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Agent based spin model for financial markets on regular lattices and complex networks HONG-JOO KIM, SOON-HYUNG YOON, YUP KIM, Department of Physics and Research Institute for Basic Sciences, Kyung Hee University — We study an agent based microscopic model for price formation in financial markets on various topologies motivated by the dynamics of agents. The model consists of interacting agents (spins) with local and global couplings. The local interaction denotes the tendency of agents to make the same decision with their interacting partners. On the other hand, the global coupling to the self-generating field represents the process which maximizes the profit of each agent. In order to incorporate more realistic situations, we also introduce an external field which changes in time. This time-varying external field represents any internal or external interference in the dynamics of the market. For the proper choice of model parameters, the competition between the interactions causes an intermittency dynamics and we find that the distribution of logarithmic return of price follows a power-law.

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