



Forensic accounting and fraud

A review of literature and policy implications

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Abstract

This review presents 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 has 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.

1. Introduction

This paper reviews 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. Nonetheless, 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 this concern, this review examines prior studies on forensic accounting and draws implications for academic research and for policy.

Forensic accounting academics emphasize the need for forensic accounting education. However, little is known about whether forensic accounting education has unintended consequences. The literature is quiet on this issue. Thus, this review discusses this concern as a gap in the recent literature. Further, this review addresses 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 several reported fraud cases. Finally, this review makes a contribution to the forensic accounting literature.

This review is structured as follows. Section 2 and 3 discuss fraud and forensic accounting. Section 4 reviews the literature on the skills and education of the forensic investigator. Section 5 discusses 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 materially misstated financial statements' (Rezaee, 2005: 279). An extensive literature on fraud exists (e.g. Apostolou et al, 2000; Rezaee, 2005; Ozkul and Pamukcu, 2012, etc.). Jointly, the literature shows some consensus that fraud may involve: (1) the alteration or manipulation of material financial records, supporting documents, or business transactions; (2) intentional misstatements, omissions, or misrepresentation of events, transactions, accounts or other significant information from which financial statements are prepared; (3) deliberate misapplication and misinterpretation of accounting standards, principles, policies and methods used to measure, recognize, and report economic events and business transactions; (4) 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 the perpetrators within the firm. Some types of fraud are specific to some industries due to industry-related incentives (e.g. Calavita et al, 1997). For example, securities and investment fraud is common to the banking and financial services industry. Other types of fraud are concentrated within top and middle management levels (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 and receiving their wages or salary, creating ghost suppliers and receiving their payments, benefiting from overstated personal expenditure, etc.,

(Ozkul and Pamukc, 2012). Fraud involving accounting numbers often manifest by directing manipulating 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, 2013; 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, Johnson et al. (2003) found that compensation pressures, and incentives are significantly associated with firms that have a fraud history. Similar evidence was documented by Denis et al. (2005). Hernandez and Groot (2007) find some association between the use of incentive systems and fraud risk. Specifically, they examined auditors' perspective on incentives that increase the likelihood to commit fraud. They identified senior management unethical attitudes, use of incentive systems and dishonest communications as important indicators of the likelihood to commit fraud or fraud risk. Efendi et al. (2007) found that the likelihood of misstating financial statement 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) examined the association between equity incentives and financial statement fraud. After examining firms that were accused of fraud during the 1996-2003 period, they found no association between equity incentives and accounting fraud. These conflicting results seem to suggest that not all type of compensation system motivate managers to commit fraud. Therefore, there is a need for future research to identify specific incentives that motivate managers to engage in fraud and those incentives that de-motivate managers to commit fraud.

Opportunities

When the incentive to commit fraud exists, 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 (e.g. Beasley, 1996; Albrecht and Albrecht, 2003; etc.), particularly, when there are fewer independent board members (e.g. Beasley, 1996; Dechow et al. 1996; McMullen and Raghunandan, 1996; Farber, 2005), fewer audit committee meetings and fewer financial experts on the audit committee (e.g. 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 fraud practices relative to non-fraud firms. Evidence from these studies suggests that lesser monitoring creates opportunities for fraud to be committed.

Rationalizations

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 was a crime', etc. (refer to: Ozkul and Pamukcu, 2012; 24).

Overall, in the literature there is a consensus that there are some relation between incentives, opportunities, and rationalization.

Nonetheless, there is no agreement on 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 as an attempt to identify potential causes of fraud. Rezaee (2005) investigated 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) concluded, 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 maintained the structure of the fraud triangle but used a co-joined triangle similar to the fraud diamond.

Following prior studies, there are prospects that future academic research and emerging sophisticated fraud cases in the near future would improve our understanding of fraud and, thus, expand the fraud triangle and fraud diamond further. This new dimension is the fraud polygon. The idea behind the fraud polygon is to establish a systematic and logical sequence among newly emerging motivations to commit fraud while at the same permitting inter-dependence among each motivation.

