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Behavioral Finance and Agent-Based Artificial Markets

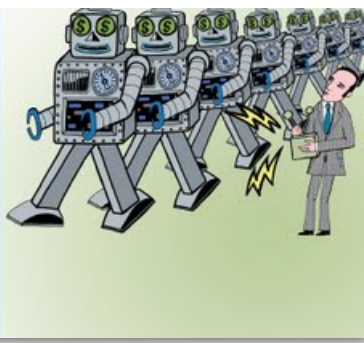
Behavioral Finance and gesimuleerde financiële markten

Studying the behavior of market participants is important due to its potential impact on asset prices and the dynamics of financial markets. The idea of individual investors who are prone to biases in judgment and who use various heuristics, which might lead to anomalies on the market level, has been explored within the field of behavioral finance. In this dissertation, we analyze market-wise implications of investor behavior and their irrationalities by means of agent-based simulations of financial markets. The usefulness of agent-based artificial markets for studying the behavioral finance topics stems from their ability to relate the micro-level behavior of individual market participants (represented as agents) and the macro-level behavior of the market (artificial time-series). This micro-macro mapping of agent-based methodology is particularly useful for behavioral finance, because that link is often broken when using other methodological approaches. In this thesis, we study various biases commented in the behavioral finance literature and propose novel models for some of the behavioral phenomena. We provide mathematical definitions and computational implementations for overconfidence (miscalibration and better-than-average effect), investor sentiment (optimism and pessimism), biased self-attribution, loss aversion, and recency and primacy effects. The levels of these behavioral biases are related to the features of the market dynamics, such as the bubbles and crashes, and the excess volatility of the market price. The impact of behavioral biases on investor performance is also studied.

Additional Metadata

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Feedback

Ezafus

This review deals with several microscopic ('agent-based') models of financial markets which have been studied by economists and physicists over the last decade: Kim-Markowitz, Levy-Levy-Solomon, Cont-Bouchaud, Solomon-Weisbuch, Lux-Marchesi, Donangelo-Sneppen and Solomon-Levy-Huang. After an overview of simulation approaches in financial economics, we first give a summary of the Donangelo-Sneppen model of monetary exchange and compare it with related models in

scientific literature. Behavioral Finance and Agent-Based Artificial Markets. Milan Lovric 2005. 128. Agent-Based Financial Economics: Introductory Readings. W. Brian Arthur, "Complexity in Economic and Financial Markets," Complexity, Vol. 1, No. 1, 1995, pp. 20-25. Using previous work originally presented in the fields of behavioural

finance and market microstructure theory, econophysicists have developed agent-based models of orderdriven markets that are extensively reviewed here. We then turn to models of wealth distribution where an agent-based approach also prevails: kinetic theory models, and continue with game theory models and review the now classic minority games. Norman Ehrentreich, Agent-Based Modeling: The Santa Fe Institute Artificial Stock Market Model Revisited, Springer-Verlag: Berlin 2008. JASSS

review by Blake LeBaron available here. Nonetheless, behavioral finance is still young and is only now beginning to make its way into mainstream academia, industry and society. The goal of BehavioralFinance.com is to provide a home for this exciting new field - one that facilitates education, research, application, and ethical

Research Matters a vibrant worldwide community of people with an interest and a passion in the subject. We hope to see you become part of that community and to take this educational journey with us. Introducing The world's premier blog on Behavioral Finance and economics. Behavior Fi is free, an Open Access

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