

Special Issue

Artificial Intelligence and the Quantitative Management of Financial Risk

Message from the Guest Editor

Quantitative financial risk management has long been central to financial engineering, using mathematical modeling, statistical analysis, and computational techniques to identify, measure, and mitigate risks. With evolving market structures, diverse risk sources, and increasingly high-dimensional or unstructured data, traditional approaches face new challenges requiring greater precision, adaptability, and real-time responsiveness. Artificial intelligence now offers powerful tools to address these challenges, excelling in large-scale data processing, pattern recognition, forecasting, and anomaly detection, and serving as a vital complement to traditional methods. This Special Issue welcomes high-quality research and review articles on both traditional quantitative risk management and AI-driven innovations in areas such as systemic risk analysis, nonlinear and high-dimensional modeling, complex network analysis, risk forecasting and early warning, early warning system design, network resilience evaluation, and drivers of financial risk.

Guest Editor

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Message from the Editor-in-Chief

The journal *Mathematics* publishes high-quality, refereed papers that treat both pure and applied mathematics. The journal highlights articles devoted to the mathematical treatment of questions arising in physics, chemistry, biology, statistics, finance, computer science, engineering and sociology, particularly those that stress analytical/algebraic aspects and novel problems and their solutions. One of the missions of the journal is to serve mathematicians and scientists through the prompt publication of significant advances in any branch of science and technology, and to provide a forum for the discussion of new scientific developments.

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