OPTIMAL INVESTMENT STRATEGIES UNDER PARTIAL INFORMATION AND BOUNDED SHORFALL RISK

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Abstract

We consider a time-continuous financial market and a dynamic portfolio optimization problem where the expected utility from terminal wealth has to be maximized. The special features of this paper are an additional shortfall constraint on the terminal wealth and a financial market with partial information. The shortfall risk is measured in terms of expected loss. Stock prices are assumed to satisfy a stochastic differential equation with a drift parameter modeled as an unobservable continuous-time, finite state Markov chain (HMM).

Combining martingale and convex duality methods we find the form of the optimal terminal wealth. For the optimal trading strategies explicit formulas are given by using Malliavin calculus. Numerical examples illustrate the analytic results.

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