *
Hours budgeted for computer automated audit techniques or forensic accounting procedures	22	(34)	62	10	(8)	69	24	.004 *
Hours budgeted to conduct interviews of client personnel about sales and accounts receivable	9	(9)	61	5	(4)	69	4	.000 *
Hours budgeted for all sales/accounts receivable audit procedures	123	(25)	61	112	(25)	68	11	.011 *

(a) The dependent variables are explained further in this Research Method section of this paper.

(b) This is the ANOVA F-test significance level for the difference in means between Big 4 and non-Big 4 firm participants.

* Indicates a significant difference tests at an alpha of .05.

Of 132 participants completing the study, 68 elected to enter an appreciation drawing at the end of the study. Participants who volunteered to enter the appreciation drawing were directed to a separate website to enter contact information for entering the drawing. A total of eight participants out of 68 were winners of the appreciation drawing, each receiving a \$250 gift card.

5.2 Experimental Instrument Format and Delivery

Most participants completed the study by accessing a website link emailed to them by a senior member of their firm. The electronic version of the study was administered with software

from Qualtrics.com. Experimental materials included a brief company case,²² three audit work papers listing fraud risk factors previously deemed present or not present by a hypothetical audit team, and a series of requests for decisions regarding certain audit parameters for the audit of accounts receivable and sales of the company presented in the case. The instrument concludes with questions about participant experience and manipulation check questions. The paper version of the instrument is included in Appendix C to this paper. The only difference between the paper

Table 3: Dependent Variable Measures for Paper versus Electronic Instrument Users

Dependent Variables (a)	Paper Instruments			Electronic Instruments			Mean Difference	Sig. (b)
	Mean	(Standard deviation)	n =	Mean	(Standard deviation)	n =		
Motivation-for-fraud risk assessment	7.53	(1.61)	30	8.06	(1.47)	101	(.53)	.774
Number of positive confirmations to distributors	55	(40)	29	50	(27)	100	5	.424
Percentage of positive confirmations to distributors (% of total confirmations)	48%	(.05)	28	48%	(.08)	100	0	.992
Difference in % of sub cash examined for A/R from dist. less from non-dist.	1%	(.03)	30	3%	(.07)	100	(2%)	.310
Number of days past year-end to examine subsequent cash receipts	52	(10)	30	58	(15)	100	(6)	.068
Number of days past year-end to examine sales returns	52	(10)	30	57	(15)	100	(5)	.062
Hours budgeted for computer automated audit techniques or forensic accounting procedures	26	(43)	31	12	(15)	100	14	.008 *
Hours budgeted to conduct interviews of client personnel about sales and accounts receivable	9	(7)	30	6	(7)	100	3	.030 *
Hours budgeted for all sales/accounts receivable audit procedures	127	(26)	30	114	(25)	99	13	.019 *

(a) The dependent variables are explained further in this Research Method section of this paper.

(b) This is the ANOVA F-test significance level for the difference in means between participants using the electronic version versus paper version of the instrument.

* Indicates a significant difference tests at an alpha of .05.

²² This case is based on a company fraud case from an SEC Accounting and Auditing Enforcement Release (Bausch and Lomb in 1997), and is similar to cases modified for a variety of auditor research by Wilks and Zimbelman (2004), Carpenter (2007), Hoffman and Zimbelman (2009), Hammersley et al. (2010), and Favere-Marchesi (2013). The case was updated to a current time period and the industry setting was modified.

version and electronic version of the instrument is present on the top of page six of the instrument in Appendix C. Under the heading “RECAP” participants receiving hard copy instruments are asked to look back to pages 3, 4, and 5 of the instrument to review three of their prior fraud risk assessments, before making one final overall fraud risk assessment. In the electronic version of the instrument, these three prior risk assessments by the participant were automatically reported for review by participants on page 6, before they made an overall fraud risk assessment.

Table 3 above reflects that there was not a significant difference in mean motivation-for-fraud risk assessments between participants using the paper or electronic version of the instrument. However, there were significant differences between these two groups for three of eight dependent variable measures of auditor decisions. The final three dependent variables for budgeted hours were significantly larger for participants using the paper version of the instrument, rather than the electronic version of the instrument. These hourly budget dependent variables were also significantly larger for the Big 4 firm participants relative to non-Big 4 firm participants in Table 2 above. All 31 participants that used the paper version of the instrument were from a Big 4 firm, where the instrument was administered in a single sitting. The results in the comparisons in Tables 2 and 3 support the conclusion that Big 4 firm auditors budget relatively higher numbers of hours for auditing sales and accounts receivable in this setting than do non-Big 4 firm auditors.

This company case describes a public company traded on the NASDAQ which exhibits evidence of intentional premature revenue recognition through distributor channel stuffing²³ strategies implemented by management. Increases in current period revenue and receivables are

²³ Channel stuffing is an overstatement of sales achieved through shipment of unwanted inventory to customers, which could be subject to return in a later period, or which violate other revenue recognition criteria.

evident in the case, and management explains that marketing programs instituted prior to year-end have incited distributors to accelerate purchases. It is unclear whether these purchases might be subject to return or accounts receivable collection problems in the subsequent period. Experimental materials were identical for all participants except for the conditions manipulated between groups.

5.3 Manipulation of Fraud Risk Factors for Fraud Motivation

The fraud risk factors on the incentives/pressures work paper were manipulated into four different groups using two experimental factors: 1) fraud motivation focus (organizational or top management) and 2) fraud motivation type (incentive or pressure), resulting in the following four experimental groups:

- Group A) Incentive for a potential gain to the organization
- Group B) Pressure of a potential loss to the organization
- Group C) Incentive for a potential gain to individual top managers
- Group D) Pressure of a potential loss to individual top managers

The fraud risk factors (FRFs) presented to each of the four participant groups are listed in Figure 5. Each FRF is based on a FRF example found in SAS No. 99. The first FRF considers a high degree of competition or market saturation. The second FRF considers guarantees of entity debt. The third FRF considers a marginal ability to meet debt covenant requirements. The fourth FRF considers sales and profitability goals.

For each FRF in Figure 5, there are four versions, one for each experimental group (A, B, C, and D). Each FRF is rewritten from four different perspectives to achieve the fraud risk factor focus and motivation type necessary for each group manipulation. Each version of a fraud

Figure 5, Panel A
Manipulation Comparison Between Groups

The white box below is an original SAS No. 99 fraud risk factor. The shaded boxes contain four versions of a similar manipulated fraud risk factor, one for each experimental group A, B, C or D.

Original SAS No. 99 Fraud Risk Factor Example (a)
 Financial stability or profitability is threatened by economic, industry, or entity operating conditions, such as (or indicated by) the following: High degree of competition or market saturation, accompanied by declining margins (b)

Manipulation #1

	Incentive for Gain . . .	Groups	Pressure of Loss . . .
. . . to the Organization	A high degree of competition and market saturation has led to declining margins in the industry, but top management believes that USI annual earnings will increase by 15% this year if a new marketing strategy is successfully implemented.	A B	A high degree of competition and market saturation has led to declining margins in the industry, and top management believes that USI annual earnings will decrease by 15% this year if a new marketing strategy is not successfully implemented.
. . . to Top Managers	A high degree of competition and market saturation has led to declining margins in the industry, but top management believes that its own total compensation will increase by 15% this year if a new marketing strategy is successfully implemented.	C D	A high degree of competition and market saturation has led to declining margins in the industry, and top management believes that its own total compensation will decrease by 15% this year if a new marketing strategy is not successfully implemented.

(a) This is one representative fraud risk factor from the 15 examples listed in SAS No. 99 (AU 316) for financial statement fraud.

(b) This SAS No. 99 fraud risk factor was used as a low risk factor in the Wilks and Zimbelman (2004) experiment, and was rated as a relatively less important fraud risk factor in their related pilot study.

Figure 5, Panel A: Manipulation of the First Motivation-for-Fraud Risk Factor

Figure 5, Panel B
Manipulation Comparison Between Groups

The white box below is an original SAS No. 99 fraud risk factor. The shaded boxes contain four versions of a similar manipulated fraud risk factor, one for each experimental group A, B, C or D.

Original SAS No. 99 Fraud Risk Factor Example (a)
Information available indicates that the personal financial situation of management or those charged with governance is threatened by the entity's financial performance arising from the following: Personal guarantees of debts of the entity

Manipulation #2

	Incentive for Gain . . .	Groups	Pressure of Loss . . .
. . . to the Organization	Maintaining an adequate interest coverage ratio (EBITDA/interest expense) has been difficult, but achieving a ratio of 1.5 for 2014 will result in the release of USI from a loan guarantee it previously made on debt of its employee stock ownership plan, which guarantee is equal to 25% of USI's total balance sheet equity.	A B	Maintaining an adequate interest coverage ratio (EBITDA/interest expense) has been difficult, and failure to achieve a ratio of 1.5 for 2014 will result in the establishment of a loan guarantee by USI on debt of its employee stock ownership plan, which guarantee is equal in size to 25% of USI's total balance sheet equity.
. . . to Top Managers	Maintaining an adequate interest coverage ratio (EBITDA/interest expense) has been difficult, but achieving a ratio of 1.5 for 2014 will result in the release of the USI CEO from a personal loan guarantee he previously made on the debt of USI, which guarantee is equal in size to 25% of the total personal net worth of the CEO.	C D	Maintaining an adequate interest coverage ratio (EBITDA/interest expense) has been difficult, and failure to achieve a ratio of 1.5 times for 2014 will result in the establishment of a personal loan guarantee by the USI CEO on the debt of USI, which guarantee is equal in size to 25% of the total personal net worth of the CEO.

(a) This is one representative fraud risk factor from the 15 examples listed in SAS No. 99 (AU 316) for financial statement fraud.

(b) Not used for this panel.

(c) This SAS No. 99 fraud risk factor was used as a high risk factor in the Wilks and Zimbelman (2004) experiment, and was rated as a relatively more important fraud risk factor in their related pilot study.

Figure 5, Panel B: Manipulation of a Second Motivation-for-Fraud Risk Factor

Figure 5, Panel C
Manipulation Comparison Between Groups

The white box below is an original SAS No. 99 fraud risk factor. The shaded boxes contain four versions of a similar manipulated fraud risk factor, one for each experimental group A, B, C or D.

Original SAS No. 99 Fraud Risk Factor Example (a)
Excessive pressure exists for management to meet the requirements or expectations of third parties due to the following: Marginal ability to meet exchange listing requirements or debt repayment or other debt covenant requirements

Manipulation #3

	Incentive for Gain . . .	Groups	Pressure of Loss . . .
. . . to the Organization	During the first three quarters, USI had a marginal ability to meet financial statement debt covenant requirements, which if met within the 4th quarter, will lead it to refinance its debt at a lower interest rate. The CFO expects the lower interest rate would result in a 12% increase in USI earnings.	A B	During the first three quarters, USI had a marginal ability to meet financial statement debt covenant requirements, which if not met within the 4th quarter will lead it to refinance debt at a higher interest rate. The CFO expects the higher interest rate would result in a 12% decrease in USI earnings.
. . . to Top Managers	During the first three quarters, USI had a marginal ability to meet financial statement debt covenant requirements, which if met within the 4th quarter will lead it to refinance its debt at a lower interest rate. The CFO expects the lower interest rate would result in a 12% increase in the annual total compensation of its top five executives.	C D	During the first three quarters, USI had a marginal ability to meet financial statement debt covenant requirements, which if not met within the 4th quarter will lead it to refinance debt at a higher interest rate. The CFO expects the higher interest rate will result in a 12% decrease in annual total compensation of its top five executives.

(a) This is one representative fraud risk factor from the 15 examples listed in SAS No. 99 (AU 316) for financial statement fraud.

(b) This SAS No. 99 fraud risk factor was used as a low risk factor in the Wilks and Zimbelman (2004) experiment, and was rated as a relatively less important fraud risk factor in their related pilot study.

Figure 5, Panel C: Manipulation of a Third Motivation-for-Fraud Risk Factor

Figure 5, Panel D
Manipulation Comparison Between Groups

The white box below is an original SAS No. 99 fraud risk factor. The shaded boxes contain four versions of a similar manipulated fraud risk factor, one for each experimental group A, B, C or D.

Original SAS No. 99 Fraud Risk Factor Example (a)
Management or operating personnel are under excessive pressure to meet financial targets established by those charged with governance, including sales or profitability incentive goals. (c)

Manipulation #4

	Incentive for Gain . . .	Groups	Pressure of Loss . . .
. . . to the Organization	There is an ongoing voidable agreement for a technology license required by USI to produce most of its products. The agreement will be renewed as a 3 year contract with favorable terms if the company can meet a \$285 million sales target for this year.	A B	There is a 3 year contract, with favorable terms, for a technology license required by USI to produce most of its products. The contract will be voided and replaced with an ongoing voidable agreement if the company cannot meet a \$285 million sales target for this year.
. . . to Top Managers	There are at-will employment agreements in place for the CEO and CFO. These at-will employment agreements will be replaced with management-favorable 3 year employment contracts if USI can meet a \$285 million sales target for this year.	C D	There are management-favorable 3 year employment contracts in place for the CEO and CFO. These employment contracts will be voided and replaced with at-will employment agreements if USI cannot meet a \$285 million sales target for this year.

(a) This is one representative fraud risk factor from the 15 examples listed in SAS No. 99 (AU 316) for financial statement fraud.

