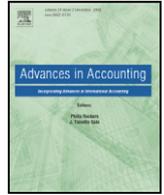




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## The relation between earnings management and financial statement fraud<sup>☆</sup>

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### ABSTRACT

This paper provides new evidence on the characteristics of firms that commit financial statement fraud. We examine how previous earnings management impacts the likelihood that a firm will commit financial statement fraud and in doing so develop three new fraud predictors. Using a sample of 54 fraud and 54 non-fraud firms, we find that fraud firms are more likely to have managed earnings in prior years and that earnings management in prior years is associated with a higher likelihood that firms that meet or beat analyst forecasts or that inflate revenue are committing fraud. We further find that fraud firms are more likely to meet or beat analyst forecasts and inflate revenue than non-fraud firms are even when there is no evidence of prior earnings management. This paper contributes to the fraud detection literature and the earnings management literature, and can help practitioners and regulators develop better fraud detection models.

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### 1. Introduction

The Association of Certified Fraud Examiners (ACFE, 2008) estimates that occupational fraud, or fraud in the workplace, costs the U.S. economy \$994 billion per year. Within occupational fraud, financial statement fraud<sup>1</sup> has the highest per case cost and total cost to the defrauded organizations, with an estimated total cost of \$572 billion per year in the U.S.<sup>2</sup> In addition to the direct impact on the defrauded organizations, fraud adversely impacts employees, shareholders and creditors. Financial statement fraud (henceforth fraud) also has broader, indirect negative effects on market participants by undermining the reliability of corporate financial statements and confidence in financial markets, resulting in higher risk premiums and less efficient capital markets.

Research about fraud antecedents and detection is important because it adds to the understanding about fraud, which has the potential to improve auditors' and regulators' ability to detect fraud either directly or by serving as a foundation to future fraud research that does. Improved fraud detection can help defrauded organizations,

and their employees, shareholders, and creditors curb costs associated with fraud, and can also help improve market efficiency. This knowledge is also of interest to auditors when providing assurance regarding whether financial statements are free of material misstatements caused by fraud, especially during client selection and continuation judgments, and audit planning.

This research contributes to the literature on fraud antecedents by examining the relation between earnings management and fraud. Firms can manipulate financial statements by managing earnings using discretionary accruals or by committing fraud. However, as accruals reverse over time (Healy, 1985), firms that manage earnings must later either deal with the consequences of the accrual reversals or commit fraud to offset the reversals (Dechow, Sloan, & Sweeney, 1996; Beneish, 1997, 1999; Lee, Ingram, & Howard, 1999). Using income-increasing discretionary accruals over multiple years can also cause managers to run out of ways to manage earnings. Therefore, firms that manipulate financial statements over multiple years, for example to meet or beat analyst forecasts or to inflate revenue, become increasingly likely to use fraud rather than earnings management to manipulate financial statements.

Based on this link between earnings management and fraud, we address five research questions related to how previous earnings management impacts fraud in the current year. More specifically, we examine the relation between previous earnings management and (1) the likelihood that firms that meet or beat analyst forecasts are committing fraud and (2) the likelihood that firms with inflated revenue are committing fraud. Additionally, we examine (3) the relation between previous earnings management and the likelihood of fraud, assuming no evidence of inflated revenue and no evidence of financial statement manipulation to meet or beat analyst forecasts, (4) the relation between meeting or beating analyst forecasts and the likelihood of fraud when there is no evidence of previous earnings

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<sup>1</sup> Occupational fraud is divided into three categories: asset misappropriation, corruption, and financial statement fraud (ACFE, 2008).

<sup>2</sup> The ACFE (2008) report provides estimates of occupational fraud cost, mean cost per fraud category and number of cases. To derive the estimate for total cost of financial statement fraud, we assume that the relative differences in mean and number of cases are similar to the relative difference in median cost and number of cases included in the ACFE (2008) report.

management, and (5) the relation between inflated revenue and the likelihood of fraud when there is no evidence of previous earnings management.

Our results show that the likelihood of fraud is significantly higher for firms that have previously managed earnings even when there is no evidence of inflated revenue and when they do not meet or beat analyst forecasts. We further find that firms that meet or beat analyst forecasts or inflate reported revenue are more likely to be committing fraud, even when there is no evidence of previously managed earnings. The results also show that previous earnings management is associated with a higher likelihood that firms that meet or beat analyst forecasts are committing fraud and a higher likelihood that firms with inflated revenue are committing fraud. These findings contribute to the fraud detection literature and earnings management literature, and also contribute to practice by improving auditors' and regulators' ability to detect fraud.

In addition to contributing to prior research by examining the link between earnings management and fraud, we develop three new measures, *Aggregated Prior Discretionary Accruals*, *Meeting or Beating Analyst Forecasts*, and *Unexpected Revenue per Employee*, that can be used to detect fraud. These new measures represent refinements of prior research and thus provide relatively minor contributions compared to the examination of the link between earnings management and fraud. More specifically, our prior earnings management measure, *Aggregated Prior Discretionary Accruals*, is based on a previously conjectured, but only partially tested, relation. In addition, we investigate whether pressure to meet or beat analyst forecasts provides an incentive to commit fraud.<sup>3</sup> Prior research has shown that pressure to meet or beat analyst forecasts provides an incentive to manage earnings, but not whether it provides an incentive to commit fraud or whether this relation can be used to detect fraud. We also develop a completely new measure, *Unexpected Revenue per Employee* that is designed to detect revenue fraud, i.e., inflated revenue. These three new measures are important as they can enhance practitioners' ability to detect fraud.

