

For favour of posting

DEPARTMENT OF STATISTICS AND ACTUARIAL SCIENCE
THE UNIVERSITY OF HONG KONG

Seminar

Dr. ZHENG Xinghua

Department of Information Systems
Business Statistics and Operations Management (ISOM)
Hong Kong University of Science and Technology
H.K.

will give a talk

entitled

**ON THE ESTIMATION OF INTEGRATED COVARIANCE
MATRICES OF HIGH DIMENSIONAL DIFFUSION PROCESSES**

Abstract

We consider the estimation of integrated covariance matrices of high dimensional diffusion processes by using high frequency data. We start by studying the most commonly used estimator, the realized covariance matrix (RCV). We show that in the high dimensional case when the dimension p and the observation frequency n grow in the same rate, the limiting empirical spectral distribution of RCV depends on the covolatility processes not only through the underlying integrated covariance matrix Σ , but also on how the covolatility processes vary in time. In particular, for two high dimensional diffusion processes with the same integrated covariance matrix, the empirical spectral distributions of their RCVs can be very different. Hence in terms of making inference about the spectrum of the integrated covariance matrix, the RCV is in general not a good proxy to rely on in the high dimensional case. We then propose an alternative estimator, the time-variation adjusted realized covariance matrix (TVARCV), for a class of diffusion processes. We show that the limiting empirical spectral distribution of our proposed estimator TVARCV does depend solely on that of Σ through a Marcenko-Pastur equation, and hence the TVARCV can be used to recover the empirical spectral distribution of Σ by inverting the Marcenko-Pastur equation, which can then be applied to further applications such as portfolio allocation, risk management, etc.

Based on joint work with Yingying Li.

on

Wednesday, May 26, 2010

10:30 a.m. – 11:30 a.m.

at

**Room 524, Meng Wah Complex
(behind the Chong Yuet Ming Amenities Centre)**

Visitors Please Note that the University has limited parking space. If you are driving please call the Department at 2859 2466 for parking arrangement.

All interested are welcome