(b) Not used in this panel.

(c) This SAS No. 99 fraud risk factor was used as a high risk factor in the Wilks and Zimbelman (2004) experiment, and was rated as a relatively more important fraud risk factor in their related pilot study.

Figure 5, Panel D: Manipulation of a Fourth Motivation-for-Fraud Risk Factor

risk factor is written as identically as possible, except for the variation needed to produce the focus and type manipulation for each group²⁴. Page six, in Appendix C, reflects how the motivation-for-fraud risk factors were presented to participants. The instrument presented in Appendix C is for group D participants.

5.4 Manipulation of Compensation Alignment

Top management compensation is manipulated between two conditions—minimal compensation alignment and high compensation alignment. Groups A, B, C and D, previously described, receive a minimal compensation alignment treatment, while groups E and F receive a highly aligned compensation treatment. Groups A, B, C, and D have a top management compensation structure characterized as resulting in minimal alignment between performance payoffs to top managers and financial statement earnings payoffs to the organization. This minimally aligned compensation structure is 70 percent fixed compensation that will not vary with company earnings, and also includes stock and options ownership by these executives, which is valued at less than one times total annual compensation. Communication of this treatment condition in the instrument is reflected in Figure 6.

²⁴ Some of the fraud risk factor manipulations include an identical percentage increase or decrease in an outcome for the organization or for top manager(s). Whether the identical value percentage manipulation for the organization and for a manager represents an actual equal value payoff to a decision-making manager is ambiguous because it depends on the level of stock ownership by the manager, and potentially, other unidentified factors. The perceived equality of these manipulations depends on the assumption that auditors make fraud risk assessments under what Kahneman (2011) calls “System 1” thinking, which is experience- and emotion-based, automatic, and quick, not under “System 2” thinking, which is slower and effortful, supporting logical calculations. The fact that a percentage change in a payoff to the organization would potentially impact multiple stakeholders, but the same percentage change applied directly to a manager would only impact one or a few managers, means that any such perceived inequality in the manipulation would work against the direction of the hypothesized experimental group relationships.

Management Compensation

Total top management compensation in this public company is within the range also typically paid by its closest peer-group companies. The executive compensation plan at USI is designed to retain qualified top executives. Top management compensation is **70% fixed salary**, and **30% variable bonus, stock grants and options grants**. The top management team has total **ownership in USI stock and options valued at less than one times annual compensation**. The top five managers combined do not own a controlling interest in the Company. Following is a schedule of current year compensation and the ownership in company stock and stock options held by the top five executives.

Top 5 Execs.	Current Yr Compensation (Based on Unaudited Financials)			Total Annual Compensation	Value of Equity Owned in Company	
	Salary	Bonus	Value of Stock and Options Granted		Stock Options	Stock
CEO	\$ 1,020,000	\$ 380,000	\$ 190,000	\$ 1,590,000	\$ 910,000	\$ 1,610,000
CFO	510,000	139,182	45,600	694,782	198,400	386,400
Three VPs	938,400	260,618	32,300	1,231,318	134,700	273,700
	<u>2,468,400</u>	<u>779,800</u>	<u>267,900</u>	<u>\$ 3,516,100</u>	<u>1,243,100</u>	<u>2,270,100</u>
	70% Fixed Wage	30% Variable Wage		100% Total	Less than 1 times annual total pay: Variable wealth as a multiple of total annual compensation	

Figure 6: Treatment for Low Compensation Alignment with Payoffs to the Organization

Management Compensation

Total top management compensation in this public company is within the range also typically paid by its closest peer-group companies. The executive compensation plan at USI is designed to align the compensation payoffs to the top executives with stock ownership payoffs to the shareholders. Top management compensation is **30% fixed salary**, and **70% variable bonus, stock grants and options grants**. The top management team has total **ownership in USI stock and options valued at more than 13 times annual compensation**. The top five managers combined do not own a controlling interest in the Company. Following is a schedule of current year compensation and the ownership in company stock and stock options held by the top five executives.

Top 5 Execs.	Current Yr Compensation (Based on Unaudited Financials)			Total Annual Compensation	Value of Equity Owned in Company	
	Salary	Bonus	Value of Stock and Options Granted		Stock Options	Stock
CEO	\$ 430,000	110,000	\$ 1,050,000	\$ 1,590,000	\$ 9,910,000	\$ 23,180,000
CFO	215,000	35,399	444,383	694,782	2,378,400	5,563,200
Three VPs	395,600	66,879	768,839	1,231,318	1,684,700	3,940,600
	<u>1,040,600</u>	<u>212,278</u>	<u>2,263,222</u>	<u>\$ 3,516,100</u>	<u>13,973,100</u>	<u>32,683,800</u>
	30% Fixed Wage	70% Variable Wage		100% Total	More than 13 times total annual pay: Variable wealth as a multiple of total annual compensation	

Figure 7: Treatment for High Compensation Alignment with Payoffs to the Organization

By comparison, groups E and F receive the Figure 7 alternative treatment, highly aligned compensation, which is characterized by top managers with 30% fixed compensation and 70% variable compensation from bonus, stock and option grants. Additionally, managers in the highly aligned compensation condition own stock and options valued at more than 13 times total annual compensation. Since the value of the stock and option portfolio is dependent on company earnings, this variable compensation structure, including relatively large stock and options ownership, make the compensation performance payoffs to top managers highly aligned with the financial statement earnings payoffs to the organization, because earnings growth increases the value of the stock and options, which increases top manager income and wealth.

The minimally aligned and the highly aligned compensation conditions²⁵ both reflect total annual compensation for the top five executives of \$3.5 million, but the minimally aligned condition is comprised primarily of fixed compensation, while the highly aligned condition primarily reflects variable compensation dependent on organizational earnings levels.

The compensation alignment experimental factor is especially of interest when considered in combination with auditor assessment of organizationally focused FRFs. Although a full 2 x 2 x 2 interaction of the three experimental factors (FRF focus, FRF type and compensation alignment) would result in eight experimental groups, two of these groups are not needed to answer the research questions and hypotheses. Interest in the research questions of this

²⁵ The compensation manipulation amounts are based on the actual relative compensation amounts of the top five managers on which the case was based, adjusted for the two manipulated conditions based on cash and non-cash compensation from a large sample of ExecuComp data analyzed in Core et al. (2003, p. 965). The minimally aligned compensation condition is based on the relatively higher cash pay level of the upper quartile for CEO compensation, plus the relatively lower stock and option grant and ownership level of the lower quartile for CEO non-cash compensation. The highly aligned compensation condition is based on the relatively lower cash compensation level of the lower quartile for CEO pay, plus the relatively higher stock and option grant and ownership level of the upper quartile for CEO non-cash compensation. While these two conditions could have been created using hypothetical assumptions, the approach based on Core et al. (2003) provides some generalizability for the two experimental conditions created.

study results in consideration of two additional experimental groups E and F, resulting in six total experimental groups:

- Group A) Incentive for a potential gain to the organization (low compensation alignment)
- Group B) Pressure of a potential loss to the organization (low compensation alignment)
- Group C) Incentive for a potential gain to individual top managers (low compensation alignment)
- Group D) Pressure for a potential loss to individual top managers (low compensation alignment)
- Group E) Incentive for a potential gain to the organization (high compensation alignment)
- Group F) Pressure of a potential loss to the organization (high compensation alignment)

5.5 Auditor Judgment Dependent Variable and Covariates

During the experiment each participant assesses fraud risk factors on the opportunities work paper, the attitude/rationalization work paper and the fraud motivation work paper, using a scale from 1 (low risk) to 10 (high risk). The risk assessment for each individual risk factor represented by bubbles labeled “1” to “10” in the instrument is not a variable in the study, but rather, represents additional information in the case, and the participant risk assessment of each fraud risk factor maximizes attention to these case facts. The participant’s overall motivation-for-fraud risk assessment made on the incentive/pressure work paper is the dependent variable of interest used to compare auditor judgment under alternative fraud risk factor framings. The overall opportunity-for-fraud risk assessment and overall attitude/rationalization-for-fraud risk assessment represent potential covariates for analysis. The opportunity risk (set as high risk for all participants) and the attitude/rationalization risk (set as low risk for all participants), together should frame a range of responses to risk, resulting in a more consistent measure for each participant for the next risk assessment made in the experiment, the one for the dependent variable, risk assessment for overall fraud motivation. Risk assessment variables for opportunity and for attitude/rationalization are candidates for ANCOVA model covariates, to account for variance attributed solely to differences in participant risk scale calibration.

5.6 Auditor Decision Dependent Variables

One common research question explored in auditing literature is: “Will auditors make audit planning decisions that are responsive to their risk assessments?” (Pincus 1989; Zimbelman 1997; Wright and Bedard 2000; Johnstone and Bedard 2001; Bedard and Graham 2002; Glover et al. 2003; Asare and Wright 2004; Wilkes and Zimbelman 2004; Mock and Turner 2005; Hoffman and Zimbelman 2009; Hammersley 2011; and Favere-Marchesi 2013). These studies find mixed evidence of auditor responsiveness to risk assessments under various conditions, and some find limited or no responsiveness to risk assessments (Zimbelman 1997; Wright and Bedard 2000; Johnstone and Bedard 2001; Glover et al. 2003; and Asare and Wright 2004; Wilkes and Zimbelman 2004). Hoffman and Zimbelman (2009) believe that they detect more risk-responsive audit decisions in an experiment by providing a more specific case context for audit decisions. Procedures based on this experiment by Hoffman and Zimbelman (2009) were used in this current experiment to measure and compare audit decision-making by participants. This portion of the instrument consists of a series of audit parameters planned for audit of accounts receivable and revenue in the case. These parameters include:

- Number of positive accounts receivable confirmations to distributors
- Percentage of positive accounts receivable confirmations to distributors as a percent of total confirmations
- Difference in the percentage of subsequent cash receipts examined for accounts receivable from distributors, less those from non-distributors
- Number of days past year-end to examine subsequent cash receipts
- Number of days past year-end to examine sales returns
- Hours budgeted for computer automated audit techniques or forensic accounting procedures
- Hours budgeted to conduct interviews of client personnel about sales and accounts receivable
- Hours budgeted for all sales/accounts receivable audit procedures

Each of these parameters is a dependent variable for analysis of auditor decision making in hypotheses 1b and 2b. Hoffman and Zimbelman (2009) developed these dependent variables by consulting with three national fraud expert partners from three different international public accounting firms about benchmark planning decisions that would be effective procedures for detecting the fraud in this case. Each audit parameter used for the hypothetical prior year audit of the company is revealed, and participants are asked to make an independent decision for each parameter for the current year audit, considering their risk assessments and other facts from the case. Consistent with Hoffman and Zimbelman (2009), this experiment anticipates that auditors tend to use the heuristic of defaulting to last year's audit plan (Bedard 1989), so a change in the current year audit parameter value represents a modification to the nature, timing or extent of testing by the auditor. The following excerpts from Hoffman and Zimbelman (2009) explain the reasoning behind use of these auditor decision variables in their experiment, as adopted in this dissertation research.

Accounts Receivable Confirmations

Our experts recommend that it is far more effective to send positive rather than negative confirmations and, because fraud is in the distributor accounts, the confirmations should focus on these accounts. Our dependent measures to test for these recommendations are (1) the number of positive confirmations to distributors and (2) the percentage of positive confirmations to distributors of total confirmations. Since the fraud involves sales and accounts receivable within a subset of customers (i.e., distributors), we test whether our groups vary the nature of their confirmation evidence by focusing their confirmations on distributors. Thus, auditors who emphasize positive confirmations to distributors, as opposed to just sending more confirmations overall,

effectively vary the nature of their confirmation evidence to detect suspected fraud. We use two measures to capture these recommendations because the number of positive confirmations to distributors could increase if there is an increase in the extent of testing (e.g., sending more confirmations overall without focusing on distributor accounts). Also, the percentage of positive confirmations to distributors of total confirmations could increase for reasons that are not part of the experts' recommendations (e.g., a decrease in other confirmations rather than an increase in positive confirmations to distributors). Thus, these two measures test whether the auditors change the nature of their procedures as the experts recommend.²⁶

Subsequent Cash Receipts and Sales Returns

The experts recommend that the auditor extends the periods for examining subsequent cash receipts and sales returns after year-end. For each of these items, we inform participants that last year the period examined was from January 1st to February 15th and ask them for the period they want to examine this year.²⁷ As a result, we have two separate dependent measures that involve the number of days past year-end: one for subsequent cash receipts and one for sales returns. . . . On the other hand, if the auditor is concerned that distributors will be slower to pay for “channel stuffed” sales and/or return the sales after a relatively long time period because of a side agreement, the auditor would change the window for examining both cash receipts and sales returns²⁸.

Our experts also recommend that the audit plan should focus the review of subsequent cash receipts on the distributor cash balances as opposed to the other

²⁶ Hoffman and Zimbelman (2009, p. 827)

²⁷ For the current study, the prior year subsequent receipts period is abbreviated to “45 days used last year.”

