Abstract

This thesis merges the fields of Heterogeneous Agent Models (HAMs) and Behavioural Finance in order to bridge the main deficiencies of both approaches and to examine whether they can complement one another. Our approach suggests an alternative tool for examining HAM price dynamics and brings an original way of dealing with problematic empirical validation. First, we present the original model and discuss various extensions and attempts at empirical estimation. Next, we develop a unique benchmark dataset, covering five particularly turbulent U.S. stock market periods, and reveal an interesting pattern in this data. The main body applies a numerical analysis of the HAM extended with the selected Behavioural Finance findings: herding, overconfidence, and market sentiment. Using Wolfram Mathematica we perform Monte Carlo simulations of a developed algorithm. We show that the selected findings can be well modelled via the HAM and that they extend the original HAM considerably. Various HAM modifications lead to significantly different results and HAM is also able to partially replicate price behaviour during turbulent stock market periods.

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