Financial modeling with Lévy processes

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Discontinuous stochastic processes, constructed from Lévy processes, are increasingly used in financial modeling and risk management. Most of the literature has focused on option pricing, where only (marginal) distributional properties of the processes involved affect the outcome and the presence of jumps has a minor impact on the results. In these lectures we will discuss some examples of applications in risk management where taking jumps into account the presence of jumps has a considerable impact on the conclusions of the analysis.

1. Some classes of models with jumps: Exponential Lévy models, Markovian jump-diffusion models, stochastic volatility models with jumps.
2. Option pricing and model calibration.
3. Hedging options in presence of jumps
4. Portfolio insurance in presence of jumps

References

Articles are downloadable from: `www.cfe.columbia.edu`

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