



The University of Chicago
Department of Statistics

Seminar Series

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Testing for Jumps in the Context of High Frequency Data

MONDAY, April 2, 2007 at 4:00 PM
133 Eckhart Hall, 5734 S. University Avenue

Refreshments following the seminar in Eckhart 110.

ABSTRACT

We observe a continuous time process X at discrete times, say $0, \Delta_n, 2\Delta_n, \dots$, up to some fixed time T . We want to infer some properties of the process, or of its observed path, on the basis of these discrete observations, in the case of high frequency observations. That is, Δ_n is small, and we are in fact looking at the asymptotic $\Delta_n \rightarrow 0$. The basic assumption is that the process X is an Itô semimartingale X .

We first exhibit a number of quantities which are identifiable (the volatility, the jumps) and others which are not (the drift, the law of the jumps). Then we propose a test to decide, on the basis of the discrete observations, whether the observed path has jumps or not. When this is the case and when there are, say, two components to our process, we also give a test about whether the two components jump at the same time or not. Finally we give some ideas about how to estimate the so-called Blumenthal-Gettoor index.

This work is joint with Y. Aït-Sahalia (for the presence of jumps and the Blumenthal-Gettoor index) and with V. Todorov (testing for common jumps).