

1. Record Nr.	UNINA9910811458503321
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Titolo	Quantitative finance for physicists : an introduction // Anatoly B. Schmidt
Pubbl/distr/stampa	San Diego, : Elsevier Academic Press, c2005
ISBN	9786611019983 9781281019981 1281019984 9781417577361 1417577363 9780080492209 0080492207
Edizione	[1st edition]
Descrizione fisica	1 online resource (179 p.)
Collana	Academic Press Advanced Finance
Disciplina	332/.01/5195
Soggetti	Finance - Mathematical models Business mathematics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references (p. 149-157) and index.
Nota di contenuto	Front Cover; Quantitative Finance for Physicists: An Introduction; Copyright Page; Detailed Table of Contents; Chapter 1. Introduction; Chapter 2. Financial Markets; 2.1 Market Price Formation; 2.2 Returns and Dividends; 2.3 Market Efficiency; 2.4 Pathways for Further Reading; 2.5 Exercises; Chapter 3. Probability Distributions; 3.1 Basic Definitions; 3.2 Important Distributions; 3.3 Stable Distributions and Scale Invariance; 3.4 References for Further Reading; 3.5 Exercises; Chapter 4. Stochastic Processes; 4.1 Markov Processes; 4.2 Brownian Motion; 4.3 Stochastic Differential Equation 4.4 Stochastic Integral 4.5 Martingales; 4.6 References for Further Reading; 4.7 Exercises; Chapter 5. Time Series Analysis; 5.1 Autoregressive and Moving Average Models; 5.2 Trends and Seasonality; 5.3 Conditional Heteroskedasticity; 5.4 Multivariate Time Series; 5.5 References for Further Reading and Econometric Software; 5.6 Exercises; Chapter 6. Fractals; 6.1 Basic Definitions; 6.2 Multifractals; 6.3 References for Further Reading; 6.4 Exercises;

Chapter 7. Nonlinear Dynamical Systems; 7.1 Motivation; 7.2 Discrete Systems: Logistic Map; 7.3 Continuous Systems; 7.4 Lorenz Model 7.5 Pathways to Chaos 7.6 Measuring Chaos; 7.7 References for Further Reading; 7.8 Exercises; Chapter 8. Scaling in Financial Time Series; 8.1 Introduction; 8.2 Power Laws in Financial Data; 8.3 New Developments; 8.4 References for Further Reading; 8.5 Exercises; Chapter 9. Option Pricing; 9.1 Financial Derivatives; 9.2 General Properties of Options; 9.3 Binomial Trees; 9.4 Black-Scholes Theory; 9.5 References for Further reading; 9.6 Appendix. The Invariant of the Arbitrage-Free Portfolio; 9.7 Exercises; Chapter 10. Portfolio Management; 10.1 Portfolio Selection  
10.2 Capital Asset Pricing Model (CAPM) 10.3 Arbitrage Pricing Theory (APT); 10.4 Arbitrage Trading Strategies; 10.5 References for Further Reading; 10.6 Exercises; Chapter 11. Market Risk Measurement; 11.1 Risk Measures; 11.2 Calculating Risk; 11.3 References for Further Reading; 11.4 Exercises; Chapter 12. Agent-Based Modeling of Financial Markets; 12.1 Introduction; 12.2 Adaptive Equilibrium Models; 12.3 Non-Equilibrium Price Models; 12.4 Modeling of Observable Variables; 12.5 References for Further Reading; 12.6 Exercises; Comments; References; Answers to Exercises; Index

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Sommario/riassunto

With more and more physicists and physics students exploring the possibility of utilizing their advanced math skills for a career in the finance industry, this much-needed book quickly introduces them to fundamental and advanced finance principles and methods.

Quantitative Finance for Physicists provides a short, straightforward introduction for those who already have a background in physics. Find out how fractals, scaling, chaos, and other physics concepts are useful in analyzing financial time series. Learn about key topics in quantitative finance such as option pricing, portfolio

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