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# **Forensic Accounting and Fraud: A Review of Literature and Policy Implications<sup>1</sup>**

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<sup>1</sup> This paper is a summary of forensic accounting-based fraud research as an attempt to identify future directions to inform empirical and policy research. Although I have tried to refer to all relevant studies, I recognise that there may be some studies that have not been cited due to space considerations. I apologise in advance to these authors and welcome any comments on the paper.  
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# **Forensic Accounting and Fraud A Review of Literature and Policy Implications**

## **Abstract**

This review present some evidence on fraud, forensic accounting, the skills and education of the forensic investigator. Also, some explanation for the diverging views among academics and regulators in relation to detecting fraud are provided. To regulators, I address the question on why academic research in forensic accounting may have little significance to inform policy. Further, I present some rich set of questions and identify a number of important directions for future research in forensic accounting. This paper is intended to stimulate debates and future research of the issues identified.

Keywords: Forensic Accounting; Fraud; Forensic Education; Fraud Triangle; Fraud Investigation.

JEL Classification: I23, M41, M42, M48, M49.

## **1. Introduction**

This article review the literature on fraud and forensic accounting. For the purpose of this review, forensic accounting involves the process of understanding, identifying, detecting and communicating fraud patterns and schemes to stakeholders to aid any investigation process or activity. Accounting standards allow managers to exercise discretion in financial reporting. However, there are concerns that managerial discretion can be abused and could be used to engage in, and to hide fraudulent practices; hence, the need for forensic accounting in fraud detection practice. The quality of any forensic activity would require the fraud expert or investigator to be knowledgeable on how perpetrators engage in fraud, how it manifests, how it is disguised and how to detect fraud. Motivated

by these concern, this review article examine prior studies on forensic accounting and draw implications for research and policy.

Forensic accounting academics emphasize the need for forensic accounting education. However, little is known about whether forensic accounting education has unintended consequences and the literature is quiet on this issue. This gap in the forensic accounting literature is addressed in this article. Further, this review address a thought-provoking issue on whether all fraud cases should be given equal investigative priority. Just as medical doctors do not consider all illness to be life-threatening and therefore do not commit significant resources or the same amount of resources to each category of illness. Similarly, using this analogy, it is easy to understand why regulators react differently to reported fraud cases. Finally, the discussion in the article contribute to the forensic accounting literature.

The rest of the article is structured as follows. Section 2 and 3 discuss fraud and forensic accounting. Section 4 review the literature on the skills and education of the forensic investigator. Section 5 discuss some practical and policy issues. Section 6 concludes.

## **2. Fraud**

### **2.1. Define Fraud**

‘Financial statement fraud is a deliberate attempt by corporations to deceive or mislead users of published financial statements, especially investors and creditors, by preparing and disseminating material-ly misstated financial statements’ (Rezaee, 2005: 279). An extensive literature on fraud exists (see. Apostolou et al, 2000; Rezaee, 2005; Ozkul and Pamukcu, 2012, etc.), and studies in the literature show some consensus that fraud may involve: (1) the alteration or manipulation of material financial records, supporting documents or business transactions; (2) the intentional misstatements, omissions or misrepresentation of events, transactions, accounts or other significant information from which financial statements are prepared; (3) the deliberate misapplication and misinterpretation of accounting standards, principles, policies and methods used to measure, recognize, and report

economic events and business transactions; (4) the intentional omissions and disclosures or presentation (5) the use of aggressive accounting techniques such as illegitimate earnings management strategies; and (6) the manipulation of accounting practices under rule-based or principle-based accounting standards that allow companies to hide the economic substance of their performance.

Fraud schemes vary in scope, context and with the position of fraud perpetrators within an organisation (or firm). Some types of fraud are specific to certain industries due to industry-related incentives (e.g. Calavita et al, 1997). For instance, securities and investment fraud is common to the banking and financial services industry. Other types of fraud are concentrated at top and middle management levels within organisations (e.g. Crumbley, 2003; Zahra et al, 2005, etc.). Other types of fraud committed by employees include: creating fictitious expenses and obtaining disbursements, creating ghost employees to receive additional wages and salary, creating ghost suppliers and receiving their payments, benefiting from overstated personal expenditure, etc., (Ozkul and Pamukc, 2012). Also, fraud may involve the use of accounting numbers. Fraud involving accounting numbers often manifest through the manipulation of accounting numbers used to generate financial reports, for example, inventory overvaluation and improper capitalization of capital expense (e.g. Harris & Brown, 2000; Messmer, 2004), earnings management (e.g. Healy and Wahlen, 1999), income smoothing (Ahmed et al, 1999; Curcio and Hasan, 2015; Ozili, 2015, etc.)

