Contents

Part I Literature Review

1 Survey for Portfolio Selection Under Fuzzy Uncertain Circumstances 3
1.1 Introduction 3
1.2 Portfolio Selection Based on the Fuzzy Decision Theory 5
1.3 Portfolio Selection Based on Possibilistic Programming 7
1.3.1 The Center-Spread Model 8
1.3.2 Models Using the Necessity Measure 10
1.4 Portfolio Selection Based on Interval Programming 13

Part II Portfolio Selection Models Based on Fuzzy Decision Making

2 Fuzzy Decision Making and Maximization Decision Making 19

3 Portfolio Selection Model with Fuzzy Liquidity Constraints 21
3.1 Introduction 21
3.2 Minimax Semi-absolute Deviation Risk Function 22
3.3 Fuzzy Liquidity of Securities 23
3.4 Model Formulation 25
3.5 Numerical Example 37
3.6 Conclusion 39

4 Ramaswamy's Model 45
4.1 Introduction 45
4.2 Model Formulation 46
4.3 Conclusion 47

Bibliografische Informationen
http://d-nb.info/987106724

digitalisiert durch DEUTSCHE NATIONAL BIBLIOTHEK

5 León-Liern-Vercher's Model 49
5.1 Formulations of Portfolio Selection Problem 49
5.2 Analysis of Infeasibility of Portfolio Selection Problem 51
5.3 Fuzzy Portfolio Selection Model 52
5.4 Numerical Example 56
5.5 Conclusion 61

6 Fuzzy Semi-absolute Deviation Portfolio Rebalancing Model 63
6.1 Introduction 63
6.2 Linear Programming Model for Portfolio Rebalancing with Transaction Costs 64
6.3 Portfolio Rebalancing Model based on Fuzzy Decision 67
6.4 Numerical Example 71
6.5 Conclusion 77

7 Fuzzy Mixed Projects and Securities Portfolio Selection Model 79
7.1 Introduction 79
7.2 Bi-objective Programming Model for Mixed Asset Portfolio Selection 80
7.3 Fuzzy Mixed Asset Portfolio Selection Model 85
7.4 Numerical Example 87
7.5 Conclusion 88

Part III Portfolio Selection Models with Interval Coefficients

8 Linear Programming Model with Interval Coefficients 93
8.1 Introduction 93
8.2 Notations and Definitions 94
8.3 The Expected Return Intervals of Securities 95
8.4 The Interval Programming Models for Portfolio Selection 96
8.5 Numerical Example 103
8.6 Conclusion 105

9 Quadratic Programming Model with Interval Coefficients 107
9.1 Introduction 107
9.2 Crisp Model and Algorithm 107
9.3 The Model with Interval Coefficients and Its Extension 109
9.4 Numerical Example 111
9.5 Conclusion 114

Part IV Portfolio Selection Models with Possibility Distribution

10 Tanaka and Guo's Model with Exponential Possibility Distributions 117
10.1 Introduction 117
10.2 Possibility Distributions in Portfolio Selection Problems 118
10.3 Model Formulation 125
10.4 Numerical Example 126
10.5 Conclusion 128

11 Carlsson-Fullér-Majlender's Trapezoidal Possibility Model . 131
11.1 Introduction 131
11.2 Model Formulation 132
11.3 Algorithm 138
11.4 Numerical Example 139
11.5 Conclusion 140

12 Center Spread Model in Fractional Financial Market 143
12.1 Estimation of Possibility Distribution by Using Semi-definite Programming 143
12.2 Model Formulation 144
12.3 Numerical Example 148
12.4 Conclusion 151

Part V Fuzzy Passive Portfolio Selection Models

13 Fuzzy Index Tracking Portfolio Selection Model 155
13.1 Introduction 155
13.2 Bi-objective Programming Model for Index Tracking Portfolio Selection 156
13.3 Fuzzy Index Tracking Portfolio Selection Model 158
13.4 Numerical Example 160
13.5 Conclusion 160

References 163