Biwen Ling

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Research Interests

General Areas: Actuarial Science, Quantitative Finance
Specific Topics: Valuation in Finance and Insurance, Systematic Risk Management, Correlation Trading, Risk Sharing

Education

- **KU Leuven** — *Oct. 2021 - Jun. 2025*
  Ph.D in Actuarial Science — Leuven, Belgium
  - Supervisor: Prof. Dr. Jan Dhaene
- **University of Illinois Urbana-Champaign** — *Aug. 2018 - Dec. 2019*
  M.Sc. in Actuarial Science — Champaign, US
  - GPA: 3.91/4.0
- **Nankai University** — *Sep. 2015 - Jun. 2019*
  B.Sc. in Mathematics and Applied Mathematics — Tianjin, China
  - GPA: 3.5/4.0

Research Visits

- **University of Amsterdam** — *Apr. 2023 - May 2023*
  Visiting scholar (host: Prof. Dr. Daniël Linders) — Amsterdam, Netherlands

Publications

Dhaene J., Linders D., Ling B., Wang Q. (2024). Understanding the Correlation Risk Premium. *Annals of Actuarial Science*, published online, 2024: 1–24.

Working Papers

Dispersion Swaps in a Continuous-Time Financial Market. *Joint work with Daniël Linders and Bertrand Tavin.*
Abstract: This paper further investigates a novel derivative called dispersion swap, which was first introduced in Dhaene et al. (2024), within a multi-asset continuous-time financial market. Similar to correlation and covariance swaps, dispersion swaps can trade correlation risk in the financial market. In this continuous-time market, we consider a stochastic correlation among assets and show that the set of equivalent risk-neutral measures can be characterized by the market price of risk for the stochastic correlation. We derive the general condition of market completeness and show how to price the dispersion swap within the continuous-time market framework. Utilizing the Vasicek model and the Jacobi bounded process to model instantaneous stochastic correlation, we present numerical results for pricing dispersion swaps and demonstrate that dispersion swaps can be a useful tool to hedge the correlation risk in the financial market.

Work in Progress

4-Step Valuation. *Joint work with Boonen T.J., Dhaene J., and Linders D.*

Conferences & Seminars

2024 Actuarial and Financial Mathematics Conference (Brussels, Belgium), The 2nd International Conference on Actuarial Science, Quantitative Finance, and Risk Management (Beijing, China), China International Conference on International Conference (Ningbo, China), Invited Seminar at SUS Tech (Shenzhen, China), KU Leuven, Bayes, and UvA PhD Workshop (London, UK)

2023 Winter School for Young Researchers on Actuarial Risks (Valencia, Spain), Actuarial and Financial Mathematics Conference (Brussels, Belgium), Doctoral Seminar (Leuven, Belgium)

2022 25th International Congress on Insurance: Mathematics and Economics (online), KU Leuven, Bayes, and UvA PhD Workshop (Amsterdam, Netherlands)

Industry Presentations

Exploring Correlation Risk Premium: From Discrete-Time Insights to Continuous-Time Hedging Strategies.
Invited Seminar at KBC Group, Brussels, Belgium, December 2024.

Teaching Experience

- **KU Leuven** *Oct. 2021 - present*
  Teaching Assistant for D0R57b Foundations of Quantitative Risk Measurement (MSc level) Leuven, Belgium
  - Delivered 5 tutorial sessions per semester
  - Prepared final exam questions
- **KU Leuven** *Oct. 2021 - present*
  Thesis Supervisor for Master Students in Actuarial Science Leuven, Belgium
  - 6 projects
- **Illinois Risk Lab** *Sep. 2019 - Dec. 2019*
  Graduate Supervisor Champaign, US
  - Project: European basket option pricing: independence and comonotonicity approximations
- **University of Illinois Urbana-Champaign** *Sep. 2019 - Dec. 2019*
  Teaching Assistant for ASRM 510: Financial Mathematics and ASRM 471: Life Contingencies I Champaign, US
  - Organized office hours every week
  - Graded assignments and exams

Industry Experience

- **PwC Mainland China and Hong Kong** *Jan. 2021 – Apr. 2021*
  Risk Assurance, Associate Beijing, China
- **China Merchants Bank Co., Ltd.** *Jun. 2018 - Aug. 2018*
  Credit Department, Summer Intern Xi'an, China
- **The Prudential Assurance Company Limited** *Jun. 2017*
  Life Insurance Department, Summer Intern Hong Kong SAR

Skills

- **Software:** Python, MATLAB, R, LaTeX, MySQL
- **Language:** English (Proficiency level), Chinese (Native)