

Equilibria, Stability and Asymptotic Dominance in a Speculative Market with Heterogeneous Traders

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We consider a simple pure exchange economy with two assets, one riskless, yielding a constant return on investment, and one risky, paying a stochastic dividend. Trading takes place in discrete time and in each trading period the price of the risky asset is fixed by imposing market clearing condition on the sum of traders individual demand functions. Individual demand for the risky asset is expressed as a fraction of trader wealth and depends on his forecast about future price movement. Under these assumptions we derive the stochastic dynamical system describing the evolution of price and wealth. We study the set of equilibria of this system for the case when arbitrarily many heterogeneous agents operate in the market and we provide an asymptotic characterization of their relative performances. Abstracting from precise specification of agents investment decisions, we show that all possible equilibrium returns belong to a one dimensional Equilibrium Market Line . It turns out that the system can only possess isolated generic equilibria where a single agent dominates the market and continuous manifolds of non-generic equilibria where many agents hold finite wealth shares. The mechanism with which market endogenously selects the dominant traders displays an optimal character in the neighborhood of equilibria, but, at the same time, leads to the impossibility to define a global dominance order relation among strategies.