3. Forensic Accounting Perspectives

Bolgna and Linquist (1995) defined 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 review 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). 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). Overall, 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

In this section, I classify the skills of the forensic investigator 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) identified 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
1st	Critical/strategic thinker	1 (62%)	Critical/strategic thinker	1 (50%)	Effective oral communicator	1 (61%)
2nd	Auditing skills	2 (53%)	Effective written communicator	2 (43%)	Simplify the information	2 (57%)
3rd	Investigative ability	3 (45%)	Effective oral communicator	3 (43%)	Critical/ strategic thinker	3 (49%)
4th	Synthesize results of discovery and analysis	4 (43%)	Investigative ability	4 (41%)	Identify key issues	4 (38%)
5th	Think like the wrongdoer	5 (38%)	Investigative intuitiveness	5 (39%)	Auditing skills	5 (37%)
6th	Investigative intuitiveness	6 (36)	Synthesize results of discovery and analysis	6 (36%)	Investigative ability	5 (37%)
7th	Effective written communicator	7 (34%)	Organize an unstructured situation	7 (34%)	Synthesize results of discovery and analysis	5 (37%)
8th	Organize an unstructured situation	8 (32%)	Identify key issues	8 (32%)	Understand the goals of a case	8 (33%)
9th	Identify key issues	9 (30%)	Auditing skills	9 (31%)	Tell the story	9 (30%)
10th	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 through years of experience in the profession in academia or industry. Grippo and Ibex (2003) argue that the most important skills of forensic accountants come 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, the relative importance of enhanced skills for each industry practice (academia and practice) differs according to the need of the practice.

Enhanced Skills						
Top 5	Skill of the Forensic Academic	Top Ranked Response	Skill of the Forensic Practitioner	Top Ranked Response	Core Skill of the Attorney	Top Ranked Response
1st	Fraud detection	1 (79%)	Analyze and interpret financial statements and information	1 (79%)	Analyze and interpret financial statements and information	1 (91%)
2nd	Interviewing skills	2 (70%)	Interviewing skills	2 (63%)	Testifying	2 (74%)
3rd	Analyze and interpret financial statements and information	3 (64%)	Fraud detection	3 (56%)	Knowledge of relevant professional standards	3 (70%)
4th	Electronic discovery	4 (43%)	Testifying	4 (49%)	Audit evidence	4 (53%)
5th	General knowledge of rules of evidence and civil procedure	4 (43%)	General knowledge of rules of evidence and civil procedure	4 (39%)	Fraud detection	4 (53%)

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

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, requires broad multi-disciplinary knowledge, particularly, in the knowledge of business activities, human behaviour (psychology), working knowledge of the legal system, etc. There appear to be some consensus on the broad nature of forensic accounting (e.g. Enofe et al. 2013). A broad focus to forensic accounting among tertiary institutions has some benefits to educational stakeholders. Specifically, Buckhoff and Schrader (2000) argue that incorporating forensic accounting as a course of study in the accounting curriculum benefits three major stakeholders in accounting education-academic institutions, students and employers of accounting graduates. In a survey on 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) investigated whether forensic related topics were taught in universities. They found evidence that fraud-related topics were taught in internal auditing courses. Rezaee et al. (1996) found that few universities offer a course in fraud or forensic accounting. Buckhoff and Schrader (2000) examined the extent of forensic accounting education in the US and found that US universities considered forensic accounting to be moderately important for inclusion in the accounting curriculum.

In contrast, some studies document diverging views on whether forensic accounting courses should be incorporated into the academic curricula. Rezaee and Burtin (1997) found that forensic accountants prefer to have forensic accounting as a stand-alone course while academics prefer to integrate forensic accounting into existing accounting courses. 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 remains a fruitful area for future research.

4.3. Implication

Although there appear to be a weak consensus on the skill-set of the forensic investigator, the importance of each skill at a particular time or fraud event will depend on the type of fraud event and the depth of investigation required. The broad range of skills of the forensic investigator identified in the literature has consequences of further broadening the scope of forensic accounting education among tertiary institutions. First, it leads to questions on whether forensic accounting students should cover a wide range of topics in auditing, financial analysis, psychology, criminology, legal and other topics. Second, a broad focus to forensic accounting education implies that in-depth forensic education is unlikely to be adequately covered during the yearly or termly syllabus within academic institutions either as a stand-alone course or as an integrated course. Thus, there is a need to define the core content of forensic accounting to be taught in educational institutions and professional institutions. The argument that, academic institutions should focus on core auditing and financial reporting content of forensic accounting education 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 areas of forensic accounting. Also, it raises more questions such as: what topics should be included and excluded from the accounting curriculum? These issues remain a fruitful area of future research.

