

Quasi-likelihood estimation of a Levy-driven SDE and its application

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Abstract

We consider a class of discretely observed ergodic stochastic differential equations (SDE) driven by a Lévy process. Under large-time and infill asymptotics, we first derive conditions under which an approximate quasi-likelihood estimator (QLE) satisfies asymptotic normality at certain rates, and then apply the QLE to construct test statistics for the normality of the driving Lévy process. The proposed test statistics is asymptotically distribution-free and consistent against presence of any jump component. Simulation results are presented to observe finite-sample performances.