Kolloquium über Mathematische Statistik und Stochastische Prozesse

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Sensitivity analysis for jump processes

Abstract:

Consider jump processes such as solutions to stochastic differential equations, and the asset price dynamics model driven by Lévy processes. We shall focus on the sensitivity analysis with respect to some parameters. There are several approaches to attack the topics. From the mathematical viewpoint, that is equivalent to the integration by parts formula on the probability space. In this talk, we shall introduce the formula via the Malliavin calculus for jump processes. The Girsanov transform for Lévy processes plays a crucial role in our argument. Also, we shall give some remarks on the class of pay-off functions.

References
1. Kawai, R., Takeuchi, A. (2013) Computation of Greeks for asset price dynamics driven by stable and tempered stable processes. Quantitative Finance, Vol. 13, No. 8, 1303–1316
2. Kawai, R., Takeuchi, A. (2011) Greeks formulas for an asset price model with gamma processes. Mathematical Finance, Vol. 21, No. 4, 723–742

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