SOE 3: Financial Markets and Risk Management I

Time: Monday 11:00–12:00   Location: H17

SOE 3.1   Mon 11:00   H17

Multiscaling in Finance — •Tiziana Di Matteo — Department of Mathematics - King's College London

The multiscaling behaviour of financial time-series is one of the acknowledged stylized facts in the literature [1]. The source of the measured multifractality in financial markets has been long debated and it has been attributed to mainly two sources: the power law tails and the non linear autocorrelation of the analysed time-series [2,3]. In this talk I will discuss the origin of multiscaling in financial time-series and investigate how to best quantify it [4,5]. In particular I will show results on the application of the Generalized Hurst exponent tool to different financial time series and I will show the powerfulness of such tool to detect changes in markets' behaviours, to differentiate markets accordingly to their degree of development, to asses risk and to provide a new tool for forecasting.

[1] T. Di Matteo, Quantitative Finance 7(1) (2007) 21. [2] J. W Kantelhardt, Stephan A Zschiegner, Eva Koscielny-Bunde, Shlomo Havlin, Armin Bunde, and H Eugene Stanley, Physica A 316 (2002) 87-114. [3] Jozef Barunik, Tomaso Aste, T. Di Matteo, Ruipeng Liu, Physica A 391 (2012) 4234-4251. [4] R. J. Buonocore, T. Aste, T. Di Matteo, Chaos, Solitons and Fractals 88 (2016) 38-47. [5] R. J. Buonocore, T. Di Matteo, T. Aste, (2017), Phys.Rev.E 95 (4) (2017) 042311.

SOE 3.2   Mon 11:30   H17

Impact and recovery of mini flash crashes — Tobias Braun, Jonas A. Fiegen, Daniel C. Wagner, •Sebastian M. Krause, and Thomas Guhr — University of Duisburg Essen, Duisburg, Germany

Flash crashes with large price changes in short times imply large risks for investors. An example is the flash crash of May 6 in 2010 which produced one of the largest ever intraday point decline of the Dow Jones. There is also a large number of less drastic mini flash crashes, usually in only one stock at a time. The reasons of flash crashes are discussed controversially. Explanations span from large trades over market manipulation to feedbacks in trading algorithms. We have a closer look on the interplay between mini flash crashes and high frequency trading by using order flow data during the financial crisis [1]. We find that often single market orders dominate the flash crashes, which are therefore not triggered by algorithmic feedbacks. Furthermore we find that the price is often restored to levels close to the price before the flash crash.

[1] T. Braun, J.A. Fiegen, D.C. Wagner, S.M. Krause, T. Guhr, Impact and recovery process of mini flash crashes: An empirical study. PLoS ONE 13 (2018) e0196920.