

Optimal investment and consumption for Ornstein-Uhlenbeck spread financial markets

Serguei PERGAMENCHTCHIKOV, LMRS, Universit de Rouen Normandie

Sahar ALBOSAILY, Universit of Hail

We consider a spread financial market defined by the Ornstein–Uhlenbeck (OU) process introduced in [1] and [2]. We construct the optimal consumption/investment strategy for the power utility functions by using the dynamical programming method. In this paper, we study the Hamilton–Jacobi–Bellman (HJB) equation using the Feynman–Kac (FK) method. We show the existence and uniqueness theorem for the classical solution for the HJB equation. We study the numeric approximation for the solution of the HJB equation and we establish the convergence rate. It turns out that in this case the convergence rate for the numerical scheme is super geometrical, i.e., more rapid than any geometrical ones.

Références

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- [2] BOGUSLAVSKY, M. AND BOGUSLAVSKAYA, E., *Arbitrage under power*, Risk, 2004