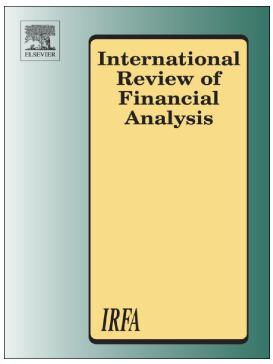


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# LONG MEMORY IN FINANCIAL MARKETS: A HETEROGENEOUS AGENT MODEL PERSPECTIVE

MIN ZHENG[†], RUIPENG LIU[‡], AND YOUWEI LI[§,ℵ]

[†]China Institute for Actuarial Science, Central University of Finance and Economics, Beijing 100081, China
[‡]Department of Finance, Business School, Deakin University, Melbourne, Australia
[§]School of Management, Queen's University Belfast, Belfast, UK
[ℵ]Hull University Business School, University of Hull, Hull, UK

Abstract. During last decades, studies on asset pricing models witnessed a paradigm shift from rational expectation and representative agent to an alternative, behavioral view, where agents are heterogeneous and boundedly rational. In this paper, we model the financial market as an interaction of two types of boundedly rational investors - fundamentalists and chartists. We examine the dynamics of the market price and market behavior, which depend on investors' behavior and the interaction of the two types of investors. Numerical simulations of the corresponding stochastic model demonstrate that the model is able to replicate the stylized facts of financial time series, in particular the long-term dependence (long memory) of asset return volatilities. We further investigate the source of the long memory according to asset pricing mechanism of our model, and provide evidences of long memory by applying the modified $R/S$ analysis. Our results demonstrate that the key parameter that has impact on the long memory is the speed of the price adjustment of the market maker at the equilibrium of demand and supply.

*Keywords*: Heterogeneity, bounded rationality, asymmetrical beliefs, long memory, modified $R/S$ test



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[‡] Corresponding author: ruipeng.liu@deakin.edu.au.