The Hong Kong Polytechnic University
Department of Applied Mathematics

Colloquium

Equilibrium Asset Pricing with Transaction Costs
by

Prof. Johannes Muhle-Karbe
Imperial College London

Abstract

In the first part of the talk, we study risk-sharing equilibria where heterogenous agents trade subject to quadratic transaction costs. The corresponding equilibrium asset prices and trading strategies are characterized by a system of nonlinear, fully coupled forward-backward stochastic differential equations. We show that a unique solution generally exists provided that the agents' preferences are sufficiently similar. In a benchmark specification, the illiquidity discounts and liquidity premia observed empirically correspond to a positive relationship between transaction costs and volatility.

In the second part of the talk, we discuss how the model can be calibrated to time series of prices and the corresponding trading volume, and explain how extensions of the model with general transaction costs, for example, can be solved numerically using the deep learning approach of Han, Jentzen, and E (2018).

Based on joint works with Martin Herdegen, Dylan Possamai, Lukas Gonon and Xiaofei Shi.

Date :   **20 May 2019 (Monday)**
Time :   **11:00am – 12:00noon**
Venue :   **Room Y416, The Hong Kong Polytechnic University**

* * *   ALL ARE WELCOME   * * *