Two tales in tractable (robust) portfolio optimisation

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We consider portfolio choice problems in continuous time. Traditionally, and distinctively in the framework of maximisation of expected utility, the optimal strategies intertwine the choice of the underlying model and the investor’s risk preferences. We seek to advance formulations which disentangle these influences and make things tractable. Our aim is to develop a robust and practically relevant approach to portfolio optimisation. In particular we provide a solid theoretical footing to fractional Kelly strategies.

The Kelly strategy, or the growth optimal strategy, depends on the choice of reference model. In contrast, the fraction of wealth invested in it does not. In the first part of the talk, it encompasses the investor’s risk attitudes expressed through drawdown constraints. In the second part of the talk, it measures the investor’s confidence in the model.

The first part of the talk in based on a joint paper with Constantinos Kardaras and Eckhard Platen and I also present general existence and uniqueness results on portfolio optimisation subject to drawdown constraints. The second part of the talk is based on a joint work with Sigrid Kallblad and Thaleia Zariphopoulou and I also present some general duality results on robust forward performance criteria.