

Seminarium Zakładu Fizyki Teoretycznej

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Stylized Facts in the World Cryptocurrency Market

ABSTRACT:

The financial markets represent an extreme complexity. Their dynamics is governed by simultaneous action of an unimaginable number of factors that involve essentially all aspects of the human social life. When expressed in terms of price changes, at first glance, this dynamics looks thus indistinguishable from an ordinary uncorrelated random walk. However, more advanced mathematical and statistical methodology systematically applied to the huge ensembles of empirical data which nowadays are being routinely recorded for essentially all world financial markets allows to identify the so-called Stylized Facts. This term refers to the main non-trivial statistical evidences that universally are characteristic to all the financial markets including the stock, commodity, foreign exchange, and recently even to the cryptocurrency markets, and they reflect a much richer dynamics than just pure random walk. The related main Stylized Facts thus far clearly identified, recently also in the cryptocurrency market, and in the presentation more in detail elaborated are:

- the power law decay of the return distribution which even universally assumes a form of the so-called inverse cubic power law at short time scales
- the absence of simple autocorrelation in returns and at the same the volatility clustering which results in long term nonlinear temporal correlations
- the interwoven patterns of self-similarity in the financial time series which are compactly grasped by the concept of multifractals.

The results presented can be taken as an indication that the Bitcoin market, and possibly other cryptocurrencies, carry concrete potential of imminently becoming a regular market, alternative to the Forex.

Serdecznie zapraszamy,

M. Kowal, W. Piechocki, J. Skalski, L. Szymanowski