

Editorial

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The field of financial mathematics is evolving at a remarkable pace, driven by the complexity of modern financial instruments, the availability of large datasets, and advances in computational methods. At the *Journal of Mathematics and Modelling in Finance*, we remain committed to fostering high-quality interdisciplinary research that addresses both theoretical developments and real-world challenges in finance, insurance, and risk modelling.

This issue—Volume 5, Issue 1—features twelve original research articles reflecting diverse themes and methodologies, ranging from stochastic modeling and actuarial science to portfolio theory, option pricing, and applications of machine learning in finance. The works presented in this issue are notable for their practical relevance, scientific rigor, and methodological innovation.

In *Surrender analysis of life insurance in Iran at two micro-corporate and macroeconomic levels*, Ghanbarzadeh and Hozarmoghadam conduct a comprehensive investigation into the drivers of life insurance surrender in Iran. Their dual-level analysis identifies and evaluates both corporate and economic factors, offering actionable insights to insurance firms seeking to reduce policy lapse rates.

Comparative analysis of stochastic models for simulating leveraged ETF price paths by Goyle offers an in-depth comparison of five stochastic models applied to TQQQ price data, including a novel multi-scale volatility with jumps model. The work provides a robust evaluation framework across different market conditions, contributing significantly to the modeling of high-leverage financial instruments.

Haddadi and Nasrollahi, in their article *Option pricing under non-normal distribution in mixed of Gram-Charlier model and fractional models*, develop advanced non-normal option pricing models using mixed and fractional Gram-Charlier approaches. By applying the models to Iranian market data, they demonstrate improved pricing accuracy over the classical Black-Scholes model.

Comparing the performance of different deep learning architectures for time series forecasting, authored by Taleblou, evaluates several deep learning models on commodity-based indices. The

study highlights the superior performance of transformer-based models, especially PatchTST and FEDformer, in both short- and long-horizon forecasting tasks.

Bayati, Tajdini, Jung, and Lotfi Ghahroudi present *Enhanced portfolio performance evaluation using adjusted dynamic conditional Jensen's alpha: A time-sensitive risk approach*, which introduces a refined performance measure incorporating time-varying beta. Their model provides a more responsive evaluation of investment performance under dynamic market conditions.

In *Measuring information asymmetry surrounding earnings announcements*, Nainggolan, Sembiring, and Montebon analyze bid-ask spread behavior around earnings events in the Indonesian market. Their findings affirm the presence of short-term information asymmetry and support timely disclosure for efficient price formation.

Designing an epidemic health insurance by Atatalab, Payandeh Najafabadi, and Zokaei proposes a new insurance model responsive to pandemic conditions. Utilizing a time-dependent SIDS epidemic model, the authors evaluate fair premium structures under various health scenarios, offering timely solutions for public health risk management.

In *Modifying premiums for life insurance products using specific mortality tables*, Aalaei and Ebrahimnezhad investigate how adjustment multipliers affect premium calculations. Their findings underscore the importance of using health-specific mortality tables to improve actuarial precision and product fairness.

Kosarinia, Salahi, and Khodamoradi, in *On data-driven robust portfolio optimization with semi mean absolute deviation via support vector clustering*, present a robust optimization model grounded in machine learning. Their formulation improves on previous approaches by establishing best and worst-case bounds through support vector clustering.

A generation theorem for the perturbation of exponentially equicontinuous C_0 -semigroups on locally convex spaces, by Ettayb, explores conditions under which perturbations preserve semigroup properties. Though abstract, the findings have foundational implications for stochastic modeling in infinite-dimensional spaces.

Esna-Ashari, Badi, Chahkandi, and Saadatfar contribute *Mitigating data imbalance for enhanced third-party insurance claim prediction using machine learning*, which tackles imbalance in insurance datasets using resampling and ensemble learning. Their results highlight the superiority of decision tree-based models in predicting rare events.

Finally, *Optimal path of life insurance demand: A utility-based modelling approach* provides a mathematical treatment of life insurance decision-making over time. Using single-period and life-cycle models, the authors demonstrate how variables like mortality risk, interest rates, and wealth accumulation influence insurance demand.

Together, the contributions in this issue demonstrate the vibrant and interdisciplinary nature of modern financial mathematics. As the journal continues to grow, with recent indexing in Scopus

(Q4), DOAJ, and other reputable platforms, we extend our appreciation to our reviewers, authors, and editorial team. We welcome future submissions that challenge assumptions, advance theory, and offer practical relevance.

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