Deep Learning Meets Financial Networks: A CNN-Based Approach for Stock Selection

Yu-chien Tseng (曾宇謙)
Department of Applied Mathematics, National Sun Yat-sen University

Abstract

Recently, image classification techniques have been applied in financial markets, providing an alternative approach to identifying the subtle and complex price trend patterns that traditional empirical methods may fail to capture. In this study, we adopt the CNN-based approach proposed by Jiang et al. [1] to identify price patterns that are highly predictive of returns and assess stock relationships through CNN embeddings (potential trend patterns) to construct a financial network. Subsequently, we utilize TMFG [2] and MST for network pruning and employ the eigenvector centrality of the network to build a portfolio. Our experimental results on the Taiwan stock market indicate that the proposed method demonstrates superior performance compared to portfolios constructed using only CNN or traditional financial network approaches.

Keywords: CNN, eigenvector centrality, MST, TMFG, return prediction

References:

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