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Asset allocation for a DC pension fund under regime switching environment
(joint work with Tak Ken Siu and Aihua Zhang)

Topic:
Pensions, Portfolio and Risk Management

Keywords:
Stochastic control, regime switching, DC pension fund, hidden Markov chain

Abstract:

We consider the portfolio selection problem of a member of a defined contribution pension plan in a hidden Markov modulated environment. The key parameters of the model (appreciation rate of inflation, growth rate of salary process, mean rate of stock return) are given by a continuous-time finite-state hidden Markov chain. In this setting the pension fund member wants to maximize the expected utility from his terminal wealth only via observing the price index, the salary process and the price of the share (representing “his” stock market).

With the help of a separation principle between filtering and control the problem is transferred to the solution of a non-linear Hamilton-Jacobi-Bellman equation.