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Nota di contenuto	Cover; The Black-Scholes Model; Title; Copyright; Contents; Preface; 1 Introduction; 1.1 Asset dynamics; Model parameters; 1.2 Methods of option pricing; Risk-neutral probability approach; The PDE approach; 2 Strategies and risk-neutral probability; 2.1 Finding the risk-neutral probability; Removing the drift; Girsanov theorem - simple version; 2.2 Self-financing strategies; 2.3 The No Arbitrage Principle; 2.4 Admissible strategies; 2.5 Proofs; 3 Option pricing and hedging; 3.1 Martingale representation theorem; 3.2 Completeness of the model; 3.3 Derivative pricing General derivative securities Put options; Call options; 3.4 The Black-Scholes PDE; From Black-Scholes PDE to option price; The replicating strategy; 3.5 The Greeks; 3.6 Risk and return; 3.7 Proofs; 4 Extensions and applications; 4.1 Options on foreign currency; Dividend paying stock; 4.2 Structural model of credit risk; 4.3 Compound options; 4.4 American call options; 4.5 Variable coefficients; 4.6 Growth optimal

portfolios; 5 Path-dependent options; 5.1 Barrier options; 5.2 Distribution of the maximum; 5.3 Pricing barrier and lookback options; Hedging; Lookback option; 5.4 Asian options  
Continuous geometric average Discrete geometric average; 6 General models; 6.1 Two assets; The market; Strategies and risk-neutral probabilities; Two stocks, one Wiener process; One stock, two Wiener processes; 6.2 Many assets; 6.3 Ito formula; 6.4 Levy's Theorem; 6.5 Girsanov Theorem; 6.6 Applications; Index

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## Sommario/riassunto

The Black-Scholes option pricing model is the first and by far the best-known continuous-time mathematical model used in mathematical finance. Here, it provides a sufficiently complex, yet tractable, testbed for exploring the basic methodology of option pricing. The discussion of extended markets, the careful attention paid to the requirements for admissible trading strategies, the development of pricing formulae for many widely traded instruments and the additional complications offered by multi-stock models will appeal to a wide class of instructors. Students, practitioners and researchers alike will benefit from the book's rigorous, but unfussy, approach to technical issues. It highlights potential pitfalls, gives clear motivation for results and techniques and includes carefully chosen examples and exercises, all of which make it suitable for self-study.

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