DEPARTMENT OF STATISTICS COLLOQUIUM SERIES

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A POINT PROCESS MODEL FOR TRANSACTION-LEVEL ASSET PRICES

ABSTRACT:

Abstract: We consider pure-jump transaction-level models for asset prices in continuous time, driven by point processes. In a bivariate model that admits cointegration, we allow for time deformations to account for such effects as intraday seasonal patterns in volatility, and non-trading periods that may be different for the two assets. Most assumptions are stated directly on the point process, though we provide sufficient conditions on the corresponding inter-trade durations for these assumptions to hold. We obtain the asymptotic distribution of the log-price process. We also obtain the asymptotic distribution of the ordinary least-squares estimator of the cointegrating parameter based on data sampled from an equally-spaced discretization of calendar time, in the case of weak fractional cointegration. Finally, we obtain the limiting distribution of the ordinary least-squares estimator of the autoregressive parameter in a simplified transaction-level univariate model with a unit root and discuss extensions to estimators based on discrete Fourier transforms.

Joint work with Cliff Hurvich, NYU, and Philippe Soulier, Paris X.

DATE: Thursday, October 1, 2009
TIME: 11:10 a.m. – 12:10 p.m.
PLACE: Room 150, Blocker

Refreshments will be served in the Statistics Conference Room at 10:30 am for those attending the seminar.