

A theory of fluctuations in stock prices

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Abstract

The distribution of price returns is studied for a class of market models with Markovian dynamics. The models have a non-constant diffusion coefficient that depends on the value of the return. An analytical expression for the distribution of returns is obtained, and shown to match the results of computer simulations for two simple cases. Those two cases are shown to have exponential and “fat-tailed” power-law decaying distributions, respectively.

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