When is Computerized Continuous Auditing Less Effective at Deterring Fraud?

by

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Executive Summary

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Background

Companies use a variety of techniques to deter fraudulent behavior. This study focuses on the fraud deterrent effect of computerized continuous auditing systems. In the study I report the results of two experiments that separately examine the effects of continuous versus periodic auditing and manual versus computerized fraud detection. It also examines the relative effects of human versus computer-mediated communication of the audit findings.

Hypothesis Testing

Relying on theory from behavioral decision science, criminology, information science, and psychology, I formulated three pairs of hypotheses regarding the effects of alternative audit environments on potential fraud perpetrators' (a) perceptions and (b) fraudulent behavior. The three hypothesis pairs were tested through two multi-period experiments in which I manipulated (1) continuous versus periodic auditing, (2) computerized versus manual fraud detection, and (3) computer-mediated communication feedback versus human feedback.

Part "a" of Hypotheses: regarding perceptions, I examined: the effects of alternative audit environments (1) and (2) on fraud perpetrators' perceived opportunity, one of the legs of the fraud triangle; and the effect of alternative audit environment (3) on fraud perpetrators' level of discomfort.

Part "b" of Hypotheses: For each of the three alternative audit environment audits, I measured fraudulent behavior by calculating the percentage of times fraud was committed when there is way an opportunity to benefit from committing fraud.

Results

Perceptions: My experimental results indicate that, as hypothesized, the effectiveness of a continuous audit system depends on the actual probability of fraud detection. At low probability levels of fraud detection, a continuous audit was less effective than a periodic audit in reducing potential fraud perpetrators' perceived opportunity to commit fraud. The reverse held true at high probability levels of fraud detection: a continuous audit was more effective than a periodic audit in reducing perceived opportunity to commit fraud.

Contrary to the predicted effect in my second hypothesis pair, I found no difference in perpetrators' perceived opportunity between an audit system in which fraud is detected by a manual system versus one in which fraud detection is by a computerized system.

I did find moderate support for my prediction in my third hypothesis pair: face-to-face communication of audit findings creates more discomfort in a potential fraud perpetrator than does computer-mediated feedback.

Actual Fraud Behavior: Contrary to my predictions in each part "b" of my three pairs of hypotheses, I did not find that perceptions translated into corresponding effects on actual fraudulent behavior.

Conclusion

Computerization and other advances in information technology have introduced challenges to internal auditors, including in the area of fraud risk management. One fraud prevention and detection tool that has been frequently promoted is computerized continuous auditing. While continuous auditing can undoubtedly play an important in a fraud risk management program, it may also result in increased fraud risk in some cases, per the results of this study.

The finding that the effectiveness of continuous auditing at reducing the perceived opportunity to commit fraud depends on the overall actual probability of detecting fraud is an important one. The actual fraud detection probability in organizations could often be lower than desirable. As technology evolves, so do new fraud schemes. Internal auditors must strive to "stay of the curve" by anticipating new fraud schemes and building fraud prevention and detection controls in their continuous audit plan. However, it is unlikely if not impossible that continuous auditing will ever be 100% effective in preventing and detecting fraud. Thus, it is crucial that internal auditors understand the circumstances under which continuous audits are effective at deterring fraud, and that they understand when continuous auditing can actually be less effective than periodic auditing at deterring fraud.

The other main finding, that potential fraud perpetrators feel worse about receiving face-to-face negative feedback than they do about receiving that feedback confirms the importance of human contact in an auditing environment, is also worth noting. It suggests that internal auditors should use caution in automating their audit work to such an extent that they minimize their human interaction with auditees. Maintaining an ongoing level of face-to-face interaction, even when everything appears to be well-controlled and functioning properly, could have an important fraud deterrent effect.

While my experiments yielded the above results as to perceived fraud opportunity and discomfort at having to answer to a human face-to-face, they did not support my predictions as to actual fraud behavior. In the fraud triangle, actual fraud behavior depends on the presence of all three sides of the fraud triangle (i.e., perceived opportunity, incentives/pressure, and attitude/rationalization). In my study I manipulated elements that affect the perceived opportunity leg of the triangle, and held constant incentives/pressure. However, I did not manipulate participants' attitudes or ability to rationalize

committing fraud between treatment conditions. Attitude includes factors such as integrity and willingness to lie or misreport, which could have differed among participants in my experiment.

I conjecture that I did not get my predicted behavioral results because in my experiments I made it easier to rationalize committing fraud than it would be in the natural environment. I intentionally avoided using judgmental language such as "fraud" or "dishonesty" in my experimental materials, and in my oral instructions I used neutral words and phrases. In a setting with a richer fraud context, it is possible that I would find my predicted results in fraudulent behavior. In future research I plan to make the attitude/rationalization side of the fraud triangle more salient, and increase the stigma attached to fraudulent behavior, and examine the extent to which this affects fraudulent behavior.