

1. Record Nr.	UNISA996490344403316
Autore	Townsend Catrin
Titolo	A risky business : an actuary's guide to quantifying and managing risk in society // Catrin Townsend
Pubbl/distr/stampa	Cham, Switzerland : , : Palgrave Macmillan, , [2022] ©2022
ISBN	3-031-11673-9
Descrizione fisica	1 online resource (415 pages)
Disciplina	031
Soggetti	Actuarial science Risc (Assecurances) Gestió del risc Llibres electrònics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di contenuto	Intro -- Preface -- Acknowledgments -- The Non-actuaries -- The Actuaries -- The Future Actuaries -- Contents -- List of Figures -- List of Tables -- 1 Introduction -- 1.1 Introduction to Risk -- 1.2 There's No Business Like... -- 1.3 Can I Insure That? -- 1.4 Risk by Numbers -- 1.4.1 Risk Metrics -- 1.4.2 Success Metrics -- 2 A Short History of Actuarial Work -- 2.1 I'll Be There For You: The Beginning of Lloyd's -- 2.2 Pooling -- 2.3 San Francisco and Uberrima Fides -- 2.4 Lloyd's as a Marketplace -- 2.5 The Role of Actuarial Institutes Around the World -- 3 Products and Perils -- 3.1 What Could Possibly Go Wrong? -- 3.1.1 Property Damage -- 3.1.2 Liability -- 3.1.3 Financial Loss -- 3.1.4 Fixed Benefit -- 3.2 Boats, Buildings, and Beckham: An Introduction to Types of Insurance -- 3.2.1 Motor Insurance -- 3.2.2 Property Insurance -- 3.2.3 Business Insurance -- 3.2.4 Bespoke Financial Loss Policies -- 3.3 New Products, New Possibilities, New Problems -- 3.3.1 Environmental, Social, and Governance Sustainability in Insurance and Pensions -- 3.4 Case Study: Drone Insurance -- 4 Data -- 4.1 More Is More: Data for Beginners -- 4.1.1 More data gives more certainty -- 4.2 Data Is (a Bit Like) the New Oil -- 4.3 Exposure Data -- 4.4 The Importance of Being Earnest (and Honest): GDPR

and Ethics in Actuarial Work -- 4.4.1 Who Cares About GDPR? -- 4.4.2  
What Are the Broad Aims of GDPR? -- 4.4.3 What Are the New  
Consumer Rights? -- 4.4.4 What Does GDPR Mean for Actuaries? --  
4.4.5 Price-Walking -- 4.4.6 Discriminatory Data -- 4.4.7  
Environmental, Social, and Governance (ESG) and Sustainable  
Investment -- 4.5 The Future of Data: Insurtech and AI -- 4.5.1  
Telematics -- 4.5.2 Smart Appliances and Wearable Tech -- 4.5.3  
Machine Learning -- 5 Annuities -- 5.1 Interested in Interest? -- 5.2  
Introduction to Annuities -- 5.3 Variations on Annuities.  
5.3.1 Annuities Paid Monthly -- 5.3.2 Deferred Annuities -- 5.3.3  
Increasing Annuities -- 5.3.4 Perpetuities -- 5.4 IOU: Calculating Loan  
Repayments -- 5.5 Worked Example -- 6 Life-Dependent Products:  
Your Money or Your Life -- 6.1 When Will They Die? (And Other Morbid  
Questions) -- 6.2 What Life Tables Tell Us About Life -- 6.3  
Calculations with Life Tables -- 6.4 Life-Dependent Annuities -- 6.5  
Variation in Mortality Rates -- 6.5.1 Occupation -- 6.5.2 Smoking --  
6.5.3 Income-Related Risk Factors -- 6.5.4 Genetics -- 6.5.5 Selection  
Bias -- 6.6 Joint Life Annuities -- 6.7 Reversionary Annuities -- 7  
Pensions: Who Pays? -- 7.1 A Short History of Pensions -- 7.2 Defining  
Defined Benefit Schemes -- 7.3 The DB Disappearance -- 7.4 The  
Fundamentals of Funding -- 7.4.1 Regular Contribution -- 7.4.2  
Terminal Funding -- 7.4.3 Pay As You Go -- 7.5 Social Care -- 8  
Pricing: The Science of Estimating the Risk Cost -- 8.1 Why Estimate  
the Risk Cost? -- 8.2 Getting to Know (People Like) You -- 8.3 Anti-  
Selection -- 8.4 An Introduction to Generalized Linear Models  
for Insurance Pricing -- 8.5 Worked Example: Pricing Pet Insurance --  
8.6 Pricing for Large Risks -- 9 Pricing: The Art of Estimating  
Everything Else -- 9.1 Types of Non-risk Costs -- 9.1.1 Wages, Rent,  
and Other Operating Expenses -- 9.1.2 Insurance and Reinsurance --  
9.1.3 Commission and Acquisition Expenses -- 9.1.4 Profit Loading --  
9.1.5 Investment Income -- 9.1.6 Insurance Premium Tax -- 9.2  
Insurance Fraud -- 9.3 The Insurance Cycle -- 10 Reserving: First  
Principles -- 10.1 Principles of Reserving -- 10.2 Types of Claim Data  
-- 10.3 Using Patterns in Data -- 10.4 Injury Claims and PPOs -- 11  
Reserving: Methods -- 11.1 Chain Ladder Method -- 11.2 Expected  
Loss Ratio method -- 11.3 The Bornhuetter-Ferguson Method -- 11.4  
Alternative Reserving Methods -- 11.4.1 The ACPC Method.  
11.4.2 Curve Fitting -- 11.4.3 Stochastic Methods -- 11.4.4 Machine  
Learning -- 12 In Case of Emergency: Capital Requirements -- 12.1  
That's Capital! -- 12.2 How Much Capital Should be Held? -- 12.3  
Solvency -- 12.4 Solvency II -- 12.4.1 What is Solvency II? -- 12.4.2  
How Much is the Capital Requirement Under Solvency II? -- 12.4.3 What  
Kinds of Assets are Allowed Under Solvency II? -- 12.5 Capital  
Calculation Methods -- 12.5.1 Risk Measures -- 12.5.2 Risk Allocation  
Methods -- 12.6 Inadequate Capital: A Warning from History -- 12.6.1  
Transit: 'The Titanic of Insurance Insolvencies' -- 13 Reinsurance --  
13.1 A Problem Shared: An Introduction to Reinsurance -- 13.1.1  
Proportional Reinsurance -- 13.1.2 Excess of Loss Reinsurance (XL) --  
13.2 The LMX Spiral -- 13.3 Reinsurance to Close -- 13.4 Sharing Risk  
Outside of Insurance -- 13.4.1 Risk Transfer to the Financial Sector --  
13.4.2 Transferring Risk to the Public Sector -- 13.4.2.1 Case Study:  
Flood Re -- 13.4.2.2 Other Public Sector Flood Insurance Models -- 14  
Catastrophes -- 14.1 Modeling Natural Catastrophes -- 14.2 Lessons  
from Hurricane Katrina -- 14.2.1 Lesson 1: Run for Cover -- 14.2.2  
Lesson 2: Count the Seconds -- 14.2.3 Lesson 3: Take a Break  
(into Consideration) -- 14.2.4 Lesson 4: Social Good, but Profit Better  
-- 14.2.5 Lesson 5: It Never Rains but It Pours -- 14.3 Promising  
the World - the Challenge and Benefits of the Globalization

