

Sumanjay Dutta

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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 - December 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 A. K. Banerjee, S. Dutta, P. Kayal, A. Sensoy, and F. J. Fabozzi, "Ai and the energy sector amid market chaos: Insights from tail-risk measurement using epidemic modeling," *The Journal of Alternative Investments*, 2026.
- 7 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.

- 8 R. Pooja, 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.
- 9 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.

Journal Refereeing

- **Referee for:** *Economic Analysis and Policy*; *Journal of Economic Surveys*; *Finance Research Letters*; *Computational Economics*; *Humanities and Social Sciences Communications*; *Scientific Reports*; *Journal of Emerging Market Finance*.

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

- 2026 ■ **Dynamic Conditional Covariance Estimation via Flexible Regressions** with Rudra Prosad Roy. **Status** - Writing.
- **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.

References (continued)

Dr Parthajit Kayal, Associate Professor, *Madras School of Economics*
parthajit@mse.ac.in.

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