

Jaya P. N. Bishwal

Parameter Estimation in Stochastic Volatility Models

This book develops alternative methods to estimate the unknown parameters in stochastic volatility models, offering a new approach to test model accuracy. While there is ample research to document stochastic differential equation models driven by Brownian motion based on discrete observations of the underlying diffusion process, these traditional methods often fail to estimate the unknown parameters in the unobserved volatility processes. This text studies the second order rate of weak convergence to normality to obtain refined inference results like confidence interval, as well as nontraditional continuous time stochastic volatility models driven by fractional Levy processes. By incorporating jumps and long memory into the volatility process, these new methods will help better predict option pricing and stock market crash risk. Some simulation algorithms for numerical experiments are provided.

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