

Quadratic covariation estimation of an irregularly observed semimartingale with jumps and noise

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Abstract

This paper presents a central limit theorem for a pre-averaged version of the realized covariance estimator for the quadratic covariation of a discretely observed semimartingale with noise. The semimartingale possibly has jumps, while the observation times show irregularity, non-synchronicity, and some dependence on the observed process. It is shown that the observation times' effect on the asymptotic distribution of the estimator is only through two characteristics: the observation frequency and the covariance structure of the noise. This is completely different from the case of the realized covariance in a pure semimartingale setting.

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