²⁸ Hoffman and Zimbelman (2009, p. 827)

account balances. We ask participants, “What percentage of the A/R balances from distributors do you want to examine subsequent cash receipts for this year?” We also ask for the corresponding percentage for the other accounts. We use the difference in the percentages as our dependent measure. This variable captures the type of customer (i.e. distributor or other) participants plan to focus on in their subsequent cash receipts tests.²⁹

Other Auditing Procedures

Our experts suggest that participants should use other procedures, such as interviews of client personnel and Computer Assisted Audit Techniques (CAATs), to determine unusual relationships and items such as fictitious addresses on confirmations. Our dependent measures for these two recommendations are the number of hour budgeted to perform the interviews or the CAATs. Note that last year zero hours were budgeted for each of these procedures, so if auditors budget any hours for these procedures, they are changing the nature of the audit plan. Of course, they are also changing the extent of their testing by budgeting more hours.³⁰

5.7 Experimental Procedures

In Part I of the case participants are asked to assume the role of an audit manager newly assigned to an audit of the company. After reading the company background, all participants are asked to assess fraud risk related to three risk assessment work papers for opportunities for fraud, attitudes/rationalization for fraud, and incentives/pressure (motivation) for fraud, which risks were previously identified as being present at the company by their staff assigned to the audit

²⁹ Hoffman and Zimbelman (2009, pp. 827, 828)

³⁰ Hoffman and Zimbelman (2009, p. 828)

engagement. Information is also presented about the degree of compensation alignment between payoffs to top managers relative to earnings payoffs to the organization. These fraud risk assessments are being made during audit planning, prior to client year-end. Then an overall fraud risk assessment is made. In Part II of the case, information from analytical procedures and management explanations for growth in sales and accounts receivable are provided. Then the values for prior year audit procedures are revealed (such as number of confirmations to send and days past year-end to review subsequent receipts and returns), and participants are asked to make a series of decisions about audit parameters to use in the current year audit, while striving to achieve both efficiency and effectiveness. Lastly, demographic questions and manipulation check questions are asked of the participants.

5.8 Planned Contrasts Analysis

Hypothesis 1 predicts that when fraud risk factors are focused on top managers, mean dependent variable values will exceed those when fraud risk factors are focused on the organization. Hypothesis 2 predicts that when fraud risk factors are framed as a pressure of a loss, mean dependent variables will exceed those measured when fraud risk factors are framed as an incentive for a gain. Hypothesis 3 predicts that an ordinal interaction will occur such that dependent variables for pressure of a loss will be relatively greater than those for incentive for a gain, when fraud risk factors are focused on top managers, rather than on the organization. If these hypotheses hold true, group D means will exceed those of A, B and C. Whether group C means will exceed group A means is not predicted, but will be tested. These expected relationships between group means are illustrated in Figure 8.

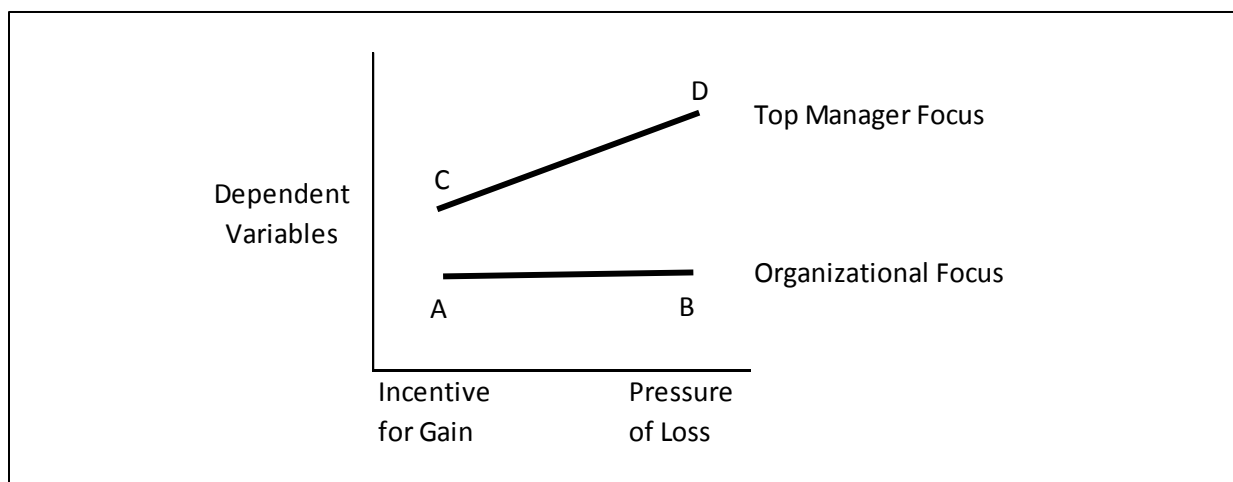


Figure 8: Predicted Group Relationships from Hypotheses 1a

The second set of hypotheses predicts that auditors will not incorporate their knowledge of a highly aligned executive compensation structure into the fraud risk assessment process. In H2a dependent variable measures for cells E and F are predicted to be equal to those of cells A and B. This expected relationship is depicted in Figure 9. The compensation condition for groups A, B, C and D in Figures 8 and 9 is minimal alignment between payoffs to top managers and to the organization and its shareholders. Management compensation for these groups is primarily fixed and change in stock price will have a minimal impact on top manager compensation and wealth from stock and option holdings of top managers. The compensation condition for groups E and F in Figure 9 is high alignment between payoffs to top managers and to the organization and its shareholders. Management compensation for these groups is primarily variable, and changes in stock price will have a valuation effect on stock and options holdings of top managers. Under the high alignment effect of the group E and F conditions, auditors should have similar fraud risk assessments as when fraud risk factors are focused directly on top managers. However, Hypothesis 2a predicts that fraud risk assessments for high compensation alignment groups E and F will be equal to those of low compensation alignment groups A and B. Hypothesis 2b predicts that the extent of auditor decisions for high compensation alignment

groups E and F will be equal to those of low compensation alignment groups A and B, and not equal to those of groups C and D.

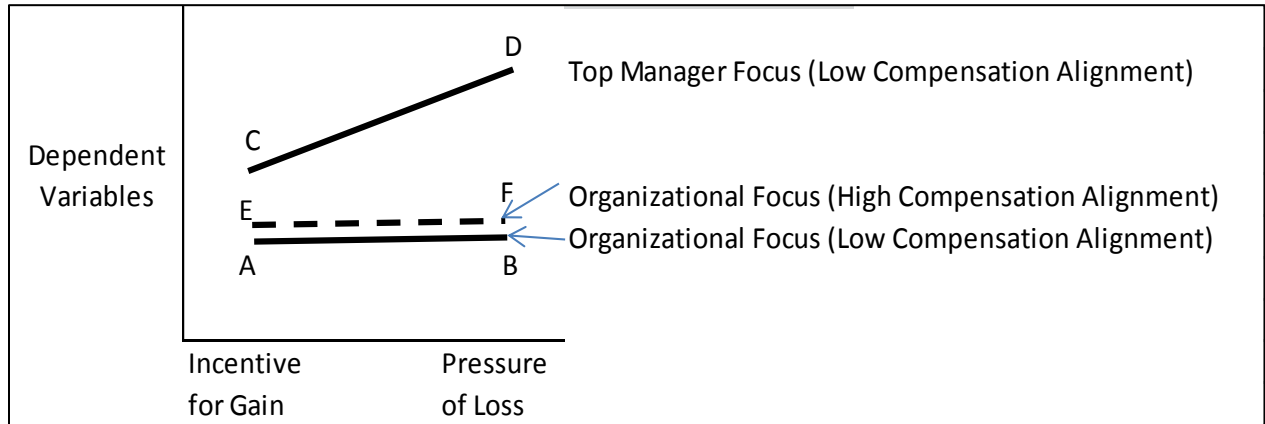


Figure 9: Predicted Group Relationships from Hypothesis 2a

Buckless and Ravenscroft (1990) describe that contrast coding—a refinement of ANOVA—is a more powerful test than traditional ANOVA for detecting this type of ordinal interaction depicted in Figures 8 and 9. The increased power of contrast coding decreases the likelihood of incorrectly finding non-hypothesized effects, strengthens the probability of detecting hypothesized effects when they exist, and avoids increasing the likelihood of Type I errors (Buckless and Ravenscroft, 1990). Hoffman and Zimbelman (2009) employ contrast coding to analyze expected ordinal interactions similar to the ones predicted in this current experiment.

Hypotheses comparison of group means for auditor risk assessments will be examined using ANCOVA, contrast coding and limited t-tests for differences in group means. Given the ordinal interactions predicted, the expectation that group D means will exceed those of groups A, B and C, is tested with separate contrast weight tests: -1, -1, -1, 3; -1, -1, 2, 0; and -1, 1, 0, 0 for groups A, B, C, D, respectively. These tests will reveal any ordinal differences between group means that exist.

The multiple dependent variables collected for different audit planning decisions tested in H1b are described in the “Auditing Decision Dependent Variables” section above. Given the ordinal interactions predicted, the expectation that group D means will exceed those of groups A, B and C, is tested with contrast weight tests described above for groups A, B, C, D, respectively. When no evidence exists for interaction effects for auditor decision dependent variables, main effects will be tested.

The dependent variables used in H1b and H2b are the same auditor decision dependent variables used by Hoffman and Zimbelman (2009). Significant group differences in every dependent variable are not required in order to demonstrate the auditor response to risk, as some audit procedures could be performed as alternatives to others, depending on the judgment of the auditor. Audit procedures corroborating the existence of accounts receivable can include a variety of audit procedures, including third party confirmation, the use of a specialist, analytical procedures, examination of documentation from independent sources (such as subsequent collections), or inquiries of others within or outside the entity (AICPA 2002, AU 316.46). The greater the number of dependent variable audit procedures modified by auditor participants, the more extensive is the auditor response to fraud risk posed in the case.

6. RESULTS

Before discussing results from tests of hypotheses, participant reaction to the case and manipulation checks are presented. All participant groups correctly perceive the case to be a relatively high fraud risk case. The mean risk assessment for total fraud risk for the six treatment groups range from 7.2 to 7.7 on a ten-point scale, 10 being the greatest risk of fraud. There were no significant differences in the mean assessment of overall fraud risk between treatment groups (Global F -statistic = .434, p -value = .824).³¹

6.1 Manipulation Checks

Manipulation check questions were asked of participants after all other experimental responses were collected. Eighty-four percent of participants recall whether the motivation-for-fraud risk factors they assess are focused on top managers or on the company. Eighty-eight percent of participants recall whether the motivation-for-fraud risk factor outcomes they assess are potential rewards for goals achieved (incentives for gains) or potential penalties for goals not achieved (pressure of loss). Ninety-three percent of participants recall whether the management compensation structure is primarily fixed, with stock and option ownership equal to less than one times cash salary, or primarily variable with stock and option ownership exceeding 13 times

³¹ Although there is not a significant difference between groups for overall risk assessed, there are significant differences between groups reflected in hypothesis testing for motivation-for-fraud risk assessments and audit decisions. Supplemental analysis reflect that many participants tend to average their risk assessments for their three fraud triangle risk assessments (opportunity, attitude/rationalization, and incentive/pressure/motivation), when determining their overall risk assessment. This averaging effect makes overall risk assessments by participants from different groups more similar, even though there are significant differences between group motivation-for-fraud risk assessments, primarily for Group D, which observes pressure on top manager fraud risk factors.

annual cash salary. Significance of results is not different when eliminating participants who fail manipulation checks. For purposes of analysis, all participant data are reflected in results.

6.2 Significance Criteria and Data Assumptions

An alpha of $p = .05$ is used for tests of significance for tests performed. Each experimental group dependent variable is tested for the equality of variance ANOVA assumption using Levene's test, and is tested for a normality of distribution assumption using visual inspection of the frequency distributions of dependent variable measures for each group. Levene's tests provide evidence supporting the equality of variance assumption for the auditor judgment dependent variable and for some, but not all, of the auditor decision dependent variables. The p-values in tests are adjusted to account for unequal variances of the dependent variable across groups, when necessary. The visual inspections of dependent variable distributions appear normal, except that the distributions appear to be non-normal for three dependent variables reflecting budgeted audit hours. No conclusions are based on significant findings utilizing these three budgeted hour dependent variables.

6.3 Tests of Auditor Judgment Hypotheses

Hypothesis 1a predicts that when considering financial statement fraud risks, auditor assessment of motivation-for-fraud risk will be greatest when focused on factors for pressure of a loss for top managers, rather than on incentives or organizational factors. Table 4, Panel A reflects the greatest mean risk assessment (8.7, 95% CI: [8.2, 9.2]) for pressure of loss on top managers, which is greater than the mean assessment for incentive for gain to top managers (8.0, 95% CI: [7.4, 8.5]) or for assessments for organizationally focused factors (7.7, 95% CI: [6.9, 8.6]). Figure 10 plots these relationships.

