

Moment Matching Calibration of Exponential Lévy Models

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Abstract

We investigate a parametric method for calibrating European option pricing using a six exponential lévy models. We propose a regularization method based on four moments (mean, variance, skewness, and kurtosis) to conquer the ill-posed inverse problem through non-linear least squares. We shows the numerical implementation for the six exponential lévy models using the derivative-free nonlinear optimization algorithm and shown that it is very useful method to resolve the instability of the calibration problem. In particular, we apply our approach to real market data sets of index options and obtained the empirical results significantly.

Keywords

option pricing model, calibration, lévy process

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