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*Editorial*

# Editorial: Machine Learning Applications in Finance, 2nd Edition

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## 1. Special Issue Overview

FinTech has become a central research focus in modern finance, driven by the increasing complexity and volume of financial data. To promote emerging research in this area, the *Journal of Risk and Financial Management (JRFM)* is dedicating a Special Issue to "Machine Learning Applications in Finance, 2nd Edition." This issue emphasizes the development and application of advanced machine learning (ML) and artificial intelligence (AI) techniques for large-scale and complex financial datasets.

The goal of this Special Issue is to highlight the state-of-the-art methods that address practical challenges in financial data analysis, including portfolio management, risk assessment, asset pricing, fraud detection, volatility forecasting, and market sentiment analysis. By showcasing innovative ML approaches, we aim to bridge the gap between financial theory and practical implementation, supporting data-driven decision-making in both industry and academia.

## 2. Scope and Topics

The Special Issue invited research on diverse topics including artificial intelligence, deep learning, blockchain, big data analytics, cyber security, Internet of Things (IoT), mobile finance applications, neural networks, fuzzy logic, expert systems, sentiment analysis, support vector machines, and web services.

## 3. Contributions to the Special Issue

The following briefly introduces the included articles, demonstrating the breadth and innovation of research in this Special Issue.

- **PortRSMs: Learning Regime Shifts for Portfolio Policy** Liu and Ichise (2025) propose a novel deep reinforcement learning (DRL) policy network using stacked state-space models for multiscale regime shifts in financial time series.
- **DASF-Net: A Multimodal Framework for Stock Price Forecasting** Nguyen et al. (2025) combine diffusion-based graph learning and optimized sentiment fusion to predict stock prices, addressing higher-order dependencies in financial networks.
- **A Majority Voting Mechanism-Based Ensemble Learning Approach for Financial Distress Prediction** Muniappan and Subramanian (2025) apply ensemble learning to predict financial distress in the Indian automobile industry.
- **Risk-Adjusted Performance of Random Forest Models in High-Frequency Trading** Deep et al. (2025) evaluate the effectiveness of random forest models for minute-level trading data under the Efficient Market Hypothesis.

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- **Using Machine Learning to Understand Stock Market and US Presidential Election Dynamics** Thaker et al. (2025) explore explainable AI (SHAP) to analyze market response to election outcomes.
- **Forecasting Forex Market Volatility Using Deep Learning Models** Zitis et al. (2024) investigate whether complexity measures improve deep learning predictions of forex volatility.
- **Forecasting Orange Juice Futures: LSTM, ConvLSTM, and Traditional Models** Ampountolas (2024) compares neural networks with ARIMA for commodity price forecasting over short-term horizons.
- **Financial Distress Prediction in the Nordics: Early Warnings from Machine Learning Models** Abrahamsen et al. (2024) develop an explainable early-warning model for listed Nordic corporations.
- **Does ICT Investment Affect Market Share and Customer Acquisition Cost?** Ansari and Gupta (2024) examine the impact of ICT investments on banks' market share and customer acquisition.
- **Exploring Calendar Anomalies and Volatility Dynamics in Cryptocurrencies** Sahu et al. (2024) analyze day-of-the-week effects in cryptocurrency returns using GARCH family models.
- **Prediction of Currency Exchange Rate Based on Transformers** Zhao and Yan (2024) use transformer models to forecast exchange rate fluctuations under global uncertainty.
- **Bibliometric Analysis of Machine Learning Applications in Fraud Detection on Crowdfunding Platforms** Cardona et al. (2024) review the ML literature for fraud detection in crowdfunding.

## 4. Conclusions

The adoption of machine learning techniques in finance has advanced both theory and practice. This Special Issue highlights innovative methodologies, practical applications, and rigorous evaluations that address contemporary financial challenges. The included articles demonstrate the versatility of ML approaches, ranging from portfolio optimization and volatility forecasting to fraud detection and market anomaly analysis. We encourage continued contributions to expand the frontier of financial technology research.

**Conflicts of Interest:** The author declares no conflicts of interest.

## References

Abrahamsen, N.-G. B., Nylén-Forthun, E., Møller, M., de Lange, P. E., & Risstad, M. (2024). Financial distress prediction in the nordics: Early warnings from machine learning models. *Journal of Risk and Financial Management*, *17*(10), 432. [CrossRef]

Ampountolas, A. (2024). Forecasting orange juice futures: LSTM, ConvLSTM, and traditional models across trading horizons. *Journal of Risk and Financial Management*, *17*(11), 475. [CrossRef]

Ansari, G. G., & Gupta, R. S. (2024). Does ICT investment affect market share and customer acquisition cost? A comparative analysis of domestic and foreign banks operating in India. *Journal of Risk and Financial Management*, *17*(9), 421. [CrossRef]

Cardona, L. F., Guzmán-Luna, J. A., & Restrepo-Carmona, J. A. (2024). Bibliometric analysis of the machine learning applications in fraud detection on crowdfunding platforms. *Journal of Risk and Financial Management*, *17*(8), 352. [CrossRef]

Deep, A., Shirvani, A., Monico, C., Rachev, S., & Fabozzi, F. (2025). Risk-adjusted performance of random forest models in high-frequency trading. *Journal of Risk and Financial Management*, *18*(3), 142. [CrossRef]

Liu, B., & Ichise, R. (2025). PortRSMs: Learning regime shifts for portfolio policy. *Journal of Risk and Financial Management*, *18*(8), 434. [CrossRef]

Muniappan, M., & Subramanian, N. D. P. (2025). A majority voting mechanism-based ensemble learning approach for financial distress prediction in Indian automobile industry. *Journal of Risk and Financial Management*, *18*(4), 197. [CrossRef]

Nguyen, N.-H., Nguyen, T.-T., & Ngo, Q. T. (2025). DASF-Net: A multimodal framework for stock price forecasting. *Journal of Risk and Financial Management*, *18*(8), 417. [CrossRef]

Sahu, S., Ramírez, A. F., & Kim, J.-M. (2024). Exploring calendar anomalies and volatility dynamics in cryptocurrencies: A comparative analysis of day-of-the-week effects before and during the COVID-19 pandemic. *Journal of Risk and Financial Management*, *17*(8), 351. [CrossRef]

Thaker, A., Sonner, D., & Chan, L. H. (2025). Using machine learning to understand the dynamics between the stock market and US presidential election outcomes. *Journal of Risk and Financial Management*, *18*(3), 109. [CrossRef]

Zhao, L., & Yan, W. Q. (2024). Prediction of currency exchange rate based on transformers. *Journal of Risk and Financial Management*, *17*(8), 332. [CrossRef]

Zitis, P. I., Potirakis, S. M., & Alexandridis, A. (2024). Forecasting forex market volatility using deep learning models and complexity measures. *Journal of Risk and Financial Management*, *17*(12), 557. [CrossRef]

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