Sumanjay Dutta

sumanjaydutta@gmail.com
https://sites.google.com/view/sumanjaydiisc   +91-8292975968

Education

2019 - 2025 **Ph.D Thesis Defended on 20th June 2025. Indian Institute of Science**.
Area: Computational Finance.
Thesis title: *Mitigating Low-Sample Issues in Portfolio Analysis: Applications of Shrinkage and Gaussian Graphical Models*
Description: This work revolves around using Gaussian Graphical methods for developing portfolio optimization, factor modeling and multivariate GARCH models in low-sample regimes.

2017 – 2019 **M,A. Financial Economics, Madras School of Economics**
Thesis title: *Information Theoretic Ranking of Extreme Value Estimators*.

2014 – 2017 **B.Sc. Economics (H), University of Calcutta**
Thesis title: *Estimating the Environmental Kuznets Curve for the Indian Economy*.

Employment History

December 2025 – **Quantitative Research Consultant** State Street Investment Management, Bengaluru.

July 2025 – **Visiting Faculty** Madras School of Economics, Chennai.

January 2025 – June 2025 **Quantitative Researcher** State Street Global Advisors (SSGA), Bengaluru.

May 2018 – July 2018 **Analytics Intern** Wells Fargo EGS India, Bengaluru.

Research Publications

Journal Articles

1. S. Dutta and S. Jain, "Shrinkage and thresholding approaches for expected utility portfolios: An analysis in terms of predictive ability," *Finance Research Letters*, vol. 64, p. 105 426, 2024 (ABDC - A).
2. S. Dutta and P. Kayal, "Robust linear shrinkage estimator for highly volatile times," *Computational Economics*, pp. 1–27, 2025 (ABDC - B).
3. S. Dutta, P. Kayal, and G. Balasubramnaian, "Volatility spillover and directionality in cryptocurrency and metal markets," *Journal of Emerging Market Finance*, vol. 22, no. 4, pp. 464–485, 2023 (ABDC - B), Scopus - Q3.
4. P. Kayal and S. Dutta, "Regime switching and causal network analysis of cryptocurrency volatility: Evidence from pre-covid and post-covid analysis," *Digital Finance*, pp. 1–22, 2024, Scopus - Q2.
5. P. Kayal, S. Dutta, V. Khandelwal, and R. Nigam, "Information theoretic ranking of extreme value returns," *Journal of Quantitative Economics*, vol. 19, no. 1, pp. 1–21, 2021 (ABDC- B).
6. S. Dutta and S. Jain, "Enhancing portfolio performance: The efficacy of direct precision matrix estimation in low-sample setting," *Journal of Emerging Market Finance*, 2026, Forthcoming.
7. P. Reddy, S. Dutta, and P. Kayal, "Core: A climate and energy integrated risk contribution framework for the oecd and its subgroups," *Structural Change and Economic Dynamics*, 2026, Forthcoming. DOI: 10.1016/j.strueco.2026.04.003.

8. S. Dutta, R. Bhansali, and P. Kayal, “Energy market dynamics and clean energy investments,” *Development and Sustainability in Economics and Finance*, p. 100 049, 2025.

Conference Proceedings

1. S. Valivati, S. Dutta, S. Jain, and P. B.S, “Pca and mle-based statistical factor models for asset pricing,” in *2023 International Conference on Network, Multimedia and Information Technology (NMITCON)*, 2023, pp. 1–7. DOI: 10.1109/NMITCON58196.2023.10275785.

Skills

Coding	R, Python.
Quantitative Skills	Probabilistic Graphical Modeling, Time Series Analysis, Machine Learning, Panel Data Econometrics.
Skills in Finance	Portfolio Optimization, Volatility Modeling, Asset Pricing, Climate Finance.
Languages Known	English, Hindi, Bengali and Sanskrit.

Working Papers

2024
- **Low Sample Statistical Factor Modelling for Asset Pricing** with *Shashi Jain*. **Status** - Submitted.
- **The DCPM-GARCH Approach for Large Dimensional Inverse Covariance Matrices** with *Shashi Jain*. **Status** - Submitted.

2025
- **ADMM-based Sparse Index Tracking for Equity Portfolios** with *Alexander Rudin*. **Status** - Writing.

Awards and Achievements

2018
- **UGC-JRF Fellowship in Economics**, Awarded in December 2018.

2020
- **Prime Minister’s Research Fellowship (PMRF)**, Awarded with the PMRF, a prestigious research fellowship initiated by the Government of India.

2024
- **Best Paper Award**, International Finance Conference 2024, XLRI.

References

Dr Shashi Jain, Associate Professor, *Indian Institute of Science*
`shashijain@iisc.ac.in`.

Dr MH Bala Subrahmanya, Professor, *Indian Institute of Science*
`bala@iisc.ac.in`.

Dr Prantik Bagchi, Assistant Professor, *Indian Institute of Technology, Kharagpur*
`prantik@hss.iitkgp.ac.in`.