

Self-Regulation: Fraud Detection in Financial Markets Using Machine Learning Techniques

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Abstract

The paper contributes to a growing body of empirical work on regulatory technology by proposing machine learning models to detect fraud in financial markets. The recent spate of investment fraud in Canada has exposed regulators' inability to protect vulnerable investors and the financial markets from financial abuse. As evident by the numerous regulatory task force commissioned in the past two years, Canadian regulators have been looking for ways to detect and prevent fraudulent activities before they occur and support enhanced enforcement powers. The purpose of this study is to use data collected from the Investment Industry Regulatory

Organization of Canada (IIROC) to build a machine-learning algorithm to predict fraud in the Canadian securities industry. Data for this project were collected from IIROC's tribunal cases covering June 2008 to December 2019. In total, 406 cases were retrieved from the IIROC's website. The results from four machine learning models reveal that across all the features, the amount of money invested and whether the offender was from a bank-owned investment firm were the high predictors of fraud in terms of the standardized coefficient. Branch managers and regulators should pay careful attention to portfolios that are incurring losses periodically as a sign of potential fraud. The findings are particularly relevant to regulators seeking new and effective fraud detection techniques while providing enhanced clarity to the self-regulation of financial markets in Canada.

Keywords: Fraud; Self-regulation; Financial markets; Machine learning