Quantitative Finance > Statistical Finance

# Universality in DAX index returns fluctuations

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In terms of the stock exchange returns, we compute the analytic expression of the probability distributions F{DAX,+} and F{DAX,-} of the normalized positive and negative DAX (Germany) index daily returns r (t). Furthermore, we define the alpha re-scaled DAX daily index positive returns r(t)^alpha and negative returns (-r(t))^alpha that we call, after normalization, the alpha positive fluctuations and alpha negative fluctuations. We use the Kolmogorov-Smirnov statistical test, as a method, to find the values of alpha that optimize the data collapse of the histogram of the alpha fluctuations with the Bramwell-Holdsworth-Pinton (BHP) probability density function. The optimal parameters that we found are alpha+=0.50 and alpha-=0.48. Since the BHP probability density function appears in several other dissimilar phenomena, our results reveal universality in the stock exchange markets.

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*Which authors of this paper are endorsers?*