of Insurance -- 14.4 A Micro Introduction to Microinsurance -- 14.5  
Cyber Insurance -- 15 Climate Change and Biodiversity Loss -- 15.1  
Climate Change -- 15.2 From Actuary to Zoonotic -- 15.2.1  
Underwriting Exclusions -- 15.2.2 Creating a Biodiversity Loss Metric  
-- 15.2.3 Calculating the Value of Biodiversity to Insurers -- 16 Latent  
Claims: A Problem for Another Day -- 16.1 An Introduction to... (Wait  
for It) .... Latent Claims.  
16.2 Asbestos: The Wonder Fabric with a Dark Secret -- 16.3 The  
Blame Game: Insurance and the Law -- 16.4 Environmental Claims --  
17 Modeling Coronavirus-19 -- 17.1 Modeling in a Crisis -- 17.2  
Modeling Coronavirus-19 Spread -- 17.3 Re-modeling (and Re-  
modeling and Re-modeling) Coronavirus Spread -- 17.4 Covid  
Corollaries: The Effect of the Pandemic on Insurance and Pensions --  
18 Careers in Actuarial Science -- 18.1 What Do You Need to Be  
an Actuary? -- 18.2 Professional Qualifications -- 18.2.1 IFoA Exams-  
The Detail -- 18.2.2 SOA and CAS Exams-The Detail -- 18.3 Exam  
FAQs -- 18.4 Professional Development -- 18.5 The International  
Market for Actuarial Science -- 18.6 A Day in the Life of an Actuarial  
Analyst -- 18.6.1 A Day in the Life of a Pricing Analyst -- 18.6.2 A Day  
in the Life of a Reserving Analyst -- 18.7 Final Remarks on Actuarial  
Careers -- 19 Looking Forward: The Future of Actuarial Work -- 19.1  
It's The End of The World as We Know it-And We'll Be Fine --  
Appendices -- Appendix A: Table of Compound Interest, for 3% and 5%  
Effective Interest Per Annum -- Appendix B: Life Tables for UK Male  
and Female Lives -- Appendix C: Net Present Value of Life-Dependent  
Annuities for 3% and 5% Interest Rates -- Glossary -- Index.

---

## Sommario/riassunto

Intangible, invisible and worth trillions, risk is everywhere. Its quantification and management are key to the success and failure of individuals, businesses and governments. Whether you're an interested observer or pursuing a career in risk, this book delves into the complex and multi-faceted work that actuaries undertake to quantify, manage and commodify risk--supporting our society and servicing a range of multi-billion-dollar industries. Starting at the most basic level, this book introduces key concepts in actuarial science, insurance and pensions. Through case studies, explanations and mathematical examples, it fosters an understanding of current industry practice. This book celebrates the long history of actuarial science and poses the problems facing actuaries in the future, exploring complex global risks including climate change, aging populations, healthcare models and pandemic epidemiology from an actuarial perspective. It gives practical advice for new and potential actuaries on how to identify an area of work to go into, how best to navigate (and pass!) actuarial exams and how to develop your skills post-qualification. A Risky Business illuminates how actuaries are central to society as we know it, revealing what they do and how they do it. It is the essential primer on actuarial science. Catrin Townsend is a qualified actuary (a Fellow of the Institute of Actuaries) and data enthusiast. In this book, she draws on her experience of pricing and reserving roles in general insurance, in both Lloyd's syndicates and global insurers. Since earning a first-class degree in Mathematics, Operational Research, Statistics & Economics from the University of Warwick, Catrin has worked with a range of insurance products and is currently leads a pricing team at a global insurer. She also leads and runs training courses on the theory and application of statistical modelling, and is a career ambassador for the Institute and Faculty of Actuaries. Catrin lives in Surrey with her husband (who is also an actuary) and two children.

---