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Point process models for order arrival rates in order book dynamics. Preliminary report.

We use bivariate mutually-exciting Hawkes' point processes to model the high-frequency dynamics of the limit order book. We discuss the goodness-of-fit by QQ-plots and obtain several quantities of interest, such as the probability that the mid-price increases/decreases at its next move and the probability that an order is executed before the mid-price moves by simulating the best fitted models. (Received September 20, 2011)