Regularity of market impact models and a dark pool extension of the Almgren-Chriss model

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Abstract

In this talk, we introduce market impact models for the computation of optimal trading strategies in illiquid markets and regularity conditions for these models. We discuss the "no price manipulation" condition introduced by Huberman and Stanzl (2004) and Gatheral (2010), and related conditions.

Moreover, we give a systematic investigation into such regularity issues when orders can be executed both at a traditional exchange and in a dark pool. We characterize those dark-pool models that guarantee regularity whenever market impact at the exchange is described by an Almgren–Chriss model. Furthermore, we show by a number of examples how the regularity of a market impact model can fail.

This talk is based on joint work with Alexander Schied and Yuemeng Sun.