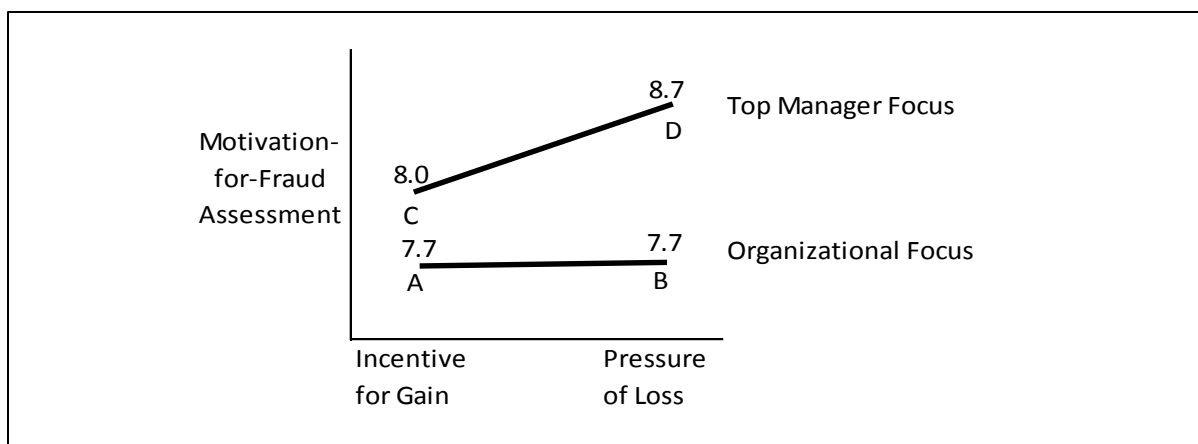


Figure 10: Motivation-for-Fraud Risk Assessments under Low Compensation Alignment

Although the ANCOVA model in Table 4, Panel B is significant (Global F -statistic = 6.443, p -value = 0.000), the interaction of fraud motivation type and fraud risk factor focus was not significant. Buckless & Ravenscroft (1990) state that ANOVA models (and therefore, ANCOVA models) are less powerful as a statistical tool for testing ordinal interactions and that contrast coding—a refinement of ANOVA—has increased power for testing ordinal interactions. An ordinal interaction is the type predicted in this study, as reflected in Figure 10. Therefore, planned contrast test weights of -1, -1, -1, 3 for groups A, B, C and D, respectively are used to test whether the mean risk assessment for group D is significantly greater than the mean for A, B, and C. The mean for group D is significantly greater ($p < .008$, one-tailed). Next, planned contrast test weights of -1, -1, 2, 0 for groups A, B, C and D, respectively are used to test whether the mean risk assessment for group C is greater than those of groups A and B. The mean risk assessment for group C is not significantly greater than for groups A or B ($p < .253$, one-tailed). Lastly, planned contrast weights of -1, 1, 0, 0 for groups A, B, C and D, respectively are used to test whether the mean risk assessment for group B is significantly greater than for group A. The mean risk assessment for group B is not significantly greater than for group A ($p < .483$, one-tailed). Together, these tests support Hypothesis 1a, which predicts that auditors will assess

greater motivation-for-fraud risks for factors framed as a pressure of a loss, rather than incentive for a gain, but only when fraud risk factors are focused on individual top managers, rather than on the organization.

Table 4: Motivation-for-Fraud Risk Assessments

Panel A: Descriptive statistics mean (Standard Deviation) for Motivation-for-Fraud Risk Assessments on a Scale: 1(Low Risk) to 10 (High Risk)

	Incentive for a Gain	Pressure of a Loss	Row Mean
FRF focused on the organization, (given low compensation alignment between payoffs to the organization and to top executives)	Group A (n = 24) 7.7 (1.5)	Group B (n = 22) 7.7 (1.9)	 (n = 46) 7.7 (1.7)
FRF focused on top managers, (given low compensation alignment between payoffs to the organization and to top executives)	Group C (n = 22) 8.0 (1.2)	Group D (n = 21) 8.7 (1.1)	 (n = 43) 8.3 (1.2)
Column Mean	 (n = 46) 7.8 (1.4)	 (n = 43) 8.2 (1.6)	 (n = 89) 8.0 (1.5)

Panel B: Results of ANCOVA with the Dependent Variable for Motivation-for-Fraud Risk Assessments

Source of Variation	df	SS	MS	F-Statistic	p-value
Corrected Model	5	57.100	11.420	6.443	0.000
Focus (Organizational or Individual) (a)	1	15.927	15.927	8.985	0.004
Motivation Frame (Incentive or Pressure) (b)	1	1.370	1.370	.773	0.382
Focus x Motivation Frame	1	2.031	2.031	1.146	0.288
Fraud Opportunity (c)	1	18.847	18.847	10.633	0.002
Fraud Attitude/Rationalization (d)	1	13.538	13.538	7.637	0.007
Error	83	147.125	1.773		

Panel C: Planned Contrast on Motivation-for-Fraud Risk Assessments

Source of Variation	Value of Contrast	df	Standard Error	t-statistic	p-value (one-tailed)
Contrast Weights are -1, -1, -1, 3 (e)	2.730	85	1.120	2.439	0.009 H1a
Contrast Weights are -1, -1, +2, 0 (e)	0.519	85	0.775	0.670	0.253
Contrast Weights are -1, +1, 0, 0 (e)	0.019	85	0.441	0.043	0.483

(a) Fraud risk factor treatments for organizational focus (Group A and Group B) are coded as 0, and for individual focus (Group C and Group D) are coded as 1.

(b) Fraud risk factor for incentive treatment (Group A and Group C) are coded as 0, and for pressure treatment (Group B and Group D) are coded as 1.

(c) Based on participants' rating of fraud risk reflected on the Opportunities risk work paper, on a scale from 1(low risk) to 10 (high risk).

(d) Based on participants' rating of fraud risks reflected on the Attitude/Rationalization risks work paper, on a scale from 1(low risk) to 10 (high risk).

(e) Contrast weights represent coefficient weights for planned contrasts in the dependent variable between the four treatment groups (A, B, C and D) in the ANOVA.

Hypothesis 2a suggests that a high alignment of top management compensation, linking payoffs of top managers with payoffs to the organization, would not be incorporated into auditor risk assessments, although compensation should be a consideration in the auditor risk assessment process (PCAOB, AS No. 12, 2010; AS No. 14, 2010; AS No. 18, 2014.) H2a predicts that when performance payoffs to top managers are highly aligned with financial statement payoffs to the

Table 5: Motivation-for-Fraud Risk Assessments-High v. Low Compensation Alignment

Panel A: Descriptive statistics mean (Standard Deviation) for Motivation-for-Fraud Risk Assessments on a Scale: 1(Low Risk) to 10 (High Risk) for Low Compensation Alignment versus High Compensation Alignment

	<u>Incentive for a Gain</u>	<u>Pressure of a Loss</u>	<u>Row Mean</u>
FRF focused on the organization, given low compensation alignment between payoffs to the organization and to top executives	Group A (n = 24) 7.7 (1.5)	Group B (n = 22) 7.7 (1.9)	 (n = 46) 7.7 (1.7)
FRF focused on the organization, given high compensation alignment between payoffs to the organization and to top executives	Group E (n = 22) 7.5 (1.7)	Group F (n = 20) 8.2 (1.2)	 (n = 42) 7.8 (1.5)
Column Mean	 (n = 46) 7.6 (1.6)	 (n = 42) 7.9 (1.6)	 (n = 88) 7.8 (1.6)

Panel B: Descriptive statistics mean (Standard Deviation) for Motivation-for-Fraud Risk Assessments on a Scale: 1(Low Risk) to 10 (High Risk) for Top Manager Focus versus High Compensation Alignment Treatment

	<u>Incentive for a Gain</u>	<u>Pressure of a Loss</u>	<u>Row Mean</u>
FRF focused on top managers, (given low compensation alignment between payoffs to the organization and to top executives)	Group C (n = 22) 8.0 (1.2)	Group D (n = 21) 8.7 (1.1)	 (n = 43) 8.3 (1.2)
FRF focused on the organization, given high compensation alignment between payoffs to the organization and to top executives	Group E (n = 22) 7.5 (1.7)	Group F (n = 20) 8.2 (1.2)	 (n = 42) 7.8 (1.5)
Column Mean	 (n = 44) 7.7 (1.5)	 (n = 41) 8.4 (1.2)	 (n = 85) 8.1 (1.4)

organization managed, auditors will assess motivation-for-fraud risk as being no different than when performance payoffs to top managers are minimally aligned with payoffs to the

organization. The highly aligned compensation structure in this experiment, if incorporated into auditor assessment of organizational risks, ideally, should result in a focus directly on incentive for gain or pressure of loss for top executives (equal to the experimental conditions for groups C and D). Testing H2a is accomplished by comparing mean motivation-for-fraud risk assessments for groups E and F (high compensation alignment) to those of groups A and B (low compensation alignment) to support or refute the prediction of no significant difference. The relationship between the six group means is illustrated in Figure 11. If the group A, B, C and D means are not significantly different, then H2a is supported. However, if the group F mean is significantly greater than the group B mean, an interaction relationship is demonstrated such that a difference between pressure of loss risk assessments depends on whether there is high or low compensation alignment, which would evidence against H2a.

Since H2a represents a null hypothesis, power analysis was performed before interpreting test results. The most powerful test in this experimental setting for determining whether there is no significant difference in risk assessments between the minimal or maximal compensation alignment conditions is a t-test of whether group F exceeds group B mean risk assessments. A power table from Cohen (1988) reflects that the sample sizes of 22 and 20 attained for groups B and F, respectively, result in a 46 to 50 percent chance of detecting a medium effect size if it exists. This means there is an approximately 50% chance of a Type II error, predicting no compensation alignment effect when one actually exists. Based on this power test, an insignificant difference between the group F and group B means would be inconclusive. However, a significantly greater group F mean relative to the group B mean would constitute evidence against H2b. The mean for group F is not significantly different from the mean for

group B ($t = .837, p = .408$, two tailed), but since there is insufficient power to test this null hypothesis this is inconclusive evidence. H2a is therefore not supported.

Figure 11 reflects the plot of group means from Table 5 for each of the six participant groups.

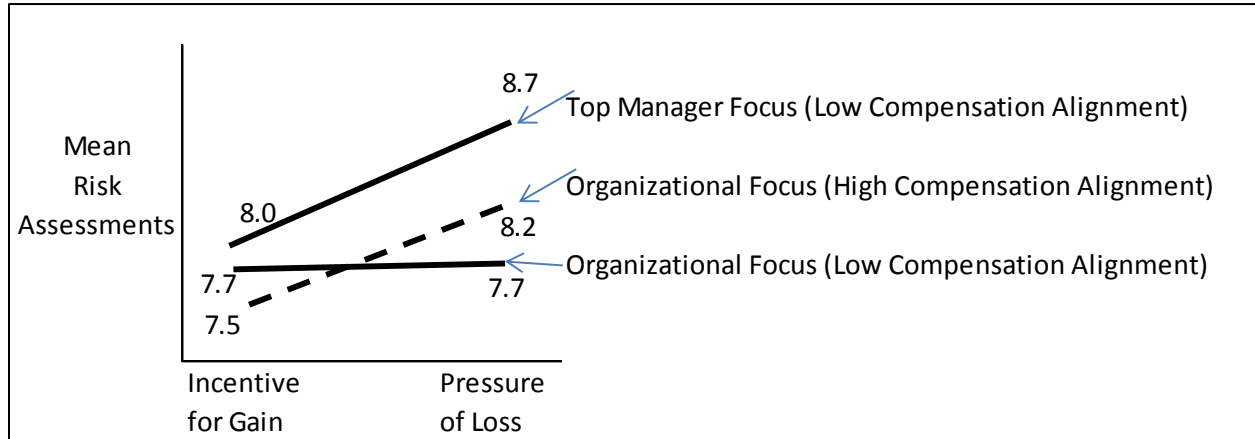


Figure 11: Motivation-for-Fraud Risk Assessments under All Six Conditions³²

6.4 Tests of Auditor Decision Hypotheses

Table 6 presents eight separate audit decisions made by auditors in this experiment. The participants were asked to consider their fraud risk assessments and other facts observed in the company case, and to designate the level of these audit planning decisions. Together, these decisions represent the nature, timing, and extent of the accounts receivable audit planned by participants. Based on the panel of experts consulted by Hoffman and Zimbelman (2009), increases in each of these audit steps represent opportunities for the auditor to make audit planning decisions that are responsive to the risks presented in this case, which is adapted from Hoffman and Zimbelman (2009). In this study, H1b suggests that auditors considering pressure

³² When participants who failed the manipulation check question for degree of compensation alignment are eliminated from the analysis, the mean fraud risk assessments for high compensation alignment are equal (7.8 on a ten scale) for both the incentive and pressure conditions. This supports a conclusion that participants who best understood the compensation alignment manipulation did not differentiate between the incentive and pressure conditions when fraud risk factors were focused on the organization.

on top manager risk factors will make greater risk-responsive audit planning decisions than auditors considering incentive to top manager risk factors or organizationally focused risk factors. The hypothesis development section of this paper suggests that auditors considering risk factors focused on the perspective of individual top managers will make greater risk responsive audit planning decisions than auditors considering risk factors focused on the perspective of the organization. This hypothesis development also suggests that auditors considering risk factors framed as pressure of a loss will make greater risk responsive audit planning decisions than auditors considering risk factors framed as an incentive for a gain. To the extent that the H1b interaction hypothesis is supported for each audit decision, that interaction decision dominates and the underlying main effects hypotheses will not be interpreted. However, when the interaction hypothesis is not supported for each audit decision, then the main effects will also be tested and interpreted.

