

## Financial information processing and development of emerging financial markets

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With the rapid development and globalization of financial markets (especially emerging financial markets), financial information processing has become a hot research area due to its immense practical applications. Such applications include stock market analysis, foreign exchange rate forecasting, option pricing, bank failure prediction, financial risk management, credit rating and scoring, bank loan management, customer relationship management, and anti-money laundering. Accordingly, there has been an increasing demand in using financial information processing techniques for many core financial tasks. Nevertheless, as a new cross-disciplinary field, the existing financial information processing methods are far from practical for scenarios in the global financial market; it is currently not clear how the information processing techniques, which are rapidly emerging, can be used to improve the quality of financial information processing. Therefore, it is necessary to conduct a thorough investigation of the financial information processing problems and understand its fundamental theoretical difficulties. At the same time, investigating the formulation mechanism and generic operations law for all kinds of financial markets is necessary for deep information processing.

For this purpose, this special section presents new progress in financial information processing that is expected to trigger thought and deepen future research. In this section, a two-round peer review process was performed. In the first-round of the review process, 12 papers were selected from 16 invited talks and 46 submissions related to financial information processing from different countries and regions. After making necessary revisions in terms of reviewer's recommendations, the second-round review process selected nine papers for final publication.

The nine papers can be divided into three categories. The first category focuses on financial risk analysis and modeling. The first article applies a hidden Markov model to handle the default risk; it is titled "Modeling default risk via a hidden Markov model of multiple sequences" by Ching et al. The second paper emphasizes customer credit risk classification using support vector machine (SVM) ensemble learning technique, while the third paper proposes an interest force accumulated function model with Gauss process and Poisson process as the basis for the life insurance reserve model and meantime the risk caused by drawing reserve is analyzed in terms of a stochastic interest rates environment. They are "Developing an SVM-based ensemble learning system for customer risk identification collaborating with customer relationship management" by Yu et al., and "A class of life insurance reserve model and risk analysis in a stochastic interest rates environment" by Jia et al., respectively.

In the second category, three papers are selected for covering strategic games, financial distress diagnosis and fund performance evaluation. These are named now in respective order. The fourth paper, titled "*N*-person

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credibilistic strategic game" by Liang et al., extends the two-person game to  $n$ -person game by introducing fuzzy payoff. The fifth paper, titled "Corporate financial distress diagnosis model and application in credit rating for listing firms in China" by Zhang et al., uses a discriminate analysis approach to discriminate between firms which are, or are not, in a state of corporate financial distress. The sixth paper titled "Evaluation of mutual funds using multi-dimensional information" by Zhao et al., applies data envelopment analysis (DEA) to the evaluation of the performance of mutual funds using multi-dimensional information.

The emphasis of papers in the third category is on business cycle turning point forecasting, option pricing, and the Chinese partially funded public pension system. The seventh paper entitled "Neural network methods for forecasting turning points in economic time series: an asymmetric verification to business cycle" by Zhang et al., applies a neural network approach to predict the turning point of Chinese economic cycles. Subsequently, the eighth paper titled "Using jump-diffusion model for modeling and valuing real option in infrastructure projects" by Zhang et al., proposes a jump-diffusion model for real option valuing in infrastructure projects. Finally the last paper in this special section, titled "Partially funded public pension, human capital and endogenous growth" by Yang, examines the Chinese partially funded public pension system using an endogenous growth model with human capital.

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