# Preface

What a pleasure it is to discover the second edition of the Handbook of Insurance, edited by Georges Dionne, 12 years after the first! Almost all original basic texts are there, for the most part updated to incorporate the scientific foundations of insurance, and have been re-explored through 15 new contributions of great relevance. The field of insurance economics is indeed expanding every year, and it is fascinating to see the depth and breadth of this growth. Old problems are revisited, reformulated, and remodeled, bringing new conclusions and solutions. And through a process of germination, these fruitful developments generate a new stream of highly interesting research.

Many key concepts at the core of risk, uncertainty, and insurance economics have been further refined, reassessed, and reanalyzed over the past 12 years—for example moral hazard, adverse selection, the symmetry and asymmetry of information, and risk aversion. Traditional issues have been re-explored, such as underwriting cycles, the performance of insurance companies, risk management, distribution networks, regulation, recourse to reinsurance, coexistence between private and public insurance, health insurance, and fraud. New issues have emerged or have grown in importance, including systemic risk, longevity risk, long-term care, interactions and dependencies between variables, the corporate governance of insurance companies, capital allocation within insurance companies, and alternative risk transfer devices such as industry loss warranty (ILW), sidecars, cat bonds, swaps, and securitization.

What is striking when reading these various contributions is the recurring issue of optimization. How do you design an optimal insurance contract to minimize moral hazard, whether ex ante or ex post, and reduce or eliminate adverse selection? What is the optimal demand for insurance from a corporation and for reinsurance from an insurance company? How do you draft an optimal regulation, allowing market forces to operate and competition to function, while minimizing costly failures? How do you optimize capital allocation within a company between the various branches, lines of business, and markets? How do you optimize a portfolio of risks by minimizing dependencies? How do you optimize the amount of capital for a given insurance company, while maximizing the rate of return, yet respecting the solvency level corresponding to the chosen risk appetite?

These 37 new contributions and updates provide answers—sometimes straightforward, sometimes more complex—to all of these questions, and provide highly useful tools for a greater understanding of the markets and institutions transferring and sharing risks. This handbook contains a wealth of ideas, insights, models, data and empirical tests, providing food for thought for academics, policy makers, and last but not least, managers of insurance and reinsurance companies. I am convinced that careful reading of this handbook will help researchers to detect new fields and hypotheses to explore, policy makers to draw up regulations based on solid grounds, and managers of insurance companies to innovate, redesign contract policies, improve the use of capital, reorient distribution networks, protect against fraud, and so on. In an ever-expanding risk universe, increased sophistication is the only way to push back the frontiers of insurability and therefore maintain, or even improve, the level of protection offered to individuals and corporations throughout the world.

May I take the opportunity of this preface to congratulate Georges Dionne for his outstanding contribution to the science of risk and uncertainty. His capacity to develop theories and models, while validating them through empirical work, and to deal with the real issues at the core of insurance industry practice, is unique. May I also thank each of the authors of this new handbook, for providing contributions of such high quality.

I have a simple wish that this handbook be diffused to as wide an audience as possible, both in academic and professional spheres. It will help to improve understanding in terms of the demand and supply of insurance and reinsurance and to promote market solutions for more efficient risk trading. The development of insurance—both for P&C and Life lines—is undoubtedly of benefit to the welfare of society as a whole.

Chairman and CEO of SCOR Denis Kessler

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