## 2.2. Fraud Motivations

### 2.2.1. The Fraud Triangle

#### *Compensation Incentives/Pressure*

Personal needs, social needs, economic needs and the need to meet compensation-based targets provide some incentive to commit fraud. There is evidence that the use of incentive systems increases the likelihood to commit fraud among managers. For example, Denis et al. (2005) and Johnson et al. (2003) find that compensation pressures and incentives are significantly associated with firms that have a fraud history. Hernandez and Groot (2007) find some association between the use of incentive

systems and fraud risk. Specifically, they examine auditors' perspective on incentives that increase the likelihood to commit fraud. They find that senior management unethical attitudes, use of incentive systems and dishonest communications are important indicators of the likelihood to commit fraud. Efendi et al. (2007) find that the likelihood of misstating financial statement to commit fraud increases when the CEO has a sizable amount of stock options and when firms are constrained by debt covenants. Other evidence for incentive-related fraud include: Lie (2005) and Burns and Kedia (2006). In contrast, Erickson et al. (2000) examine the association between equity incentives and financial statement fraud. After examining firms that were accused of fraud during the 1996-2003 period, they did not find an association between equity incentives and accounting fraud. These conflicting results suggest that not all type of compensation system motivate managers to commit fraud. Additional research on compensation incentives is needed to provide insights on specific incentives that motivate managers to engage in fraud and the incentives that demotivate managers to commit fraud.

### *Opportunities*

When the incentive to commit fraud exist, the perpetrator will seek an 'opportunity' to perform the fraudulent act. There is a consensus in the literature that the opportunity to commit fraud is more likely when there are ineffective monitoring and control systems (Beasley, 1996; Albrecht and Albrecht, 2003; etc.) particularly when there are fewer independent board members (Beasley, 1996; Dechow et al, 1996; McMullen and Raghunandan, 1996; Farber, 2005), fewer audit committee meetings and fewer financial experts on the audit committee (Abbott et al, 2004; Farber, 2005; etc.). Beasley (1996) finds that the proportion of independent members on the board of directors is lower for firms that engage in fraudulent practices. Evidence from these studies suggest that less monitoring of firms create opportunities for fraud to be committed.

### *Rationalization*

Rationalization is the third component of the fraud triangle. When fraud perpetrators have some incentive and find an opportunity to commit fraud, the perpetrator will seek explanations to justify

their actions. Some justification includes claiming that: 'I borrowed the money', 'I would pay back', 'nobody has suffered as a result of this', 'I didn't know it is a crime', etc. (refer to: Ozkul and Pamukcu, 2012; p.24 for more on this). Overall, while there is a general consensus that there is some correlation between incentives, opportunities and rationalization, there is no agreement about the order or sequence of occurrence for each component of the fraud triangle. Therefore, future research should attempt to establish a systematic and logical sequence between incentives, opportunities, rationalization and capabilities while at the same permitting inter-dependence among each component of the fraud triangle.

### 2.2.2. Fraud Polygon

Several studies have made attempts to expand the fraud triangle. Wolfe and Hermanson (2004) expanded the fraud triangle by adding a fourth dimension to the triangle which they termed the 'fraud diamond'. The fourth dimension is 'capability'. According to Wolfe and Hermanson (2004), 'capability' addresses the reality that some people will not commit fraud even if all three original factors are strongly present. The perpetrator must have the capability to commit the fraudulent act with some confidence that it will go undetected. Also, Rezaee (2005) present an alternative to the fraud triangle. Rezaee (2005) investigate factors that may increase the likelihood of committing fraud by equating fraud tendencies to a concept he termed – CRIME where "C" stands for Cooking the books, "R" for Recipes, "I" for Incentives, "M" for Monitoring or lack of it, and "E" for End Results. Rezaee (2005) conclude, based on his CRIME analysis, that financial statement fraud is a serious threat to investors' confidence in financial information. More recently, Kranacher et al (2010) formulated their "MICE" approach to explain the motivation (fraud) to commit fraud. According to Kranacher et al (2010), MICE - Money, Ideology, Coercion, and Ego/Entitlement are motivations to commit fraud. In their analysis, they maintain the structure of the fraud triangle but use a co-joined triangle similar to the fraud diamond. Overall, emerging sophisticated fraud cases and on-going fraud research continue to create opportunities to expand the fraud triangle towards a fraud polygon structure. The idea behind a fraud polygon is to establish a systematic and logical sequence among emerging fraud motivators while at the same permitting interdependence among each fraud motivator.

