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Nota di contenuto	Essential Mathematics for Market Risk Management; Contents; Preface; 1 Introduction; 1.1 Basic Challenges in Risk Management; 1.2 Value at Risk; 1.3 Further Challenges in Risk Management; 2 Applied Linear Algebra for Risk Managers; 2.1 Vectors and Matrices; 2.2 Matrix Algebra in Practice; 2.3 Eigenvectors and Eigenvalues; 2.4 Positive Definite Matrices; 3 Probability Theory for Risk Managers; 3.1 Univariate Theory; 3.1.1 Random variables; 3.1.2 Expectation; 3.1.3 Variance; 3.2 Multivariate Theory; 3.2.1 The joint distribution function; 3.2.2 The joint and marginal density functions 3.2.3 The notion of independence 3.2.4 The notion of conditional dependence; 3.2.5 Covariance and correlation; 3.2.6 The mean vector and covariance matrix; 3.2.7 Linear combinations of random variables; 3.3 The Normal Distribution; 4 Optimization Tools; 4.1 Background Calculus; 4.1.1 Single-variable functions; 4.1.2 Multivariable functions; 4.2 Optimizing Functions; 4.2.1 Unconstrained quadratic functions; 4.2.2 Constrained quadratic functions; 4.3 Over-determined Linear Systems; 4.4 Linear Regression; 5 Portfolio Theory I; 5.1 Measuring Returns 5.1.1 A comparison of the standard and log returns 5.2 Setting Up the

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## Sommario/riassunto

"Everything you need to know in order to manage risk effectively within your organization. You cannot afford to ignore the explosion in mathematical finance in your quest to remain competitive. This exciting branch of mathematics has very direct practical implications: when a new model is tested and implemented it can have an immediate impact on the financial environment. With risk management top of the agenda for many organizations, this book is essential reading for getting to grips with the mathematical story behind the subject of financial risk management. It will take you on a journey--from the early ideas of risk quantification up to today's sophisticated models and approaches to business risk management. To help you investigate the most up-to-date, pioneering developments in modern risk management, the book presents statistical theories and shows you how to put statistical tools into action to investigate areas such as the design of mathematical models for financial volatility or calculating the value at risk for an investment portfolio. Respected academic author Simon Hubbard is the youngest director of a financial engineering program in the U.K. He brings his industry experience to his practical approach to risk analysis. Captures the essential mathematical tools needed to explore many common risk management problems. Website with model simulations and source code enables you to put models of risk management into practice. Plunges into the world of high-risk finance and examines the crucial relationship between the risk and the potential reward of holding a portfolio of risky financial assets. This book is your one-stop-shop for effective risk management"--

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