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Calibrating the model parameters in pricing using the trust region method. (English)

[Zbl 1331.91196](#)

J. Inverse Ill-Posed Probl. 24, No. 1, 79-87 (2016).

Summary: In this paper, we aim to calibration pricing models from market prices. We investigate the problem of calibrating the parameters using the trust region method from given price data. We start with the Hull-White model and formulate the problem by obtaining the first kind integral equation, and then consider the parameter recovery problem of the Black-Scholes model. We apply trust region algorithm for numerical retrieval problems. Numerical simulations are given to illustrate the feasibility of our proposed method.

MSC:

[91G60](#) Numerical methods (including Monte Carlo methods)

[65C30](#) Numerical solutions to stochastic differential and integral equations

[65J20](#) Numerical solutions of ill-posed problems in abstract spaces; regularization

[91G20](#) Derivative securities (option pricing, hedging, etc.)

Keywords:

[trust region method](#); [option pricing](#); [regularization](#)

Full Text: [DOI](#)