

# Preface

*You don't write because you want to say something,  
you write because you have something to say.*

F. Scott Fitzgerald

The management of operational risk in the banking industry has undergone significant changes over the last decade due to substantial changes in the operational environment. Globalization, deregulation, the use of complex financial products and changes in information technology have resulted in exposure to new risks very different from market and credit risks. In response, the Basel Committee on Banking Supervision (BCBS) has developed a new regulatory framework for capital measurement and standards for the banking sector, referred to as Basel II, aimed at sound risk sensitive capital requirements. Basel II formally defined operational risk and introduced corresponding capital requirements. BCBS began discussions on operational risk management in 1998, leading to the inclusion of operational risk capital requirements into the latest Basel II developed during 2001–2006.

Currently, major banks are undertaking quantitative modelling of operational risk to satisfy these requirements under the so-called Basel II Advanced Measurement Approaches (AMA). A popular method under the AMA is the Loss Distribution Approach (LDA) based on statistical quantification of the frequency and severity distributions for operational risk losses. The LDA is the main focus of this book. Over the last 3 years, major banks in most parts of the world have received accreditation under the Basel II AMA by adopting the LDA, despite there being a number of unresolved methodological challenges in its implementation. Overall, the area of quantitative operational risk is very new and different methods are under hot debate.

Since 2000, I have been involved in consulting projects for several major banks, assisting with the development of their operational risk models and software systems to comply with the new Basel II requirements. The development of a consistent mathematical framework for operational risk treatment, addressing all aspects required in practical implementation, is a challenging task. Due to the absence of a coherent framework different ad-hoc solutions are often used in practice.

As a result of consulting projects for banks, discussions with regulators and academic research, I feel that there is a need for a textbook on quantitative issues in modelling operational risk that should be resolved and addressed in practice. This

book, in particular, will focus on the LDA and will advocate the use of a Bayesian inference method (some alternative methods will be described and referenced too).

Though it is very new in this area, I believe that the Bayesian approach is well suited for modelling operational risk as it allows for a consistent and convenient statistical framework to quantify the uncertainties involved. It also allows for the combination of expert opinions with historical internal and external data in estimation procedures. These are critical, especially for operational risks that have small datasets. During the last 5 years many aspects and problems in the quantitative modelling of operational risk have been addressed in monographs, research papers and reports from loss data collection exercises. These will be referred to within this book. The Bayesian approach advocated here is very new for operational risk and is certainly not fully covered in the available spectrum of books and papers within the area.

Unfortunately, it was not possible to include examples of the real operational risk data into this book due to confidentiality issues. As a result, only illustrative examples with realistic parameter values are used and the book might look too ‘academic’. However, I hope that discussed results and methodologies will make a positive contribution to a reliable estimation of capital charge for operational risk.

This book is aimed at practitioners in risk management, academic researchers in financial mathematics, banking industry regulators and advanced graduate students in the area. One aim is to have a book that can be used as a reference text for practitioners interested in a clear and concise treatment of concepts and methods needed in practice. Another aim is to have chapters that can be used for teaching university courses on quantitative risk management. The book also provides a comprehensive list of references to guide more advanced readers through the vast literature and will take the reader to the frontier of practically relevant research. I hope that the book will facilitate communication between regulators, end-users and academics.

This project would not be possible without a great community of researchers in the area of operational risk. I would like to particularly mention publications by K. Böcker, A. Chernobai, M. Cruz, P. Embrechts, A. Frachot, C. Klüppelberg, G. Mignola, O. Moudoulaud, S. Rachev, T. Roncalli and R. Ugoccioni which have greatly impacted on and influenced the composition of this work. This book would also not be possible without help from many colleagues and coworkers.

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