Abstract

This thesis explores a multiplicative transient price impact model for an illiquid financial market as described in [2]. A trader must liquidate a position in an asset whose evolution is modelled by a continuous martingale multiplied by a discount factor. Intermediate buying is not permitted. Trading affects the quoted price multiplicatively with respect to the current price and is transient over time. In contrast to [2], the trader is only allowed to sell with a bounded rate. The emerging free boundary problem is investigated using the method of characteristics.

[2] D. Becherer, T. Bilarev, and P. Frentrup, "Optimal asset liquidation with multiplicative transient price impact", Applied Mathematics & Optimization (2017) 10.1007/s00245-017-9418-0.