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Nota di contenuto	Preface; Contents; 1. Introduction; 1.1 Hedging in complete markets; 1.1.1 Black & Scholes analysis and its limitations; 1.1.2 Complete markets; 1.2 Hedging in incomplete markets; 1.2.1 Sources of incompleteness; 1.2.2 Calibration; 1.2.3 Mean-variance hedging; 1.2.4 Utility indifference pricing and hedging; 1.2.5 Exotic options; 1.2.6 Optimal martingale measures; 1.3 Notes and further reading; 2. Stochastic Calculus; 2.1 Filtrations and martingales; 2.2 Semi-martingales and stochastic integrals; 2.3 Kunita-Watanabe decomposition; 2.4 Change of measure; 2.5 Stochastic exponentials 2.6 Notes and further reading3. Arbitrage and Completeness; 3.1 Strategies and arbitrage; 3.2 Complete markets; 3.3 Hidden arbitrage and local times; 3.4 Immediate arbitrage; 3.5 Super-hedging and the optional decomposition theorem; 3.6 Arbitrage via a non-equivalent measure change; 3.7 Notes and further reading; 4. Asset Price Models; 4.1 Exponential Levy processes; 4.1.1 A Levy process primer; 4.1.2 Examples of Levy processes; 4.1.3 Construction of Levy processes by subordination; 4.1.4 Risk-neutral Levy modelling; 4.1.5 Weak representation property and measure changes 4.2 Stochastic volatility models4.2.1 Examples; 4.2.2 Stochastic differential equations and time change; 4.2.3 Construction of a solution via coupling; 4.2.4 Convexity of option prices; 4.2.5 Market completion

by trading in options; 4.2.6 Bubbles and strict local martingales; 4.2.7 Stochastic exponentials; 4.3 Notes and further reading; 5. Static Hedging; 5.1 Static hedging of European claims; 5.2 Duality principle in option pricing; 5.2.1 Dynamics of the dual process; 5.2.2 Duality relations; 5.3 Symmetry and self-dual processes; 5.3.1 Definitions and general properties; 5.3.2 Semi-static hedging of barrier options; 5.3.3 Self-dual exponential Levy processes; 5.3.4 Self-dual stochastic volatility models; 5.4 Notes and further reading; 6. Mean-Variance Hedging; 6.1 Concept of mean-variance hedging; 6.2 Valuation and hedging by the Laplace method; 6.2.1 Bilateral Laplace transforms; 6.2.2 Valuation and hedging using Laplace transforms; 6.3 Valuation and hedging via integro-differential equations; 6.3.1 Feynman-Kac formula for the value function; 6.3.2 Computation of the optimal hedging strategy; 6.4 Mean-variance hedging of defaultable assets; 6.4.1 Intensity-based approach; 6.4.2 Martingale representation; 6.4.3 Hedging of insurance claims with longevity bonds; 6.5 Quadratic risk-minimisation for payment streams; 6.6 Notes and further reading; 7. Entropic Valuation and Hedging; 7.1 Exponential utility indifference pricing; 7.2 The minimal entropy martingale measure; 7.3 Duality results; 7.4 Properties of the utility indifference price; 7.5 Entropic hedging; 7.6 Notes and further reading; 8. Hedging Constraints; 8.1 Framework and preliminaries; 8.2 Dynamic utility indifference pricing; 8.3 Martingale optimality principle; 8.4 Utility indifference hedging and pricing using BSDEs

Sommario/riassunto

Valuation and hedging of financial derivatives are intrinsically linked concepts. Choosing appropriate hedging techniques depends on both the type of derivative and assumptions placed on the underlying stochastic process. This volume provides a systematic treatment of hedging in incomplete markets. Mean-variance hedging under the risk-neutral measure is applied in the framework of exponential Levy processes and for derivatives written on defaultable assets. It is discussed how to complete markets based upon stochastic volatility models via trading in both stocks and vanilla options. Exponentia
