

1. Record Nr.	UNINA9911019763703321
Autore	Shafer Glenn <1946->
Titolo	Probability and finance [[electronic resource] ] : it's only a game! // Glenn Shafer, Vladimir Vovk
Pubbl/distr/stampa	New York, : J. Wiley & Sons, c2001
ISBN	1-280-53980-1 9786610539802 0-470-35631-6 0-471-46171-7 0-471-24969-6
Descrizione fisica	1 online resource (437 p.)
Collana	Wiley series in probability and statistics
Altri autori (Persone)	VovkVladimir <1960->
Disciplina	332/.01/1 519.2 519.5024332
Soggetti	Investments - Mathematics Statistical decision Financial engineering
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. 375-401) and index.
Nota di contenuto	Probability and Finance; Contents; Preface; 1 Probability and Finance as a Game; 1.1 A Game with the World; 1.2 The Protocol for a Probability Game; 1.3 The Fundamental Interpretative Hypothesis; 1.4 The Many Interpretations of Probability; 1.5 Game-Theoretic Probability in Finance; Part I Probability without Measure; 2 The Historical Context; 2.1 Probability before Kolmogorov; 2.2 Kolmogorov's Measure-Theoretic Framework; 2.3 Realized Randomness; 2.4 What is a Martingale?; 2.5 The Impossibility of a Gambling System; 2.6 Neosubjectivism; 2.7 Conclusion 3 The Bounded Strong Law of Large Numbers3.1 The Fair-Coin Game; 3.2 Forecasting a Bounded Variable; 3.3 Who Sets the Prices?; 3.4 Asymmetric Bounded Forecasting Games; 3.5 Appendix: The Computation of Strategies; 4 Kolmogorov's Strong Law of Large Numbers; 4.1 Two Statements of Kolmogorov's Strong Law; 4.2 Skeptic's Strategy; 4.3 Reality's Strategy; 4.4 The Unbounded Upper

Forecasting Protocol; 4.5 A Martingale Strong Law; 4.6 Appendix: Martin's Theorem; 5 The Law of the Iterated Logarithm; 5.1 Unbounded Forecasting Protocols; 5.2 The Validity of the Iterated-Logarithm Bound 5.3 The Sharpness of the Iterated-Logarithm Bound 5.4 A Martingale Law of the Iterated Logarithm; 5.5 Appendix: Historical Comments; 5.6 Appendix: Kolmogorov's Finitary Interpretation; 6 The Weak Laws; 6.1 Bernoulli's Theorem; 6.2 De Moivre's Theorem; 6.3 A One-Sided Central Limit Theorem; 6.4 Appendix: The Gaussian Distribution; 6.5 Appendix: Stochastic Parabolic Potential Theory; 7 Lindeberg's Theorem; 7.1 Lindeberg Protocols; 7.2 Statement and Proof of the Theorem; 7.3 Examples of the Theorem; 7.4 Appendix: The Classical Central Limit Theorem; 8 The Generality of Probability Games 8.1 Deriving the Measure-Theoretic Limit Theorems 8.2 Coin Tossing; 8.3 Game-Theoretic Price and Probability; 8.4 Open Scientific Protocols; 8.5 Appendix: Ville's Theorem; 8.6 Appendix: A Brief Biography of Jean Ville; Part II Finance without Probability; 9 Game-Theoretic Probability in Finance; 9.1 The Behavior of Stock-Market Prices; 9.2 The Stochastic Black-Scholes Formula; 9.3 A Purely Game-Theoretic Black-Scholes Formula; 9.4 Informational Efficiency; 9.5 Appendix: Tweaking the Black-Scholes Model; 9.6 Appendix: On the Stochastic Theory; 10 Games for Pricing Options in Discrete Time 10.1 Bachelier's Central Limit Theorem 10.2 Bachelier Pricing in Discrete Time; 10.3 Black-Scholes Pricing in Discrete Time; 10.4 Hedging Error in Discrete Time; 10.5 Black-Scholes with Relative Variations for S; 10.6 Hedging Error with Relative Variations for S; 11 Games for Pricing Options in Continuous Time; 11.1 The Variation Spectrum; 11.2 Bachelier Pricing in Continuous Time; 11.3 Black-Scholes Pricing in Continuous Time; 11.4 The Game-Theoretic Source of the  $dt$  Effect; 11.5 Appendix: Elements of Nonstandard Analysis; 11.6 Appendix: On the Diffusion Model 12 The Generality of Game-Theoretic Pricing

## Sommario/riassunto

Provides a foundation for probability based on game theory rather than measure theory. A strong philosophical approach with practical applications. Presents in-depth coverage of classical probability theory as well as new theory.