Portfolio Optimization under Model Uncertainty with Incomplete Preferences

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Solutions to optimal control problems for optimal investment portfolios are notoriously sensitive to assumptions about the underlying model. And it is well known that key parameters of a financial model, like the means of asset returns, can be highly uncertain. We study a portfolio optimization problem in continuous time for a growth optimizing investor. The investor is faced with asset returns which depend on an unobservable factor process involving unknown parameters, leading to an uncertain family of filtering problems. Under incomplete preferences of Bewley type, we show that the optimal investment strategy for such an inert investor is of impulse control form and how it can be constructed.

This is joined work with Hauke Laing, HU Berlin.