### **3. Forensic Accounting Perspectives**

Bolgna and Linqvist (1995) define forensic accounting as the application of financial skills and investigative mentality to unresolved issues, conducted within the context of the rules of evidence. Forensic accounting involves the application of accounting and auditing, financial and investigative skills to unsettled issues conducted within the context of the rules of evidence (see. Arokiasamy and Cristal-Lee, 2009; Ozkul and Pamukc, 2012). Following this definition, the focus of forensic accounting is to identify and review fraudulent transactions to identify the real intent of the perpetrator. Such reviews may take the form of document reviews, interviews, examination of electronic documents, etc. From an auditor's perspective, forensic accounting deals with the application of auditing methods, techniques or procedures to resolve legal issues that require the integration of investigative, accounting, and auditing skills (Arokiasamy and Cristal-Lee, 2009; Dhar and Sarkar, 2010). From the perspective of an attorney or a litigator, forensic accounting involves gathering, interpreting, summarizing and presenting complex financial issues in a clear, succinct and factual manner often in a court of law as an expert (Howard and Sheetz, 2006; Stanbury and Paley-Menzies, 2010), and such forensic evidence must meet standards required by courts of law and be presented in a manner that will be accepted by a court of jurisprudence. From the perspective of a fraud examiner, forensic accounting is the application of investigative and analytical skills to resolve financial issues in a manner that meets standards required by courts of law (Hopwood et al, 2008). Finally, forensic accounting investigation will involve the services of the informed auditor, attorney and fraud examiner.

### **4. Skills and Education of the Forensic Investigator**

#### **4.1. Skills**

The skills of the forensic investigator can be divided into two categories: core skills and enhanced skills. This categorization is similar to Davis et al. (2010)'s classification.

- Core Skills

Core skills are skills considered to be fundamental to become a forensic investigator. For example, Messmer (2004) identify strong analytical abilities, written and verbal communication skills, creative mind-set and business acumen. Durkin and Ueltzen (2009) stress that the forensic investigator should possess the knowledge of (i) professional responsibilities and practice management; (ii) laws, courts and dispute resolution; (iii) planning and preparation; (iv) information gathering and preservation such as documents, interviews/phone calls, interrogations, electronic data, etc., and (v) discovery (reporting, experts and testimony). Davis et al (2010) undertook a survey involving 779 respondents from forensic professionals and fraud examiners to identify core skills of a forensic accountant or investigator. Their result was divided into three categories: core skills for forensic academics, practitioners (CPAs) and attorneys; enhanced skills and professional skills. According to Davis et al (2010), the top five core skills for the academics include: critical and strategic thinking, auditing skills, investigative ability, synthesis of results and thinking like the wrong-doer, etc., while the top five skills for the practitioner (e.g. a CPA) include: critical and strategic thinking; effective written communication; effective oral communication; and investigative intuitiveness.

