The Hong Kong Polytechnic University
Department of Applied Mathematics

Seminar

Time-consistent investment and contribution adjustment strategies for a collective DC pension plan with stochastic salary under smooth ambiguity utility

By

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Abstract

This paper studies the optimal investment and benefit adjustment problem for a collective DC (CDC) pension plan in an environment with parameter uncertainty. We propose a smooth ambiguity framework to model the pension trustee's preferences towards risk and ambiguity. Since the pension trustee is ambiguous about the risky assets, she/he decides to invest in a risk-free asset, a purely risky asset and an ambiguous risky asset whose return is uncertain. Furthermore, we take the stochastic salary into account. The objective is to maximize the expectation of the accumulated benefit payment and terminal wealth under a smooth ambiguity utility which is the double power form. The utility function makes the problem time-inconsistent and we establish the extended HJB equation via game theoretic formulation. The equilibrium strategy and equilibrium value function are derived under smooth ambiguity. Finally, sensitivity analysis of equilibrium strategy is provided to demonstrate the effects of model parameters on the equilibrium strategy.

Date: 7 March 2023 (Tuesday)
Time: 10:00-11:00 (Hong Kong Standard Time GMT +8)
Venue: Online Talk via Zoom (Meeting ID: 955 5974 6321; Passcode: 0307)
Speaker: Dr. Hui Zhao, Tianjin University
Host: Dr. James Huang, The Hong Kong Polytechnic University
Click to join:
https://polyu.zoom.us/j/95559746321?pwd=U1ltL0sycWN4WEFzcUhGQ0JpcVRnQT09

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