

**Managing in Uncertainty: Theory and Practice**

# Applied Optimization

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Volume 19

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# Managing in Uncertainty: Theory and Practice

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*“And the science which knows to what end each thing must be done is the most authoritative of the sciences, and more authoritative than any ancillary science; and the end is the good of that thing, and in general the supreme good in the whole of nature”.*

*Aristotle (384–322 B.C.)  
(Metaphysics, Book 1,2)*

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## **EDITORIAL**

This book is devoted to the 6<sup>th</sup> International Conference of the European Association of Management and Business Economics, held in Chania, Crete, Greece, September 15-17, 1997. The European Association of Management and Business Economics (AEDEM in Spanish) was founded in December 1964 in Spain. The primary objective of the Association is to bring together all who are interested in the Economic Science of Business, whether they are researchers, innovators, professionals, financiers, promoters, etc. Other important objectives of the Association are the following:

- ❑ To promote the development and application of Business Management as branch of scientific knowledge.
- ❑ To bring to the attention of both official and private Organizations and Bodies, and to public opinion, the thinking and concerns of the specialists in Business Management and to offer advice to these Organizations etc.
- ❑ To collaborate with Professional Colleges and Organizations of this kind, in questions of possible common interest and especially in asserting the rights of members.
- ❑ To ensure the correct training of future professionals and to improve/perfect the teaching of Business Management.
- ❑ To ensure constant training of postgraduates through the organization of courses, meetings, conferences, or other activities to be considered most appropriate to fulfil this end.
- ❑ To establish relationships with both national and foreign organizations that have similar aims and objectives and especially those associations of a scientific nature.
- ❑ To encourage, through social and cultural activities, the promotion of members in all branches of AEDEM's activity.
- ❑ To coordinate both socially and professionally the activities of specialists in Marketing, Finance, Business Organization and Management, Industrial Economy and in those areas pertaining to the business world and to establish channels of intercommunication and mutual knowledge.
- ❑ To urge mutual understanding between the University and Business.
- ❑ To encourage within the society an interest in investigation within the different areas that make up Business Management.
- ❑ To cooperate with the mediums of communication in the diffusion of Business Management.
- ❑ To make the achievements of members widely known.

According to the above objectives and the major topic of the Conference in Chania which is "Managing in Uncertainty", the basic aim of this book is to present a set of new operational tools coming from multivariate statistical analysis, multicriteria analysis, mathematical programming, fuzzy sets, neural nets, artificial intelligence and

forecasting for managing uncertainty in the scientific fields of finance, marketing and management. In some papers in this book, the authors proceed to the combination of classical methods and new ones in order to create methodological tools that are more powerful and suitable for managing uncertainty. Also, the book includes papers with a theoretical background as well as papers with a practical interest.

The present volume is divided in three major parts: finance, marketing and management. Each major part is, also, divided in sections that characterize more specifically the developed tools and the topics discussed in it.

The first part of the book refers to the study of financial decision making problems and it is divided into four subsections. In country risk assessment Zopounidis et al. provide a comprehensive review of country risk assessment approaches, Siriopoulos and Asteriou investigate the relationship between political risk and stock market development, while Ayala Calvo et al. propose multivariate statistical analysis techniques in developing a country risk index concerning the European countries. The second subsection includes papers proposing several quantitative techniques in business economics. Among them one could mention the fuzzy set approach proposed in the paper of Diakoulaki et al. to select an energy investment for the expansion of an autonomous electricity system, as well as techniques to forecast economic time series data (cf. paper of Dimoticalis et al.). The third subsection includes two papers referring to portfolio management techniques. More specifically, Varga provides a survey of the empirical investigations of the distributions for stock returns and some detailed discussion of German and Hungarian stock returns, while Michalopoulos and Zopounidis apply the Black-Scholes model to construct artificial options in the Athens Stock Exchange. Finally, in the last subsection of this first part of the book Zopounidis et al. propose a multicriteria decision aid methodology based on the preference disaggregation approach to evaluate credit card applications.

The second part of the book involves the study of a variety of problems related to marketing decisions. More specifically, the first subsection refers to the advertising techniques and the consumer policy. The papers included in this subsection present interesting empirical research studies regarding the advertising ethics and legislation, the effectiveness of different advertising techniques and their relation to consumer policy. The second subsection involves the modeling of marketing decisions through artificial intelligence techniques. Artificial neural networks and machine learning are proposed by Matsatsinis et al., to identify customer's preferences, and to conduct market simulations (cf. paper of Matsatsinis and Samaras). The third subsection refers to the use of franchising as a mean for company growth and development worldwide as indicated in the empirical research study of Nogales Castilla and Sancho Mejías. Finally, the fourth subsection examines the applicability of forecasting techniques for market potential estimation and market penetration forecasting (cf. paper of Zontos et al.) and investigates the implementation of performance measurements in manufacturing industries specifically in the case of Greece (cf. paper of Mandaraka and Legal).

The third part of the book is devoted to managerial decisions for companies and organizations. Similarly to the previous two chapters of the book, the last one is also divided into four subsections. Initially, the first one investigates the applications of multivariate data analysis in risk management. The two papers of I. Papadimitriou, Z. Papadimitriou and G. Hadjiconstantinou, and I. Papadimitriou, I. Konstantinidis and L.

Michaelidou complement each other in investigating an urban risk system, while the paper of Reklitis et al. studies the relationship between organization culture and innovation which is a major risk factor in business development. The subsequent subsection involves cooperative management, a topic of practical interest especially for small and medium sized companies (SMEs). The papers included in this subsection present empirical research studies on the way that a cooperative agreement among SMEs can be established (cf. paper of Lapierta Alcamí), on the contribution of cooperation among firms in reducing uncertainty (cf. paper of Miguel Márquez García and Jesús Hernández Ortiz), as well as on the role of cooperatives in the new global economic conditions. The third subsection is devoted to total quality management (TQM) a significant part of business administration and management with increasing interest over the last years. The two papers of this subsection present interesting empirical results concerning the implementation of TQM in businesses and organizations, its difficulties and problems, and its impact on the organizational structure of the firm (cf. paper of Leal Millán et al.), as well as its contribution as a mean for budgetary control (cf. paper of Martín Ruiz). The last subsection involves managerial decisions in business performance, including the affect of business performance on top management, as well as ways for improving management functions and business performance through part-time work and controlling the unknown loss.

Sincere thanks must be expressed to the authors whose contributions have been essential in creating this volume. We owe a great debt to those who worked long and hard to review the contributions and advised the high standard of this book.

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