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Pricing, hedging and PDE's

In this talk we consider the mean-variance hedging problem when the market is incomplete. More specifically, we consider a stochastic volatility model, and study the problem using dynamic programming techniques. The nonlinear PDE involved in the solution is a parabolic quasi-linear equation with quadratic growth. Existence and uniqueness of classical solutions within a suitable class of smooth functions is obtained as well as relations with backward stochastic differential equations. Using these results an optimal hedging strategy is derived.