For favour of posting

DEPARTMENT OF STATISTICS AND ACTUARIAL SCIENCE
THE UNIVERSITY OF HONG KONG

Departmental Seminar

Dr. Chengguo WENG

Department of Statistics and Actuarial Science
University of Waterloo
Canada

will give a talk
entitled

EIGEN PORTFOLIO SELECTION: A ROBUST APPROACH TO SHARPE RATIO MAXIMIZATION

Abstract

In this paper, we study how to pick optimal portfolios by modulating the impact of estimation risk in large covariance matrices. We discover that if the expected returns vector lies in a subspace of the eigenvector space of the sample covariance matrix, the sample-based maximum Sharpe ratio portfolio also lies in the same subspace. Due to the uneven distribution of estimation errors across different sample eigenvalues and eigenvectors, it is desirable that the portfolio estimator lies in a space spanned by a few sample eigenvectors that relatively well estimate their population counterparts. Therefore, we propose approximating the expected returns vector in a lower-dimensional subspace and use the approximation for the construction of portfolio. As long as the approximation is close to the original vector, we benefit from the reduced exposure to the estimation error without much loss in the information of the expected returns. We introduce two concrete regularization methods for approximating the expected returns, and analyze the choice of tuning parameters for the methods. We conduct simulation studies and use three real-world stock returns datasets to assess the effectiveness of the two methods. Our results show that both methods mitigate the effect of the estimation error more effectively in a high-dimensional setting than a low-dimensional setting. This is a joint work with Danqiao Guo, Phelim Boyle and Tony Wirjanto.

on

Wednesday, February 27, 2019

(Refreshments will be served from 10:15 a.m. outside Room 301 Run Run Shaw Building)

10:30 a.m. – 11:30 a.m.

at

Room 301, Run Run Shaw Building

Visitors Please Note that the University has limited parking space. If you are driving please call the Department at 3917 2466 for parking arrangement.

All interested are welcome