



The University of Chicago
Department of Statistics

Ph.D. Seminar

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Locally Mean Reverting Processes

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ABSTRACT

Locally mean reverting (LMR) processes are stochastic processes which mean-revert to compound Poisson processes. LMR processes are particularly useful in finance. The LMR filtering problem arises from considering a hidden Markov model with the LMR process as observable, and its mean unobservable. There is a computationally efficient method of approximating filtering distributions, using mixtures of normal distributions, and the mixtures that arise in this fashion have mathematically interesting properties. We give general results for inference for hidden Markov models which are applicable in this context. In addition, we apply the LMR filters to volatility data to show the efficacy of the LMR filtering approach.