Modeling of financial time series

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Financial time series, consisting in the evolution of asset's prices over time, are characterized by complex statistical properties such as long-range correlations, heavy-tailed distributions, intermittency, and temporal asymmetries due to causality effects [1]. The development of accurate models for these time series is crucial in finance, for prediction tasks and for understanding the inner workings of markets.

State-of-the-art models, such as multifractals [4,5], fail to completely capture all relevant properties. The recently introduced wavelet phase harmonics [2, 3] leverage the correlations of phase-adjusted complex wavelet coefficients to provide improved models.

The goals of this project are to review existing models of financial time series, and to analyze the new information captured by wavelet phase harmonics.

References

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