

Optimal trading and market dynamics

The aim of this project is to built up a simulator for price dynamics at the level of an order book. Given the behavior of trading algorithms (automated execution robots), that will be modeled exogenously, we will first try to optimize the behavior of market makers. Each market maker will solve an optimal control problem and we will look for a partial equilibrium. Then, intensive numerical studies will be done to study the resulting price dynamics and compare it to stylized market observations. Market data will be provided.

A solid background in optimal control and computer programming is required.