

OPTIMAL EXECUTION OF A VWAP ORDER: A STOCHASTIC CONTROL APPROACH

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We consider the optimal liquidation of a position of stock (long or short) where trading has a temporary market impact on the price. The aim is to minimize both the mean and variance of the order slippage with respect to a benchmark given by the market VWAP (volume weighted average price). In this setting, we introduce a new model for the relative volume curve which allows simultaneously for accurate data fit, economic justification and mathematical tractability. Tackling the resulting optimization problem using a stochastic control approach, we derive and solve the corresponding Hamilton-Jacobi-Bellman equation to give an explicit characterization of the optimal trading rate and liquidation trajectory. The talk is based on joint work with Nicholas Westray (Deutsche Bank AG).