SCMS Seminar

ON THE DEGREES OF FREEDOM IN MCMC BASED TIME-SERIES WISHART MODELS

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Time: 10:00-11:00 a.m., Friday, November 21, 2014

Venue: Room 2201, East Guanghua Tower (Main), Fudan University

Abstract: The Wishart distribution has long been a useful tool for modeling covariance structures. According to Gyndikin's theorem, the degrees of freedom (df) for a Wishart distribution can be any real number belonging to the Gyndikin set, either integer-valued or fractional. However, in practice, the fractional-df versioned Wishart distribution has received only limited attention. This paper shows by a numerical example that, when generating samples by Markov chain Monte Carlo (MCMC) for time-series Wishart models, the lack of attention to the fractional df where necessary may lead to seriously biased posterior estimation due to the compounding errors. We further conduct a sensitivity analysis to explain why the seemingly small difference between the integer df and the fractional df can lead to very different outcomes.

Bio: Dr. Yu-Cheng Ku received his PhD in Statistics from North Carolina State University, USA, in 2010. During 2010-2011, he was a post-doctoral researcher at Australian School of Business, the University of New South Wales, Australia. His research field included Bayesian Econometrics and Bayesian Analysis in Finance and Marketing. In the academic community, he has reviewed papers for Journal of Econometrics and Bayesian Analysis, and he has several publications in international journals, including Marketing Letters (conditionally accepted) and Statistical Modelling. He is now a Financial Economist at Fannie Mae, Washington, DC, USA, responsible for mortgage prepayment modeling for firm-wide applications.

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