

Universal Fluctuations of AEX index

Rui Gonçalves, Helena Ferreira, Alberto Pinto

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We compute the analytic expression of the probability distributions $F\{AEX,+ \}$ and $F\{AEX,- \}$ of the normalized positive and negative AEX (Netherlands) index daily returns $r(t)$. Furthermore, we define the α re-scaled AEX daily index positive returns $r(t)^\alpha$ and negative returns $(-r(t))^\alpha$ that we call, after normalization, the α positive fluctuations and α negative fluctuations. We use the Kolmogorov-Smirnov statistical test, as a method, to find the values of α that optimize the data collapse of the histogram of the α fluctuations with the Bramwell-Holdsworth-Pinton (BHP) probability density function. The optimal parameters that we found are $\alpha_+=0.46$ and $\alpha_-=0.43$. 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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