Quantitative Finance > Trading and Market Microstructure

An Optimal Execution Problem in Geometric Ornstein-Uhlenbeck Price Process

Takashi Kato

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We study the optimal execution problem in the presence of market impact and give a generalization of the main result of Kato(2009). Then we consider an example where the security price follows a geometric Ornstein-Uhlenbeck process which has the so-called mean-reverting property, and then show that an optimal strategy is a mixture of initial/terminal block liquidation and intermediate gradual liquidation. When the security price has no volatility, the form of our optimal strategy is the same as results of Obizhaeva and Wang (2005) and Alfonsi et al.(2010), who studied the optimal execution in a limit-order-book model.

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