



THE UNIVERSITY OF
CHICAGO

Department of Statistics
STATISTICS COLLOQUIUM

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Regularized Estimation and testing for High-Dimensional
Multi-Block Vector Autoregressive Models and its Applications

MONDAY, May 22, 2017, at 4:00 PM

Eckhart 133, 5734 S. University Avenue
Refreshments before the seminar at 3:30PM in Jones 111

ABSTRACT

Dynamical systems comprising of multiple components originate in many scientific areas. A pertinent example examines interactions between equity markets and the potential for contagion during crisis. To address this issue, we consider a multi-block linear dynamic system with Granger-causal ordering between blocks, wherein the blocks temporal dynamics are described by vector autoregressive processes and are influenced by blocks higher in the system hierarchy. We briefly discuss how to obtain maximum likelihood estimates of the model parameters in a high-dimensional setting and specifically address algorithmic and inference issues. We illustrate the model and present key findings by examining log-returns of the US S&P 100 and the Euro Stoxx 50 components stocks for the 2002-2016, with the objective of understanding linkages and influences between the two equity markets.

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