Building the Model for Detecting Different Types of Accounting Fraud in Japanese Companies

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Abstract

Accounting fraud is defined as "the intentional material misstatement of financial statements and financial disclosures (notes to financial statements and filings with the U.S. Securities and Exchange Commission (SEC)) and the commission of illegal acts that have a material direct impact on financial statements and financial disclosures" (Beasley et al. 2010, p.5). The impact is not limited to stakeholders, but is a problem that reduces the credibility of the financial reporting process itself. In response to accounting fraud, previous research has constructed models to detect companies engaging in accounting fraud using data obtained from financial statements, descriptions in reports such as Form 10-K, and data on the financial market (Beneish 1999; Dechow et al. 2011; Perols 2011; Purda and Skillicorn 2015, etc.). Dechow et al. (2011) variableized the factors that influence the occurrence of accounting fraud based on previous studies, and constructed a model for detecting accounting fraud using logistic regression. Following this, Song et al. (2016) added variables reflecting the degree of substantive discretionary behavior and conservatism, as well as variables related to factors specific to Japanese companies, to detect accounting fraud in Japanese firms and built a model for detecting accounting fraud using logistic regression for Japanese listed companies. Perols et al. (2017) also aimed to improve detection accuracy using ensemble learning. Specifically, they proposed dividing the explanatory variables according to the different types of accounting fraud, estimating accounting fraud using divided explanatory variables, and then building a single accounting fraud-detection model by combining these results. They reported that this method improves the classification performance of their detection models. However, there is a lack of research on the effectiveness of accounting fraud detection models for each type of accounting fraud in Japanese firms. This study aims to build a detection model for each type of accounting fraud in a Japanese company. This allows identifying the explanatory variables effective in the detection model for a particular type of accounting fraud and whether building a detection model for each type of accounting fraud improves detection accuracy. In this study, a profit-generating accounting fraud detection model was constructed for companies listed on the Tokyo Stock Exchange from 2011 to 2019. Furthermore, profit-generating fraud can be classified into four types: fraud related to revenue, expenses, assets, and liabilities. We constructed a fraudulent-accounting detection model and extracted effective explanatory variables for the detection of a specific type of fraudulent accounting. Additionally, better accuracy exists for classifying the fraud by type in a detection model applied to certain types of fraudulent accounting than the accuracy of a detection model for the entire dataset.

Keywords

Accounting Fraud, Logistic Regression, Type of Accounting Fraud

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Biographies

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