## TIME SERIES MOMENTUM AND MARKET STABILITY

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## Abstract

We propose a continuous-time heterogeneous agent model consisting of fundamental, momentum, and contrarian traders to explain the significant time series momentum documented recently. The underlying stochastic delay integro-differential equation model provides a unified approach to examine the impact of different time horizons of momentum and contrarian strategies on market stability and profitability. We show that, when market is dominated by momentum traders, short-run momentum strategies stabilize the market while long-run momentum strategies destabilize the market. Also, the market under-reacts in short-run and over-reacts in long-run, leading to profitability of short-run and reverse of long-run momentum strategies. The results provide a consistent explanation on the profitability of time series momentum in empirical studies.