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Preface

On February 25–27, 1998, a Workshop on "Decision Theory and Decision Support" was held at the International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria. It was organized jointly by the Decision Analysis and Support (DAS) project of IIASA as its Third Roundtable and by the Working Group "Decision Theory and Practice" of the German Operations Research Society (Gesellschaft für Operations Research e.V. – GOR) as its Eighth Workshop.

During the Workshop several papers on portfolio optimization and related problems of decision under risk were presented. Taking into account the growing interest in this research area and its potential for solving real-life problems in finance, we have decided to prepare a special issue of *Control and Cybernetics* on portfolio optimization.

The Portfolio Optimization issue contains papers presented at the Workshop supplemented with contributions from other researchers. Eight papers have been selected and comprise this volume. They cover various aspects of, and tools for, portfolio optimization and related problems of financial management. The first two papers deal with the classical Markowitz model for portfolio optimization. Wanka describes and analyzes a bi-objective dual to the Markowitz problem, while Vogel analyzes random approximations in multiobjective programming and their applications to the Markowitz problem with a shortfall constraint. Next, Michalowski and Ogryczak present a recursive refinement of the MAD model (Konno-Yamazaki model) for portfolio optimization. The subsequent two papers discuss methods for financial management problems. Mansini and Speranza analyze application of integer programming to the problem of selection of lease contracts in an asset-backed securitization. Pflug and Świętanowski present the methodological basis of their decision support system that uses stochastic dynamic optimization for pension fund management. Next, Kuryłek discusses a construction of the optimal market index in the Sharpe model. Two papers related to portfolios of the fixed income bonds conclude this issue. Olbryś gives a formal analysis of the influence of Taylor series remainder on unanticipated rates of returns on fixed income bond portfolios. Pervozvanski, Barinov, Kozlova and Pervozvanskaia analyze the efficiency of short-term investments on the Russian state bond market. Their findings are different from those known for the stable bond markets because they analyze the period before the 1998 financial crisis in Russia.

All the papers have been peer-reviewed. We wish to take this opportunity to thank all the reviewers for their contribution to this issue.

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The Editor-in-Chief and the editorial staff of *Control and Cybernetics* would like tp express herewith special thanks to the Guest Editors of this issue of our quarterly for their extraordinary care in preparing the material here contained.