

Hong Kong - Singapore joint Seminar Series in Financial Mathematics/Engineering

Measuring diversification via risk measures

Prof. Ruodu Wang
University of Waterloo

Abstract

We propose a new notion of diversification indices, called the diversification multipliers (DM). Defined through a parametric family of risk measures, DM satisfy three natural properties, namely non-negativity, location invariance and scale invariance, which are shown to be conflicting for traditional diversification indices based on a single risk measure. We pay special attention to two important classes of risk measures, Value-at-Risk (VaR) and Expected Shortfall (ES). DM based on VaR and ES enjoy many convenient technical properties, and they are easy to compute in portfolio selection problems. The two popular multivariate models of elliptical and regular varying distributions are further analyzed in detail. It turns out that DM can properly distinguish tail heaviness and common shocks, which are neglected by traditional diversification indices. Portfolio optimization with DM is illustrated with financial data and its performance is competitive when contrasted with other diversification methods.

About the speaker

Prof. Ruodu Wang is University Research Chair, Sun Life Fellow, and Associate Professor of Actuarial Science and Quantitative Finance at University of Waterloo. He received his PhD in Mathematics (2012) from the Georgia Institute of Technology, after completing his Bachelor (2006) and Master's (2009) degrees at Peking University. He holds editorial positions in leading journals in actuarial science and mathematical economics, including Co-Editor of the European Actuarial Journal, and Co-Editor of ASTIN Bulletin. His scientific work has appeared in academic journals and conferences in various other fields, such as Management Science, Operations Research, The Annals of Statistics, Journal of the Royal Statistical Society Series B, and NeurIPS. He is an affiliated member of RiskLab at ETH Zurich. He is the inaugural winner of the SOA Actuarial Science Early Career Award (2021) and a Fellow of the Institute of Mathematical Statistics (elected 2022).

Date

May 19, 2022 (Thursday)
(HK Time)

Time

8:30pm – 9:30pm (HK
Time)

Zoom

<https://polyu.zoom.us/j/95276765726?pwd=K2FTRXk2bFU3Z3VEUFJ2N2pIOGpiZz09>

Meeting ID:

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Passcode:

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