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	Nota di contenuto	Preface; Contents; 1. A Review of Stochastic Calculus; 1.1 Brownian Motion; 1.2 Stochastic Integration; 1.3 Quadratic Variation; 1.4 Ito's Formula; 1.5 Exercises; 2. A Review of Black-Scholes Pricing and Hedging; 2.1 Call and Put Options; 2.2 Market Model and Portfolio; 2.3 PDE Method; 2.4 The Girsanov Theorem; 2.5 Martingale Method; 2.6 Exercises; 3. Short Term Interest Rate Models; 3.1 Mean-Reverting Models; 3.2 Constant Elasticity of Variance (CEV) Models; 3.3 Time-Dependent Models; 3.4 Exercises; 4. Pricing of Zero-Coupon Bonds; 4.1 Definition and Basic Properties 4.2 Absence of Arbitrage and the Markov Property4.3 Absence of Arbitrage and the Martingale Property; 4.4 PDE Solution: Probabilistic Method; 4.5 PDE Solution: Analytical Method; 4.6 Numerical Simulations; 4.7 Exercises; 5. Forward Rate Modeling; 5.1 Forward Contracts; 5.2 Instantaneous Forward Rate; 5.3 Short Rates; 5.4 Parametrization of Forward Rates; Nelson-Siegel parametrization; Svensson parametrization; 5.5 Curve Estimation; 5.6 Exercises; 6. The Heath-Jarrow-Morton (HJM) Model; 6.1 Restatement of Objectives; 6.2 Forward Vasicek Rates; 6.3 Spot Forward Rate Dynamics

Sommario/riassunto

Interest rate modeling and the pricing of related derivatives remain subjects of increasing importance in financial mathematics and risk management. This book provides an accessible introduction to these topics by a step-by-step presentation of concepts with a focus on explicit calculations. Each chapter is accompanied with exercises and their complete solutions, making the book suitable for advanced undergraduate and graduate level students. This second edition retains the main features of the first edition while incorporating a complete revision of the text as well as additional exercises wi