

Special Issue on "Theory, Methodology and Applications in Financial Engineering"

Preface

Financial engineering has been growing rapidly and is becoming one of the most important fields in operations research. Most studies in this field can be supported by various contributions in other operations research fields, such as mathematical programming, stochastic modeling, statistic analysis, and so on.

There are two important pillars; MPT Modern Portfolio Theory and the derivative pricing theory. The Markowitz mean-variance analysis and Black-Scholes option pricing formula were the starting points. Recently, research efforts have been widely extended based on these two theories in such areas as alternative risk measures, market and credit risk management, asset and liability management for banking and pension funds, pricing of non-financial derivatives such as energy and weather derivatives, and so on. Moreover, it has been possible to solve more complicated and/or practical problems of larger scales in practice by the development of computer technologies.

There are so many problems within the financial markets and institutions. We have been studying and solving them since the research group of financial engineering was established in 1988 in the Operations Research Society of Japan, which was the first formal association in Japan. Therefore, it is a great pleasure to have the opportunity to publish a special issue of this journal on financial engineering. The idea was proposed by the previous editor, Masakazu Kojima, and then taken over by the present editor Masakiyo Miyazawa; both of them made great efforts to move ahead in our publication, which is gratefully acknowledged.

There are twelve papers in this issue covering the wide spectrum of financial engineering; continuous-time portfolio models, earning forecast, real options, option valuation under stochastic volatility, option pricing with low discrepancy sequencing, tick data analysis, risk measures, manager structure optimization, and multi-period stochastic programming models .

Before concluding the preface, we have to break tragic news to readers. Professor Hiroshi Shirakawa passed away on March 16, 2002. He devoted most of his time to the development of theory and practice of financial engineering in Japan. We would like you to read the memorial words written by Professor Hiroshi Konno. We pray for the repose of his soul, and give thanks to him.

The submission of papers for this journal concluded in September 2001. Twenty-nine papers were submitted. All papers then went through a strict reviewing process. In conclusion, we would like to thank all the authors and referees for their great efforts, which made this special issue possible and successful.

Norio Hibiki, Editor of the Special Issue
Kimiaki Aonuma, Guest Associate Editor
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