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A Synthesis of Fraud-Related Research

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SUMMARY: We synthesize academic literature related to fraudulent financial reporting with dual purposes: (1) to better understand the nature and extent of the existing literature on financial reporting fraud, and (2) to highlight areas where there is need for future research. This project extends the work of Hogan et al. (2008), who completed a similar synthesis project, also sponsored by the Auditing Section of the American Accounting Association, in 2005. We synthesize the literature related to fraud by examining accounting and auditing literature post-Hogan et al. (2008) and by summarizing relevant fraud literature from outside of accounting. We review publications in accounting and related disciplines including criminology, ethics, finance, organizational behavior, psychology, and sociology. We synthesize the research around a model that illustrates the auditor's approach to fraud. The model incorporates auditors' use of the fraud triangle (i.e., management's incentive, attitude, and opportunity to commit fraud), their assessment of the existence and effectiveness of the client's anti-fraud measures (e.g., corporate governance mechanisms and internal controls), and their consideration of possible fraud schemes and concealment techniques when making an overall fraud risk assessment of the client. The model further illustrates how auditors can incorporate this assessment into an overall strategy to detect fraud by implementing

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To facilitate the development of auditing and other professional standards and to inform regulators of insights from the academic auditing literature, the Auditing Section of the American Accounting Association (AAA) decided to develop a series of literature syntheses for the Public Company Accounting Oversight Board (PCAOB). This paper (article) is authored by one of the research synthesis teams formed by the Auditing Section under this program. The views expressed in this paper are those of the authors and do not reflect an official position of the AAA or the Auditing Section. In addition, while discussions with the PCAOB staff helped us identify the issues that are most relevant to setting auditing and other professional standards, the author team was not selected or managed by the PCAOB, and the resulting paper expresses our views (the views of the authors), which may or may not correspond to views held by the PCAOB and its staff.

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appropriate fraud-detection procedures. We summarize the recent literature of each component of the model and suggest avenues for future research.

Keywords: fraud; auditing; literature review; SAS 99.

INTRODUCTION

This paper was prepared as a part of the series of literature syntheses sponsored by the Auditing Section of the American Accounting Association (AAA). As such, this paper integrates and discusses implications of academic research on fraudulent financial reporting, particularly as it applies to the audit. This synthesis should be relevant to regulators, practitioners, and academics.

A previous series of synthesis papers included a project by Hogan et al. (2008) that summarized academic literature related to fraud. The current project extends Hogan et al. (2008) in two major respects. First, we update the accounting and auditing literature review. While most of the work cited in the prior synthesis was published between 1995 and 2006, we extend that work by updating the accounting and auditing literature through the end of 2011. Second, while the earlier project focused primarily on the accounting literature related to financial statement fraud, we review approximately 60 journals from various fields including criminology, ethics, finance, organizational behavior, psychology, and sociology in an effort to broaden our perspective of fraud and to gain insights from other disciplines about the dynamics of fraud that may be useful to auditors, standard setters, and academics.[1]

We also present and organize our literature review around an expanded fraud model that considers fraud from the perspective of the auditor (see Figure 1). The model incorporates the fraud triangle, which auditors include in their assessment of the likelihood of fraudulent financial reporting. In addition, the model recognizes the auditor's process of assessing the existence and effectiveness of anti-fraud measures (e.g., corporate governance mechanisms, internal controls) that the company has incorporated to combat fraud. Further, auditors may consider possible fraud acts (e.g., financial reporting fraud achieved through intentional, material revenue manipulation) and their related concealment techniques. To aid the reader, we also present Appendix A, which organizes and categorizes the literature around the expanded model and suggests avenues for future research.

Our paper is organized as follows. In the next section, we describe the components of the model. We then discuss the academic literature related to each component of the model, starting with the fraudster's perspective, the fraud triangle.[2] While discussing a fraudster's opportunity to commit fraud, we include a discussion of anti-fraud measures that can be incorporated by the company to combat fraud and we discuss elements of fraud. We then discuss the auditor's fraud risk assessment and the auditor's fraud-detection procedures, as well as the consequences of undetected fraudulent financial reporting. We conclude with suggestions for future research.

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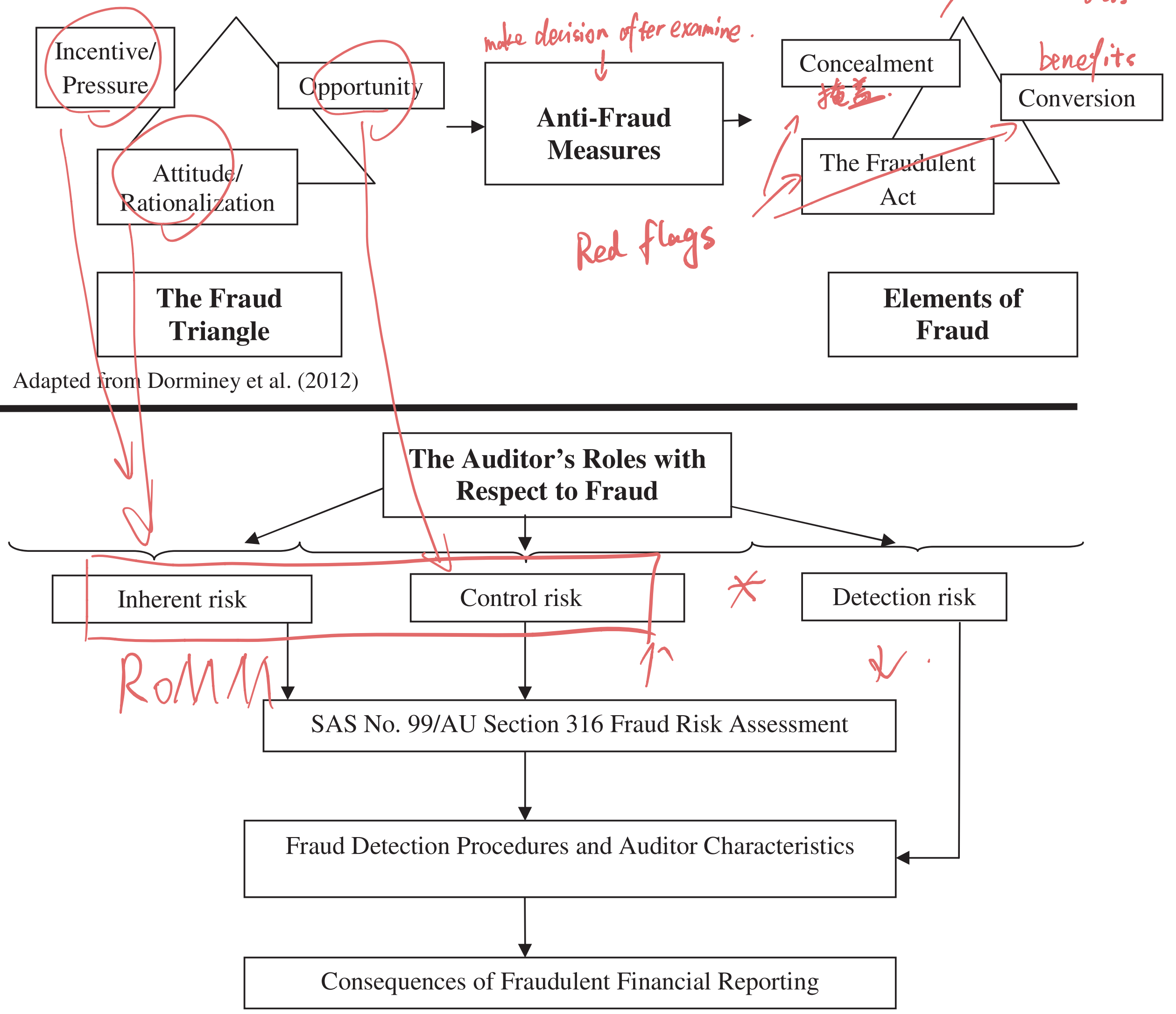
[1] The accounting literature citations reflect the fraud literature updated from Hogan et al. (2008), and thus will be dated from 2006 through the end of 2011. Those citations from the other bodies of literature not captured in Hogan et al. (2008) (criminology, ethics, finance, organizational behavior, psychology, and sociology) will thus reflect dates *before* and *after* 2006. Further, we examined 60 journals publishing fraud-related papers. However, our scope focused on research content relevant to auditors, audit standard setters, and academics oriented toward the intersection of fraud and auditors; as such, some fraud-related research was not audit centric and is not summarized herein. Thus, the numbers of citations from non-accounting publications are less than the 60 journals considered.

[2] We refer to fraudster throughout this paper as the individual(s) committing fraud. We recognize that while some frauds are committed by one individual, many financial statement frauds are committed with collusion among multiple highly skilled executives and perhaps staff accountants whom they have control over. Thus, the singular term "fraudster" throughout this paper is intended to refer to both the individual and multiple individuals who collude to commit financial statement fraud.

FIGURE 1
The Auditor's Model with Respect to Fraud



The portion of the model above the dark line was adapted from Dorminey et al. (2012) to illustrate the fraud process. The portion below the line represents how this process maps into the auditor's detection process. Per SAS No. 99/AU section 316, auditors assess the elements of the fraud triangle (i.e., management's incentive and attitude) to determine the inherent likelihood that management would commit fraud. Auditors then assess management's ability to commit fraud by analyzing the opportunity to commit fraud (e.g., corporate governance and internal controls) and other anti-fraud measures (e.g., whistleblowing). Auditors may also consider specific fraud schemes and concealment techniques. Auditors then develop a fraud risk assessment and determine fraud-detection procedures based on the desired level of detection risk (i.e., the risk the auditor fails to detect a material misstatement due to fraud). The fraud-detection procedures are designed around the fraud triangle and the elements of fraud (i.e., the act itself, the concealment of the fraud, or conversion of fraudulent gains). The final component of the model illustrates consequences of undetected fraud. This paper synthesizes the academic research of each element in Figure 1.

THE AUDITOR'S MODEL WITH RESPECT TO FRAUD

In this review and synthesis of the literature, we consider a large spectrum of factors that professionals, regulators, and researchers should examine when evaluating the auditor's approach to fraudulent financial reporting. Much of the prior work has been centered on the fraud triangle: pressure (incentive), opportunity, and rationalization (attitude). However, we argue that the model presented in Figure 1 extends and focuses one's thinking about the auditor's role with respect to assessing the risk of, as well as deterring and detecting, fraudulent financial reporting.

