Deep Learning in Asset Pricing

In this paper, the authors use deep neural networks to estimate an asset pricing model for individual stock returns that takes advantage of the vast amount of conditioning information, while keeping a fully flexible form and accounting for time-variation. The key innovations are to use the fundamental no-arbitrage condition as criterion function, to construct the most informative test assets with an adversarial approach and to extract the states of the economy from many macroeconomic time series. Their asset pricing model outperforms out-of-sample all benchmark approaches in terms of Sharpe ratio, explained variation and pricing errors and identifies the key factors that drive asset prices.

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