1.	Record Nr.	UNINA9910784548303321
	Autore	Schmidt Anatoly B
	Titolo	Quantitative finance for physicists [[electronic resource]] : an introduction / / Anatoly B. Schmidt
	Pubbl/distr/stampa	San Diego, : Elsevier Academic Press, c2005
	ISBN	1-281-01998-4 9786611019983 1-4175-7736-3 0-08-049220-7
	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

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