

Masterthesis in Computational Methods for Quantitative Finance

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Fast Finite Element Computation of Greeks in Non-Gaussian Markets

Topic:

A common problem in quantitative finance is the numerical evaluation of the sensitivities of computed prices in parametric market models w.r. to parameter variation. This problem arises first in model calibration, and ultimately in the quantitative risk assessment of a given market model under uncertainty in the model parameters.

The present project will develop and implement fast computational methods for the quantitative evaluation of the sensitivities of the computed option prices, in general non-Gaussian markets. Particular cases include Levy and stochastic Levy volatility models.

Prerequisites:

- MATLAB programming
- Computational Methods for Quantitative Finance
- Numerical solution of differential equations for RW
- Foundations of mathematical finance