財務經濟學專題演講

時間：2012.7.4 (三) 14:00 – 17:20

地點：東海大學社會科學院 SS524 會議室

講題一

A Homoclinic Route to Volatility: Dynamics of Asset Prices under Autoregressive Forecasting

講者：**Carl Chiarella**

Emeritus Professor of Finance
Head of Finance Discipline Group,
Core Member of Quantitative Finance Research Centre,
Business School, University of Technology Sydney

講題二

Heterogeneous Beliefs and Prediction Market Accuracy

講者：**Tony He**

Professor of Finance
Associate Member of Centre for Quantum Computation and Intelligent Systems
Core Member, Quantitative Finance Research Centre
Associate Member of Advanced Analytics Institute
Business School, University of Technology Sydney

主辦：
國立政治大學經濟學系、東海大學經濟學系、東海大學教師專業成長社群

講者簡介

Carl Chiarella 教授是數學與經濟學雙博士，為澳洲雪梨科技大學榮譽教授。其學術著作超過 150 篇，並且為 ***Journal of Economic Dynamics and Control*** 的共同編輯 (Co-Editor)、***Journal of Economic Behavior and Organization***、***Quantitative Finance***、***Studies in Nonlinear Dynamics and Econometrics*** 以及 ***European Journal of Finance*** 等期刊的副主編（Associate Editor）。

Tony He 教授主要的研究是代理人基財務模型以及非線性動態，目前已有許多文章發表在 *Journal of Economic Dynamics and Control*、*Journal of Economic Behavior and Organization*、*Macroeconomic Dynamics*、*Journal of Evolutionary Economics*、*European Journal of Finance*、*Quantitative Finance*、以及 *Computational Economic* 等知名的國際期刊，同時，也是 IEEE Computational Finance and Economics Technical Committee 的副主席(Vice-Chair)以及 ***Journal of Economic Dynamics and Control***、***Journal of Economic Interaction and Coordination***、***Journal Differential Equations and Dynamical Systems***、***Discrete Dynamics in Nature and Society*** 的副主編與 ***The Mathematics Review*** 與 ***American Mathematical Society*** 的審查人(Reviewer)。

演講摘要

A Homoclinic Route to Volatility: Dynamics of Asset Prices under Autoregressive Forecasting

The article investigates the impact of mean-reverting forecasts in a model of asset pricing with two groups of investors undermarket clearing. Fundamentalists believe that asset prices follow an exogenous stochastic process, while chartists assume that asset prices follow a stochastic geometric decay process. For high values of mean reversion a period-doubling bifurcation occurs followed by a Neimark-Sacker bifurcation, after which homoclinic points exist inducing chaotic dynamics. Before the occurrence of homoclinic points, all orbits induce significant fluctuations with recurring symmetries and nonvanishing autocorrelations in all time series of prices and returns. After the homoclinic bifurcation, prices and returns follow alternating phases with low fluctuations near the steady state followed by phases with large excursions from the steady state. This shows that nonlinearities of the deterministic model rather than random perturbations are the causes of volatility clustering and of the generation of fat tails. Autocorrelations of prices and returns vanish while those of absolute returns and squared returns persist for high-order lags. Thus, the model is able to reproduce some important empirical market features.

Heterogeneous Beliefs and Prediction Market Accuracy

We consider a prediction market in which traders have heterogeneous prior beliefs in probabilities. In the two-state case, we derive necessary and sufficient conditions so that the prediction market is accurate in the sense that the equilibrium state price equals the mean probabilities of traders' beliefs. We also provide a necessary and sufficient condition for the well documented favorite-longshot bias. In an extension to many states, we revisit Varian (1985) and exhibit conditions for the equilibrium state price to only depend on beliefs about that state and to decrease with more heterogeneity in beliefs.