

Parameter Estimation for the Square-root Diffusions : Ergodic and Nonergodic Cases.

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Abstract

This study deals with the problem of global parameter estimation in the Cox-Ingersoll-Ross (CIR) model. This model is frequently used in finance for example to model the evolution of short-term interest rates or as a dynamic of the volatility in the Heston model. We establish new asymptotic results on the maximum likelihood estimator (MLE) associated to the global estimation of the drift parameters of the CIR process. We obtain various and original limit theorems on our MLE, with different rates and different types of limit distributions. Our results are obtained for both cases : ergodic and nonergodic diffusion. The discrete time case is studied too.