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# Estimating fractal dimension using stable distributions and exploring long memory through ARFIMA models in Athens Stock Exchange

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## Abstract

It is argued that the return series of the Athens Stock Exchange has an attractive fractal structure. The return series is characterized by a stable fractal distribution with a heavy right tail. The return series includes a long-memory component. The return series is characterized by a fractal distribution with a heavy right tail. The return series includes a long-memory component. The return series is characterized by a fractal distribution with a heavy right tail. The return series includes a long-memory component.

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investigate the fractal dimensions. Overall, then, the Levy-stable family distributions methodology appears to be useful for analysing the returns distribution, for understanding the fractal dimension of returns and for providing the researcher with direct insights into the long-memory effects of stock returns. A second approach to test the long memory hypothesis is attempted in this paper. This test involves an estimation of the ARFIMA models. A comparative analysis of the two approaches indicates the existence of long-memory in the Athens Stock Exchange. The results of this study are based on a sample of stocks from the Athens Stock Exchange using daily data.


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