

Abstract

Over the last decades, multifractality has become a downright stylized fact in financial markets. However, its presence has not been adequately statistically proved. The main aim of this thesis is to contribute to the discussion by an extensive statistical analysis of the problem. We investigate returns and volatility of the collection of the four stock indices employing the three popular methods: the GHE, the MF-DFA, and the MF-DMA method. By comparing the results of the original series to those for simulated monofractal series, we conclude that stock market returns as well as volatility exhibit a multifractal nature. Additionally, in order to understand the origin of underlying multifractality, we study various surrogate series. We found that a fat-tailed distribution significantly affects multifractality. On the other, we were not able to confirm the impact of time correlations as the results strongly depend on the applied model.

JEL Classification F12, G02, G10, C12, C22, C49, C58

Keywords econophysics, multifractality, financial markets,
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