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## Foreword

### Special Issue on FinTech, RegTech and Sustainable Finance

The 3rd International Conference on FinTech, RegTech and Sustainable Finance (FRSF2022) is an annual leading conference on FinTech and a well-established conference series in Taiwan's Finance community. The conference is mainly sponsored by the Deloitte, King's Town Bank, and Concord Securities Group. It hosted by the Center for Innovative FinTech Business Models, National Cheng Kung University, Taiwan. The conference provides a forum for researchers to share their insights in various aspects of finance and engineering, with core technologies such as artificial intelligence (AI), blockchain, big data analytics, cloud computing, data mining, machine learning, and mobile payment. The special issue includes excellent papers presented on FRSF2022 and also receives the open call papers.

This special issue welcomes the original contribution that addresses on technologies and applications of AI and FinTech. All interested researchers are invited to contribute to this special issue. All articles have thoroughly refereed according to the high standards of Journal of Information Science and Engineering. We would like to take this opportunity to thank all authors for submitting their works to this special issue. In the special issue, all submitted papers were further extended and meticulous reviewed and selected based on their originality, significance, relevance, and clarity of presentation. Among all submissions, ten papers were accepted for publication in this special issue. Topics of these papers cover the new techniques and innovative solutions for AI and FinTech topics, including Artificial Intelligence Finance, Cybersecurity and Financial Information Security, DeFi (Decentralized Finance), Digital Currency Analysis and Application, ESG and Sustainable Finance, Financial Big Data Analysis and Application, Fraud and Financial Credit Investigation, Intelligence Risk Assessment, Financial Forecast Analysis, and Supply Chain Finance.

The paper "Integrating the Fuzzy Cloud Model with Back Propagation Neural Network in Supply Chain Management under FinTech Innovation" by XIAOXIN CHEN, YA-NI YANG AND MENG WU intends to evaluate the influencing factors of supply chain risk management for FinTech innovation purpose. This research combines the back propagation neural network (BPNN) and fuzzy theory to develop a supply chain management model. The proposed model shows the good capability to assess the financial risk for the supply chain collaborative innovation.

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The paper "Central Bank Digital Currencies - Lessons from China" by DANIEL BROBYA surveys the lessons learnt from the testing of China's digital currency, the e-CNY. Then, this research uses a theory-based case study to evaluate the e-CNY through the related literature on Central Bank Digital Currencies (CBDCs). Finally, the experimental results of this testing are investigated, and also compares the transactions per second with other digital money offerings.

The paper "Stock Trend Prediction Assisted by Auto-Defined News Polarity Scores" by SHUEN-LIN JENG, CHIAO-HSUAN LIU, CHIN MIN GUAN develops a stock price prediction model with the functional polarity scores of news articles. In addition, the proposed model adopts the Long Short-Term Memory (LSTM) model to achieve the deep learning approach and takes advantage of Multivariate Adaptive Regression Splines (MARS) for its capability in high prediction accuracy and the important news feature identification for the stock price up/down prediction.

The paper "A Stock Recommendation Model Considering Investor Risk Acceptance" by HEI-CHIA WANG, YIHSIN CHENG, YI-HSUAN WU presents an approach to deal with the investment portfolios based on investors' risk personalities. The goal aims to classify the stocks according to beta indicators, technical indicators, covariance matrices, and financial indicators. Moreover, the advantage actor critic (A2C), and proximal policy optimization (PPO) based on the deep reinforcement learning are used to recommend the suitable investment portfolios for different types of investors.

The paper "The Risk Analysis of Digital Inclusive Financial Platform Using Deep Learning Approach" by WEI SHI, SIQI LONG, YUE LI aims to evaluate the risk management of inclusive digital financial platforms. This research integrates back propagation neural network (BPNN) and KMV model to construct the hybrid BP-KMV model. Finally, this research applies the BP-KMV model to investigate the credit risk and risk management of unlisted enterprises.

The paper "Constructing the Financial Asset Allocation Method Using Deep Reinforcement Learning Algorithm for Financial Transactions" by WANDONG GAO, YUMIN FEI designs the rational asset allocation strategies based on Deep Q-Network algorithm to increase the household income efficiency. Finally, the performance of asset allocation strategies in financial assets proves the better prediction results and yields more advantageous returns by implementing the proposed algorithm.

The paper "Market Reactions to Inclusion in the Sustainability Index: Further Evidence of Task Force on Climate-related Financial Disclosures" by WU-PO LIU, LI-YA LO, WAN-CI HUANG adopts the Environmental, Social, and Governance

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(ESG) perspectives to evaluate whether firms that use the Task Force on Climate-Related Financial Disclosures (TCFD) framework experience variations in abnormal returns. In this research, the datasets of 71 companies from the FTSE ESG index in Taiwan between 2019 and 2021 are collected, the findings show there will be a positive market reaction to companies which incorporated into the ESG index.

The paper "The Relationship between FinTech Industry Specialist and Audit Fees: Evidence from Taiwan's Financial Industry" by YA CHING CHU, KUNG-HONG SHIH investigates the influence of financial digitalization on accounting firms' industry in Taiwan. Finally, the empirical results conclude a positive and significant relationship between the audit fees and both on financial and FinTech industries.

