

Optimal Life Insurance, Consumption and Investment

Alberto Pinto (Porto)

We introduce an extension to Merton's famous continuous time model of optimal consumption and investment, in the spirit of previous works by Pliska and Ye, to allow for a wage earner to have a random lifetime and to use a portion of the income to purchase life insurance in order to provide for his estate, while investing his savings in a financial market comprised of one risk-free security and an arbitrary number of risky securities driven by multi-dimensional Brownian motion. We then provide a detailed analysis of the optimal consumption, investment and insurance purchase strategies for the wage earner whose goal is to maximize the expected utility obtained from his family consumption, from the size of the estate in the event of premature death, and from the size of the estate at the time of retirement.

We use dynamic programming methods to obtain explicit solutions for the case of discounted constant relative risk aversion utility functions and describe new analytical results which are presented together with the corresponding economic interpretations.