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금융수학 석학 강연

Risk Management and Mean Field type Control

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Risk Management can be viewed as an extension of stochastic control in which one is not just concerned by optimizing the average of a random payoff, consisting of a run off cost (or profit) and a final cost (or profit).

The risk lies in the fact that the real cost can be far from its mean. A traditional way to handle this issue is to introduce an exponential of the cost function. This approach has merits, but lacks flexibility. A better way is to notice that Mean field type control is the right theory to extend stochastic control to include many aspects of risk management.

We provide the general formalism. Applications can be numerous. We present here the risk management version of the classical investment-consumption problem known as Merton's problem in the finance literature.

The interesting feature is that we can solve the problem completely. The methodology can be adapted to all kinds of investment decisions, or operations decisions.

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