In moving beyond the fraud triangle, Dorminey et al. (2012) present an expanded model of fraud (and white-collar crime more generally). We present an adapted form of that framework in the top portion of Figure 1. First, following from Cressey's (1950) original characterization, the framework identifies the fraud triangle as the pre-fraud state of nature as perceived by the fraudster (upper left-hand portion). Here, the fraudster is the decision maker, the one who must examine his/her personal and professional situation and make an assessment of the anti-fraud measures (e.g., deterrence, prevention, detection procedures) in place to determine if a fraudulent act can be successful in both execution *and* concealment.[3]

Moving to the far upper right, the model examines the post-fraud state and focuses on the specific elements of fraud: the act (scheme), the effort to conceal the act, and an identification of the benefits that accrue to the fraudster (i.e., conversion—for example accrued bonuses or increased stock option awards in the case of financial fraud). While not explicitly acknowledged in the fraud triangle, knowledge and consideration of common fraud schemes, concealment techniques, and conversion processes can help the auditor design tests to detect fraud.

Between the fraudster (i.e., the fraud triangle and the pre-fraud state) and the elements of fraud (i.e., the commission of fraudulent act and the post-fraud state of concealment and conversion) are anti-fraud measures—organizational and societal interventions (e.g., internal controls, broader elements of corporate governance, legal and regulatory environment) aimed at reducing the probability and impact of fraudulent acts. Each of these is at least partially outside the control of the fraudster, yet they influence the fraudster's assessment of the probability of success in terms of completing and concealing the criminal act. Consideration of the broader control environment can aid the auditor in assessing the risk of fraud and in targeting specific areas for further testing.

In the lower portion of Figure 1, we map the Dorminey et al. (2012) model into the auditor's risk assessment, control evaluation, and fraud-detection efforts. Our model links the fraud triangle to inherent risk (the possibility that, absent controls, a material error or fraud enters into the accounting system) and control risk (the risk that internal controls will fail to detect a material error or fraud). Incentive/Pressure and Attitude/Rationalization factor into the inherent risk assessment while, from the auditor's perspective, Opportunity factors into the control risk assessment. Auditors also consider other Anti-Fraud Measures (e.g., whistleblowing, other governance measures—including, but not limited to internal controls) when assessing control risk.[4] This evaluation of inherent risk and control risk then feeds directly into the auditor's assessment of fraud risk and the design/modification of audit procedures.

Finally, Figure 1 models the specific elements of fraud (see Albrecht et al. 2012). Here the auditor must consider—perhaps through brainstorming techniques—specific fraud schemes *as well as* concealment and conversion techniques. Auditors use this information to formally develop an

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[3] Although detection procedures are not technically a part of prevention and deterrence, they are closely related. For example, to the extent that a potential fraudster perceives an external audit as a strong/effective detection mechanism, it may serve as a deterrent.

[4] Note that the model distinguishes between opportunity and anti-fraud measures. While typically the accounting literature has made a direct link between opportunity and internal control, we follow Cressey's (1950) original model and make a distinction. In the original model, opportunity was explicitly based on the *fraudster's perceptions* of the effectiveness of anti-fraud measures—including internal controls—at preventing and/or detecting fraud. The accounting literature tends to be more likely to equate opportunity and internal controls/anti-fraud measures. We highlight this distinction in the Cressey model because it is possible that a company could have (for example) very strong internal controls and other anti-fraud measures, yet if they are not accurately perceived by the fraudster, they would not act as a deterrent. We believe that explicitly recognizing this distinction could lead to very interesting research into factors that cause would-be fraudsters to accurately (or inaccurately) perceive the probability of being able to successfully commit, and conceal, a fraud.

independent fraud risk assessment and determine the appropriate fraud-detection effort based on the desired level of detection risk (i.e., the risk the auditor fails to detect a material misstatement due to fraud). The model suggests that fraud-detection procedures should be designed into the audit program around the fraud triangle *as well as* around the elements of fraud (i.e., the act itself, the concealment of the fraud, or conversion of fraudulent gains). We argue that the auditors' model with respect to fraud broadens the perspectives of practitioners, regulators, and auditors, assisting them to organize their approach to fraudulent financial reporting from the auditor's perspective in a more granular manner. This paper synthesizes the academic research of each element in Figure 1.

THE FRAUD TRIANGLE

As highlighted in SAS No. 99/AU Section 316, auditors are required to make a fraud risk assessment for each engagement and are encouraged to frame their fraud risk assessments around the elements of the fraud triangle.[5] Therefore, auditors assess whether management has the *incentive* (or *pressure)*, the *opportunity*, and the *attitude* (i.e., predisposition to *rationalize*) to commit financial statement fraud.[6] This section of the paper reviews literature that addresses auditors' assessment of each of these three components.

Incentive/Pressure

> Auditors are concerned with what incentives and pressures cause managers and others to commit financial statement fraud.

Although initially developed by Cressey (1950) to explain embezzlement, researchers and regulators have expanded the fraud triangle model to incorporate fraudulent financial reporting. Consistent with this, they have broadened the language to include "pressure" and "incentive" (AICPA 2002). While much of the professional literature uses these terms interchangeably, we argue that this may not be the case.

Most of the recent research in accounting on fraud has focused on the incentive to commit financial statement fraud (versus pressure to do so). A great deal of research cited by Hogan et al. (2008) suggests that management incentives drive earnings management. However, the results are not uniform. For example, contrary to many of the findings cited by Hogan et al., Armstrong et al. (2010) find some evidence that accounting irregularities occur less frequently at firms where CEOs have relatively higher levels of equity incentives. Koh et al. (2008) find that expectations to meet or beat analyst-set targets have increased following the accounting scandals of the early 2000s (post-scandals period) and suggest that earnings management may have been replaced with expectation management in the post-scandals period. Further, Perols and Lougee (2011) find that fraud firms are more likely to have managed earnings in prior years. They also find that, even when there is no evidence of prior earnings management, fraud firms are more likely than non-fraud firms to meet or beat analyst forecasts. This evidence suggests that proxies for incentive or pressure may need to be conditioned on the reported reason for the fraud in future research. The mixed nature of the findings in this area suggests that the relation between management compensation and aggressive accounting is not direct and may be more subtle and complex than previously thought.

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[5] SAS No. 99 (AICPA 2002) has been accepted by the PCAOB under its codification AU Section 316 and thus poses requirements for auditors of public companies under its standards (PCAOB 2007). Additionally, this new codification has also been adopted by the AICPA for auditors of non-public companies.

[6] The words "pressure" and "incentive," as well as "attitude" and "rationalization," are used interchangeably by SAS No. 99/AU Section 316.

Although SAS No. 99/AU Section 316 and the fraud triangle often refer to incentive and pressure as interchangeable, the blurring of the lines between incentive and pressure suggests an untapped trove of research topics. First, management could mastermind an incentive-driven fraud because they perceive an opportunity to profit from their equity in the company which could be overvalued based on the deceptive financial statements. Or, management could mastermind a pressure-driven fraud because they perceive an opportunity to avoid any number of potentially harmful events (e.g., missing analyst expectations, reporting a loss, receiving a going concern opinion, violating a debt covenant). Future research could attempt to distinguish between these two potentially different factors.

Consistent with the notion of "pressure-driven fraud," General Strain Theory (Broidy 2001; Paternoster and Mazerolle 1994) in white-collar crime offers a promising explanation for the causes of fraudulent financial reporting. General Strain Theory suggests that the social environment in which an individual resides induces certain stress to achieve material success, which in turn induces the individual to act criminally. A 2007 study in the sociology literature uses General Strain Theory to investigate whether stress or "strain" created by various social and economic factors surrounding an individual could explain his/her propensity to indulge in criminal/fraudulent acts (Langton and Piquero 2007). The results indicate that strain was positively related to securities violations. The results also suggest that securities violators were of high social status but they appeared to have more unemployment and liability strains. As a result, they were more likely to feel pressure to excel in the workplace—perhaps by any means necessary, including criminal behaviors like securities violations. The results also indicate that individuals convicted of antitrust offenses were usually indicted alongside a corporation, and hence business motivations were positively and significantly related to this form of offending. As indicated by the Langton and Piquero (2007) paper, additional theories of fraudulent behavior or variables explaining human motivations may prove beneficial to accounting researchers as they seek a better understanding of the motives behind fraudulent financial reporting.

With respect to additional variables that may help explain human motivations, Dorminey et al. (2012) suggest at least four broad categories of motivating factors including money, ideology, coercion, and ego (or entitlement). The motivations are summarized in the acronym M.I.C.E. Delineating fraudster motivations in a more granular manner might benefit auditors and practitioners as they evaluate and weigh how much attention other red flags might warrant, given the nature and degree to which pressures and or incentives are observed.

Attitude/Rationalization

> Auditors are concerned with the types of attitudes and rationalizations that make managers more susceptible to committing fraud.[7]

Looking again to the sociology literature, we learn from Cressey's (1950) original theory of the fraud triangle, that fraudsters are presented as needing a suitable rationalization in order to mitigate the conflict between their action and societal norms. Sykes and Matza (1957) labeled these rationalizations "techniques of neutralization," which has become common terminology in white-collar-crime research.[8]

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[7] SAS No. 99/AU Section 316, in its depiction of the fraud triangle, uses the terms attitude and rationalization interchangeably (AICPA 2002).

[8] However, not all fraudsters necessarily "rationalize" or "neutralize" their behavior. For example, some people set up organizations to deliberately commit some bad act—the primary motivation being financial. The quintessential example is organized crime. In the financial statement fraud context, such fraudsters might be described as predators. To auditors, predators are far more dangerous because such persons are more deliberate, plan carefully, and often have better concealment schemes. The ZZZZ Best financial statement fraud might be categorized as a predatory fraud. Barry Minkow appeared to need little internal rationalization to justify his behavior.

As noted by Hogan et al. (2008) and Murphy and Dacin (2011), this attitude/rationalization element of the fraud triangle has received the least amount of attention in the accounting literature, and this area remains an open area for future research. One accounting paper has addressed the issue of management's attitude or predisposition to commit fraud. Davidson et al. (2012) find that CEOs and CFOs with a legal record are more likely to perpetrate fraud. In addition, the authors develop a methodology to assess CEO "frugality." They find that un-frugal CEOs oversee a relatively loose control environment characterized by relatively high probabilities of other insiders perpetrating fraud and unintentional material reporting errors. Research into new areas incorporating variables such as prior criminal record and CEO frugality may help us to better conceptualize and understand fraudsters and their rationalizations.

In other recent research, Cohen et al. (2011) used content analysis of press articles, guided by the theory of planned behavior, to investigate corporate fraud and managers' behavior. They find that personality traits of top management are a major fraud risk factor. Further, they corroborate these findings with a quantitative analysis of keywords in press releases documenting a significant association between the attitude/rationalization component of the theory and fraud firms, as opposed to a control sample of firms. Consequently, they suggest that auditors should evaluate the ethics of management when assessing the risk of fraud. In another innovative approach, Hobson et al. (2011) reviewed earnings conference calls searching for vocal dissonance markers. They report an association between such markers and financial misreporting. We encourage these kinds of novel and unique alternative methodologies to investigate ways that we might learn more about managers' attitudes and rationalizations.

