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Portfolio Optimization for a Large Investor under Partial Information and Price Impact

In this talk, we consider a large investor with an objective of expected utility maximization from terminal wealth. The drift of the underlying price process is modeled as a diffusion affected by a continuous-time Markov chain and the actions of the large investor. Using the stochastic filtering theory, we reduce the optimal control problem under partial information to the one with complete observation. For logarithmic and power utility cases we solve the utility maximization problem explicitly and we obtain optimal investment strategies in the feedback form. We compare the value functions to those for the case without price impact, and observe that the investor would be better off due to the presence of a price impact. This is a joint work with Zehra Eksi.