Audit procedures corroborating the existence of accounts receivable can include a variety of procedures (AICPA 2002, AU 316.46), and some procedures may be used as alternatives to others (AICPA 1991, AU 330.32). The greater the number of audit decision hypotheses supported in Table 6, the stronger is the evidence of auditor risk responsive audit decisions. However, any evidence of increased auditor response to conditions should be initially evaluated as support for H1b, and if not supporting H1b, as support for main effects for fraud risk factor motivation type (incentive or pressure) and for main effects for fraud risk factor focus.

Table 6 reflects that there is evidence of risk-responsive audit decisions made by auditors, but the evidence is mixed. Results for one audit decisions is consistent with H1b, two audit decisions are consistent with main effects for fraud risk factor motivation type (incentive or pressure) and two audit decisions are consistent with main effects for fraud risk factor focus

(company or top manager). Table 6 presents the mean decision measure for the eight different audit planning decisions made by participants in each of the initial four treatment groups exposed to various motivation-for-fraud risk factors, varied for focus (organization or top manager) and motivation type (incentive for a gain or pressure of a loss). Consistent with the analysis of auditor risk assessments, contrast coding within an ANOVA model is used to detect ordinal interactions between groups for auditor decisions. Also contrast coding is used to test for main effects for audit decisions.

Because there are multiple dependent variables to be tested, steps should be taken to minimize the risk of Type I error that could result from multiple tests. One approach would be to conduct a MANCOVA model for all dependent variables, and if the model is significant, conduct univariate ANCOVAs for each dependent variable, and then limit post hoc tests to only those dependent variables having a significant univariate ANCOVA result. However, the MANCOVA reliability is unclear due to inequality of covariance matrices and the mixed results of the ANCOVA global F-tests.³³ The need to run a MANCOVA model is reduced by the fact that dependent variables are not highly correlated, with one exception.³⁴ Using these same dependent variables in a similar test of auditor decisions, Hoffman and Zimbelman (2009) elect not to use a MANOVA test due to large variances between groups, and instead elect to use contrast coding, where t-test p-values can be individually adjusted for equal or unequal variances on a dependent variable specific basis. The statistical testing in this paper is conducted in the same manner for the H1b and H2b hypotheses.

³³ The Global F-test of significance of the MANCOVA model is as follows: Pillai's Trace = .100; Wilks' Lambda = .102; Hotelling's Trace = .105; Roy's Largest Root = .010.

³⁴ The bivariate correlations between all independent variables are low except for the two variables—*days subsequent receipts examined* and *days subsequent returns examined*, which have a correlation of .854.

The case scenario provides participants with seeded risks for accounts receivable and revenue recognition fraud, achieved through channel stuffing to distributors. Table 6 reflects that auditors who observed fraud risk factors indicating pressure on top managers (group D), send a greater mean percentage (52 percent) of accounts receivable confirmations to distributors, a proportion greater than those sent by auditors who observed incentives on top managers (group C, 46 percent) or who observed organizationally focused risk factors (groups A and B, 46 percent each) ($t = 2.392, p = .019$, one tailed). Also, a one-way ANOVA comparison of means between groups A, B and C reveals no differences between those three group means (F -statistic = .920, p -value = .404). Together, these tests support Hypothesis H1b for the percentage of positive confirmations to distributors dependent variable. Group D participants that observed pressure on top managers requested the highest percentage of positive confirmations to be sent to distributors. Since no other tests of audit decisions for pressure on top managers is significant, tests for main effects for fraud risk factor focus and motivation type are next conducted.

Main effects for fraud risk factor focus would suggest that auditors considering financial statement fraud risks framed from the perspective of individual top managers will make more extensive risk-responsive audit planning decisions than when considering those framed from the perspective of the organization. Table 6 reflects two audit decisions that are consistent with these main effects. The mean number of days past year-end to examine subsequent cash receipts for collection of accounts receivable is 59.1 days under fraud risk factors focused on top managers, and 52.9 days under fraud risk factors focused on the organization, a significant difference ($t = 2.152, p = .017$, one tailed test). The mean number of days past year-end to examine sales returns is 58.0 days under FRFs focused on top managers, and 52.2 days under FRFs focused on the organization, a significant difference ($p = .020$, one tailed test). No other test for audit decisions

focused on top managers exceeding those focused on the organization in six other audit planning questions is significant.

Main effects for fraud risk factor motivation type (incentive or pressure) predicts that auditors considering financial statement fraud risks framed as a pressure of a loss will make more extensive risk-responsive audit planning decisions than when considering those framed as incentive for a potential gain. Table 6 reflects two audit decisions that are consistent with main effects for fraud risk factor motivation type (incentive or pressure). The mean percentage of positive accounts receivable confirmations sent to distributors is 50% under FRFs focused on pressures of a loss, and 46% under FRFs focused on incentive for a gain, a significant difference ($t = 2.552, p = .007$, one tailed test). Another audit decision, the difference in the percentage of subsequent cash receipts examined from accounts receivable from distributors, less that from non-distributors in the case is 2.4 percent under pressure of a loss FRFs, and .7 percent under incentive for gain fraud risk factors, a significant difference ($t = 1.815, p = .038$). No other test for risk-responsive audit planning decisions for pressure of loss exceeding those under incentive for gain in six other audit planning questions is significant.

Table 6 results follow a pattern. The significant differences in audit decisions observed between incentive and pressure factors were associated with audit decisions specific to distributors, where the channel stuffing fraud risk was indicated in the case. The significant differences in audit decisions observed between company-focused versus top manager-focused factors were associated with more general audit procedures for sales returns and subsequent collections that did not differentiate between distributors and other customers.

Taken together, the audit decisions reflected in Table 6 represent the nature, timing and extent of testing planned by auditors. Auditing standards require the auditor to perform further

Table 6: Mean, (Standard Deviation), and Group Comparison Audit Decisions

Mean (Standard Deviation)	(b)										Planned Contrasts							
	Organizational Focus					Top Manager Focus					Main Effects				Main Effects			
	Incentive Pressure		Group			Incentive Pressure		Group			Focus		Motivation Type		Focus (c)		MoType (d)	
Dependent Variables: Budgeted Audit Procedures (a)	Group A	Group B	Group C	Group D	Group A	Group B	Group C	Group D	Group A	Group B	Group C	Group D	Group A	Group B	Group C	Group D	H1b: A<B<C&D	H2b: A<C&B&D
	n = 23 or 24 n = 21 or 22 n = 22 or 23 n = 20				n = 44/45/46 n = 42 or 43 n = 45/46/47 n = 41 or 42													
Number of positive confirmations to distributors	49 (35)	56 (37)	43 (13)	54 (23)	46% (.08)	49% (.06)	46% (.08)	52% (.09)	52 (36)	48 (19)	46 (27)	55 (31)	(n.s.)	(n.s.)	(n.s.)	(n.s.)	(n.s.)	(n.s.)
Percentage of positive confirmations to distributors (% of total confirmations)	46% (.07)	49% (.06)	46% (.08)	52% (.09)	2.392* H1b				47% (.07)	49% (.09)	46% (.08)	50% (.05)	(n.s.)	(n.s.)	(n.s.)	(n.s.)	2.552* main effects	
Difference in % of sub cash examined for A/R from dist. less from non-dist.	-2 (1.0)	2.4 (5.2)	1.7 (4.4)	2.5 (5.0)	(n.s.)				1.0 (3.8)	2.1 (4.7)	.7 (3.3)	2.4 (5.0)	(n.s.)	(n.s.)	(n.s.)	(n.s.)	1.815* main effects	
Number of days past year-end to examine subsequent cash receipts	53.5 (13.6)	52.3 (12.3)	59.1 (14.0)	59.0 (13.8)	(n.s.)				52.9 (12.8)	59.1 (13.7)	56.3 (13.9)	55.5 (13.3)	2.152* main effects				(n.s.)	
Number of days past year-end to examine sales returns	52.0 (14.2)	52.3 (13.9)	58.5 (11.9)	57.5 (11.9)	(n.s.)				52.2 (13.9)	58.0 (11.8)	55.3 (13.4)	54.8 (13.1)	2.092* main effects				(n.s.)	
Hours budgeted for computer automated audit techniques or forensic accounting procedures	10.3 (8.0)	15.2 (13.3)	17.7 (21.9)	12.0 (18.2)	(n.s.)				12.7 (11.1)	15.0 (20.2)	13.9 (16.6)	13.7 (15.8)	(n.s.)				(n.s.)	
Hours budgeted to conduct interviews of client personnel about sales and accounts receivable	6.0 (4.6)	6.2 (6.3)	6.9 (5.1)	4.4 (4.5)	(n.s.)				6.1 (5.4)	5.7 (5.0)	8.7 (15.8)	5.4 (5.5)	(n.s.)				(n.s.)	
Hours budgeted for all sales/accounts receivable audit procedures	118.7 (25.5)	110.1 (29.7)	126.7 (28.0)	111.0 (18.1)	-1.992				114.6 (27.6)	119.4 (24.9)	122.7 (26.8)	110.5 (24.4)	(n.s.)				(n.s.)	-2.20

(a) Each audit procedure is a different dependent variable collected from an experimental instrument where participants budget audit procedure hours and other auditing parameters, after considering their own fraud risk assessments made in the case.

(b) ANOVA contrast weights assigned are -1, -1, -1, 3, the equivalent of a t-test for differences between Group D and Groups A, B and C (interaction effect).

(c) ANOVA contrast weights assigned are -1, -1, 1, 1, the equivalent of a t-test for differences in mean audit decision measures between Groups A and B versus Group C and D [main effect for fraud risk factor focus (organization or top managers)].

(d) ANOVA contrast weights assigned are -1, -1, -1, 1, the equivalent of a t-test for differences in mean audit decision measures between Groups A and C versus Groups B and D [main effect for fraud motivation type (incentive or pressure)].

* This test is significant for the difference predicted, using an alpha of .05 in a directional one-tailed test.
n.s. Non-significant results for the test.

audit procedures whose nature, timing and extent will be responsive to fraud risks assessed (AICPA 2006, AU 318.07). The significantly greater percentage of positive confirmations to distributors planned by auditors observing a pressure on top managers represents a risk responsive change in the nature of audit procedures. The significantly greater percent of subsequent cash receipts observed for distributors versus nondistributors, as planned by auditors observing a pressure of a loss, rather than incentive for a gain, also represents a risk responsive change in the nature of audit procedures. The significant increase in the number of days to observe subsequent receipts and sales returns selected by auditors observing risk factors focused on top managers, rather than on the company, represents a risk responsive increase in the timing and extent of testing.

Since multiple tests of multiple dependent variables have been made, a Type I error risk exists that some significant results may be detected only by chance. However, these results are of interest because even a single auditor decision leading to the acquisition of additional audit evidence improves auditors' ability to recognize additional risk, which in turn, should lead to the acquisition of even more audit evidence. Auditors are permitted to rely on alternative tests to achieve the same audit objective for accounts receivable (AICPA 1991, AU 330.32). Accounts receivable confirmations, examination of subsequent collections and examination of sales returns represent procedures that may be used as alternative or complementary procedures to reach an audit objective, depending on the professional judgment of the auditor.

6.5 Tests of Auditor Decisions under Two Alternate Compensation Schemes

The results of tests for H2b are inconclusive overall, so H2b is not supported. Hypothesis 2b predicts that when performance payoffs to top managers are highly aligned with financial statement payoffs to the organization managed, auditors will make audit planning decisions that

are no different than when performance payoffs to top managers are minimally aligned with payoffs to the organization managed. Results of initial tests tend to support H2b, but are not conclusive. Three audit procedures for which significant differences were found in other hypotheses³⁵ have insignificant differences between the two compensation alignment treatments in this hypothesis, which is consistent with H2b. However, two audit planning decisions are marginally more extensive when compensation alignment is high. The mean number of days selected for examination of sales returns was 58.3 days in the high alignment condition and 52.2 days in the minimal alignment condition, a difference that is marginally significant using the non-directional test of the hypothesis (t -value = 1.854, p -value = .067, two tailed test). The difference in the percentage of subsequent cash receipts examined from accounts receivable from distributors, less that from non-distributors in the case is 3.6 percent in the high alignment condition and 1.0 percent in the minimal alignment condition, a difference that is marginally significant using the non-directional test of the hypothesis (t -value = 1.697, p = .094, two tailed test).

While three tests show no significant difference between high and minimal compensation alignment, as predicted, the last two tests show that high compensation alignment resulted in marginally different and greater risk responsive audit decisions. Also, the results of power analysis previously described prevent reliance on interpretation of null hypothesis results. A supplemental comparison regarding group F and group D was performed. If group D audit dependent variables were significantly greater than those of group F, that fact would provide supplemental evidence that fraud risk factors focus on top managers were a greater determinant

³⁵ Significant differences in decisions were found for the percentage of positive confirmations sent to distributors, for the difference in percentage of subsequent cash receipts examined, and for the number of days subsequent receipts and returns were examined for accounts receivable.

of the extent of audit decisions, while compensation alignment did not matter. Differences between group F and group D audit decisions were also not significant. Therefore, the results of tests for H2b are inconclusive overall, and H2b is not supported.