Cognitive Dissonance and Neutralization

While accounting researchers have recently begun to explore rationalization (e.g., Murphy and Dacin 2011), social psychologists have examined rationalization and related issues for decades. Festinger's (1957) cognitive dissonance theory suggests that individuals employ certain techniques *after* engaging in deviant behavior in order to attribute meaning to the behavior, avoid punishment, or mitigate conflict.

One such technique involves rationalizing inconsistencies between behavior and an individual's attitude toward that behavior. Thus, although SAS No. 99/AU 316 use attitude and rationalization interchangeably, one could argue equating these two constructs is inappropriate. For example, consider an individual with a given attitude toward certain types of behavior. Rationalization might be used to suppress discomfort when that individual views a certain behavior as unethical or immoral, yet chooses to take that course of action anyway. In other words, "rationalization provides [individuals] with a way to make otherwise unreasonable behavior seem appropriate" (Audi 1988, 97). Overall, rationalization can be characterized as a mental process that allows individuals to justify dishonest actions and feel less guilty or uncomfortable about their acts (Festinger 1957; Ross and Nisbett 1991; Sykes and Matza 1957; Coleman 2001; Kieffer and Sloane 2009).

Similar to, but distinct from rationalization is neutralization. Sykes and Matza (1957) use neutralization theory to argue that an individual's ability to neutralize the perception that a social norm has been violated is an important predictor of whether an individual will engage in unethical or deviant behavior. Schiller (2005) provides a rich, although brief, literature review of neutralization research. The paper emphasizes that neutralization occurs before the act while rationalizations are developed after the act. The paper concludes that, in general, neutralization is a weak predictor of norm-contradictive behavior, and high norm acceptance tends to amplify the neutralization-behavior effects.

Both the cognitive dissonance and neutralization theories have been referenced in thousands of psychology studies in the past 50 years, and they provide support for the basic claim that rationalization and/or neutralization are important factors in fraudulent behavior. Of potential interest to fraud researchers is whether there is a relevant practical distinction between neutralization and rationalization—i.e., are there particular situations or individuals that require before-the-fraud neutralization as opposed to after-the-fraud rationalization?

Personality and Individual Differences

Researchers in non-accounting fields have also examined individual constructs behind fraud and other financially motivated criminal acts. For example, Knust and Stewart (2002) examine two seemingly competing theories of risky behavior: (1) Zuckerman's (1979) sensation-seeking model where individuals are expected to take physical, social, legal, or financial risks to seek intense sensations and experiences; and (2) Eysenck and Eysenck's (1976) three-factor model related to introversion-extraversion, neuroticism, and psychoticism. The results suggest a distinction between socialized and non-socialized forms of risk-seeking behaviors. Building on research of this type, which examines individuals' innate psychological characteristics, could also lead accounting researchers to a better understanding of the ability of fraudsters to rationalize their behavior.

Prior research has also examined the impact of various attitude variables on an individual's deviant behavior. Accountability, moral intensity,[9] and a competitive Type-A personality (Beu and Buckley 2001); positive extrovert, the disagreeable, and the neurotic personality types (Alalehto 2000); contempt, intent to quit, and job dissatisfaction (Bolin and Heatherly 2001); impulsivity, a preference for simple tasks, risk seeking, physicality, self-centeredness, and narcissism (Hobson and Resutek 2009; Johnson et al. 2011); a bad temper (Gottfredson and Hirschi 1990); and an individual's desire to maintain control (Piquero et al. 2010) have all been shown to be related to deviant behavior. Further, the results suggest that at least two personality types, the conceited and the agreeable, are related to law-abiding acts (Alalehto 2000). These studies suggest that personality matters in economic crime. Further, they suggest many variables that may be useful in understanding the types of personality factors that may be useful in understanding an individual's ability to rationalize.

Organizational Ethics and Leadership

It is possible that an organization's ethical culture and leadership can affect management's perceived ability to rationalize and commit fraud. For example, Palmer (2009) suggests leaders who lack commitment to ethical behavior in their personal lives will also be prone to unethical behavior in leadership roles. Relatedly, in their research into the leadership mission, Bartlett and Preston (2000) argue that employees often question the existence of business ethics because there is little perceived "good" and "bad" between which to choose; rather, the employee's choice is between success and failure. Related to this research, Cohen-Charash and Mueller (2007) argue that when individuals perceive an action to be unfair, they are less likely to take that action regardless of (1) the potential payoff and (2) the likelihood that the unfair action will remain undiscovered. Further, Beugré (2005) develops a model that helps in understanding victims' retaliatory actions against perceived injustice and explains how reaction to injustice is cognitively processed. Such institutional understanding and theoretical background could prove useful to accounting researchers

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[9] Moral intensity is defined as the characteristics of the moral issue related to any ethical decision. Moral intensity is composed of the following characteristics: magnitude of consequences, social consensus, probability of effect, temporal immediacy, proximity, and concentration of effect.

seeking to understand how controls leadership, corporate culture, and ethical norms could affect the ability to rationalize fraud.

Of concern regarding the ethical climate in the workplace environment, Weeks et al. (2005) examine the "mere exposure effect"—the notion that repeated exposure to a stimulus is sufficient to increase more positive attitudes toward the stimulus. Their findings raise concerns that previous exposure to unethical situations is a mediating variable.

In other ethics research that can affect our understanding of rationalization, Yu and Zhang (2006) find that business students are more tolerant of lapses in ethics compared to non-business students. According to the authors, this occurs because business schools tend to emphasize what is legal over what is "right" (i.e., the letter of the law versus the spirit of the law). Knowledge of the extent to which corporate management and corporate culture emphasize meeting the letter (as opposed to the spirit) of the law (or corporate code of ethics) could be quite helpful to the auditor in assessing the level of fraud risk. Further, it could be instructive for academics to reflect on, and research the effects of, what they teach in the classroom.

Finally, Block and Griffin (2002) and McBarnet (2006), using case studies, discuss the role of social networks and social systems that are necessary to carry out nefarious schemes. They highlight the roles of "enablers" of bad acts (fraud and financial crime) such as attorneys and accountants in promoting such activities. It may be helpful for the profession and the PCAOB, as well as academic researchers, to consider these findings and reflect on them in developing effective risk assessments.

Rationalization and Foreign Environments

If fraudsters do not view their act as wrong, rationalization plays no role. With globalization, registrants are increasingly doing business in lesser developed and developing countries where cultural norms and local corporate ethics do not always align with a U.S. or Western concept of ethics (Statman 2007). This can increase fraud risk as management works to operate effectively with different national and corporate cultures and with different corporate governance environments. For example, decision makers must abide by the Foreign Corrupt Practices Act (FCPA) as well as other U.S., home-country, and international regulations (Kaikati et al. 2000; Powpaka 2002). However, they must not fall prey to the strain of relativism which claims that the ethicality of a judgment is not universal, but rather it is relative to the traditions and practices of local cultures. Here we examine recent literature addressing such factors as they are related to fraud.

Hamilton and Knouse (2001) suggest that corporations should establish general principles to help managers adapt and work in conflicting cultural climates. In that vein, they present a decision framework that outlines conditions under which management should choose to operate under the corporation's own standards, adapt to host country standards, or, in the extreme, exit the country. Halpern (2001) correlates cross-national attitude data from World Values Surveys to explore whether social capital explains crime. Social capital refers to the quality of the social networks and norms in a community that facilitate the action of individual agents and the community itself, particularly cooperative action (Coleman 1988; Putnam 1993). The analyses included 16 nations, and results indicate that in general, higher levels of social capital are expected to be associated with lower crime rates. While indirectly related to fraudulent financial reporting, the model may be applicable for examining how attitudes and moral values of individuals in different societies around the world are affected by their economic and social environment and how a combination of such factors affect the incidence of fraudulent financial reporting. Such considerations are very important for practitioners, auditors, and regulators when examining work performed in the U.S. versus that prepared in other countries, particularly those countries where morals and values have been observed to be inconsistent with expectations grounded in American culture.

This type of research could be particularly valuable in designing future studies that examine factors related to fraud detection by audits of multinational clients where clients may have different views of acceptable practice. Of further concern, it is possible that auditors in those countries may have views similar to those of their clients. Such factors increase the complexity of auditing and fraud detection for U.S. multinational clients, and of review and assessment of those audits by the PCAOB.

Opportunity

> An auditor is concerned with which aspects of the company's control environment provide possible opportunities for management and others to perceive the ability to perpetrate and conceal fraud.

It is important to distinguish that Cressey (1950) was describing opportunities as those perceived by a potential fraudster. In contrast, as part of their anti-fraud efforts, organizations attempt to anticipate what fraudsters might perceive and design an environment to minimize (subject to implementation costs) the potential for material misstatement. Auditors have the challenging role of viewing opportunity through the lens of a potential fraudster as they evaluate the organization's anti-fraud efforts.

With respect to financial reporting fraud, while assessing whether client personnel have the opportunity to commit fraud, auditors evaluate the client's corporate governance and internal control structure. Since the audit profession relies almost exclusively on the Committee of Sponsoring Organizations of the Treadway Commission framework (COSO 1992) as means to evaluate internal controls, we consider financial reporting fraud with regard to the five components of the COSO framework: (1) the control environment, (2) risk assessment, (3) control activities, (4) information and communication, and (5) monitoring activities. The bulk of the literature on internal controls relates to the control environment, the first component, and is discussed in the following subsection (however, see also Asare et al. [2013] for a review and synthesis of internal control literature).

Risk assessment, the second factor in the COSO framework, refers generally to the evaluation of changes in both the external and internal environment of the company that would preclude it from reaching its business objectives. COSO specifically mentions assessing the potential for fraud as one of the objectives of risk assessment. There has been extensive research on auditors' assessment of fraud risk (as discussed below); however, there has been little research on the company's assessment of fraud risk. Future research into corporate risk management—perhaps from the perspective of the board of directors, audit committee, or internal audit—may be particularly useful.

Control activities, the third factor of the COSO model, are established to make sure management's directives are carried out. Internal controls are generally designed to prevent a single individual acting alone from committing a fraudulent act. However, under conditions of collusion and management override, such preventive controls play a lesser role. The diminished value of preventive controls forces greater reliance on deterrence and detective controls. To the extent that controls are not designed to explicitly recognize that financial statement fraud is frequently dependent on collusion and management override, corporations and auditors will face a greater risk. This highlights the importance of tone-at-the-top, an open, transparent corporate culture, and opportunities for reporting inappropriate behavior (e.g., anonymous whistleblower hotlines).

