contents of the book should not be too difficult to follow for a reader with intermediate quantitative skills.

Throughout the book, the author reiterated the issue of model risk, i.e. how the value of a credit derivative may change with respect to the different underlying assumptions and models chosen. The model risk will be escalated to a systematic risk if the flawed model is used as a 'standard' model across the whole banking industry. Therefore, even for readers less keen to the technical details of modelling and valuation (actuaries, pension trustees, etc.), this book provides a deep insight into the credit derivatives and will help them better understand the risk vs. reward features of CDO investment.

FEIFEI ZHANG

Financial and Actuarial Mathematics. By WAI-SUM CHAN & YIU-KUEN TSE, McGraw Hill, 2008. 400pp. ISBN: 9780071258562

This book is an introduction to financial and actuarial mathematics, aimed at students on elementary actuarial courses, typically first- or second-year undergraduates, although there are glimpses of more advanced topics. The authors, both experienced teachers, were motivated by students' requests for more applications and illustrations (was there ever a student who asked for fewer?).

The first two-thirds or so of the book covers financial mathematics, with chapters on: Interest accumulation and time value of money; Annuities; Rates of return; Amortization and sinking fund; Bonds; Bond management; Applications; and Stochastic interest rates.

The writing is clear and concise and is, indeed, well-provided with examples, and a good selection of exercises. A nice feature is that guidance is given on using spreadsheets, with screenshots of Excel used to solve simple problems. It would surely be absurd, today, to write on this subject without acknowledging the computational realities. The book passes this test, but nevertheless has to prepare the student for pencil-and-paper examinations.

Chapter 1 introduces annual, periodic and continuous compounding from the start, with traditional notation. This suits the authors' admirable desire for logic and rigour, and it means these tools can be deployed in examples throughout the book, but it raises considerably the first hurdle that the student must clear. There may be advantages, at least in undergraduate courses, in postponing varieties of compounding until the student has a good grasp of the main ideas. That said, by judicious skipping, and selection of examples, the alternative course could be pursued.

Chapters 6 (Bond management) and 7 (Applications) introduce numerous topics, ranging from several notions of matching and immunisation, to financial assets, indices and inflation. The treatment is concise but clear and

the many examples are welcome. The brief treatment of stochastic interest rates in Chapter 8 is distinctly more sophisticated than earlier sections; students with a solid grasp of probability ought to find it stimulating.

The last three chapters introduce 'actuarial mathematics' under the headings: Survival models and life contingencies; Life insurance (Chapter 9), life annuities and net premiums (Chapter 10); and Short-term risk models for life insurance (Chapter 11).

Chapter 9 introduces survival models based on random lifetimes before turning to the life table as a calculating tool. The treatment in Chapter 10, however, I found rather inconsistent. Assurance benefits are introduced *via* the random present value, denoted Z, induced by the random future lifetime. The associated net single premium is then $E[Z]$. However, random lifetimes are avoided in writing down 'actuarial present values' of life annuities, which are defined as expressions of the form $\sum v^t {}_t p_x$. This hardly seems necessary for a student who has followed Chapter 8, and the inconsistency (or perhaps another reason) means that the important relationships of the form $A_x = 1 - d\ddot{a}_x$ are relegated to an exercise. Some compensation for this odd presentation is that spreadsheet exercises are included.

The final chapter is motivated by risk theory more than by life insurance, although it offers some useful insights. Based on one-year life insurances, distributions and risk loadings based on aggregate claims in homogeneous and non-homogeneous portfolios are covered, including the de Pril recursion. This perhaps tends to draw the student away from the mainstream, given that policy values are not covered.

This book can certainly be recommended for an introductory course in financial mathematics, as main or supplementary reading.

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