6.6 Practical Significance of Results

The setting for this experiment is the same for all auditor participants—a setting indicative of high risk for financial statement fraud. The only variation between group conditions is the form of four risk factors for motivation-for-fraud, and variation between two versions of management compensation structure. All participant groups agree, based on group mean risk assessments, that the case is a high fraud risk case. The difference in mean risk rating between the pressure on top managers condition and other conditions is 1.0 (8.7 versus 7.7) on a 10 scale. Table 2, Panel A reflects the greatest mean risk assessment (8.7, 95% CI: [8.2, 9.2]) for pressure of loss on top managers, which is greater than the mean assessment for assessments for organizationally focused factors (7.7, 95% CI: [6.9, 8.6]). While this risk assessment difference of 1.0 (on a 1 to 10 scale)³⁶ may seem relatively small to audit practitioners, the associated audit decision differences represent actionable differences in the extent of audit testing. See Table 6 differences between groups for audit decisions made. Auditors in the pressure-on-managers condition chose to send six percent more (52 percent versus 46 percent) positive confirmations to distributors (where fraud risk was seeded) compared to the incentive-to-managers condition. The difference in percentage of subsequent cash receipts examined for accounts receivable from distributors, less non-distributors, was greater (2.4 percent versus .7 percent) for auditors in the pressure on top managers condition, relative to the incentive on top managers condition. The

³⁶ In prior literature similar fraud risk assessment differences (on a 1 to 10 scale) have supported significant findings. Wilks and Zimbelman support findings base on a decomposed mean risk assessment difference of 2.65 between high and low risk conditions, compared to a holistic mean risk assessment difference of 1.27 between high and low risk conditions, a difference in differences of 1.38.

number of days past year-end to examine subsequent cash receipts was 11% greater (59.1 days versus 52.9 days), and the number of days past year-end to examine sales returns was 11 % greater (58.0 days versus 52.2 days) when auditors were exposed to risk factors focused on top managers, versus on the company.

7. SUMMARY AND CONCLUSIONS

The ultimate objective of this study is not to predict what types of risks are assessed relatively greater than others, but rather, to evaluate the potential for increasing auditor sensitivity to risks of fraudulent financial reporting. Most fraud risk factor examples for fraud motivation presented in auditing standards are organizationally focused risks. The process suggested by the results of this study is for auditors to initially recognize whether motivation-for-fraud risk factors observed are focused on the organization or on top managers, then attempt to refocus organizationally focused risk factors into impacts on top managers, and assess whether any such impacts represent incentives for personal gains or pressures to avoid personal losses. Although organizational risk factors can affect top manager decision making, the incentive or pressure effect of such risks are not always obvious until organizational risk factors are transformed into risk factors directly impacting top managers. Additional mental processing is required for auditors to recognize what direct impacts on top managers can result from organizational risk factors. Engaging auditors in this process of transforming risk factors into ones closer to pressure on managers will enable them to think more deeply about the true fraud motivation impact of initially observed organizational fraud risk factors.

In this study, most auditor risk assessments (on a scale from one to 10) ranged from six to 10 for both *total fraud* risk assessed and for *motivation-for-fraud* risk assessed. No significant differences existed between treatment groups for *total fraud* risk assessed; yet, this study has highlighted a significant difference for *motivation-for-fraud* risk assessments when auditors are

exposed to pressure on top manager risk factors. This result demonstrates that auditors in a setting where certain risks are assessed as high risk and others are assessed low risk will be made more sensitive to fraudulent financial reporting risk by processing (refocusing and reframing) motivation-for-fraud risks as described in the prior paragraph, than they will be by engaging in a traditional process of assessing total risk based on risk factors separately assessed under each of the three fraud triangle elements.

7.1 Assessing Fraud Motivation Type

This study is the first to enhance auditor risk assessment and decision-making through the application of prospect theory to audit risk assessment of management motivation to misreport earnings. Results support the notion that auditors most often view pressure of a loss as a greater motivation-for-fraud risk than incentive for a gain, but only when risk factors are focused on individual managers, not on the organization generally. It is also the first study to employ further disaggregation³⁷ of one of the three elements of the fraud triangle model to further enhance fraud risk assessment by differentiating between incentive and pressure for misreporting earnings. Implications are that auditing standards setters should encourage auditors to attempt to identify whether a fraud risk factor represents an incentive for gain or pressure of loss on top managers during the risk assessment process.

7.2 Assessing Fraud Risk Factor Focus

This study also proposes a theoretical explanation for why auditors in prior studies (Albrecht and Romney 1986; Apostolou 2001; Wilks and Zimbelman 2004) consider certain fraud risk factors focused on the organization or industry as relatively lower in relevance, and

³⁷ Disaggregation of the three fraud triangle elements was first explored by Wilks and Zimbelman (2004) and again by Favere-Marchesi (2013).

factors focused on management as relatively higher in relevance.³⁸ The significant result of the *Focus* variable (organizational or individual top manager) for auditor risk assessment in Table 4 reveals that auditors consider fraud risk factors focused on top managers as greater risks than those focused on the organization generally. Results from this study are consistent with predictions from application of mental model theory to risk assessment behavior. A mental model with more logical steps is required for auditors to assess how organizationally focused risk factors can affect top managers making financial reporting decisions. When auditors attempt to refocus an organizational level risk factor by considering its impact on top managers, then they have the opportunity to think more deeply about the risk factor. This process of refocusing the original risk factor identified could have different outcomes depending on the facts involved. If an organizational risk factor can be refocused as one impacting top managers, this study finds that a relatively greater motivation-for-fraud risk assessment is likely to be made, if there is pressure of loss on the manager. Conversely, if this refocusing process results in a conclusion that the factor would not have an effect on top managers, then this study indicates that a relatively lower motivation-for-fraud risk assessment is likely to result, than if there is pressure on the top manager. For example, in one situation, evaluation of an organizational risk could reveal a threat to earnings level and stock price impacting CEO and CFO equity incentives, while in another situation evaluation of the same organizational risk could reveal no impact on CEO and CFO equity incentives (such as when there is low stock ownership or options held are out of the money). Therefore, the process of attempting to refocus an organizational risk factor as a risk to top managers could result in an upward or downward revision in an initial risk assessment, making the auditor more sensitive to the level of risk indicated by the original risk factor.

³⁸ This is not a direct conclusion of these studies, but rather, observations that can be made from the data presented in the studies.

7.3 Limitations and Future Research

There are certain limitations to the applicability of this study. These proposed audit risk assessment strategies assume that factors motivating individual top managers are always identifiable and observable, when in fact, many may not be. When Albrecht (1991, 1982, 2014) adds the term "perceived" to pressure and opportunity in his fraud scale model, he acknowledges that motivations for fraud perceived by a manager may not be observable to others. This includes auditors. Also, the fraud risk factors in this study relate directly to monetary gains or losses to managers, but changes in manager reputation or other non-monetary rewards are also likely to motivate top manager behavior. Future research could compare the monetary versus non-monetary components of fraud motivation. Also, it should be acknowledged that many managers will not misreport because they exhibit personal integrity and moral convictions that conflict with misreporting behavior. Additional research could further investigate such personal characteristics and the circumstances in which they may or may not be influenced by the motivation-for-fraud risk factors like those considered in this study.

The audit decisions made in this study by auditors for the dependent variables involving budgeted audit hours varied widely, and results for hypothesized group differences for these dependent variables were insignificant. Big 4 firm participants planned a greater mean number of hours for audit tests than did non-Big 4 firm auditors. Differences in decisions of Big 4 versus non-Big 4 firm audit planning decisions could provide some important insights. More research could be performed to better understand auditors' challenges in estimating time budgets for audit procedures, such as the ones considered in this experiment. Additional research could also address the time and resources needed by auditors to implement the motivation-for-fraud risk assessment process suggested by the results of this study.

This study was conducted in a high fraud risk setting for all participant conditions, which likely had the effect of restraining the range of auditee risk assessment responses. Future research could test auditor response to the fraud risk factor refocusing and reframing strategy in both a low fraud risk and high fraud risk setting, in order to evaluate the impact of the strategy on auditor efficiency and effectiveness over a range of risk settings.

In this study, many auditors tended to average their three risk assessments under each of the three elements of the fraud triangle categories for organizing fraud risk factors. Research could seek to better understand how auditors combine risk assessments, and whether certain approaches to combining risk assessments change the sensitivity of risk evaluation.

The tests of auditor decisions reflected in Table 6 included tests of multiple dependent variables. While steps have been taken to limit Type I error risk, it is always possible that some auditor decision findings result by chance across these multiple tests. Additional research in auditor decision making in response to incentive and pressure risk assessments could further clarify the specific findings regarding audit procedure decisions.

7.4 Conclusion

Pincus (1989) observed that a red flag checklist used in a fraud case can be more harmful than productive, indicating that a checklist of fraud risk factors can limit thinking, rather than prompt critical thinking by auditors. Hammersley (2011) finds that the diagnosticity of fraud risk factors and the degree to which they support generation of specific testable fraud hypotheses affects auditors' ability to plan effective changes to audit programs. The results of this current study support a continued evolution in auditing risk assessment approaches, moving away from the checklist mentality observed by Pincus (1989), toward a process of deeper thinking described

by Hammersely (2011). Results of this study suggest that auditors can increase their sensitivity to fraud risks by engaging in a process of refocusing organizational factors, including executive compensation plans, into factors relating to top managers, and assessing whether those risks are incentives or pressures on top managers. Sensitivity to fraud risks is important because it should lead auditors to assess relatively more evidence when risk is high and relatively less evidence when risk is low. This approach balances the desire for effectiveness and efficiency in auditing.

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APPENDIX A
FRAUD RISK FACTORS FOR FRAUDULENT FINANCIAL REPORTING
SOURCE: <http://pcaob.org>

Appendix

Examples of Fraud Risk Factors

A.1 This appendix contains examples of risk factors discussed in paragraphs 65 through 69 of Auditing Standard No. 12, *Identifying and Assessing Risks of Material Misstatement*. Separately presented are examples relating to the two types of fraud relevant to the auditor's consideration—that is, fraudulent financial reporting and misappropriation of assets. For each of these types of fraud, the risk factors are further classified based on the three conditions generally present when material misstatements due to fraud occur: (a) incentives/pressures, (b) opportunities, and (c) attitudes/rationalizations. Although the risk factors cover a broad range of situations, they are only examples and, accordingly, the auditor may wish to consider additional or different risk factors. Not all of these examples are relevant in all circumstances, and some may be of greater or lesser significance in entities of different size or with different ownership characteristics or circumstances. Also, the order of the examples of risk factors provided is not intended to reflect their relative importance or frequency of occurrence.

Risk Factors Relating to Misstatements Arising From Fraudulent Financial Reporting

A.2 The following are examples of risk factors relating to misstatements arising from fraudulent financial reporting.

Incentives/Pressures

- a. Financial stability or profitability is threatened by economic, industry, or entity operating conditions, such as (or as indicated by):
 - High degree of competition or market saturation, accompanied by declining margins
 - High vulnerability to rapid changes, such as changes in technology, product obsolescence, or interest rates
 - Significant declines in customer demand and increasing business failures in either the industry or overall economy
 - Operating losses making the threat of bankruptcy, foreclosure, or hostile takeover imminent
 - Recurring negative cash flows from operations or an inability to generate cash flows from operations while reporting earnings and earnings growth
 - Rapid growth or unusual profitability, especially compared to that of other companies in the same industry
 - New accounting, statutory, or regulatory requirements

- b. Excessive pressure exists for management to meet the requirements or expectations of third parties due to the following:
- Profitability or trend level expectations of investment analysts, institutional investors, significant creditors, or other external parties (particularly expectations that are unduly aggressive or unrealistic), including expectations created by management in, for example, overly optimistic press releases or annual report messages
 - Need to obtain additional debt or equity financing to stay competitive—including financing of major research and development or capital expenditures
 - Marginal ability to meet exchange listing requirements or debt repayment or other debt covenant requirements
 - Perceived or real adverse effects of reporting poor financial results on significant pending transactions, such as business combinations or contract awards
- c. Information available indicates that management or the board of directors' personal financial situation is threatened by the entity's financial performance arising from the following:
- Significant financial interests in the entity
 - Significant portions of their compensation (for example, bonuses, stock options, and earn-out arrangements) being contingent upon achieving aggressive targets for stock price, operating results, financial position, or cash flow
 - Personal guarantees of debts of the entity
- d. There is excessive pressure on management or operating personnel to meet financial targets set up by the board of directors or management, including sales or profitability incentive goals.