Top 10	Core Skill of the Forensic academic	Top Ranked Response	Core Skill of the Forensic Practitioner	Top Ranked Response	Core Skill of the Attorney	Top Ranked Response
1 <sup>st</sup>	Critical/strategic thinker	1 (62%)	Critical/strategic thinker	1 (50%)	Effective oral communicator	1 (61%)
2 <sup>nd</sup>	Auditing skills	2 (53%)	Effective written communicator	2 (43%)	Simplify the information	2 (57%)
3 <sup>rd</sup>	Investigative ability	3 (45%)	Effective oral communicator	3 (43%)	Critical/ strategic thinker	3 (49%)
4 <sup>th</sup>	Synthesize results of discovery and analysis	4 (43%)	Investigative ability	4 (41%)	Identify key issues	4 (38%)
5 <sup>th</sup>	Think like the wrongdoer	5 (38%)	Investigative intuitiveness	5 (39%)	Auditing skills	5 (37%)
6 <sup>th</sup>	Investigative intuitiveness	6 (36%)	Synthesize results of discovery and analysis	6 (36%)	Investigative ability	5 (37%)
7 <sup>th</sup>	Effective written communicator	7 (34%)	Organize an unstructured situation	7 (34%)	Synthesize results of discovery and analysis	5 (37%)
8 <sup>th</sup>	Organize an unstructured situation	8 (32%)	Identify key issues	8 (32%)	Understand the goals of a case	8 (33%)
9 <sup>th</sup>	Identify key issues	9 (30%)	Auditing skills	9 (31%)	Tell the story	9 (30%)
10 <sup>th</sup>	Solve unstructured problems	9 (30%)	Solve unstructured problems	9 (31%)	See the big picture	9 (30%)

Adapted from Davis et al (2010): p. 10.

- Enhanced skills

Enhanced skills are skills developed by the forensic investigator through years of experience in the profession in industry or academic research. Grippo and Ibex (2003) argue that the most important skills of forensic accountants comes from experience in accounting, auditing, taxation, business operations, management, internal controls, interpersonal relationships and communication.

Ramaswamy (2005) suggests skills such as: in-depth knowledge of financial statements, the ability to critically analyse them and a thorough understanding of fraud schemes. Other studies such as Curtis (2008) and DiGabriele (2008) observe that academics and practitioners agree on the importance of a working knowledge of the legal process and criminology as an enhanced skill. In Davis et al (2010), the top enhanced skills for the forensic academic, practitioner and attorney, include fraud detection, interviewing skills, analysis and interpretation of financial statements, electronic discovery, general knowledge of rules of evidence and civil procedure and information, testifying, knowledge of relevant professional standards, etc. As shown in Table 1, the relative importance of enhanced skills for each industry practice (academia and practice) differ according to the need of the practice.

#### 4.2. Education

Prior studies show evidence that forensic accounting practice appears to be gaining importance within academic institutions (e.g. Rezaee et al, 1996; Rezaee and Burton, 1997; Peterson and Reider, 1999, 2001; Rezaee, 2002; Crumbley et al, 2003). The study of forensic accounting, as a branch of accounting, require broad multi-disciplinary knowledge particularly knowledge of business ethics, auditing, business activities, business (and corporate law), human behaviour and a working knowledge of the legal system. Unsurprisingly, there seem to be a consensus towards a multidisciplinary approach to fraud research (Enofe et al, 2013).

Teaching forensic accounting to students in tertiary institutions has some benefits to educational stakeholders. Specifically, Buckhoff and Schrader (2000) show that incorporating forensic accounting as a course of study in the accounting curriculum benefits three major stakeholders in accounting education which are (i) academic institutions, (ii) students and (iii) the employers of accounting graduates. In a survey to assess the importance of forensic accounting among tertiary institutions, Peterson and Reider (2001) report that accounting instructors in universities acknowledge the

importance of forensic accounting. Other studies examine the extent to which forensic-related courses are taught in the accounting curricula among tertiary institutions. Groomer and Heinz (1994) investigate whether forensic accounting related topics were taught in universities and find that fraud-related topics were taught in internal auditing courses. Rezaee et al. (1996) find that few universities offer a course in fraud or forensic accounting. Buckhoff and Schrader (2000) examine the extent of forensic accounting education in the US and find that US universities consider forensic accounting to be moderately important for inclusion in the accounting curriculum. In contrast, other studies document diverging views on whether forensic accounting courses should be incorporated into the academic curricula. For instance, Rezaee and Burtin (1997) find that forensic accountants prefer to have forensic accounting as a stand-alone course while academics prefer to integrate forensic accounting into existing accounting courses. Further still, Rezaee et al. (1996) report some disagreements among practitioners and academics on the topical content of the forensic accounting curriculum. To date, the topical content of forensic accounting in the accounting curriculum is highly debated and remain a fruitful area for future research.

