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Nota di contenuto	<ul> <li>Cover; Stochastic Methods for Pension Funds; Title Page; Copyright Page; Table of Contents; Preface; Chapter 1. Introduction: Pensions in Perspective; 1.1. Pension issues; 1.1.1. The challenge; 1.1.2. Some figures; 1.2. Pension scheme; 1.2.1. Definition; 1.2.2. The four dimensions of a pension scheme; 1.3. Pension and risks; 1.3.1.</li> <li>Demographic risks; 1.3.2. Financial risks; 1.3.3. Impact of the risks on various kinds of pension schemes; 1.3.4. The time horizon of a pension scheme; 1.4. The multi-pillar philosophy; Chapter 2. Classical Actuarial Theory of Pension Funding</li> <li>2.1. General equilibrium equation of a pension scheme2.1.1. Principles;</li> <li>2.1.2. The retrospective reserve; 2.1.3. The prospective reserve; 2.1.4.</li> <li>Equilibrated pension funding; 2.1.5. Decomposition of the reserve;</li> <li>2.1.6. Classification of the methods; 2.2. General principles of funding mechanisms for DB Schemes; 2.3. Particular funding methods; 2.3.1.</li> </ul>

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	Unit credit cost methods; 2.3.2. Level premium methods; 2.3.3. Aggregate cost methods; Chapter 3. Deterministic and Stochastic Optimal Control; 3.1. Introduction; 3.2. Deterministic optimal control 3.2.1. Formulation of the optimal control problem3.3. Necessary conditions for optimality; 3.3.1. Bellman function; 3.3.2. Bellman optimality equation; 3.3.3. Hamilton-Jacobi equation; 3.3.4. The synthesis function; 3.3.5. Other types of optimal controls; 3.3.6. Example: the classical quadratic/linear control problem; 3.4. The maximum principle; 3.4.1. The maximum principle from the dynamic programming approach; 3.5. Extension to the one-dimensional stochastic optimal control; 3.5.1. Formulation of the one-dimensional stochastic optimal control problem 3.5.2. Necessary conditions for one-dimensional stochastic optimality3.5.3. Extension to the multi-dimensional stochastic optimality3.5.3. The types of 0.5. The Hamilton- Jacobi-Bellman equation; 3.6. Examples; 3.6.1. Merton portfolio allocation problem; Chapter 4. Defined Contribution and Defined Benefit Pension Plans; 4.1. Introduction; 4.2. The defined benefit method; 4.3.1. The defined contribution method; 4.3.1. The model; 4.3.2. The capitalization system; 4.4. The notional defined contribution (NDC) method; 4.4.1. Historical preliminaries 4.4.2. The Dini reform transformation coefficients4.4.3. Theoretical preliminaries; 4.4.4. The construction of a unitary pension present value; 4.4.5. Numerical example and results comparison; 4.5. Conclusions; Chapter 5. Fair and Mar
Sommario/riassunto	Quantitative finance has become these last years a extraordinary field of research and interest as well from an academic point of view as for practical applications. At the same time, pension issue is clearly a major economical and financial topic for the next decades in the context of the well-known longevity risk. Surprisingly few books are devoted to application of modern stochastic calculus to pension analysis. The aim of this book is to fill this gap and to show how recent methods of stochastic finance can be useful for to the risk management of pension funds. Methods of optimal c