Opportunities

- a. The nature of the industry or the entity's operations provides opportunities to engage in fraudulent financial reporting that can arise from the following:
- Related party transactions that are also significant unusual transactions (e.g., a significant related party transaction outside the normal course of business)
 - Significant transactions with related parties whose financial statements are not audited or are audited by another firm
 - A strong financial presence or ability to dominate a certain industry sector that allows the entity to dictate terms or conditions to suppliers or customers that may result in inappropriate or non-arm's-length transactions

- Assets, liabilities, revenues, or expenses based on significant estimates that involve subjective judgments or uncertainties that are difficult to corroborate
 - Significant or highly complex transactions or significant unusual transactions, especially those close to period end, that pose difficult "substance-over-form" questions
 - Significant operations located or conducted across international borders in jurisdictions where differing business environments and cultures exist
 - Significant bank accounts or subsidiary or branch operations in tax-haven jurisdictions for which there appears to be no clear business justification
 - Contractual arrangements lacking a business purpose
- b. There is ineffective monitoring of management as a result of the following:
- Domination of management by a single person or small group (in a nonowner-managed business) without compensating controls
 - Ineffective board of directors or audit committee oversight over the financial reporting process and internal control
 - The exertion of dominant influence by or over a related party
- c. There is a complex or unstable organizational structure, as evidenced by the following:
- Difficulty in determining the organization or individuals that have controlling interest in the entity
 - Overly complex organizational structure involving unusual legal entities or managerial lines of authority
 - High turnover of senior management, counsel, or board members
- d. Internal control components are deficient as a result of the following:
- Inadequate monitoring of controls, including automated controls and controls over interim financial reporting (where external reporting is required)
 - High turnover rates or employment of ineffective accounting, internal audit, or information technology staff
 - Ineffective accounting and information systems, including situations involving reportable conditions

Attitudes/Rationalizations

Risk factors reflective of attitudes/rationalizations by board members, management, or employees, that allow them to engage in and/or justify fraudulent financial reporting, may not be susceptible to observation by the auditor. Nevertheless, the auditor who becomes aware of the existence of such information should consider it in identifying the risks of material misstatement arising from fraudulent financial reporting. For example, auditors may become aware of the following information that may indicate a risk factor:

- 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
- Nonfinancial management's excessive participation in or preoccupation with the selection of accounting principles or the determination of significant estimates
- 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
- Excessive interest by management in maintaining or increasing the entity's stock price or earnings trend
- A practice by management of committing to analysts, creditors, and other third parties to achieve aggressive or unrealistic forecasts
- Management failing to correct known reportable conditions on a timely basis
- An interest by management in employing inappropriate means to minimize reported earnings for tax-motivated reasons
- Recurring attempts by management to justify marginal or inappropriate accounting on the basis of materiality
- The relationship between management and the current or predecessor auditor is strained, as exhibited by the following:
 - Frequent disputes with the current or predecessor auditor on accounting, auditing, or reporting matters
 - Unreasonable demands on the auditor, such as unreasonable time constraints regarding the completion of the audit or the issuance of the auditor's report
 - 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
 - Domineering management behavior in dealing with the auditor, especially involving attempts to influence the scope of the auditor's work or the selection or continuance of personnel assigned to or consulted on the audit engagement

APPENDIX B
SUMMARY OF FRAUD RISK ASSESSMENT LITERATURE

Auditor Fraud Risk Assessment Literature

Author(s) and Year	Journal	Title	Context	Conclusions	Relationship with this Current Dissertation
Albrecht and Romney 1986	Advances in Accounting	Red-flagging Management Fraud: A Validation	Survey of 20 audit firms, asking them to respond about 10 fraud engagements and 10 no-fraud engagements.	Only 31 of 87 fraud risk factors tested were said to be significant to fraud risk assessment. This descriptive study does not seek to understand why certain fraud risk factors were considered more important than others.	This current study demonstrates that differences in auditor reaction to otherwise similar fraud risk factors can be explained by the focus and framing of the fraud risk factor.
Pincus 1989	Accounting, Organizations and Society	The Efficacy of a Red Flag Questionnaire for Assessing the Possibility of Fraud	An experiment with 137 mid-level auditors at a large CPA firm.	When fraud was present, participants with a checklist of fraud risk factors underperformed participants without a checklist. A fraud risk factor checklist did increase the comprehensiveness and uniformity of seniors' data acquisition, but it appeared to limit the fraud consideration set.	Fraud risk factors listed in current auditing standards present factors listed as examples of fraud risks, not an all inclusive list. This current study demonstrates that auditor reaction to modifications of these example fraud risk factors can be explained by their focus and framing.
Zimbelman 1997	Journal of Accounting Research	The Effects of SAS No. 82 on Auditors' Attention to Fraud Risk Factors and Audit Planning Decisions	An experiment with 108 auditors from 19 offices of two Big 6 firms, with an average of 5.5 years of audit experience.	The SAS No. 82 list of fraud risk factors increased attention to fraud cues but not sensitive to low versus high fraud cases. Extent of testing increase in both low and high fraud cases, and the nature of testing was not different in high versus low fraud cases.	Most SAS No. 82 fraud risk factor examples were carried forward to the superseding SAS No. 99 auditing standard. This current study seeks to identify differences in audit planning decisions that result from differences in the focus and framing of these fraud risk factors.
Wright and Bedard 2000	Auditing: A Journal of Practice & Theory	Decision Processes in Audit Evidential Planning: A Multistage Investigation	Experiment with 10 auditors (four managers and six seniors) from the same office of a Big 5 firm	Recognition of risk factors may help less experienced auditors improve performance in planning. However, risk factors identified were not associated with changes in the extent of testing.	This current study compares differences in the extent of testing between groups exposed to the same motivation-for-fraud risk factors which are focused and framed differently from one another.
Apostolou et al. 2001	Behavioral Research in Accounting	The Relative Importance of Management Fraud Risk Factors	Experiment with 43 Big 5 auditors, 50 regional/local firm auditors and 47 internal auditors	Auditors rate relative importance of fraud risk factors from SAS No. 82. This descriptive evidence is mixed with respect to motivation for fraud factors focused on top managers (two with low relative importance and one with high relative importance); and is consistent about fraud risk factors focused on the organization and industry (low relative importance). This study does not attempt to understand why auditors consider some fraud risk factors more important than others.	The current study relies on mental model theory to motivate hypotheses that compare the similar fraud risks with a different focus (top managers or the organization). The results demonstrate that auditor risk assessments are influenced by whether a risk factor is focused on the organization or on top managers.
Johnstone and Bedard 2001	The Accounting Review	Engagement Planning, Bid Pricing, and Client Response in the Market for Initial Attestation Engagements	Primary focus of study was audit pricing, as influenced by audit risk	Fraud risk factors did not change planned audit personnel hours, but did result in more use of specialists, and more testing and review.	
Bedard and Graham 2002	Auditing: A Journal of Practice & Theory	The Effects of Decision Aid Orientation on Risk Factor Identification and Audit Testing Planning	An experiment with 46 participating auditors from eight offices of two Big 5 firms. Participants included 19 seniors, 25 managers, and two partners.	Auditors using a decision aid with a negative orientation find more fraud risks than those using a decision aid with a positive orientation.	The question about whether motivation comprised of pressure for fraud is equivalent to a negative orientation and whether motivation comprised of incentive for fraud is equivalent to positive orientation remains unknown, and could be the subject of future research.

Auditor Fraud Risk Assessment Literature

Author(s) and Year	Journal	Title	Context	Conclusions	Relationship with this Current Proposal
Glover et al. 2003	Auditing: A Journal of Practice & Theory	A Test of Changes in Auditors' Fraud-Related Planning Judgments since the Issuance of SAS No. 82	This study is a post-SAS No. 82 replication of Zimbelman (1997). Glover et al. 2003 is an experiment with 91 auditors with an average of 4.8 years of experience.	Post-SAS No. 82 planning judgments are more sensitive to fraud risk factors than during the pre-SAS No.82 period. However, there is a tenuous link between risk assessments and planning decisions. Extent of testing is increased for higher fraud risks, but not the nature of testing.	The Hoffman and Zimbelman (2009) tests of auditor planning decisions are adopted in this current study in order to consider both the nature and extent of tests prompted by the fraud case.
Asare and Wright 2004	Contemporary Accounting Research	The Effectiveness of Alternative Risk Assessment and Program Planning Tools in a Fraud Setting	An experiment with 74 participants from three Big 5 firms. Participants had an average of 9.7 years experience.	Fraud risk factors were identified, but were not associated with more effective fraud procedures (other than increased consultation with specialists).	
Wilkes and Zimbelman 2004	Contemporary Accounting Research	Decomposition of Fraud-Risk Assessments and Auditors' Sensitivity to Fraud Cues	An experiment with 95 audit managers from two of the Big 5 firms.	Auditors who decompose fraud-risk assessments into the three fraud triangle categories are more sensitive to opportunity and incentive/pressure fraud risk factors than those who do not, but only when they are in the low fraud risk condition.	This current study also presents fraud risk factors to participants in three fraud triangle categories. However, this current study is exclusively focused on the effect of focus and framing of motivation-for-fraud risks, called incentive/pressure fraud risk factors in current auditing standards.
Mock and Turner 2005	International Journal of Auditing	Auditor Identification of Fraud Risk Factors and their Impact on Audit Programs	A survey regarding fraud risk assessment was developed based on input of three international CPA firms and was then administered to 80 partners in each of the three participating firms.	This study contradicts the results of most prior research up to this point. Participants self-reported that the nature, extent, and staffing used was responsive to the number and type of documented fraud risks.	
Hoffman and Zimbelman 2009	The Accounting Review	Do Strategic Reasoning and Brainstorming Help Auditors Change Their Standard Audit Procedures in Response to Fraud Risk?	An experiment with 91 audit managers from a large international audit firm.	Both, strategic reasoning and brainstorming lead to more effective modifications to standard audit procedures. Both strategic reasoning and brainstorming together do not lead to a greater effectiveness than either one alone.	The same variables for auditor planning decisions used by Hoffman and Zimbelman (2009) are also employed in the current study to measure auditor decision-making.
Hammersky 2011	Auditing: A Journal of Practice & Theory	A Review and Model of Auditor Judgments in Fraud-Related Planning Tasks	Review article	Auditor fraud knowledge will significantly affect auditor performance in audit program modification tasks through its effect on fraud risk factor identification and hypothesis generation. The diagnosticity of fraud risk factors affect auditors' ability to plan effective changes to audit programs.	
Favere-Marchesi 2013	Auditing: A Journal of Practice & Theory	Effects of Decomposition and Categorization on Fraud-Risk Assessments	An experiment with 60 audit managers from two of the Big 4 accounting firms.	Auditors that quantify a separate fraud risk assessment for each of the fraud triangle categories are more sensitive to fraud risks than are auditors who only categorize fraud cues into the three fraud triangle categories, and then quantify an overall fraud risk assessment.	This current study also presents fraud risk factors to participants in three fraud triangle categories. However, this current study is exclusively focused on the effect of focus and framing of motivation-for-fraud risks, called incentive/pressure fraud risk factors in current auditing standards.

APPENDIX C
EXPERIMENTAL INSTRUMENT

Welcome!

Thank you for your participation in this study. Your responses will be used for academic research purposes. Your reactions to a company case are requested in an effort to gain knowledge that could enhance auditing practice. Your responses to this study will be aggregated with those of other participants and will not be tracked with your identity or the identity of your firm. Only auditing Seniors, Managers, Senior Managers or comparable higher ranking positions are qualified to participate in this study. **Please respond to questions using an ink pen. Once you have committed to an answer, please do not take the time to change it at a later time.**

Instructions

Assume that you are an experienced audit professional on the team auditing the annual financial statements of U.S. Instrumentation Corporation (“USI” or “the Company”) for the year ended December 31, 2014. As an audit team member newly assigned to lead this engagement, you will be reviewing fraud risk factors evaluated by the audit team during initial audit planning, and will also be making some audit planning decisions regarding sales and accounts receivable.

General Company Information

U.S. Instrumentation Corporation is a publicly held manufacturer of analog and digital instrumentation gauges used in a wide variety of equipment applications. USI’s stock is traded on the NASDAQ. Its product markets are competitive. The product technology demanded by end-user customers has been gradually moving away from analog toward digital technology.



The company has steadily grown, as shown by its increasing sales from \$15.8 million in 1999 to nearly \$300 million in 2014.

Sales and Receivables

Historically, sales have been made through two channels with some accounts handled directly by the company and the remaining sales made through licensed distributors. Both the sales handled directly by USI and those to licensed distributors are recorded when shipped, which is consistent with the Company's policy of shipping FOB shipping point. Accounts are written off only after extensive collection efforts are taken. The allowance for doubtful accounts is based on an analysis of accounts outstanding as determined necessary by management.

Specific Audit Information

PART I

Risk Assessment Instructions

Independent of the proceeding General Company Information, your audit team has identified 4 different opportunity-for-fraud risk factors during earlier interim inquiries of management.

Because you are a more experienced member of the audit team, you are now rating the level of fraud risk posed by each fraud risk factor.

Instructions: Opportunity to Commit Fraud Risk Factors

The following work paper lists fraud risk factors based on opportunity to commit financial statement fraud, as could be identified by your audit engagement team. Rate the level of fraud risk represented by each factor on a scale from low risk to high risk by darkening the circle that represents your best judgment.

Opportunity for Fraud Risk Assessment Documentation

Performed by: WCD

Date: 11/3/14

Fraud Risk Factors Identified By Engagement Team:

USI has assets, liabilities, revenues, or expenses based on significant estimates that involve subjective judgments or uncertainties that are difficult to corroborate.

Low Risk										High Risk
1	2	3	4	5	6	7	8	9	10	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

USI has significant related party transactions not in the ordinary course of business and with related entities not audited or audited by another firm.

Low Risk										High Risk
1	2	3	4	5	6	7	8	9	10	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

USI has significant, unusual, or highly complex transactions, especially those close to year-end that pose difficult "substance over form" questions.

Low Risk										High Risk
1	2	3	4	5	6	7	8	9	10	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

USI has bank accounts and branch warehouse facilities in foreign jurisdictions for which there appears to be no clear business justification.

Low Risk										High Risk
1	2	3	4	5	6	7	8	9	10	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

What is your overall Opportunity fraud risk assessment for financial statement fraud for this client on a scale from 1 (low risk) to 10 (high risk)? _____

Instructions: Attitude/Rationalization about Committing Fraud

Your audit team has also searched for attitude/rationalization-for-fraud risk factors for financial statement fraud, but has found none. Over the last 8 years, the management team has been very easy to work with and has shown a high level of competence. The company complies with all of the corporate governance requirements of Sarbanes-Oxley. Consider this work paper and make a fraud risk assessment below on a scale from low risk to high risk, according to your best judgment.

