Quantitative Finance > Statistical Finance

Universal Fluctuations of AEX index

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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 \alpha re-scaled AEX 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+=0.46 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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