

# 國立中央大學

## 統計研究所

### 學術演講

主 講 人：林孟樺 助理教授（東海大學統計學系）

講 題：**Behavioral Data-Driven Analysis with Bayesian Method  
for Risk Management of Financial Services**

時 間：110年04月13日（星期二）上午11：00 ~ 12：00

地 點：中央大學鴻經館M327室

茶 會：上午 10：30 ~ 11：00 地 點：鴻經館 M510 室

### ABSTRACT

Time-varying behavioral features and non-linear dependence are widely observed in big data and challenge the operating systems and processes of risk management in financial services. In order to improve the operational accuracy of risk measures and incorporate customer behavior analytics, we propose a Bayesian approach to efficiently estimate the multivariate risk measures in a dynamic framework. The proposed method can carry the prior information into the Bayesian analysis and fully describe the risk measures' behavior after utilizing the Cornish-Fisher (CF) approximation with Markov chain Monte Carlo (MCMC) sampling. Therefore, the operating systems and processes of risk management can be well performed either based on the first four conditional moments of the underlying model employed to consider some specific behavioral features (e.g., the time-varying conditional multivariate skewness) or the characteristics extracted from the big data. We conduct a simulation study to distinguish the applications of CF approximation and MCMC sampling after comparing them with the classical likelihood based method. We then provide a robust procedure for empirical investigation by using the real data of U.S. DJIA stocks. Both simulation and empirical results confirm that the Bayesian method can significantly improve the operations of risk management.