Exact probability distribution function for multi-fractal random walk models.

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We investigate the multi-fractal random walk model of financial markets. The calculation of exact Pdf for this model is as hard as the calculation of correlation functions in string theory, and both models use the analytical extension of Selberg integrals. We show that recent results of logarithmic Random Energy Model (REM) is enough to give exact formulas for the pdf of returns. We hope that the availability of exact PDF could drastically improve the accuracy of the the financial data analysis.