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Abstract title:
Agent-based modelling of stock market stylized facts

Abstract:
Agent-based modelling (ABM) is a powerful technique of complex systems simulation. The ABM's main advantage over other statistical methods is its ability to reproduce emergent phenomena, which reflect a collective behavior of individual entities in a system. Indeed, through the microscopic modelling, not only do we recreate the complex behavior patterns of the system as a whole, but also we explain many of these phenomena.
In this contribution we develop a generalization of the Bornholdt model, which involves mechanism of local herd behavior as well as elements of minority game. We focus on the agents organization leading to reproduce set of "the stylized facts" observed in the financial time series. In particular, we study the mechanism of creation of the multifractal organization in the time series which is still poorly recognized. In this perspective, it seems natural to apply the idea of ABM to understand how the microscopic organization of the entities leads to the complicated patterns on the macroscopic level of the system.