Book Review

APPLIED MATH FOR DERIVATIVES
John S. Martin
John Wiley and Sons, 2001; ISBN 0 471 47902 0; hardback, £57.50.

The pricing and valuation of derivatives is, like term structure modelling, a subject that has been the focus of a considerable amount of literature. This book, which is a revised edition of an IFR publication from 1996, is a welcome part of this literature, being true to its subtitle, 'A Non-Quant Guide to the Valuation and Modeling of Financial Derivatives'. The quantitative analysis of derivatives does require a good grasp of mathematics; the worthwhile achievement of this book is to make such analysis a little more accessible to non-quants.

There is a good grounding provided of institutional factors as well as financial arithmetic, making the book most suitable for newcomers to the market. The introduction covers fixed income instruments, and is one of the highlights of the book; for instance, I liked the coverage of FRN valuation in Section 3.4. Another highlight of the book is its coverage of swaps. The pricing and valuation of these is handled very well (as is the non-financial intro to swaps in Section 8.2: one for the beginner!) and illustrated with spreadsheets that the reader can implement himself. Many of the spreadsheets used to illustrate applications are included in a disk supplied with the book. There are separate chapters on interest-rate and currency swaps, and their valuation is explained very clearly. The case study for currency swaps illustrates an application in the Eurobond new issue market,

which was welcome. However, when reading this, I remember thinking that it is not necessarily for arbitrage reasons that borrowers raise funds in one currency and then swap them into another: for many borrowers outside Western Europe and the USA, it is often the case that they can only place paper if the currency of issue is a liquid one. They will therefore issue in US dollars or euros and then swap back into their home currency, irrespective of whether an arbitrage opportunity has been identified. It was good to see equity swaps included alongside interest-rate and currency swaps (in Chapter 11); this instrument has been ignored in many of the books on derivatives that I've come across.

The section on swaps is perhaps the book's strength ... options are covered in satisfactory fashion but the reader may wish to purchase also Galitz's *Financial Engineering* and Briys' *Options, Futures and Exotic Derivatives* to obtain a very good coverage of this subject. An excellent descriptive section of the Greeks is contained in Chapter 12, with graphical illustrations of the sensitivities of the various Greeks over time.

The one major highlight of the book is the use of Excel spreadsheets to describe pricing fundamentals. These can (from a reading of the book and from the disk itself) be set up by readers themselves, and are provided for every topic discussed, from pricing forward-start swaps using futures strips (p. 254) to

calculating an equity swap price from equity index futures (p. 308).

I would like to have seen much more comprehensive 'Further Reading' sections at the end of each chapter, as this can be an important part of a student's learning. A suggestion for a future edition might be to have specialised texts recommended for each subject matter that has been covered in overview form in the preceding chapter. Also, some instruments are covered in cursory fashion (eg swaptions), while the section on repo does not differentiate between sell/buy backs and classic repo (para. 5.4.5), and implies that both require a 'forward' buy–back price, when in fact only the former product does. In these cases, a list of further reading is essential.

But these are very minor concerns, this is a very readable book that makes very good use of spreadsheets and worked examples to illustrate applications. Definitely a worthwhile purchase for those involved in the financial derivatives markets.

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Editor