This paper is organized as follows. We define earnings management, fraud, and financial statement manipulation, review related fraud research, and develop our hypotheses in Section 2. We describe our sample selection criteria and research design in Section 3. We present empirical results in Section 4. Concluding remarks appear in Section 5.

## 2. Related research and hypothesis development

### 2.1. Earnings management, fraud, and financial statement manipulation definitions

We use Healy and Wahlen's (1999) definition<sup>4</sup> of *earnings management*: "earnings management occurs when managers use

<sup>3</sup> We recognize that incentives cannot be measured directly because they are unobservable. A positive association between the likelihood of fraud and meeting or beating analyst forecasts is consistent with the conjecture that meeting or beating analyst forecasts is an incentive for committing fraud. We, therefore, interpret this finding as evidence that supports this conjecture.

<sup>4</sup> This definition of earnings management defines earnings management as the manipulation of earnings to *mislead* financial information users. Other definitions of earnings management conjecture that earnings management can also have positive effects (e.g., Guay, Kothari, & Watts, 1996). For example, management can manipulate financial information to improve the usefulness of financial information. We do not argue that one definition is more accurate than the other. We simply believe that they refer to slightly different concepts and that they have, unfortunately, been named the same thing. It is also important to note that earnings management is used to alter financial information in general, and not only earnings. Because earnings management is a commonly used term we use various forms of this term (e.g., earnings management, manage earnings, managing earnings, and management of earnings) when referring to financial statement management in general.

judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that rely on reported accounting numbers" (p. 368). Fraud has the same objective as earnings management, but differs from earnings management in that fraud is *outside* of generally accepted accounting principles (GAAP), whereas, earnings management is *within* GAAP (Erickson, Hanlon, & Maydew, 2006). Using Healy and Wahlen's (1999) definition of earnings management, we define *financial statement fraud* as follows: financial statement fraud occurs when managers use accounting practices that do not conform to GAAP to "alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that rely on reported accounting numbers" (p. 368). Finally, given that firms can manipulate financial statements using accounting practices that are within GAAP or outside of GAAP, we define *financial statement manipulation* as occurring when managers commit financial statement fraud or manage earnings (or both).

### 2.2. The relation between earnings management and fraud

When firms inflate reported financial information by managing earnings, they generate income-increasing accruals that reverse over time (Healy, 1985). Firms with income-increasing accruals in prior years must, therefore, either deal with the consequences of the accrual reversals or commit fraud to offset the reversals (Dechow et al., 1996; Beneish, 1997, 1999; Lee et al., 1999). Prior year income-increasing discretionary accruals might also cause firms to run out of ways to manage earnings (Beneish, 1997, 1999).<sup>5</sup> When confronted with earnings reversals and decreased earnings management flexibility, managers might resort to fraudulent activities to achieve objectives that were previously accomplished by managing earnings. We, therefore, expect a positive relation between prior discretionary accruals and fraud, and refer to this relation as the earnings management reversal and constraint hypothesis.

Prior literature has partially examined the earnings management reversal and constraint hypothesis. Beneish (1997) finds a positive relation between the likelihood of fraud in year  $t_0$ , the first fraud year, and a dummy variable measuring whether the firm had positive accruals in both year  $t_{-1}$ , the year prior to the first fraud year, and year  $t_0$ . Lee et al. (1999) subsequently document a positive relation between the likelihood of fraud and total accruals summed over a three-year period prior to the fraud being *discovered* by the SEC. However, the SEC fraud discovery date lags the first fraud occurrence by an average of 28 months (Beneish, 1999). Therefore, total accruals in Lee et al. (1999) measures total accruals summed over years  $t_{-1}$ ,  $t_0$  and  $t_{+1}$ . More specifically, by ending the 36-month measurement period 28 months after the first fraud occurrence, their measure includes, on average, 8 months (including the month in which the fraud first occurred) prior to the first fraud occurrence to 28 months after. More recently, Jones, Krishnan, and Melendrez (2008) document a positive relation between discretionary accruals in year  $t_{-1}$  and fraud, while Dechow, Ge, Larson, and Sloan (2011) conclude, but do not statistically test, that accruals reverse subsequent to  $t_0$ . Finally, although they examine total accruals, rather than discretionary accruals, Dechow et al. (1996) document a significant positive relation

<sup>5</sup> For example, managers make judgments regarding the amount of accounts receivables that are uncollectible. A manager can inflate earnings by understating the allowance for uncollectible accounts and the associated bad debt expense. If the allowance does not cover the amount of receivables written-off, the balance will need to be increased in a future period, thereby increasing future bad debt expense and decreasing future earnings. Further, there is a limit to how far bad debt expense (zero) can be lowered the following year, thereby limiting how much bad debt expense can be used to management earnings.

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