Attitude/Rationalization for Fraud Risk Assessment Documentation

Performed by: WCD

Date: 11/3/14

Fraud Risk Factors Identified By Engagement Team:

Twelve attitude/rationalization fraud risk factor examples from auditing standards were evaluated and these risks were determined to **not** be present at this client.

Instruction: What is your overall Attitude/Rationalization fraud risk assessment for this client on a scale from 1(low) to 10 (high)? _____

Management Compensation

Total top management compensation in this public company is within the range also typically paid by its closest peer-group companies. The executive compensation plan at USI is designed to retain qualified top executives. Top management compensation is **70% fixed salary, and 30% variable bonus, stock grants and options grants.** The top management team has total **ownership in USI stock and options valued at less than one times annual compensation.** The top five managers combined do not own a controlling interest in the Company. Following is a schedule of current year compensation and the ownership in company stock and stock options held by the top five executives.

Top 5 Execs.	<u>Current Yr Compensation (Based on Unaudited Financials)</u>			Total Annual Compensation	<u>Value of Equity Owned in Company</u>	
	Salary	Bonus	Value of Stock and Options Granted		Stock Options	Stock
CEO	\$ 1,020,000	\$ 380,000	\$ 190,000	\$ 1,590,000	\$ 910,000	\$ 1,610,000
CFO	510,000	139,182	45,600	694,782	198,400	386,400
Three VPs	938,400	260,618	32,300	1,231,318	134,700	273,700
	<u>2,468,400</u>	<u>779,800</u>	<u>267,900</u>	<u>\$ 3,516,100</u>	<u>1,243,100</u>	<u>2,270,100</u>
	70%	30%		100%	Less than 1 times annual total pay:	
	Fixed Wage	Variable Wage		Total	Variable wealth as a multiple of total annual compensation	

Instructions: Motivation to Commit Fraud Risk Factors

As before, read and consider each fraud risk factor that follows for motivation to commit financial statement fraud, as identified by your engagement team. Rate the level of fraud risk represented by each factor on a scale from low risk to high risk by darkening the circle that represents your best judgment.

Motivation for Fraud Risk Assessment Documentation

Performed by: WCD

Date: 11/3/14

Fraud Risk Factors Identified By Engagement Team:

A high degree of competition and market saturation has led to declining margins in the industry, and top management believes that its own total compensation will decrease by 15% this year if a new marketing strategy is not successfully implemented.

Low Risk										High Risk
1	2	3	4	5	6	7	8	9	10	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Maintaining an adequate interest coverage ratio (EBITDA/interest expense) has been difficult, and failure to achieve a ratio of 1.5 times for 2014 will result in the establishment of a personal loan guarantee by the USI CEO on the debt of USI, which guarantee is equal in size to 25% of the total personal net worth of the CEO.

Low Risk										High Risk
1	2	3	4	5	6	7	8	9	10	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

During the first three quarters, USI had a marginal ability to meet financial statement debt covenant requirements, which if not met within the 4th quarter will lead it to refinance debt at a higher interest rate. The CFO expects the higher interest rate will result in a 12% decrease in annual total compensation of its top five executives.

Low Risk										High Risk
1	2	3	4	5	6	7	8	9	10	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

There are management-favorable 3 year employment contracts in place for the CEO and CFO. These employment contracts will be voided and replaced with at-will employment agreements if USI cannot meet a \$285 million sales target for this year.

Low Risk										High Risk
1	2	3	4	5	6	7	8	9	10	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

What is your overall Motivation for fraud risk assessment for financial statement fraud for this client on a scale from 1 (low risk to 10 (high risk)? _____

RECAP

Look back to pages 3, 4, and 5 to review your overall risk rating for **opportunity, attitude/rationalization, and motivation fraud risk factors**. At this time, what is your overall financial statement fraud risk assessment for this client on a scale from 1 (low risk) to 10 (high risk)? _____

PART II

New Marketing Plan

To implement a new marketing plan, distributors were given sales responsibility for all of USI's analog product accounts, which were approximately half of the smaller customers previously serviced by USI, while USI continued to service the larger, digital product accounts directly. Also, distributors were given significant incentives to buy analog products starting in mid-November and December. These incentives included profit sharing opportunities, favorable financing terms, and provision of warehousing and storage incentives.

Analytical Procedures

The table below presents year-end data and analytical procedures performed with year-end and 11-month unaudited internal financial statements. The analytical procedures were initially performed in early December using unaudited data from the November 30, 2014 and were updated in January using unaudited December 31, 2014 balances, as provided by management.

	<u>Annual Amounts and Balances in Thousands (000)</u>					
	(Audited) <u>12/31/2010</u>	(Audited) <u>12/31/2011</u>	(Audited) <u>12/31/2012</u>	(Audited) <u>12/31/2013</u>	11 months (unaudited) <u>11/30/2014</u>	12 months (unaudited) <u>12/31/2014</u>
Key Financial Statement Data:						
Net Sales	\$ 208,568	\$ 248,972	\$ 275,797	\$ 270,660	\$ 269,497	\$ 293,997
Net Income	2,239	3,361	4,977	5,411	4,084	5,450
Accounts Receivable (AR)	27,760	34,493	34,895	38,055	47,057	52,208
Allowance for doubtful (DA) accounts plus for sales returns	3,028	4,071	3,873	4,684	5,000	5,440
Total assets	207,012	231,570	255,614	260,455	265,734	270,896
Selected Ratios:					(annualized)	
Days sales in Accounts Recivable	48.6	50.6	46.2	51.3	(A) 54.4	(B) 64.8
Allowance for DA as % of AR	10.9%	11.8%	11.1%	12.3%	11.7%	10.4%
Interest Coverage Ratio	1.5	1.3	1.5	1.4	1.2	1.5

See notes (A) and (B), following:

(A) Management explained that USI instituted a new marketing strategy in mid-November that led to the increase in this ratio. Responsibility for all sales of analog products was turned over to the distributors, while USI focused its marketing efforts on its digital products.

(B) Management believes the new marketing initiative, described in note (A) above, will be very successful, as many distributors placed orders of analog products in the second half of November and December. Management explained that, by year-end, over 90% of the distributors had signed up for the program and placed orders for analog products.

Audit Plan-Accounts Receivable

Summary of Accounts	12/31/2013	12/31/2014
Number of USI-serviced customer accounts	540	538
Number of USI distributor accounts	460	460
Total number of accounts	1000	998
Total accounts receivable balances	\$38,055,000	\$ 52,208,000

Instruction:

Your engagement partner on this client has asked you to challenge the number of confirmations sent and other audit decisions made last year, and to independently plan new decisions this year base on your risk assessments and other facts you have read in this case. You may use any decision you deem necessary, while striving to maintain both effectiveness and efficiency.

How many of each of the following customer accounts receivable confirmations would you plan for this current year audit?

	Number of Accounts to Confirm <u>12/31/2014</u>
Number of positive confirmations <u>to USI serviced customers</u> : (Last year 35 accounts, with \$4,855,000 coverage)	_____
Number of positive confirmations <u>to distributors</u> : (Last year 30 accounts, with \$995,000 coverage)	_____
Number of negative confirmations <u>to USI serviced customers</u> : (Last year 100 accounts, with \$3,242,000 coverage)	_____
Number of negative confirmations <u>to distributors</u> : (Last year 100 accounts, with \$3,310,000 coverage)	_____

How many days past year-end would you plan for the following audit decisions for this current year audit?

	Days
Number of days past year-end to examine subsequent receipts for accounts receivable collections: (45 days used last year)	_____
Number of days past year-end to examine sales returns: (45 days last year)	_____

What percentage coverage would you plan for the following audit decisions for this current year audit?

The % of subsequent cash receipts to examine for collection of USI-serviced accounts receivable for which no confirmations were sent: (10% last year) _____

The % of subsequent cash receipts to examine for collection of distributor accounts receivable for which no confirmations were sent: (10% last year) _____

How many hours, if any, would you plan for the following audit decisions for this current year audit?

Hours

Number of hours of computer assisted audit techniques or computer forensics procedures: (Zero used last year) _____

Number of hours for interviews of client personnel regarding sales and accounts receivable: (Zero used last year) _____

Total hours for all sales and accounts receivable procedures: (96 hours last year)* _____

* Total audit program hours in the line above include all procedures specified above, plus all other sales and accounts receivable procedures not specified above, such as: analytical procedures, bad debt and receivable aging analysis, cut-off testing, and reconciliation of detail ledgers to summary ledgers.

CONCLUSION

Final 10 Questions

Please circle the best answer for each question below. Do not take the time to look backwards into the case to answer any question.

1. How many total years of experience do you have in public accounting, rounded to the nearest year?

0 1 2 3 4 5 6 7 8 9 10 or more

2. Which of the following best describes your employer?

- a) a Big 4 public accounting firm
- b) a large or medium sized public accounting firm, other than Big 4
- c) a single office or multiple office small public accounting firm
- d) other

3. Which of the following best describes your position level in your firm?

- a) Staff
- b) Senior
- c) Manager
- c) Senior Manager
- d) Director
- e) Partner or Principal

4. Which of the following two lists best summarizes top management compensation structure in this case?

List a)

List b)

List a:	List b:
30% fixed salary	70% fixed salary
70% bonus/options/stock grants	30% bonus/options/stock grants
Executive stock and option ownership value exceeding more than 13 times annual compensation	Executive stock and option ownership value less than annual compensation

5. For this question, ignore top management compensation structure, and think only about the **Motivation-for fraud risk factors you rated** in the case. Which one of the following two lists best summarizes the potential outcome **focus** described in the **Motivation-for-fraud** risk factors rated by you in this case?

a) Outcomes for the **Company**: or b) Outcomes for **top executives**:

a) Outcomes for the Company :	b) Outcomes for top executives :
A change in Company earnings	A change in top executive compensation
A change in terms for a Company technology license agreement	A change in terms for the CEO and CFO employment agreements
A change regarding a Company loan guarantee on debt of the Company Employee Stock Ownership Plan	A change regarding a CEO personal loan guarantee on debt of the Company

6. For this question, ignore top management compensation structure, and think only about the **Motivation-for fraud risk factors you rated** in the case. Which one of the following two lists best summarizes the potential outcomes described in the **Motivation-for-fraud** risk factors rated by you in this case?

a) Penalties if targets were **not** achieved: or b) Rewards if targets **were** achieved:

a) Penalties if targets were not achieved:	b) Rewards if targets were achieved:
A decline in income	An increase in income
Deterioration in terms for a contract or agreement from 3 year terms to monthly or at-will terms	Improvement in terms for a contract or agreement from monthly or at-will terms to 3 year terms
Establishment of a loan guarantee	A release from a loan guarantee

7. Does your employer conduct audits of public companies?

a) Yes b) Unsure c) No

8. How many audit engagements have you worked on within a public company setting during the past year?

0 1 2 3 4 5 6 7 8 9 10 or more

9. In how many professional engagements during your career, if any, would you estimate you have you taken steps or caused steps to be taken to evaluate suspected **intentional** misstatements affecting company earnings, which may have been material? _____

10. If there any final comments you would like to make to the researcher, please write below:

This concludes the study. Thank you for your participation.

APPENDIX D
IRB APPROVAL LETTER



RESEARCH INTEGRITY AND COMPLIANCE
Institutional Review Boards, FWA No. 00001669
12901 Bruce B. Downs Blvd., MDC035 • Tampa, FL 33612-4799
(813) 974-5638 • FAX (813) 974-7091

May 1, 2014

Donald Wengler
School of Accountancy
4202 E. Fowler Avenue
BSN 3305
Tampa, FL 33620

RE: **Exempt Certification**
IRB#: Pro00017128
Title: Fraud Risk Assessment Study

Study Approval Period: 5/1/2014 to 5/1/2019

Dear Mr. Wengler:

On 5/1/2014, the Institutional Review Board (IRB) determined that your research meets USF requirements and Federal Exemption criteria as outlined in the federal regulations at 45CFR46.101(b):

(2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless:
(i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

Approved Documents:

[IRB Protocol 041014.docx](#)

[CPA Informed Consent 043014.docx](#)

[Student Informed Consent 043014.docx](#)

As the principal investigator for this study, it is your responsibility to ensure that this research is conducted as outlined in your application and consistent with the ethical principles outlined in

the Belmont Report and with USF IRB policies and procedures. Please note that changes to this protocol may disqualify it from exempt status. Please note that you are responsible for notifying the IRB prior to implementing any changes to the currently approved protocol.

The Institutional Review Board will maintain your exemption application for a period of five years from the date of this letter or for three years after a Final Progress Report is received, whichever is longer. If you wish to continue this protocol beyond five years, you will need to submit a new application at least 60 days prior to the end of your exemption approval period. Should you complete this study prior to the end of the five-year period, you must submit a request to close the study.

We appreciate your dedication to the ethical conduct of human subject research at the University of South Florida and your continued commitment to human research protections. If you have any questions regarding this matter, please call 813-974-5638.

Sincerely,



Kristen Salomon, Ph.D., Vice Chairperson
USF Institutional Review Board