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Multi-scaling in finance

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Abstract

The most suitable paradigms and tools for investigating the scaling structure of financial time series are reviewed and discussed in the light of some recent empirical results. Different types of scaling are distinguished and several definitions of scaling exponents, scaling and multi-scaling processes are given. Methods to estimate such exponents from empirical financial data are reviewed. A detailed description of the Generalized Hurst exponent approach is presented and substantiated with an empirical analysis across different markets and assets.

Keywords:

Econophysics

Scaling

Multifractal formalisms

Time series analysis

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Notes

†In the literature, self-affine processes are also called self-similar.

‡We use H without parentheses as the original Hurst exponent, and $H(q)$ as the generalized Hurst exponent.

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