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External data files: INCLUDE; 2.2.3 Output: DISPLAY and PUT; 2.3 Data Generation; 2.4 A Complete Example: Portfolio Dedication; 2.4.1 The source file; 2.4.2 The FINLIB files; 3 Mean-Variance Portfolio Optimization; 3.1 Preview; 3.2 Basics of Mean-Variance Models; 3.2.1 Data estimation for the mean-variance model; 3.2.2 Allowing short sales; 3.2.3 The FINLIB files; 3.3 Sharpe Ratio Model 3.3.1 Risk-free borrowing3.3.2 The FINLIB files; 3.4 Diversification Limits and Transaction Costs; 3.4.1 Transaction costs; 3.4.2 Portfolio revision; 3.4.3 The FINLIB files; 3.5 International Portfolio Management; 3.5.1 Implementation with dynamic sets; 3.5.2 The FINLIB files; 4 Portfolio Models for Fixed Income; 4.1 Preview; 4.2 Basics of Fixed-Income Modeling; 4.2.1 Modeling time; 4.2.2 GAMS as a financial calculator: continuous time; 4.2.3 Bootstrapping the term structure of interest rates; 4.2.4 Considerations for realistic modeling; 4.2.5 The FINLIB files; 4.3 Dedication Models 4.3.1 Horizon return model4.3.2 Tradeability considerations; 4.3.3 The FINLIB files; 4.4 Immunization Models; 4.4.1 The FINLIB files; 4.5 Factor Immunization Model; 4.5.1 Direct yield maximization; 4.5.2 The FINLIB files; 4.6 Factor Immunization for Corporate Bonds; 4.6.1 The model data sets; 4.6.2 The optimization models; 4.6.3 The FINLIB files; 5 Scenario Optimization; 5.1 Preview; 5.2 Data sets; 5.2.1 The FINLIB files; 5.3 Mean Absolute Deviation Models; 5.3.1 Downside risk and tracking models; 5.3.2 Comparing mean-variance and mean absolute deviation; 5.3.3 The FINLIB files 5.4 Regret Models5.4.1 The FINLIB files; 5.5 Conditional Value-at-Risk Models; 5.5.1 The FINLIB files; 5.6 Utility Maximization Models; 5.6.1 The FINLIB files; 5.7 Put/Call Efficient Frontier Models; 5.7.1 The FINLIB files; 6 Dynamic Portfolio Optimization with Stochastic Programming; 6.1 Preview; 6.2 Dynamic Optimization for Fixed-Income Securities; 6.2.1 Stochastic dedication; 6.2.2 Stochastic dedication with borrowing and lending; 6.2.3 The FINLIB files; 6.3 Formulating Two-Stage Stochastic Programs; 6.3.1 Deterministic and stochastic two-stage programs; 6.3.2 The FINLIB files 6.4 Single Premium Deferred Annuities: A Multi-stage Stochastic Program

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## Sommario/riassunto

In Practical Financial Optimization: A Library of GAMS Models, the authors provide a diverse set of models for portfolio optimization, based on the General Algebraic Modelling System. 'GAMS' consists of a language which allows a high-level, algebraic representation of mathematical models and a set of solvers - numerical algorithms - to solve them. The system was developed in response to the need for powerful and flexible front-end tools to manage large, real-life models. The work begins with an overview of the structure of the GAMS language, and discusses issues relating to the manage

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