

Measuring the Leverage Effect in a High-Frequency Trading Framework

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Abstract

Multifactor stochastic volatility models of the financial time series can have important applications in portfolio management and pricing/hedging of financial instruments. Based on the semimartingale paradigm, we focus on the study and the estimation of the leverage effect, defined as the covariance between the price and the volatility process and modeled as a stochastic process. Our estimation procedure is based only on a pre-estimation of spot volatility, and it can be directly applied to estimate the leverage effect in the case of irregular trading observations and in the presence of microstructure noise contaminations, that is, in a high frequency framework. The finite sample performances of the Fourier estimator of the leverage are tested in numerical simulations and in an empirical applications to S&P 500 index futures.

Keywords: Fourier analysis, high-frequency data, leverage effect, non parametric estimation.

JEL classification: C10,C13,C14,C15,C22

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