The COSO framework indicates that information and communication occurs when relevant information is identified, captured, and communicated in a form and timeframe that enable people to carry out their responsibilities. There has been little research in this area. Work in the areas of lines of reporting authority, management override of controls, and informal systems could help to address this shortcoming in the literature.

Finally, the COSO framework describes two principles relating to monitoring activities. The first is selecting, developing, and performing ongoing or separate evaluations of the components of internal control. The second is evaluating and communicating deficiencies to those responsible for corrective action, including senior management and the board of directors, where appropriate. While using the COSO framework is helpful to the auditor in his/her assessment of the perceived opportunities that may exist for managers to commit fraud, when assessing opportunity, auditors must also consider a company's anti-fraud measures. Extensive research in this area is summarized by Asare et al. (2013) in their synthesis of the work done in the area of internal control over financial reporting.

The Control Environment

Hogan et al. (2008) synthesize significant research documenting that weak corporate governance is associated with a greater likelihood of fraudulent reporting. More recently, Archambeault et al. (2008) report a positive association between short-term stock option grants for audit committee members and restatement likelihood. They suggest that short-term options may reduce audit committee oversight quality as the committee members focus too heavily on short-term performance. Similarly, Magilke et al. (2009) indicate that audit committee members that are compensated with current stock-based compensation prefer aggressive reporting, whereas audit committees that are compensated with future stock-based compensation prefer overly conservative reporting. In addition, audit committee members who do not receive stock-based compensation are the most objective. Examination of audit committee compensation could assist auditors in fine-tuning their risk assessment with regard to the overall organizational fraud risk.

Related to the importance of the board's role in controlling opportunities for fraud, Collins et al. (2009) find that option backdating was significantly more prevalent in firms where the CEO exercised greater power over the board (i.e., backdating firms had (1) a higher proportion of inside and gray directors, (2) a higher proportion of outside directors appointed by the incumbent CEO, (3) a higher incidence of the CEO serving as chair of the board, and (4) the presence of a board member serving on the board of another backdating firm). Additionally, backdating was less likely when there was an outside block holder on the compensation committee, which is consistent with strong outside monitoring deterring opportunistic managerial behavior. While options backdating did not always lead to fraudulent reporting (i.e., material understatement of expenses), the ability of management to backdate options suggests the possibility of committing fraud—including fraudulent reporting.

Zhao and Chen (2008) report an interesting empirical finding: staggered terms of boards of directors (versus boards elected in their entirety) are associated with lower likelihoods of financial statement fraud, smaller magnitudes of absolute unexpected accruals, and lower firm value. These authors argue that managers of firms with staggered boards enjoy the "quiet life" (as they are more protected from takeover threats) and have less incentive to increase firm value and as a result less incentive to manage earnings.

Prior research indicates that relatively unethical members of top management are not likely to reform themselves and are likely to be repeat offenders. Fich and Shivdasani (2007) find that firms prone to fraud lawsuits are more likely to have outside directors who have been previously sued for fraud. Similarly, Efendi et al. (2007) report that executives on boards that have already been sued for fraud are more likely to again be sued for fraud. Additionally, there is a decline in the number of independent "outside directors" in companies affected by fraud. This decline is greater when the outside independent directors bear greater responsibility for monitoring fraud and when strong

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corporate governance mechanisms are in place. These findings suggest that client acceptance and engagement renewal procedures, if properly designed, should help auditors identify high-risk engagements that they may want to decline.

Non-Accounting Research Related to Opportunity

There has been non-accounting research that examines how perceived opportunities affect individuals' actions. For example, Engdahl (2008) drills into the concept of "opportunity" and argues that social position creates opportunity in terms of: (1) access to authority, (2) social contact networks, and (3) technical and administrative systems. The author also explains how "barriers" and "back regions" are facilitated by social position, which in turn aids fraudulent actions. Barriers prevent others from taking control over the fraudster's areas of activity, thus restricting others' ability to detect the crimes being carried out. Back regions are the areas where the fraudster learns, trains, and tests schemes for effectiveness. The model developed by Engdahl (2008) could help in understanding how top management (i.e., managers who usually have access to authority and social networks) could circumvent the governance structure by creating barriers to conceal their acts and serve their own self-interests.

Wedel (2001) considers the role of informal systems in aiding fraudulent actions. Informal systems override lines of authority and often ignore the traditional organization chart. Informal systems can support the development of new groups and institutions while also obstructing institutional change and reform. Informal systems arise to address shortcomings in the formal system and can bleed into the formal structure over time. These themes might be analogous to the slippery slope of large-scale financial reporting frauds, which are often used to "buy time" for the greater good of the organization. Research into the nature of such informal or "parallel" systems could enhance our understanding of circumvention of internal controls. For practitioners, recognition that operational controls and procedures may not operate as designed "on paper" is a valuable insight. It is important to examine opportunity based upon the way the organization actually operates rather than design.

Fraudulent financial reporting generally requires collusion among multiple individuals (e.g., CEO, CFO, controller, and staff accountants), sometimes in concert with management override of controls. Collusion, by its very nature, strikes at the heart of many accounting controls (e.g., segregation of duties or independent supervisory review). Generally, collusion and management override may provide fruitful avenues for research into material financial misstatements. Collusion and management override may mitigate the effectiveness of the fraud triangle as a model of fraud because the fraud triangle was conceived assuming a single individual acting alone.

Thus collusion, and the possibility of management override of controls, may affect all three elements of the fraud triangle. For example, presumably, within a group of people involved in collusion, each actor faces different pressure and/or incentives to help perpetuate the fraud. The CEO and CFO may have significant equity in the company, which ties their personal wealth to the value of the company's stock. Thus, top management may have significant *incentive* to fraudulently report the financial statements in order to manipulate the stock price. Management can, in turn, put tremendous *pressure* on staff to make fraudulent journal entries (i.e., coercion). Such entries can potentially be entered and covered up (i.e., concealed) through the opportunity created by management's ability to override controls. Thus, group dynamics may create different incentives, pressures, rationalizations, and opportunities for those involved in perpetrating a case of fraudulent financial reporting. An expansion of the fraud triangle which includes group dynamics may be necessary when the fraud triangle is applied to fraudulent financial reporting. To provide a better understanding, we look to research outside of accounting.

Research that might inform the understanding of management override and collusion includes factors such as social networks and interpersonal interactions. Thus, while a great deal of accounting research focuses on the fraudster, and the professional literature acknowledges the difficulty of addressing collusion, much of the non-accounting literature considers a more systemic or contextual view of fraud. Van De Bunt (2010) argues there are three major factors that adversely affect fraud detection: lack of supervision, successful concealment efforts, and silence maintained in social environments. These factors suggest the importance of tone-at-the-top, strong oversight, segregation of duties, and a healthy corporate culture with an emphasis on openness and transparency. Further, anti-fraud professionals must rely on detection controls and oversight mechanisms to reduce the risk of collusive fraudulent behavior (Dorminey et al. 2012). Auditors can benefit from this knowledge by ensuring that their procedures give adequate attention to detection controls (e.g., supervisory review and approval, surprise audits).

Non-accounting research has tended to more explicitly consider crimes committed by organizations rather than individuals. As such, some non-accounting research on corporations has the ability to inform examinations of collusion and management override. Chau and Siu (2000) investigate the relationship between entrepreneurial conditions and ethical decision making of business executives, and consider whether certain types of organizations are more likely to commit fraud. They find that environmental (e.g., turbulence, hostility, dynamism, heterogeneity), organizational (e.g., participative management, team building, work discretion, accountability, time availability), and individual (e.g., desire for autonomy, internal locus of control) characteristics of entrepreneurial conditions could make ethical decision making more or less conducive.

Even though the psychology literature cited above does not directly examine fraudulent financial reporting, an analysis of research in different organizational settings, collusive (with or without management override) versus individual fraud perpetration, can help accountants, standard setters, and auditors gain some insight into the personality characteristics and psychological make-up of corporate leaders and corporate environments that lead to fraudulent financial reporting. Further, this literature may provide a theoretical springboard for future accounting and auditing research.

ANTI-FRAUD MEASURES

As noted above, opportunity is defined through the perceptions of would-be fraudsters and focuses on the effectiveness of internal controls. In our model, anti-fraud measures address measures—internal and external—that are designed to deter or detect fraud, including the role of external participants such as auditors and regulators. Thus, while much of the research on internal controls was incorporated into the "Opportunity" section (above), it is important to note that these controls, in addition to influencing the fraudster's perceptions of successfully committing and concealing a fraud, are also key components in the organization's anti-fraud measures. Here we present additional considerations that can affect the control environment.

Whistleblowing

Bowen et al. (2010) indicate that whistleblowing could be helpful in uncovering potentially adverse agency issues related to a firm and could also lead to significant subsequent improvements in governance mechanisms. However, the results presented by Mesmer-Magnus and Viswesvaran (2005) suggest that it is less likely that whistleblowers will come forth if they believe that management will not support them or there is fear of retaliation. In another study, Vandekerckhove and Commers (2004) argue that whistleblowing will be most successful in corporate cultures that distinguish the physical corporation from the mission, goals, and values of the organization. In a potentially very interesting finding, the authors report that whistleblowers will be more likely to

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come forth if their loyalty to the ideals of the corporation is greater than to the physical nature of the corporation itself.

Foreign Environments and Anti-Fraud Efforts

External

Relying on institutional theory, Maynard (2001; see also, Nwabuzor 2005) examines an international setting and argues that management's moral conduct is not only driven by management integrity, but also by (1) competitors' behavior, (2) government agencies in the host country, and (3) public exposure/transparency (including media and non-governmental agencies). In fact, Maynard argues that public exposure and transparency may be the corporation's most effective tool in fighting corruption.

There is also evidence that corruption, at the national level, flows through to the financial statements. Picur (2004) finds a negative association between the quality of reported earnings and the level of corruption in a country. Additionally, Chirayath et al. (2002) contend that the increase of globalization/oligopolization will increase corporate deviance due to increased opportunities for management to manipulate earnings.