#### 4.3. Implications

Although there appear to be some consensus on the skill-set of the forensic investigator, the importance of each skill will depend on the type of fraud event and the depth of investigation required. Moreover, the broad range of skills of the forensic investigator identified in the literature can further broaden the scope of topics to be included in forensic accounting education in tertiary institutions, which leads to a number of critical questions. First, it leads to the question about the whether it is appropriate for accounting (or forensic accounting) students to be taught topics in auditing, financial analysis, psychology, human behaviour, business ethics, criminology, law and other topics, when enrolling for a forensic accounting module.

Secondly, there is the argument that if forensic accounting education in tertiary institutions cover a wide range of topics, each topic will not be taught in an in-depth manner during the usual yearly or termly syllabus within academic institutions either as a stand-alone course or as an integrated course. Therefore, there is the need to selectively determine the content or topics to be included in any

forensic accounting syllabus to be taught in educational institutions or professional institutions such as the Association of Certified Fraud Examiners. Moreover, the argument that tertiary institutions should focus on core auditing and financial reporting topics in their forensic accounting syllabus while professional institutions should focus on the legal and investigative content of forensic education is highly critical because it is difficult to distinguish between core and non-core topics that are relevant to forensic accounting education which also raise more questions about what topics should be included or excluded from the forensic accounting curriculum.

Further, there are concerns that teaching the younger generation the techniques to detect fraud may not necessarily deter them from fraud but could teach them how to commit fraud without leaving traces, thus, leading to unintended consequences. Extensive forensic accounting education to students in tertiary institutions could lead to the emergence of a new breed of organized fraud perpetrators that do not leave traces of fraud because they know how to clean up the traces of fraud through the knowledge of fraud detection strategies they learnt in forensic accounting courses in tertiary institutions. The difficulty that regulators or forensic expert face is to deal with fraudster that do not leave fraud traces.

To avoid this unintended consequence, a balance is needed between teaching students to detect fraud and how to de-motivate them from engaging in fraudulent practices. In response to this, it is tempting to advocate that the skills of fraud detection should only be taught to fraud investigators, potential forensic analyst and external auditors at professional institutions but not to student at tertiary institutions. Future research can be relied upon to find ways to balance the need to educate the younger generation on fraud detect strategies while at the same time ensuring that forensic education at universities do not motivate students to engage in fraud, thus, minimising the unintended consequences of forensic accounting education.

## **5. Practical Issues: Research and Policy**

### **5.1. Detecting Fraud: Academics vs Regulators**

Academic studies attempt to formulate several checklists, red-flags or 'boxes to tick' as possible indicators of fraud. Hogan et al (2008) presents a literature review on this. The presence of one or more fraud symptom is often perceived as evidence or signals indicating fraud particularly when supported with evidence from statistical models such as logistic regression, data mining techniques. While academic research continue to maintain the symptom-based empirical (statistical) approach to detect fraud, regulators on the other hand do not necessarily maintain this view. Unlike academics, regulators (investigators) agree that there may be some relationship not necessarily a causal relationship between fraud symptoms and actual fraud. For this reason, regulators tend to match reported fraud symptoms with supplementary evidence beyond statistical reports to detect whether there is evidence of actual fraud. Such supplementary evidence may include interrogations, expert witness, interviews, etc.

## 5.2. Fraud: 2 + 2 Do Not Always Equal 4

In fraud detection, 2 + 2 do not always equal 4 every time, at least from a regulator's perspective. This means that the presence of fraud symptoms does not necessarily imply that there is actual fraud. The literature highlight some symptoms of fraud, for example, Albrecht and Albrecht (2003) identified: internal control weaknesses, analytical anomalies, extravagant lifestyles, unusual behaviours, etc. While there appear to be some consensus that statistical models can aid the fraud detection process, it is critical that statistical-based fraud symptoms always lead to real fraud cases. In reality, all fraud symptoms do not lead to actual fraud

Let's take extravagant lifestyle as an example. Individuals who have a personal history of living extravagantly tend to maintain that kind of lifestyle when they become company executives and the occurrence of fraud in the organisation cannot always be attributed to the extravagant lifestyle of the individual. Only few studies raise this concern that fraud symptoms do not often lead to actual fraud cases (e.g. Albrecht and Romney, 1986; Hogan et al, 2008). Notably, Albrecht and Romney (1986) investigate some fraud symptom and observe that the investigation of fraud symptom did not produce evidence of actual fraud.

