

Risk-indifference pricing in jump diffusion markets

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Abstract

Stochastic processes with discontinuous paths are being increasingly considered as relevant alternatives to the log-normal Black-Scholes model. We address here the question of pricing derivatives in markets driven by Markov processes with jumps. These markets are generally incomplete. We introduce the risk indifference price defined as the initial payment that makes the risk involved for the seller of a derivative equal to the risk involved if the derivative is not sold, with no initial payment. We use stochastic control theory to compute this risk indifference price, by studying an associated stochastic differential game problem. The risk indifference price is always lower than the upper hedging price.

(joint work with Bernt Øksendal, Oslo University)