The paper "Particle Swarm Optimization and Long Short-Term Memory Algorithms for Financial Brand Data Prediction under Internet of Things" by ZHENGSHUN SHEN, HUAIBIN LI uses the long short-term memory (LSTM) model and particle swarm optimization (PSO) algorithm to improve the prediction ability of financial brand data and assist investors to identify different financial brands' performance, and reduce the unnecessary financial risks. The proposed model illustrates the high accuracy in identifying financial brands and analyzing the financial data.

The paper "Value at Risk Measurement Method under Deep Learning in Analysing the Excessive Financialization of Enterprises" by BINTAO SHAO proposes a novel model which combined the generative adversarial network (GAN) with the VaR measuring method. Finally, the empirical results illustrate the GAN model can be a groundbreaking method for data processing, and proposed model can improve the prediction accuracy in practical applications for the excessive financialization of enterprises.

In short, this special issue can be a good reference to academia, researchers, and industrial practitioners who are interested in FinTech, RegTech and Sustainable Finance. The guest editors are deeply appreciated to the contributing authors, to the dedicated reviewers and to the relevant supporting editorial staff members and especially to the guidance from the Editor-in-Chief – Professor Tsan-Sheng Hsu, to enable the success of this Special Issue.

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## • Introduction to Guest Editors •



**Yeu-Shiang Huang** is currently a Professor in the Department of Industrial and Information Management at National Cheng Kung University, Taiwan. His research interests include decision analysis, reliability engineering, supply chain management, operation management, and pricing. He has served as Editor in Chief for *Asia Pacific Management Review* and Associate Editor for *Decision Support Systems*. Related papers have appeared in such professional journals as *INFORMS Journal on Computing*, *IIE Transactions*, *Naval Research Logistics*, *European Journal of Operational Research*, *Decision Support Systems*, *IEEE Transactions on Engineering Management*, *International Journal of Production Economics*, *Reliability Engineering and System Safety*, *IEEE Transactions on Reliability*, *Computers and Operations Research*, *Computers and Industrial Engineering*, *International Journal of Production Research*, *Communications in Statistics*, *Journal of Business Research*, *Group Decision and Negotiation*, *Systems Research and Behavioral Science*, *Software Testing, Verification and Reliability*, and others.



**Hua-Wei Huang** holds a PhD in Accounting from Florida International University. He is currently a Distinguished Professor in the Department of Accountancy and Graduate Institute of Finance and the Associate Dean of College of Management, as well as Associate Director of Center for Innovative FinTech Business Models at National Cheng Kung University. He is also a CPA (Certified Public Accountant) licensed in Taiwan and Australia. In addition, he is a director and independent external reviewer of the Taipei Exchange, TPEX, a supervisor of the National Science and Technology Center for Disaster Reduction of the Executive Yuan, and one of the authors for the *Harvard Business Review* (Chinese edition). Huang's major teaching and research areas are auditing, corporate governance, and integrated reporting. He has published articles in academic and professional journals, including *The Accounting Review*, *Accounting Horizons*, *Journal of Accounting, Auditing, and Finance*, *Auditing: A Journal of Practice & Theory*, *Journal of Accounting & Public Policy*, *Journal of Business, Finance & Accounting*. He has also served as an Associate Editor of SSCI in-

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ternational academic journals such as the Managerial Auditing Journal and the Asia-Pacific Journal of Accounting and Economics, and as a member of the editorial board of the Journal of Contemporary Accounting (TSSCI) in recent years.



**Mu-Yen Chen** is a Professor of Engineering Science at National Cheng Kung University, Taiwan. His current research interests include artificial intelligent, soft computing, data mining, deep learning, context-awareness, machine learning, and social network mining with more than 200 publications in these areas. He has served as Editor in Chief and Associate Editor of international journals (e.g. International Journal of Big Data and Analytics in Healthcare, IEEE Transactions on Engineering Management, IEEE Access, Applied Soft Computing, Granular Computing, Human-centric Computing and Information Sciences, Journal of Information Processing Systems, International Journal of Social and Humanistic Computing) while he is an editorial board member on several SCI journals.



**Chih-Chen Lee** is the William and Dian Taylor Professor of Accountancy in the Department of Accountancy, Northern Illinois University. She is a CPA (Certified Public Accountant) and CFE (Certified Fraud Examiner). In addition, she is a member of the American Accounting Association, Illinois CPA Society, Association of Certified Fraud Examiners, Institute of Internal Auditors, and Information Systems Audit and Control Association. Lee's main teaching and research area is in forensic accounting, accounting information systems, and IT auditing. She has published articles in both academic and professional journals including: Accounting Horizons, Journal of Business Ethics, Behavioral Research in Accounting, Journal of Information Systems, International Journal of Auditing, Journal of Forensic Accounting Research, Journal of Forensic & Investigative Accounting, Advances in Behavioral Accounting Research, International Journal of Finance, and Strategic Finance. Lee serves as the associate editor of Journal of Forensic Accounting Research and as a member on the editorial board of Journal of Forensic & Investigative Accounting.

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