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Utility-Risk Portfolio Selection

Abstract

In this talk we discuss a utility-risk portfolio selection problem. By considering the first order condition for the objective function, we derive a primitive static problem, called Nonlinear Moment Problem, subject to a set of constraints involving nonlinear functions of “mean-field terms”, to completely characterize the optimal terminal wealth. Under a mild assumption on utility, we establish the existence of the optimal solutions for both utility-downside-risk and utility-strictly-convex-risk problems, their positive answers have long been missing in the literature. In particular, the existence result in utility-downside-risk problem is in contrast with that of mean-downside-risk problem considered in Jin et al. (2005) in which they prove the non-existence of optimal solution instead and we can show the same non-existence result via the corresponding Nonlinear Moment Problem. This is the joint work with K.C. Wong (University of Hong Kong) and S.C.P. Yam (Chinese University of Hong Kong).