### 5.3. Cost-Benefit Analysis of Fraud Investigation

Investigation into every reported fraud case is costly to regulators (investigators). For this reason, it is unlikely that all reported fraud cases will receive full (and equal) investigative priority. Also, if each case is considered for investigation, significant resources will not be channelled equally to each fraud case. There are good reasons for this. One, investigating potential fraud cases involve committing significant amount of resources into the investigation with the aim to detect actual fraud. This activity is rewarding to investigators if the investigation leads to the identification of actual fraud where the fraud perpetrators would be penalized and subsequently fined which allows regulators (investigators) to recover the resources (monetary equivalent) committed to the investigation. On the other hand, when fraud investigation does not lead to actual fraud cases, significant amount of investigators' resource is lost. Therefore, the possibility of losing resources committed to fraud investigation can affect the way regulators/investigators respond to fraud cases or events. Also, the cost associated with fraud investigation can deter regulators from giving every reported fraud case equal investigative priority. On the other hand, academics stress that each reported fraud case should be taken seriously and given full investigative priority. This is unlikely to be the case in reality because just as medical doctors do not consider all illnesses to be life-threatening and thus do not commit substantial medical resources to each category of illness, it is easy to understand why regulators react differently to some reported fraud cases than others. Therefore, the cost and benefit of fraud investigation provides an explanation for the diverging views between an academic and policy maker.

### 5.4. Research and Policy Gap: why forensic accounting research does not inform policy

Forensic accounting research should play an important role to inform practice (audit) and policy. The future of forensic accounting research will depend on its ability to inform policy. However, forensic academic research has done little to inform policy and supervisory rules for the following reasons.

- 1) Empirical studies most focus on investigating firms that have a fraud history in the past. The knowledge that a number of firms committed fraud drives the researcher to employ several statistical tests to support his expectation for the existence of fraud in his/her analysis. This approach to fraud

research is not particularly useful to regulators. Regulators are interested in detecting on-going fraudulent activities in firms while academic research focus on past fraud events. Academic research can inform policy if forensic accounting research shift its focus from firms with previous fraud history to firms that have no fraud history at all.

2) Given the recent advances in the knowledge of human behaviour and financial engineering, regulators understand that statistical methods used to detect past fraud events do not have significant explanatory power to predict future fraud

### 5.5. A Policy Note

To inform policy, another classification of fraud that might appeal to regulators and practitioners is needed. The rationale for this classification is that while regulators oppose fraud, not all fraud cases in practice require regulatory sanction or discipline. This is because investigating fraudulent misbehaviours impose significant costs and may require committing substantial resources to investigate fraud. I propose that the investigative priority given to reported fraud events or cases should depend on (i) the magnitude of misrepresented transactions; (ii) the materiality of the accounting number involved; (iii) the extent of its deceptive intent, (iv) the hierarchical status of the perpetrator - individual or firm; and (v) whether the fraudulent behaviour is acceptable within acceptable industry standards. Accordingly, I classify fraud into 'soft fraud' and 'hard fraud'. Soft fraud may be defined as any fraudulent practice by a firm or individual that is considered to be legitimate by industry standards/rules and practice but is perceived to be illegitimate outside the context of the industry. This kind of fraudulent practices includes, but not limited to, understating accrual expense, overstating profits, revenue manipulations, earnings management, etc. On the other hand, hard fraud is any fraudulent practice by a firm that is considered to be illegitimate within and outside the context of the industry. This kind of fraudulent practice includes, but not limited to, creating fictitious debtors and suppliers, etc. This type of fraud requires strict regulatory disciplinary actions.

## 6. Conclusion

The review article examine several issues including the nature of fraud, forensic accounting, and the skills of the forensic investigators as well as issues associated with forensic accounting education. Some policy and practical implications are discussed. In conclusion, it is important to note that while forensic accounting is gaining significant research interests among academics, progress in forensic accounting research will depend on the extent to which fraud perpetrators leave traces of fraud assuming all fraud perpetrators do leave traces after committing fraud. In the coming years, regulators will be more concerned about fraud perpetrators who do not leave any trace of some sort. This will pose a problem to industry regulators if fraud perpetrators have thorough knowledge of accounting standards, auditing techniques and investigative skills, and such knowledge can help fraud perpetrators to eliminate all possible trace of fraud. Finally, progress in the forensic accounting literature will also depend on the extent to which forensic accounting informs practice and policy.

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