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Modelling stochastic volatility by ambit processes

Joint with Asger Lunde and Mikko S. Pakkanen

In this talk we demonstrate the versatility of the ambit framework by applying the Brownian semistationary (BSS) process as a model of stochastic volatility of financial assets. Using ultra-high-frequency data, we first present some new empirical results on the statistical properties of volatility. In particular, we argue that log-volatility is stationary, rough, persistent, and non-Gaussian. We then go on to show that, in light of the empirical evidence, the BSS process is a particularly well-suited candidate as a model of log-volatility. We prove some basic facts about the model, estimate it on high-frequency data, and compare it to existing alternatives in a forecasting exercise.