

Deep Momentum Strategy
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Abstract

We document the bi-modality of high- and low-momentum stocks' cross-sectional distributions, which makes momentum strategies fundamentally risky. A cross-sectional prediction model based on momentum and deep neural network alleviates the bi-modality and improves portfolio performance significantly. Tested on the US market from 1975.01 to 2017.01, an equal-weighted portfolio earns an annualized mean return around 50% and a Sharpe ratio above 2.8, and a value-weighted portfolio earns 39% and 1.8. The performance can be further improved to tremendous 118% and 2.7 when the portfolio is constructed from the top and bottom 1%. Remarkably, the portfolios do not suffer from momentum crashes.

Keywords: *Machine learning; deep neural network; momentum; reclassification*

Biography

Chulwoo Han is an assistant professor of finance at Durham University. His research interests include portfolio management, asset pricing, and financial applications of machine learning. Prior to joining the university, he co-founded and served as CEO of CMPR, a consultancy specializing in financial consulting and system development. He received his BS and MS at Seoul National University, and PhD at KAIST.