



THE UNIVERSITY OF  
**CHICAGO**

Department of Statistics

MASTER'S THESIS PRESENTATION

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Market-Making Under Uncertainty: A Dynamic Learning Model

THURSDAY, May 7, 2015, at 2:00 PM  
Eckhart 117, 5734 S. University Avenue

ABSTRACT

I present a continuous-time model of market microstructure. Information asymmetry exists between fundamental investors who are restricted to trading via market orders, and market-makers/high-frequency traders who determine the bid-ask spread via limit orders. The bid and ask prices affect the dynamics of fundamental investor transactions and therefore influence the information obtained by market-makers about fundamental investor demand. Market-makers learn investor demand via Bayesian filtering and solve a dynamic optimization problem which captures the tradeoff between instantaneous expected profit and discounted future profits that result from increased instantaneous learning. This results in non-trivial variation in observed prices excess of variation in fundamental investor demand.

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