One factor that allows the management of multinationals some discretion in reporting earnings is the use of different accounting rules in different countries. With increasing global acceptance of International Financial Reporting Standards (IFRS), recent research has examined how the use of more principle-based standards (versus more rules-based standards) has the potential to affect more aggressively management actions. In an experimental setting, Agoglia et al. (2011) indicate that CFOs exhibit more agreement and are less likely to report aggressively under a less precise (more principles-based) standard than under a more precise (more rules-based) standard. These results should be of interest to U.S. policymakers as they continue to contemplate a shift to more principles-based accounting standards (e.g., IFRS). However, they may be tempered by the experiment-based results reported by Jamal and Tan (2010), who find that a move toward more principles-based standards is likely to result in improved financial reporting quality—but only when there is a corresponding shift in auditors' mindsets toward being more principles oriented. Finally, Backof et al. (2012) find that auditors' mindsets are improved, and they are less likely to accept their client's aggressive reporting in an IFRS setting, when auditor judgment frameworks are employed. This area provides promising avenues for future research and should be informative to regulators and practitioners operating in foreign environments.

ELEMENTS OF FRAUD

Besides the Fraud Triangle, another triangle is sometimes used in the fraud literature: the Triangle of Fraud Action (Albrecht et al. 2012; Kranacher et al. 2011) describes the actions an individual(s) must perform to perpetrate the fraud. The elements of this triangle include the *act*, *concealment*, and *conversion*. The Triangle of Fraud Action represents a model for detecting white-collar crimes and obtaining prosecutorial evidence. Evidence of the act, concealment, and conversion can be collected and presented during adjudication. Further, when considered in total, the Triangle of Fraud Action makes it difficult for the fraudster to argue that the act was accidental or to deny his/her role in the act. Evidence of concealment, in particular, provides a compelling argument that the act was intentional.

Consider channel stuffing, a financial statement fraud to which Bristol-Myers Squibb admitted in 1992. This illegal practice is an accounting fraud designed to inflate reported revenues.[10] An

[10] Channel stuffing is a scheme used by corporations (management) to inflate revenues by intentionally forcing more products through existing distribution channels than is realistically possible to sell in a given period. This scheme is typically used by management to meet short-term earnings goals and deceive investors and analysts.

investigator could document the act by identifying materially misstated revenues. Further, an investigator could investigate concealment by uncovering customer-side agreements not formally documented in the sales division nor disclosed to the auditors. Evidence of conversion, the benefit accruing to the fraudster, might be in the form of an incremental year-end cash bonus based on inflated revenue and profit numbers.

In another example, management might commit the act of financial statement fraud when they make false or misleading journal entries that violate GAAP revenue recognition. Management might conceal the fraud (e.g., fictitious revenue) by falsifying the dates in the accounts receivable system, leading to manipulated accounts receivable aging analysis provided to the auditor. Conversion may occur when management benefits financially or professionally from the fraud (e.g., fraud increases value of equity compensation or allows management to receive bonuses based on financial performance). Discovery and examination by auditors of red flags generated from these three attributes might lead to the identification of attempted or ongoing materially misstated financial reports. By its nature, the elements of fraud exist when a criminal act takes place. Auditors, in their attempt to identify and resolve incidents of materially misstated financial statements, can search for red flags indicating the act; management's cover-up of the true nature of transactions (concealment); and potential sources of conversion (the benefits that accrue to the fraudster). An assessment of the elements inherent in a fraud may supplement the auditors' work with regard to SAS No. 99 (that is centered on the fraud triangle and indirectly examines the organization's anti-fraud efforts). Daugherty and Neely (2011) and Michelman et al. (2011) provide case studies that help identify steps taken to perpetrate and conceal fraud. Future case studies may be helpful in documenting fraudulent acts, as well as concealment and conversion techniques.

The Fraudulent Act

> It is helpful for the auditor to understand the most common techniques of fraudulent financial reporting.

The fraud act in a financial statement fraud occurs when management intentionally materially misrepresents the financial performance and condition of their organization. The COSO report on fraudulent financial reporting provided in Beasley et al. (2010) investigated 347 cases of financial statement fraud. The most common fraud technique was improper revenue recognition (61 percent of the 347 companies). Overstatement of assets was the second most common fraud technique (51 percent), followed by understatement of expenses/liabilities (31 percent) and misappropriation of assets (14 percent). Beasley et al. (2010) suggest that fraud was not limited to companies of a certain size, as fraud companies included companies with just under $400 billion in assets or over $100 billion in revenues, as well as startups with no assets or revenues. The schemes are perpetrated and concealed through a variety of techniques. For example, false or misleading journal entries are likely performed out of the view of auditors and/or surveillance and are often conducted with the assistance or coercion of subordinate personnel. Targeted risk assessment (TRA) suggests a focus on the types of schemes to which a company is susceptible, and the likelihood that this type of scheme could be successful in completion and concealment.[11] From there, TRA suggests focusing on how a fraud might be perpetrated and concealed, how controls might prevent the fraud from

[11] TRA, as depicted in *Managing the Business Risk of Fraud: A Practical Guide*, is not a professional standard; however, anecdotal evidence suggests that TRA is being used by at least some of the professional services firms as part of their fraud risk assessment efforts. TRA is consistent with SAS No. 99/AU Section 316 paragraphs 40 and 54, and includes an assessment of likely fraud schemes (the act) and related concealment techniques. The actual frequency of use in practice and its effectiveness are empirical questions. Professional activities such as these might be informative to standard setters as they consider changes to existing standards.

taking place, and evaluating the integrity of the controls. The process points professionals toward the weakest points in the control environment with the highest risks.

Concealment

> Understanding how frauds are concealed can provide auditors with insight into how to detect fraud.

As most instances of fraudulent financial reporting of public companies result in income overstatement and involve a falsified credit on the income statement (e.g., artificially inflating revenue or artificially deflating expenses), the act of concealment may involve identifying a location to conceal a fraudulent debit on the balance sheet. Beasley et al.'s (2010) report on fraudulent financial reporting found that inventory was the most common asset account used to perpetrate a fraud, followed by accounts receivable and property, plant, and equipment. Concealment involves finding methods to hide the fraud from auditors. A variety of techniques can be used to conceal fraud acts including incomplete disclosure of relevant information to auditors; side agreements with vendors and customers withheld from auditors; altered documents; and/or inappropriate general ledger entries, journal entries, or account reconciliations. Executive management often understands the interworking of audits and as such may design concealment techniques that create significant challenges for auditors to detect such behavior.

In its simplest form, concealment might be achieved through complexity. Further, the 2010 COSO report noted that fraud firms were twice as likely to switch auditors during the fraud period as non-fraud firms (Beasley et al. 2010). Disturbingly, in 23 percent of the frauds investigated, the auditor was cited with aiding or abetting the fraudsters or with violating anti-fraud statutes. Smaller auditors (i.e., non-Big 4) were relatively more likely than Big 4 auditors to be cited. However, given that COSO's study involved SEC registrants, the majority of the fraud cases were audited by Big 4 firms.

Conversion

> It is helpful for an auditor to understand how management can profit from fraudulent financial reporting.

Conversion depicts how management converts fraudulent financial reporting into personal gain (which was discussed above under Incentives/Pressures). An example of such conversion may be the inappropriate receipt of a bonus based on overstated earnings.

One avenue of fraud research, overvalued equity, has been gaining traction in recent years. Jensen (2005) speculates that when a company's equity becomes overvalued, management feels pressure to misreport because the company cannot, by definition, generate the financial results the market expects. Thus, in order to meet unrealistic market demands, management feels pressure to fraudulently report, which creates even greater expectations and even greater overvaluation. When management's personal wealth is tied to the company's stock price, the incentive to manipulate financial results in order to avoid disappointing the market is high. Thus, overvalued equity can be a cause and a consequence of fraudulent reporting. Chi and Gupta (2009) find evidence that overvalued equity leads to income-increasing earnings management. In addition, if management is willing to commit financial statement fraud, one would expect that management would also be willing to trade on insider information. The COSO report on financial statement fraud (Beasley et al. 2010) finds that 24 percent of the frauds investigated had charges of insider trading.

In general, the role of the elements of fraud—the act, concealment, and conversion—have not received in-depth examination from the perspective of the auditor (e.g., with respect to the audit planning, fraud risk assessment, and effective audit tools and techniques). Research into these areas could provide useful insight.

THE AUDITOR'S ROLES WITH RESPECT TO FRAUD

The audit serves a dual role: deterrence and detection. One might argue that auditors and their fraud-related judgments are part of the deterrence anti-fraud fabric because the presence of an effective audit will cause a potential fraudster to increase his/her assessment of the likelihood of being caught. However, the auditor's primary role, with respect to material financial statement fraud, is fraud detection. The model presented in Figure 1 recognizes the detection aspect of the auditor's role by depicting the auditor's responsibility for detection (fraud assessment and detection procedures) as being distinct from other anti-fraud measures.

SAS No. 99/AU Section 316 Fraud Risk Assessment

> SAS No. 99 introduces the concept of brainstorming for auditors, and encourages professional skepticism and the use of analytical procedures to understand estimates and accruals. Thus, it is important for auditors to understand how they might be most effective in these areas as they seek to detect fraudulent financial reporting.

In the following section we describe research related to the auditor's fraud risk assessment as required by SAS No. 99/AU Section 316.

Audit Brainstorming

SAS No. 99/AU Section 316 requires auditors to conduct a brainstorming session for each engagement. The session's main objective is to generate ideas about how client personnel might commit and conceal the fraud. Brazel et al. (2010) document descriptive data on high-quality brainstorming sessions occurring in practice, and they provide best practices. For example, they find that brainstorming quality is higher when the brainstorming session occurs early in the audit process and when IT specialists attend the session. They further suggest that brainstorming quality moderates the link between auditors' fraud risk assessments and fraud-related testing, suggesting that the benefits of brainstorming do not apply uniformly: low-quality brainstorming sessions are likely incurring significant costs without attendant benefits.

Brazel et al. (2010) also report that face-to-face brainstorming is most common in practice. In an experiment, Carpenter (2007) examines practicing auditors and finds that face-to-face brainstorming sessions result in higher fraud risk assessments and more quality fraud risk possibilities being generated when conducted hierarchically within a team. Further, Lynch et al. (2009) indicate that computer-mediated brainstorming leads to a better evaluation of fraud risk factors compared to face-to-face brainstorming.

Finally, Trotman et al. (2009) examine multiple brainstorming options and demonstrate an association between providing proper guidance (guidelines on the objectives and conduct of brainstorming) to the audit team and generating a larger number of high-quality ideas. Related to these findings, Hammersley et al. (2010) provide evidence that the specificity of documentation of the brainstorming session, typically conducted in the planning phase of the audit, affects auditors' subsequent fraud risk assessments and audit evidence evaluation. Collectively, the findings from brainstorming research provide useful information to standard setters as they continue to examine and improve the fraud auditing standards. However, research in psychology warns of the dangers of group biases and suggests methods for reducing such biases (Straus et al. 2011). This suggestion provides an area worthy of future research, especially since audit teams are typically organized as a hierarchy of individual auditors at various levels (i.e., staff, senior, manager, and partner).

