

Universal Fluctuations of the FTSE100

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We compute the analytic expression of the probability distributions $F\{\text{FTSE100,+}\}$ and $F\{\text{FTSE100,-}\}$ of the normalized positive and negative FTSE100 (UK) index daily returns $r(t)$. Furthermore, we define the alpha re-scaled FTSE100 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 $\alpha_+=0.55$ and $\alpha_-=0.55$. 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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