

Subsampling High Frequency Data

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December 11, 2007

Abstract

We investigate the use of subsampling for conducting inference about the integrated volatility of a discretely observed diffusion process under an infill asymptotic scheme. We show that the usual subsampling method of Politis and Romano (1994) is inconsistent when applied to our inference question. Recently, a type of subsampling has been used to do an additive bias correction to obtain a consistent estimator of the integrated volatility of a diffusion process subject to measurement error, Zhang, Mykland, and Ait-Sahalia (2005). This subsampling scheme is also inconsistent when applied to the inference question above. We propose a general method for conducting inference for integrated volatility in the presence of jumps or microstructure noise by subsampling appropriate consistent estimators. We apply our method to realized volatility and bipower variation of order (r, s) . Our method is robust to leverage effect and finite activity jumps when the asymptotic distribution of the estimator does not depend on jumps. We also apply our method to the two scales estimator in the presence of endogenous measurement error as in Kalnina and Linton (2007).

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