SEMINARIO DI FINANZA MATEMATICA

giovedì 6 maggio 2010
ore 11.30

Scuola Normale Superiore
Pisa
(Aula Bianchi)

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Terrà un seminario dal titolo:

"Assel Liabilit Management for Pension Funds: a Stochastic Control Approach"

Abstract
In this talk we propose and study a continuous time stochastic model of optimal allocation for a defined contribution pension fund with a minimum guarantee. We adopt the point of view of a fund manager maximizing the expected utility from the fund wealth over an infinite horizon.
In our model the dynamics of wealth takes directly into account the flows of contributions and benefits and the level of wealth is constrained to stay above a ``solvency level''. The fund manager can invest in a riskless asset and in a risky asset but borrowing and short selling are prohibited. The model is naturally formulated as an optimal stochastic control problem that have some similarities with similar to Merton's optimal portfolio problems.
The main technical issues that render this problem difficult are:- the presence of state constraints, motivated by the prescription of the "solvency level".- the presence of delay terms (the so-called "surplus") in the state equation, due to the standard form of the contract (the pension give to the subscribers depends on the past performance of the fund).
First we concentrate first the analysis on the effect of the solvency constraint, analyzing in particular what happens when the fund wealth reaches the allowed minimum value represented by the solvency level. Here we show that the value function of the problem is a regular solution of the associated Hamilton-Jacobi-Bellman equation. Then we apply verification techniques to get the optimal allocation strategy in feedback form and to study its properties. We finally give a special example with explicit solution.
Second we consider the problem where also the "surplus" is present. This problem is naturally infinite dimensional and is much more difficult. We present here the ideas used to approach it and some first partial results.

Tutti gli interessati sono invitati a partecipare.

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