

# Preface

Quantitative finance and risk management is a combination of economics, accounting, statistics, econometrics, mathematics, stochastic process, and computer science and technology. This handbook is the most comprehensive handbook in quantitative finance and risk management, which integrates theory, methodology, and application. Due to the importance of quantitative finance and risk management in the finance industry, it has become one of the most popular subjects in business schools and departments of mathematics, operation research, and statistics. In addition, the finance industry has many job opportunities for people with good training in quantitative finance and risk management. Thus, a handbook should have a broad audience and be of interest to academics, educators, students, and practitioners.

Based on our years of experience in industry, teaching, research, textbook writing, and journal editing on the subject of quantitative finance and risk management, this handbook will review, discuss, and integrate theoretical, methodological and practical issues of quantitative finance and risk management. This handbook is organized into five parts as follows:

Part I. Overview of Quantitative Finance and Risk Management Research

Part II. Portfolio Theory and Investment Analysis

Part III. Options and Option Pricing Theory

Part IV. Risk Management

Part V. Theory, Methodology, and Applications

Part I of this handbook covers three chapters: they are “Chapter 1. Theoretical Framework of Finance,” “Chapter 2. Investment, Dividend, Financing, and Production Policies,” and “Chapter 3. Research Methods of Quantitative Finance and Risk Management.” Part II of this handbook covers 18 chapters of portfolio theory and investment analysis. Part III of this handbook includes 21 chapters of options and option pricing theory. Part IV of this handbook includes 23 chapters of theory and practice in risk management. Finally, Part V of this handbook covers 44 chapters of theory, methodology, and applications in quantitative finance and risk management.

In the preparation of this handbook, first, we would like to thank the members of advisory board and contributors of this handbook. In addition, we note and appreciate the extensive help from our Editor, Ms. Judith Pforr, our research assistants Hong-Yi Chen, Wei-Kang Shih and Shin-Ying Mai, and our secretary Ms. Miranda Mei-Lan Luo. Finally, we would like to thank the Wintek Corporation and the Polaris Financial Group for the financial support that allowed us to write this book.

There are undoubtedly some errors in the finished product, both typographical and conceptual. We invite readers to send suggestions, comments, criticisms, and corrections to the author Professor Cheng-Few Lee at the Department of Finance and Economics, Rutgers University at Janice H. Levin Building Room 141, Rockefeller Road, Piscataway, NJ 08854-8054.

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