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. I argue that increased education on fraud and forensic accounting among tertiary institutions could witness 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 their knowledge of fraud detection strategies taught in the university. 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 for the case that the skills of fraud detection should only be taught to fraud investigators, potential forensic analyst and external auditors at professional institutions rather than equipping university students with skills of fraud detection. 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 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 sophisticated 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 'strong' or 'logical' relationship between fraud symptoms and actual fraud. For this reason, regulators 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 highlights 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 significantly improves the fraud detection process, it is arguable that statistical-based fraud symptoms always lead to real fraud cases. In reality, it is unlikely that fraud symptoms indicates evidence of 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 find themselves in top management. In this case, the existence of fraud may not be associated with extravagant lifestyle. 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) investigated some fraud symptom and observed that such investigation did not produce evidence of 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 proportionately to all fraud cases. There are good reasons for this. First, 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. In this case, the perpetrators (firms) would be penalized and fined which allows regulators (investigators) to recover significant resources (monetary equivalent) committed into the investigation. On the other hand, when investigation does not lead to identifying real fraud cases, significant amount of investigators' resource is lost. This loss of resources committed to investigation affect the way regulators respond to fraud cases or events. The cost associated with fraud investigation deters 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. This is unlikely to be the case in reality in reality because just as medical doctors do not consider all illnesses to be life-threatening and thus do not commit significant resources to this category of illness, it is easy to understand why regulators react differently to some reported fraud cases. Therefore, the cost and benefit of fraud investigation provides another 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, predominantly, focus on investigating firms that have a fraud history in the past. The knowledge that firms committed fraud tend to drive a potential researcher to employ several statistical tests to support his expectation for the existence of fraud in his analysis. This practice in forensic research is not particularly useful to regulators. Regulators, on the other hand, are interested in detecting on-going fraudulent activities in firms while academic research focuses on past fraud events. Academic research will inform policy if forensic accounting research shifts their focus from firms with previous fraud history to firms that have no fraud history.
- 2) Given recent advances in the knowledge of human behaviour and financial engineering, regulators understand that statistical methods used to detect past fraud events do not always contribute significant explanatory power to detect future fraud cases, particularly, when investigation fraud cases require the use of different statistical-detection methods.

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 severe regulatory sanction or discipline. This is because investigating fraudulent misbehaviours imposes significant costs and other resources. I propose that a classification of fraud based on (i) the magnitude of misrepresented transactions; (ii) the materiality of the accounting number involved; (iii) the extent of its deceptive intent, and the (iv) the hierarchical status of the perpetrator - individual or firm; and (v) whether such practices are acceptable within the acceptable industry standards, should determine the investigative priority given to each reported fraud case. Accordingly, I classify fraud into 'soft fraud' and 'hard

fraud'. Soft fraud may be defined as any fraudulent practice by a firm that is considered to be legitimate by industry standards and practice (or regulatory rules) but is perceived as illegitimate outside the context of the industry. This kind of fraudulent practices includes, but not limited to, accrual expense and revenue manipulations, earnings management. 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 practices includes, but not limited to, creating fictitious debtors, suppliers, etc. This type of fraud requires strict regulatory disciplinary actions.

6. Conclusion

In this review, we have examined several issues: the nature of fraud, forensic accounting, core and enhanced skills of the forensic investigators as well as issues with forensic education. This review discussed some practical and policy issues. In conclusion, it is important to note that while forensic accounting is gaining significant research interests among academics, progress in forensic accounting research will continue will depend on the extent to which fraud perpetrators leave traces. This is because fraud perpetrators do leave traces after performing the act. However, 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 for regulators if perpetrators have thorough knowledge of accounting standards, auditing techniques and investigative skills. This knowledge will help perpetrators to eliminate a possible trace of fraud. This will remain a supervisory and policy issue in the coming years. Finally, the progress in the forensic accounting literature will also depend on the extent to which forensic accounting informs practice and policy.

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