Auditor Skepticism

The PCAOB recently cited in its auditor inspection reports that the lack of professional skepticism is a serious problem in auditors' fraud investigations (PCAOB 2007, 2008). Moreover, SAS No. 99/AU Section 316 emphasizes the need for auditors to exercise professional skepticism when considering and responding to the risk of material misstatement due to fraud. While there is general consensus on the importance of skepticism, Nelson (2009) argues that there is a lack of precision in the use of the term "professional skepticism," and categorizes professional standards and academic research as holding either a neutral position, a presumptive doubt position, or a position of Bayesian neutrality when discussing professional skepticism. Hogan et al. (2008) called for more research in the area of professional skepticism, and a few recent studies answered this call. For example, Hurtt (2010) develops a scale designed to measure, *ex ante*, an individual's level of professional skepticism based on characteristics derived from audit standards, psychology, philosophy, and consumer behavior research. Carpenter and Reimers (2012) test Nelson's (2009) model using Hurtt's (2010) scale to measure auditors' professional skepticism. They find that emphasizing efficiency relative to effectiveness can have consequences when the level of fraud indicators is strong.

Hammersley et al. (2010) provide evidence that reminding auditors about the fraud brainstorming session, when a summary memo documents the fraud audit planning, before they evaluate evidence provides a low-cost means of reinforcing a fraud mindset. However, they also express caution that priming may not be effective in all situations. In particular, when planning is documented in a specific memo, Hammersley et al. (2010) suggest that auditors who are primed appear to interpret ambiguous evidence less skeptically.

Earley et al. (2008) warn that auditors are susceptible to biases when they are interacting with client management. The authors describe firm managers as first movers and auditors as second movers, which may place auditors at a disadvantage when evaluating evidence. They document that this bias is an unconscious cognitive bias, but they provide techniques that auditors can use to restructure their audit tasks to mitigate this bias. In a related paper, Bowlin (2011) also warns auditors about the strategic nature of firm managers. He suggests that while risk-based auditing directs more attention toward high-risk accounts, this may allow strategic managers engaged in fraud to take advantage of the fact that less attention is directed toward "low-risk" accounts. He presents evidence and cautions auditors to understand that firm managers are strategic and can take advantage of these resource allocations.

As noted in the above research, auditors are being encouraged to develop a more skeptical mindset rather than a compliance-based mindset (i.e., check-the-box mentality). Collectively, this research suggests techniques that auditors can use to combat their own unconscious cognitive biases as well as to understand the strategic nature of the firm managers they are working with as clients.

Accruals

Accruals are a tool that may be used to perpetrate a fraud. A significant amount of research over the past decade has analyzed whether abnormal accruals can detect aggressive earnings management. A recent report by the Center for Audit Quality (CAQ 2010) also affirms that financial reporting fraud perpetrated via the manipulation of accruals continues to be of significant concern. Cohen et al. (2008) report that aggressive earnings management has become more complex in the post-SOX environment because of an increase in the use of operational techniques (e.g., the timing of sales) in combination with accruals management.

Jones et al. (2008) evaluate the ability of popular discretionary accruals models to detect extreme cases of earnings management—fraudulent earnings and non-fraudulent restatements of financial statements. They examined several models and find that the accrual estimation errors estimated from cross-sectional models of working capital changes on past, present, and future cash flows have predictive power (above that of total accruals) for both fraud and non-fraudulent restatements of earnings.

Hennes et al. (2008) argue that researchers can significantly enhance the inferences they make from the research related to restatements by distinguishing between errors and irregularities, particularly in recent periods when the relative frequency of error-related restatements is increasing. They propose a straightforward procedure for classifying restatements as either errors or irregularities, and find that most of the restatements that are classified as irregularities are followed by fraud-related class action lawsuits while the restatements classified as errors generated only one lawsuit. As a validation of their measure of different types of restatements, Hennes et al. (2008) compare market reactions to the restatement announcements for the irregularities and errors samples. There was a market reaction of −14 percent for the irregularities sample, while the error sample generated a market reaction of only −2 percent. These novel approaches to investigating accruals and their relationship to fraud provide promise for future research.

Fraud-Detection Procedures and Auditor Characteristics

> It is important for auditors, standard setters, and researchers to understand what fraud-detection procedures or auditor characteristics are effective at detecting fraud.

In the following sections we evaluate several issues (e.g., auditor size, audit approach, the nature of audit evidence, auditor experience, time pressure to complete an audit, and the nature of interaction between audit team members) that affect the auditor's effectiveness in detecting fraud.

Auditor Size

Lennox and Pittman (2010) consider the importance of the auditor in the governance structure. Their findings suggest that companies that engage the largest multinational audit firms are less likely to engage in fraudulent financial reporting. Their results further suggest that hiring one of these auditors translates into the client being about four times less likely to engage in accounting fraud.[12]

A Business Model Approach to Audit Planning

Wright and Berger (2011) find that auditors may be better able to detect material misstatements if they follow a business model format versus a chronological presentation of client objectives and performance evidence. The business model presentation emphasizes the client's business strategy, strategic objectives, and key performance indicators, whereas the chronological presentation of audit evidence follows a more traditional workpaper style (i.e., background client information, the previous year's results, and the current year's information). Further, in a promising study combining business strategy and fraud detection, Bentley et al. (2011) identify specific aspects of organizational business strategy as important *ex ante* determinants of financial reporting irregularities and levels of audit effort. Alterative models of audit organization should be of interest to regulators and practitioners as they continually improve the effectiveness and efficiencies of their audit efforts.

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[12] While this suggests an audit quality effect, the association may be spurious. Large sophisticated clients who choose to engage large international auditors may also be investing more in other control mechanisms—independent of auditor choice.

Analytical Procedures

PCAOB inspections have revealed deficiencies in audit testing related to analytical procedures and journal testing (PCAOB 2007, 2008). This issue has also been of interest to audit researchers. In a recent study, Trompeter and Wright (2010) examine the conduct of analytical procedures. Their results suggest that, consistent with prior literature, auditors continue to set expectations and evaluate management explanations based on information received directly from the client (e.g., inquiry, budget). In addition, while auditors appear to be taking advantage of technology to develop more precise, quantitative explanations than in the past, they do not consistently develop independent expectations and frequently rely on simple year-to-year comparisons. These findings raise concerns of whether auditors rely too heavily on management when developing expectations. This also acknowledges that if clients are actively engaged in committing and concealing fraud, then traditional analytical procedures are unlikely to be sufficient as clients may strategically devise fraud techniques that will not be caught by traditional analytical procedures.

Brazel et al. (2009) examine whether auditors or other interested parties can effectively use non-financial measures (NFMs) to assess the reasonableness of financial performance and detect fraud. Their results indicate that the *difference* between financial and non-financial performance is significantly greater for firms that committed fraud than for their non-fraud competitors. Overall, their results provide empirical evidence suggesting that NFMs can be effectively used to assess fraud risk.

Audit Documentation

Ricchiute (2010) reports that auditors confronted with summarized documentation (e.g., memo from subordinates) will initially search evidence that is consistent with prior-period accounting while auditors confronted with detailed documentation (e.g., detailed supporting documentation) will initially search for inconsistent evidence. Thus, managers who rely primarily on summary documentation may inadvertently bias themselves toward evidence consistent with prior periods. Hammersley et al. (2010) find that when auditors are primed to consider fraud risk factors of the brainstorming session, auditors' fraud risk assessments are lower when they examined specific documentation compared to summarized documentation. Lambert and Agoglia (2011) find that a delayed workpaper review, by a supervising auditor, elicits significantly lower effort levels than does a timely review.

Audit Hours and Quality

Caramanis and Lennox (2008) examine the effect of audit effort on earnings management using a unique database of hours worked by auditors on 9,738 audits in Greece between 1994 and 2002. Their results suggest that when audit hours are lower: (1) abnormal accruals are more often positive than negative, (2) positive abnormal accruals are larger, and (3) companies are more likely to manage earnings upward in order to meet or beat the zero earnings benchmark. To the extent that similar data could be obtained elsewhere, this could yield very informative research results linking audit effort and audit quality. Alternatively, perhaps experimental studies could be designed to approximate the audit environment.

Forensic Specialists and Audit Quality

Regulators have considered the need for forensic accounting expertise on audits (e.g., PCAOB 2007, 2008). Little is known about forensic accounting specialists or how they might be used best in an audit. Hogan et al. (2008) called for more research in this area, but to date there has been limited response to that call. Brazel et al. (2010) suggest that in 60 percent of the brainstorming sessions they observed in practice, a partner or forensic specialist led the session. Further, this was one of seven factors that led to high-quality results from the session. They suggest that having a partner or a forensic specialist run the session is an example of best practices that firms can use to improve brainstorming quality. Additional research that investigates forensic specialists' judgments or how auditors would interact more effectively and benefit from the work of forensic specialists would be a valuable addition to the literature.

Auditor Training and Education

Hogan et al. (2008) called for more research on auditor training to help improve auditors' fraud judgments (see also Curtis and Payne 2008; Fleming et al. 2008). Consistent with that call, Carpenter et al. (2011a) compared a cohort of forensic accounting students to both a cohort of students with no forensic coursework and to a panel of experts. Results indicate that the training improved students' judgments over time and in comparison to the untrained group of students. They also find that the risk assessments provided by the trained students did not differ significantly from those provided by the panel of fraud experts. Further, Carpenter et al. (2011a) document this specialized training persists seven months after training, and they suggest that the course raised students' level of skepticism.

Brickner et al. (2010) describe the Internal Revenue Service (IRS) Criminal Investigation's Adrian Project that partners with universities. Through pre- and post-testing they find significantly improved fraud-detection skills among the students. Through this project, students have improved abilities to gather, organize, and evaluate evidence; developed enhanced communication and interviewing skills; and developed the ability to use these skills as an additional investigative tool to collect invaluable evidence necessary for fraud detection. Future research can continue to evaluate fraud training, and educators can continue to partner with other investigative and criminal organizations to provide students with the most state-of-the-art fraud investigative techniques.

Linking Fraud Risk Assessments to Audit Testing

The primary aim of increasing auditors' sensitivity to fraud risk factors is to ensure that better assessment of fraud risks results in better audit testing. In recent times there has been a significant amount of research on this topic (see Hammersley 2011). For example, Brazel et al. (2010) find that high-quality brainstorming sessions facilitate effective links between auditors' fraud risk assessments and their fraud-related testing, as well as the ultimate detection of fraud. Further, Bedard and Graham (2011) find that auditors detect about three-fourths of un-remediated internal control deficiencies through control testing. This finding underscores the value of Section 404 auditor testing in improving financial reporting quality. Hammersley et al. (2010) also provide evidence of improved linkages between fraud risk assessments, evidence evaluation, and auditor testing when auditors are primed about information evaluated during the brainstorming session and provided with a *general* memo documenting the brainstorming session. However, they also provide evidence of unintended consequences when auditors are provided with *specific* fraud memos, as these auditors provide lower fraud risk assessments. Hoffman and Zimbelman (2009) provide evidence that auditors can effectively modify their fraud audit plans when prompted to reason strategically or to brainstorm, and Carpenter et al. (2011b) find that internal auditors provide more fraud-related audit procedures in response to increased fraud risk when they work in groups.

