

REVIEWS

Modern Actuarial Theory and Practice. By P. M. BOOTH, R. G. CHADBURN, D. R. COOPER, S. HABERMAN AND D. E. JAMES (Chapman & Hall, 1999)

This book attempts to describe the traditional areas of actuarial activity in a way that highlights the fundamental principals as well as the links between different areas.

There are five parts:

- investment;
- life insurance;
- general insurance;
- pensions; and
- actuarial models.

The first four of these correspond to the subject divisions in the latter part of the United Kingdom actuarial examinations.

Part One, on investment, is mainly concerned with portfolio and asset selection, and covers the analysis of individual investments only to the extent necessary for the main themes. The initial section on intermediation gives an important overview of the economic role of pension funds and insurance companies, where most actuaries are still employed. It would have been nice to see this topic treated at somewhat greater length, because it is just this type of contextual background which can easily be skipped over in an education process concentrating on factual detail.

The remainder of Part One is a good, readable treatment of the type of material required for the non-specialist actuarial investment examinations. However, readers expecting to find a mathematical approach to modern finance will be disappointed. The level of mathematics has not kept pace with the recent changes to the U.K. actuarial syllabus. There is nothing on financial calculus or the mathematics of derivatives.

Life insurance is covered in Part Two. Again, this section is well written, and provides a useful background for students not working in the area. It would also be valuable to readers outside of the industry who need a guide to the financial management of a long-term insurance business and the role of actuaries in it. Such a treatment is particularly valuable because, unlike investment, there is little similar material accessible to such readers. The same could be said about the treatment of general insurance in Part Three.

Some overseas readers might be surprised at the lack of mathematics in Part Three, particularly if they have been exposed to the papers in the *ASTIN Bulletin* or the *Scandinavian Actuarial Journal*. Although this might be consistent with the traditional teaching of the subject in the U.K. profession and in the institution where most of the authors work, they could surely have done the U.K. profession a service by gently leading readers to an appreciation of the utility (or otherwise!) of some of the methods studied elsewhere. Researchers would, undoubtedly, have found a more mathematical approach, even if confined to appendices, useful.

I work in a pensions consultancy, so my views on Part Four might be coloured by this, but I felt that this part could offer very little insight to anyone beyond the level of the non-specialist U.K. examination. Recent demographic, economic, and political trends have strained the pensions industry's traditional thinking of the last 20 years or so. Pension benefits are increasingly being seen in the context of an individual's total wealth, and this is reflected in more flexible benefit designs and funding methods. The great problem with text books on pensions is that they become out of date so rapidly. This section already feels slightly stale, even for the principal audience. Researchers and others outside the actuarial profession would get very little idea of the important recent developments and factors driving them, few of which are U.K. specific.

Part Five deals with the topic of actuarial modelling by presenting examples in four different areas: non-life insurance; life contingencies; pension fund investment; and long-term disability

insurance. There is also a short introduction to the principles of modelling. It is useful to see the process of modelling discussed separately from the chapters on application areas, and, given the limitations of space, the authors have done well to indicate the pervasive influence of actuarial models. A full course on modelling techniques would require much more than one part of a single text book, and it is an area that can only be satisfactorily taught by giving students a chance to build (or at least adapt) and apply their own models. Some extra material, possibly in the form of case studies, encouraging readers to do this would, therefore, have been a valuable addition to the book. Many text books now come with a CD-ROM, and there is, perhaps, a missed opportunity here.

The authors state that the book is aimed at university students and students studying for the professional examinations of a number of professional bodies. They also suggest that practising actuaries might find the book a useful guide to current methodologies and models. How well, then, are the needs of these different audiences met?

Let us consider university students first. I would imagine that this would be a useful general textbook for final year undergraduates on U.K. actuarial courses. It will also provide a helpful overview and introduction for research students, although they will need more detail than is provided here in their specialist areas. Of crucial importance for research is, of course, the number and quality of the references provided. Each chapter does end with a good number of references. However, these are overwhelmingly U.K. biased, and I worry that, in some cases, they may reflect the authors' own interests and areas of specialism too closely to give a fully balanced picture.

For overseas students, I think that the U.K. bias of the book will prove to be off-putting. The majority of the underlying problems considered are of universal interest, but most of the examples and many of the references are U.K. based. In theory, a student anywhere in the world could develop an understanding of principles from U.K. examples, and then apply these principles to different circumstances, but, in practice, I expect that those unfamiliar with the U.K. environment would find this difficult.

The final group of students to consider is those studying for professional examinations. My comments about overseas undergraduates also apply to professional students studying for the examinations of an overseas actuarial body; but what about students, home and abroad, of the Faculty and Institute?

In terms of content and level, *Modern Actuarial Theory and Practice* seems to be pitched fairly and squarely at students studying for the 300 and 400 Series examinations of the Faculty and Institute of Actuaries. 400 Series students will certainly require some more U.K. detail, but that is easily obtained. Will they get the insight and understanding that they require for the final Fellowship examination? It is always good to get a second opinion, and I think that an actuarial education system where students are expected to develop skills of analysis and judgement through reading one set of notes by a single author is one of the current weaknesses of the U.K. profession. For this reason alone, I would like to be able to recommend that students read the appropriate section of this book. The trouble is that I am not sure that there is enough extra to be gained by someone who has gone through an ActEd course to justify the time and effort. Yes, there are some interesting insights, and yes, there is some material not covered by the Faculty and Institute's Core Reading and ActEd; but, in the final analysis, I think that the authors should have been braver, and produced a book that did not have one eye on the current U.K. education system.

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Actuarial Models for Disability Insurance. By S. HABERMANN AND E. PITACCO (Chapman & Hall/CRC, 1999)

Habermann and Pitacco, professors of insurance at City University in London and at the University of Trieste, respectively, have picked an adequate title for their nearly encyclopedic