Introduction

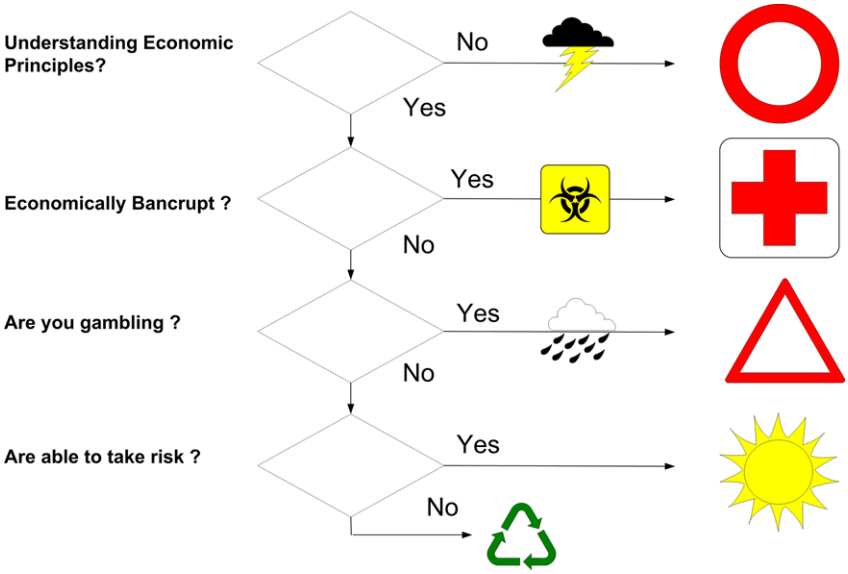

Fig. 0.1 Risk Management in a Nutshell

When starting to write a book, one always needs to ask oneself why one wants to do that and who is the target audience. Furthermore one needs also to know what is required from his audience.

To start with the first question. I have performed quite a wide range of jobs in different international insurance groups and found that some patterns always repeat and that there is a need for education in relation to risk management. So at every place there were pieces missing and the overall risk management structure had to be improved. Over time I had to repeat parts of this educational process again and again. So I decided that it would be worthwhile to gather and compile all these different facts and leanings in order that other people can profit from it. I thought that it would be in particular valuable to have a book which covers a wide range of different topics in relation to risk management in such a way and tangible enough to be readily applicable.

Hence the book does not focus on abstract concepts for the sake of mathematical beauty, but rather with the aim to concretely solve problems and in order to be able to set up a top performing risk management organisation. I have put considerable focus in order to make the book as practical and applicable as possible and I have tried to show a lot of concrete reporting templates including methodology and examples, in order to better understand the context. My intention was, that one could read this book in order to afterwards be able to solve and implement some 80 % of the typical questions which occur when setting up a concrete risk management organisation. Two things need to be stressed: on one hand there are always a lot of different ways which lead to Rome, hence there might in some instances exist better solutions than those presented in this document. On the other hand I believe that this book is also suited for the advanced reader due to its aim to be quite extensive. The overall focus of this book is mainly on financial risk management, insurance risk management, economic steering of an insurance company, insurance processes and products. I would also like to mention, that the methods presented in this book are not only applicable to life insurance companies, but also to pension funds, applying them mutatis mutandis.

I wrote this book because I believed this would be fun and help me to better understand risk management. This book is intended for both those who want to learn risk management starting at a beginner's level, but also for readers who want to widen their horizon. I have also tried to include more practical questions, such as what can go wrong with particular products in order to help to avoid them.

The book is aimed to be self contained and I expect the reader to understand the basics of analysis and some probability theory, such as [JP04]. Since the application of the theory and methods is in the centre, we use different types of mathematical approaches without proof. The required mathematics has been placed in different appendices. Some of them require advanced mathematics such as measure theory, functional analysis and stochastic integration. Here we refer to the following text books for the underlying theory: measure theory – [DS57], functional analysis – [DS57], [Con91], [Ped89], stochastic integration – [IW81], [Pro90]. Finally I would like to give some references in respect of arbitrage free pricing theory – [Pli97], [KM03], [Duf92] and interest rate and equity models – [BS73], [CIR85], [Hul97], [BM01]. For the relevant actuarial life literature we refer to [Ger95] and [Kol10].

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Michael Koller, 2010