While these findings point to the value of high-quality audits with respect to fraud detection, PCAOB inspections continue to document deficiencies in auditor testing in response to fraud risk (PCAOB 2008, 2010). Prior research supports this by documenting a breakdown in the auditor testing performed in response to fraud risk, especially with the nature of the testing (see Hogan et al.

2008; Hammersley 2011). However, it is unclear whether auditors simply do not respond with the appropriate testing or whether auditors do not know how to respond with the appropriate testing. Recent studies suggest that brainstorming, strategic reasoning, and documentation changes can result in enhanced links between auditors' fraud risk assessments and their subsequent evidence evaluation and testing (Hoffman and Zimbelman 2009; Hammersley et al. 2010), but this provides an area that is fruitful for future research.

Other Audit Factors

In addition to the factors mentioned above, research has also investigated some additional factors affecting auditors' actions. For example, Paino et al. (2011) find that factors such as leadership style and the effectiveness of the audit review have a significant impact on dysfunctional audit behavior (e.g., prematurely signing off on workpapers, gathering insufficient evidence, omitting audit steps). Reffet (2010) suggests that auditors are more likely to be held liable for failing to detect a fraud when the auditor investigated for fraud than when the auditor did not investigate for fraud.

The AICPA, the CAQ, and the PCAOB might consider sharing best practices of fraud audit procedures so that less-experienced auditors can be trained in the most effective techniques. Future research can explore variations in audit documentation and forensic audit techniques to continue to find new ways to improve auditors' skepticism and their fraud testing in response to heightened risk of fraud.

Consequences of Fraudulent Financial Reporting

It is important to understand the consequences of fraud.

Consequences associated with fraudulent financial reporting include multiple factors such as: (1) the need for an investigation; (2) remediation efforts; (3) negative market reactions; and (4) examinations by researchers, regulators, and others about what went wrong, how, and why.

Prior research has documented several factors that have been affected by the disclosure of aggressive/fraudulent earnings manipulation. Koh et al. (2008) investigate: (1) whether the stock market rewards meeting or beating analyst expectations following the accounting scandals of the early 2000s (post-scandals period), and (2) whether earnings management and/or expectations management have changed from the pre-scandals period. Their findings suggest that the stock market premium assigned to meeting analyst estimates of quarterly earnings has diminished. These results suggest that the market has become more skeptical of firms that meet or beat expectations after the accounting scandals.

COSO's 2010 report on fraudulent financial reporting provides statistics on the consequences of the 347 fraud firms they studied (Beasley et al. 2010). The report found that approximately 20 percent of fraud firm CEOs and CFOs were indicted, and over 60 percent of those indicted were convicted. Approximately 47 percent of the fraud firms had an involuntary stock delisting and 28 percent filed for bankruptcy or liquidated. Close to 90 percent of the fraud firms received a "cease and desist" order from the SEC and 47 percent of fraud firms had officers or directors that were barred from serving in those positions in the future. Fines were imposed in 65 percent of the fraud cases and disgorgements were imposed in 43 percent of the cases. The average fine was $12.5 million and the average amount of disgorgement was $18.1 million. Clearly, the consequences to fraud can be enormous. Little formalized research has centered on fraud examination (beyond predication), the consequences of fraud, and the remediation steps taken to "clean up the mess" once a fraud has been detected, but such research could be helpful.

CONCLUSION

This paper synthesizes a large body of academic research in several fields including accounting and auditing, criminology, ethics, finance, organizational behavior, psychology, and sociology. We develop this synthesis around a model that illustrates the auditor's perspective with respect to fraud (see Figure 1). This approach allowed us to systematically synthesize the research that has been done, to identify areas that are not well represented by the current body of research, and to point out areas for future research (see Appendix A). We summarize an extensive body of research and provide several avenues for additional research in the area of fraudulent financial reporting. Consistent with our model, we categorize and synthesize the literature in the following areas: (1) the fraud triangle, (2) anti-fraud measures, (3) elements of fraud, (4) SAS No. 99/AU Section 316 fraud risk assessment, (5) fraud-detection procedures and auditor characteristics, and (6) consequences of fraudulent financial reporting.

This paper, as well as Hogan et al. (2008), discusses a great deal of literature that has focused on various aspects of the fraud triangle. However, there remain several unexplored areas of the fraud triangle that future research could explore. There is still interest in learning more about the factors that affect the likelihood that an individual will engage in fraud. We encourage additional work into factors related to truth telling and the honesty and integrity of executives, management, and employees. Cross-disciplinary work with researchers in psychology, criminology, as well as organizational studies (perhaps human resource management) may be particularly effective in addressing these issues. The issue of incentives/pressures continues to be of great interest. First, distinguishing between incentives and pressures may lead to a productive line of investigation. Further, existing research has established the relationship between incentives and earnings management and fraud. Future research could address the extent to which, and the conditions under which, incentives might result in earnings management through aggressive accruals, biases in fair value estimates, and structured transactions. In addition, research into factors that could mediate this relationship could be very helpful. Finally, examining the role that incentives play for all players (e.g., management, auditors, regulators, forensic specialists, and fraud investigators) may also be a fruitful line of research, the finding of which could be informative for standard setters and auditors developing risk assessment best practices.

The fraudster's assessment of anti-fraud measures, particularly controls, with respect to the probability (perception) of detection is also important. This may be especially salient for international fraud where fraud-detection systems may not be uniformly robust. Such research may require multinational research teams with requisite financial and cultural expertise. There has been a great deal of research effort into the pre-fraud state of nature: the fraudster's perception of the environment (the fraud triangle). Researchers have put significant efforts into gaining a better understanding of the anti-fraud measures, including internal controls and corporate governance (i.e., the center section of Figure 1). Areas of future research include an emphasis on the fraud and post-fraud section of the model—the elements of fraud. Future research into the elements of fraud, the financial reporting fraud scheme, concealment, and conversion could prove beneficial to research and to audit practice. We encourage continued work in the area of case studies that identify the specific steps taken to perpetrate and conceal financial frauds. This will continue to prove useful in advancing our understanding of financial crimes, and in the development of deterrence and detection techniques, and be of considerable value to practitioners and standard setters. Further evaluation of a larger set of frauds—potentially through the use of case studies—showing how the frauds were detected and additional techniques that could have uncovered the frauds earlier would be of great use to regulators, practitioners, and researchers.

A considerable amount of accounting research and practitioner/regulator effort has been devoted to the area of SAS No. 99/AU Section 316 fraud risk assessment, but far less has been done in the area of fraud-detection procedures that can be used by auditors to identify fraud before it results in catastrophic losses. Hogan et al. (2008) discussed the dearth of research related to fraud examination tools and techniques that can be used by auditors. We continue that call for future research in methods that can help auditors detect fraud once initial "red flags" have been identified. This remains an important area where little research has been done. In the area of detection, there are many issues related to what auditor characteristics make successful versus unsuccessful auditors. In this area, collaboration in developmental psychology (personality variables), social psychology (situational variables), and perhaps criminology would be beneficial. Accordingly, it would be helpful to explore how research from other disciplines can inform the audit profession on how to improve professional skepticism and fraud-detection techniques. Research related to specific audit tests or fraud-detection techniques would also be useful. Further, it may be fruitful to examine where forensic accounting specialists fit into the audit, and whether and how they might enhance fraud detection.

As noted, the PCAOB finds that auditors have difficulty responding when fraud risk is high. Whether auditors simply fail to respond with the appropriate fraud-related audit techniques or whether auditors do not know how to respond with the appropriate testing is also an important area of future research. As noted in the final section of the paper, little formalized research has centered on fraud examination, the consequences of fraudulent financial reporting, and the remediation steps taken to "clean up the mess" once a fraud has been detected. An important issue facing managers and practitioners is the need to cost-justify anti-fraud measures. Research into the examination, consequences, and remediation of fraud might form the basis of a business case that assists anti-fraud practitioners, including auditors, in demonstrating in more quantitative terms why their efforts may increase the value of the firm.

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APPENDIX A

THE AUDITORS' MODEL WITH RESPECT TO FRAUD: A SYNTHESIS OF FRAUD-RELATED RESEARCH AND SUGGESTIONS FOR FUTURE RESEARCH[13]

The Fraud Triangle

Incentive/Pressure

Accounting literature:

- SAS No. 99/AU Section 316 (AICPA 2002)
- Armstrong et al. 2010
- Hogan et al. 2008 (previous PCAOB-commissioned fraud literature review)
- Perols and Lougee 2011
- Dorminey et al. 2012

Non-accounting literature:

- Paternoster and Mazerolle 1994
- Broidy 2001
- Langton and Piquero 2007

Avenues for future research:

- Additional research is needed to understand the role that compensation plays with regard to fraudulent behavior. For example, are fraud risks associated with asymmetric compensation mitigated by a diligent board of directors, more effective oversight by the audit committee, or additional procedures planned and implemented by the auditors?
- Does compensation (i.e., incentive) interact with the attitude/rationalization component of the fraud triangle?

[13] The future research opportunities provided in this appendix represent a sample of possible future research and is not intended to be an exhaustive list of all opportunities.

- Does compensation during the years in which the fraud was committed differ significantly from compensation during years prior to the fraud?
- How might research examining incentives (e.g., compensation) differ from research related to how people respond to pressure (e.g., meet analysts' forecasts) or are these constructs the same?
- Do incentives and pressures reveal themselves differently (i.e., are the red flags different for incentives versus pressure)?
- Are fraud risk indicators of incentives predictive of fraudulent acts?
- Are incentive-based fraud risks easier to identify versus fraud risk indicators of pressure? For example, would employees feeling pressure to commit fraud be more susceptible to whistleblowing or audit inquiry than management who has significant incentive to commit fraud?
- Would it be more difficult to implement responses to risks related to incentives than risks related to pressures?
- How might research inform us about how these two different drivers (i.e., incentives versus pressure) of fraud reveal themselves in the form of fraud risk indicators?

