Correlation and Non-Gaussianity in Financial Time Series – Analisys under Generalized Statistical Physics.

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Presentation : Oral or Poster

Using a generalized form of Kullback – Leibler Mutual Entropy [1] one have been able to derive a power law dependence between the optimal entropic index (which can be interpreted as a measure of correlation between random variable) and the time horizon for some financial markets.
By fitting the probability density function for various time horizons (TH) using the so-called q-exponentials (which maximize the Generalized Entropic Form proposed by C. Tsallis [2] and plotting the q entropic indexes obtained versus TH one have been able to obtained a power-law with a crossover between to distinct regions.

[1] L. Borland, A.R. Plastino C. Tsallis : J. Math. Phys. **39** (1998) 6490
[2] C. Tsallis : J. Stat. Phys., **52** (1988) 479