Endogenous bubbles in an equilibrium model of rational and noise traders without strategy switching — Matthias Leeb, Taisei Kajozé, Alexander Saichev, and Didier Sornette — ETH Zurich, Switzerland — International Christian University, Tokyo, Japan

We introduce a model of financial bubbles with two assets (risky and risk-free), in which rational investors and noise traders co-exist. Rational investors form expectations on the return and risk of a risky asset and maximize their expected utility with respect to their allocation on the risky asset versus the risk-free asset. Noise traders are subjected to social imitation and follow momentum trading. By contrast to previous models in the field, we do not allow agents to switch between trading strategies. Allowing for random time-varying herding propensity, we support these strategies as enhancing herding behavior. The model accounts well for the behavior of traders and for faster-than-exponential bubble growth with approximate log-periodic behavior. The price dynamics that developed during the dotcom bubble in 1995-2000. Momentum strategies are shown to be transiently profitable, supporting these strategies as enhancing herding behavior.

Universal behavior of the interoccurrence times between losses in financial markets: Independence of the time resolution — Josef Ludescher and Armin Bunde — Institut für Theoretische Physik, Universität Gießen, Germany

We consider representative financial records (stocks and indices) on time scales between 1 minute and 1 day and show that the distribution $P_Q(r)$ of the interoccurrence times $r$ between losses below a negative threshold $-Q$, for fixed mean interoccurrence times $R_Q$ in units of the corresponding time resolutions, can be described on all time scales by the same $q$-exponentials, $P_Q(r) \propto 1/(1+(q-1)\beta r)^{1/(q-1)}$. The parameters $q$ and $\beta$ depend only on $R_Q$, but not on the specific asset or time resolution. While the $q$-value increases logarithmically with $R_Q$, $q = 1 + q_0 \ln( R_Q / 2 )$, $\beta$ depends only slightly on $R_Q$ reaching a plateau for $R_Q > 6$. We propose that the analytic form of $P_Q(r)$ can be regarded as an additional 'stylized fact' of the financial markets and represents a nontrivial test for market models. We analyze the distribution $P_Q(r)$ as well as the autocorrelation of the interoccurrence times for five market models: MRC, MRW, ARCH, GARCH, FARIMA. Only the multiplicative random walk (MRW) model reproduces the q-Exponential form of $P_Q(r)$.


The emergence of critical behavior in economic systems has been reported in the literature as belonging to the same class of phenomena observed in models of self-organized criticality (SOC). Self-organized criticality lays on local state transitions which are triggered when local properties exceed a specific threshold value. While in many natural systems this threshold is not known, we show that for financial networks composed by financial agents and their trade connections it is possible to directly derive the threshold below which one agent enters insolvency. Focusing in empirical data sets of assets and liabilities from almost hundred thousand companies, we further show that the threshold to insolvency is related to the way asset and liability values are related with each other.


We analysed the asset allocation structure of austrian severance pay funds with respect to business policy, stressed market environment, risk management/measure and structure of liabilities. Despite the low guaranty (sum of contributions) and the not so short duration of liabilities, we recognised changes in the asset allocation, which we will discuss as driven by influences beside standard asset allocation/risk optimizations processes.