Attitude/Rationalization

Accounting literature:

- SAS No. 99/AU Section 316 (AICPA 2002)
- Hogan et al. 2008 (previous PCAOB-commissioned fraud literature review)

Non-accounting literature:

- Cressey 1950
- Festinger 1957
- Sykes and Matza 1957
- Eysenck and Eysenck 1976
- Zuckerman 1979
- Audi 1988
- Coleman 1988
- Gottfredson and Hirschi 1990
- Ross and Nisbett 1991
- Putnam 1993
- Alalehto 2000
- Bartlett and Preston 2000
- Kaikati et al. 2000
- Beu and Buckley 2001
- Bolin and Heatherly 2001
- Coleman 2001
- Halpern 2001
- Hamilton and Knouse 2001
- Block and Griffin 2002
- Knust and Stewart 2002
- Powpaka 2002
- Beugré 2005
- Schiller 2005
- Weeks et al. 2005
- McBarnet 2006
- Yu and Zhang 2006
- Cohen-Charash and Mueller 2007
- Statman 2007
- Kieffer and Sloan 2009
- Hobson and Resutek 2009
- Palmer 2009
- Piquero et al. 2010
- Cohen et al. 2011
- Johnson et al (2011)
- Murphy and Dacin 2011
- Davidson et al. 2012

Avenues for future research:

- Should all instances of financial statement fraud be considered as one homogenous group or does the initial motive of the fraudster matter? For example, Enron and WorldCom were presumably legitimate companies and market leaders when the fraud started. However, Bre-X Minerals, Ltd. was a financial statement fraud based on a non-existent gold mine. Presumably, the rationale and predisposition (attitude) to commit these different types of fraudulent financial reporting schemes were also very different.

- Auditors often do background checks to assess whether someone has any history of dishonesty, which would represent an assessment of "attitude." However, should auditors consider what rationalizations are available to management?
- What are the audit limitations associated with a focus on "attitude" versus an assessment of potential "techniques of neutralization?"
- Would it be beneficial for auditors to talk to former employees or staff about pressure they may have felt to push the boundaries of financial reporting?

Opportunity

Accounting literature:

- COSO 1992
- SAS No. 99 AU/Section 316 (AICPA 2002)
- Efendi et al. 2007
- Fich and Shivdasani 2007
- Archambeault et al. 2008
- Hogan et al. 2008 (previous PCAOB-commissioned fraud literature review)
- Zhao and Chen 2008
- Collins et al. 2009
- Magilke et al. 2009
- Asare et al. 2013

Non-accounting literature:

- Wedel 2001
- Picur 2004
- Engdahl 2008

Avenues for future research:

- Additional work could expand beyond the accounting literature to include human resources, computer security, and organizational design. Relying on such cross-disciplinary work could prove essential to yielding insights that would not be achieved by relying exclusively on the accounting literature.
- There is still interest in learning more about the factors that affect the likelihood that an individual will engage in fraud. We encourage additional work into factors related to truth telling and the honesty and integrity of executives, management, and employees. Cross-disciplinary work with researchers in psychology, criminology, as well as organizational studies (perhaps human resource management) may be particularly effective in addressing these issues. This work may become increasingly important as the PCAOB begins to gain greater access, through bi-lateral agreements, to workpapers of foreign audit firms that work on the audits of U.S.-listed registrants.
- Assessing how informal systems including "barriers" and "back regions" (as described by Wedel [2001] above) within an organization affect the opportunity to commit fraudulent reporting would be a valuable addition to the literature.
- Finally, do we need to rethink the fraud triangle when considering crime involving an organization/multiple individuals seemingly working on behalf of the corporation? Can we learn from literature on organized crime?
- What specific control activities are most effective at reducing the risk of fraudulent financial reporting?
- Should the audit committee oversee the design and implementation of controls over external reporting?
- When fraudulent financial reporting occurs, did the audit committee lack the information needed to ask appropriate questions?

- Should the audit committee rely more heavily on internal audit (versus management) when gathering information related to quality of external reporting?
- How can the internal audit function most effectively monitor the actions of management with respect to financial reporting? Is fraud reduced when the company specifically addresses the risk of financial statement fraud?
- Who is most effective at assessing the risk of fraudulent financial reporting—the audit committee, management, or internal auditor?
- Should audit committees be required to make an annual fraud risk assessment?
- Would a brainstorming session similar to that required by SAS 99/AU Section 316 be beneficial to boards of directors and/or audit committees?

Collusion and Management Override

Accounting literature:

- SAS No. 99/AU Section 316 (AICPA 2002)
- Hogan et al. 2008 (previous PCAOB-commissioned fraud literature review)
- Dorminey et al. 2012

Non-accounting literature:

- Chau and Siu 2000
- Van De Bunt 2010

Avenues for future research:

- How can the fraud triangle be expanded to include group dynamics when collusion is required?
- What monitoring activities provide the most effective oversight of management override of internal controls?

Anti-Fraud Measures

Accounting literature:

- Bowen et al. 2010
- Jamal and Tan 2010
- Agoglia et al. 2011
- Backof et al. 2012

Non-accounting literature:

- Maynard 2001
- Chirayath et al. 2002
- Vandekerckhove and Commers 2004
- Mesmer-Magnus and Viswesvaran 2005
- Nwabuzor 2005

Avenues for future research:

- The fraudster's assessment of the anti-fraud environment, particularly controls, with respect to the probability (perception) of detection is important. This may be especially salient for international fraud where fraud-detection systems may not be uniformly robust. Such research may require multinational research teams with requisite financial and cultural expertise.

- The existing literature focuses on three somewhat inter-related areas: internal controls, corporate governance, and corporate culture. However, future research related to anti-fraud measures could provide a richer understanding of the effectiveness of possible deterrence mechanisms.

Elements of Fraud

Accounting literature:

- Beasley et al. 2010
- Daugherty and Neely 2011
- Kranacher et al. 2011
- Michelman et al. 2011
- Albrecht et al. 2012

Non-accounting literature:

- Jensen 2005
- Chi and Gupta 2009

Avenues for future research:

- Is it possible to develop a model of abnormal revenue based on common revenue drivers?
- What industries are most susceptible to improper revenue-recognition techniques?
- How can the audit profession better assess the likelihood an auditor switch is due to “keeping auditors in the dark” with respect to an ongoing fraud?
- Can case studies (e.g., Daugherty and Neely 2011; Michelman et al. 2011) help identify the specific steps taken to perpetrate—and conceal—financial frauds?
- While studies of individual frauds provide valuable anecdotal evidence, a more systematic evaluation of a larger set of frauds showing how the frauds were detected and additional techniques that could have uncovered the frauds would be of great use to regulators, practitioners, and researchers.
- Does overvalued equity generally lead to fraudulent reporting or is overvalued equity a consequence of fraudulent reporting?
- Do some cases of fraudulent reporting result from overvalued equity while others do not? Is there a method of classifying companies into ones that would be susceptible to overvaluation and consequently feel pressure to commit financial statement fraud?
- What do companies do when their equity becomes overvalued in order to relieve the pressure without committing fraud?

The Auditor’s Roles with Respect to Fraud

SAS No. 99/AU Section 316 Fraud Risk Assessment

Accounting literature:

- SAS No. 99/AU Section 316 (AICPA 2002)
- Hogan et al. 2008 (previous PCAOB-commissioned fraud literature review)
- Carpenter 2007
- PCAOB 2007, 2008
- Cohen et al. 2008
- Earley et al. 2008
- Hennes et al. 2008
- Jones et al. 2008
- Lynch et al. 2009
- Nelson 2009
- Trotman et al. 2009
- Brazel et al. 2010
- CAQ 2010
- Hammersley et al. 2010
- Hurtt 2010
- Bowlin 2011
- Carpenter and Reimers 2012

Avenues for future research:

- What auditor characteristics are associated with the auditor also being cited in a fraud investigation?
- Researchers can continue to examine alternative methods of brainstorming and the cost effectiveness of their implementation in practice.
- Researchers could also examine cognitive elements for improving auditors' fraud judgments in this area.
- Researchers could further explore the hierarchical nature of the audit team so as to maximize their potential to synthesize ideas from the newest staff to the more experienced partner.
- Researchers could collaborate with social scientists to explore alternative methods of brainstorming.
- Does SAS 99 brainstorming adversely affect auditor skepticism when fraud risk is assessed to be low?
- Does the client acceptance decision affect auditor skepticism with respect to fraud?
- Given that auditors perform background checks on management and perform other due diligence prior to accepting a client, is the real fraud risk assessment performed at the client acceptance phase? Does the decision to associate with a client affect auditor skepticism going forward?
- Existing research has established the relationship between incentives and earnings management and fraud. Future research could address the extent to which, and the conditions under which, incentives might result in earnings management through aggressive accruals, biases in fair value estimates, and structured transactions. In addition, research into factors that could mediate this relationship could be very helpful.

Fraud-Detection Procedures and Auditor Characteristics

Accounting literature:

- SAS No. 99/AU Section 316 (AICPA 2002)
- PCAOB 2007, 2008, 2010
- Caramanis and Lennox 2008
- Curtis and Payne 2008
- Fleming et al. 2008
- Hogan et al. 2008 (previous PCAOB-commissioned fraud literature review)
- Brazel et al. 2009
- Hoffman and Zimbelman 2009
- Brazel et al. 2010
- Brickner et al. 2010
- Hammersley et al. 2010
- Lennox and Pittman 2010
- Reffet 2010
- Ricchiute 2010
- Trotman and Wright 2010
- Bedard and Graham 2011
- Bentley et al. 2011
- Carpenter et al. 2011a
- Carpenter et al. 2011b
- Hammersley 2011
- Lambert and Agoglia 2011
- Paino et al. 2011
- Straus et al. 2011
- Wright and Berger 2011

Avenues for future research:

- In this area, collaboration in developmental psychology (personality variables) and social psychology (situational variables) and perhaps criminology would be beneficial. Accordingly, it would be helpful to explore how research from other disciplines can inform the audit profession on how to improve professional skepticism and fraud-detection techniques.
- Research related to specific audit tests or fraud-detection techniques would also be useful. Further, it may be fruitful to examine where forensic accounting specialists fit into the audit, and whether and how they might enhance fraud detection.

- As noted, the PCAOB finds that auditors have difficulty responding when fraud risk is high. Whether auditors simply fail to respond with the appropriate fraud-related audit techniques or whether auditors do not know how to respond with the appropriate testing is also an important area of future research.

Consequences of Fraudulent Financial Reporting

Accounting literature:

- Koh et al. 2008
- Beasley et al. 2010

Avenues for future research:

- An important issue facing managers and practitioners is the need to cost-justify anti-fraud measures. Research into the examination, consequences, and remediation of fraud might form the basis of a business case that assists anti-fraud practitioners, including auditors, in demonstrating in more quantitative terms why their efforts may increase the value of the firm.