Abstract:

Stochastic optimal control problems frequently occur in Economics and Finance. In this paper, we investigate stochastic optimal control problems and Bellman's dynamic programming method or Hamilton-Jacobi-Bellman (HJB) equation. Dynamic programming method represents the most known method for solving optimal control problems. Also, optimal control problems with linear control are study in this work. In this case, the HJB equation transfers to two differential equations, effectively. In fact, we propose a method to solve such problems. Finally, we simulate a financial example to highlight the applications of stochastic optimal control problems.