

1. Record Nr.	UNINA9910134839803321
Titolo	Stochastic processes for insurance and finance [[electronic resource] /] / Tomasz Rolski ... [et al.]
Pubbl/distr/stampa	Chicester, : J. Wiley, 1999
ISBN	9786612307928 0-470-31788-4 1-282-30792-4 0-470-86042-1 0-470-31704-3 0-585-27223-9
Descrizione fisica	1 online resource (683 p.)
Collana	Wiley series in probability and statistics
Altri autori (Persone)	RolskiTomasz
Disciplina	332 368.015192
Soggetti	Insurance - Mathematical models Finance - Mathematical models Stochastic processes
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. [617]-638) and index.
Nota di contenuto	Stochastic Processes for Insurance and Finance; Contents; Preface; List of Principal Notation; 1 Concepts from Insurance and Finance; 1.1 Introduction; 1.2 The Claim Number Process; 1.2.1 Renewal Processes; 1.2.2 Mixed Poisson Processes; 1.2.3 Some Other Models; 1.3 The Claim Size Process; 1.3.1 Dangerous Risks; 1.3.2 The Aggregate Claim Amount; 1.3.3 Comparison of Risks; 1.4 Solvability of the Portfolio; 1.4.1 Premiums; 1.4.2 The Risk Reserve; 1.4.3 Economic Environment; 1.5 Reinsurance; 1.5.1 Need for Reinsurance; 1.5.2 Types of Reinsurance; 1.6 Ruin Problems; 1.7 Related Financial Topics 1.7.1 Investment of Surplus1.7.2 Diffusion Processes; 1.7.3 Equity Linked Life Insurance; 2 Probability Distributions; 2.1 Random Variables and Their Characteristics; 2.1.1 Distributions of Random Variables; 2.1.2 Basic Characteristics; 2.1.3 Independence and Conditioning; 2.1.4 Convolution; 2.1.5 Transforms; 2.2 Parametrized Families of Distributions; 2.2.1 Discrete Distributions; 2.2.2 Absolutely Continuous

Distributions; 2.2.3 Parametrized Distributions with Heavy Tail; 2.2.4 Operations on Distributions; 2.2.5 Some Special Functions; 2.3 Associated Distributions
2.4 Distributions with Monotone Hazard Rates
2.4.1 Discrete Distributions; 2.4.2 Absolutely Continuous Distributions; 2.5 Heavy-Tailed Distributions; 2.5.1 Definition and Basic Properties; 2.5.2 Subexponential Distributions; 2.5.3 Criteria for Subexponentiality and the Class S' ; 2.5.4 Pareto Mixtures of Exponentials; 2.6 Detection of Heavy-Tailed Distributions; 2.6.1 Large claims; 2.6.2 Quantile Plots; 2.6.3 Mean Residual Hazard Function; 2.6.4 Extreme Value Statistics; 3 Premiums and Ordering of Risks; 3.1 Premium Calculation Principles; 3.1.1 Desired Properties of "Good" Premiums
3.1.2 Basic Premium Principles
3.1.3 Quantile Function: Two More Premium Principles; 3.2 Ordering of Distributions; 3.2.1 Concepts of Utility Theory; 3.2.2 Stochastic Order; 3.2.3 Stop-Loss order; 3.2.4 The Zero Utility Principle; 3.3 Some Aspects of Reinsurance; 4 Distributions of Aggregate Claim Amount; 4.1 Individual and Collective Model; 4.2 Compound Distributions; 4.2.1 Definition and Elementary Properties; 4.2.2 Three Special Cases; 4.2.3 Some Actuarial Applications; 4.2.4 Ordering of Compounds; 4.2.5 The Larger Claims in the Portfolio; 4.3 Claim Number Distributions
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Panjer's Recurrence Relation; 4.3.2 Discrete Compound Poisson Distributions; 4.3.3 Mixed Poisson Distributions; 4.4 Recursive Computation Methods; 4.4.1 The Individual Model: De Prill's Algorithm; 4.4.2 The Collective Model: Panjer's Algorithm; 4.4.3 A Continuous Version of Panjer's Algorithm; 4.5 Lundberg Bounds; 4.5.1 Geometric Compounds; 4.5.2 More General Compound Distributions; 4.5.3 Estimation of the Adjustment Coefficient; 4.6 Approximation by Compound Distributions; 4.6.1 The Total Variation Distance; 4.6.2 The Compound Poisson Approximation
4.6.3 Homogeneous Portfolio

Sommario/riassunto

Stochastic Processes for Insurance and Finance offers a thorough yet accessible reference for researchers and practitioners of insurance mathematics. Building on recent and rapid developments in applied probability, the authors describe in general terms models based on Markov processes, martingales and various types of point processes. Discussing frequently asked insurance questions, the authors present a coherent overview of the subject and specifically address: The principal concepts from insurance and finance
Practical examples with real life data
Numerical and algorit
