Book Review

SWAPS AND OTHER DERIVATIVES

Richard Flavell

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It is often the case that much positive critical acclaim is heaped on books that describe the cutting edge of financial engineering; for instance on those books that might analyse a double knock-out barrier option or some other such exotic product. Or a book that describes, using exquisite yet hair-raising mathematics, how to dynamically hedge a book of such instruments! I've always found this mildly amusing, given that there can surely only be a handful of money centres in the world where there are both banks to make a market in these products and customers who wish to buy them. The preface in Mr. Flavell's excellent book points out that the vast majority of derivatives traded in the global market 'are still very much first generation, and as such relatively straightforward'. Quite right. The author notes that there are a great many books in the market that describe derivatives and how they are used, many of which are of very high quality.

This is certainly correct; an interested reader will be confronted with a wide range of books on this subject. So what stands out in Mr Flavell's book? Certainly there is quite a bit of material here that has been seen before, having been covered in previous works. However, the presentation here is very readable. The language is clear-cut, and each concept is very well illustrated with examples that demonstrate application of each variant of the basic swap product. There is an emphasis on qualitative descriptions, so that newcomers can acquaint themselves with the main issues ahead of looking at the mathematical descriptions. There is little institutional information, and the emphasis is on generic concepts, so that the book will be relevant irrespective of the reader's location.

The book begins with generic vanilla interest-rate swaps, and the concept of zero-coupon pricing and the discount function, so the material at the start will be familiar to readers of this journal. The worked examples will be very useful to junior traders and salespersons, not to mention risk management consultants. These show items such as cash flows, discount factors, implied forward rates and so on. As it is a specialised book, it can afford to mention subjects that are not covered in all derivatives books, for example how the credit quality of a swap counterparty can influence the pricing of a swap (pp. 85, 121–27), and how margining is used to manage this counterparty credit risk. The book then moves on to more complex swaps. A useful feature is how each variant of a swap is placed in context as to how it was originated (motivation, main players, etc); so, for example, on pages 95–96 there is a description of why asset swaps were introduced in the Eurobond market. The coverage is extensive and most readers will come across at least one swap type they've never heard of (mine was the 'Turbo swap'. Sounds like a sort of fish

. . .). The topical issue of convexity adjustments is also covered in accessible fashion, at more than one point but in most detail in the appendix to Chapter 5.

The 'other derivatives' in the book's title are options, specifically interest rate OTC options. This section is not the book's strength, as the descriptive qualities evident in the swaps chapters tail off slightly. For instance the Black (1976) model is described without any introduction; readers who do not need this will already know what is written here, and readers who would need some background to the model will not find this account sufficient for their understanding. There are still, however, some useful worked examples, such as the calculation of a volatility curve (p. 286), which is not often encountered in derivatives texts. But overall this chapter comes across as an afterthought. The coverage of swaptions (Section 7.9) should be combined by the reader with say, Kolb's account in *Futures, Options and Swaps* (Blackwell, 2000) for the full treatment.

It is common practice for swap books to be hedged with bonds, and traders generally use government bonds for reasons of liquidity. This is a reasonable technique, but assumes that the swap spread remains fairly constant. In practice this is not the case, so hedging effectiveness is impaired. Traders can compensate by using bonds that are more closely correlated to the swap curve, but this gives rise to liquidity concerns. Probably the German Pfandbriefe is the only market offering this combination of liquidity and correlation. However, the introduction of exchange-traded swap contracts, such as LIFFE's SwapNOTE, gives swap traders an additional hedging instrument.

The last two chapters in the book cover risk management, including the use of value-at-risk methodology. This is written in clear fashion and should be of good value to swap traders, especially Section 8.8 which describes the use of swap future contracts such as SwapNOTE. A practical example showing how to use the SwapNOTE is included and this is a highlight of this section.

If there is one criticism of the book, it would be that certain complex issues are thrown in with no introduction or explanation. For example Itô's lemma is simply said as being used to transform the basic stock price equation, so presumably the reader is assumed to be familiar with it. I know one or two swaps traders who would not be familiar with the concept (they should look at van Deventer and Imai's *Financial Risk Analytics* (McGraw-Hill Publishing, 1997)). Similarly the appendix to Chapter 5 discusses an approach for measuring the convexity effect using the Heath–Jarrow–Morton model. The discussion is limited to the mathematics, so presumably the reader is assumed to be familiar with the price process equation and other elements of stochastic calculus. The basic bond price equation is shown but not derived, which would have helped understanding (see Sheldon Ross's *Introduction to Mathematical Finance* (Cambridge University Press, 1999) for this). This discussion involves some fairly complex mathematics, and ideally should be introduced and described in more detail, or its usefulness is greatly diminished.

But these are minor concerns. *Swaps and Other Derivatives* is a first-class account of the ubiquitous swap instrument, probably the most common derivative in use in the capital markets. The author is to be congratulated on the achievement of producing a book that is a most worthwhile contribution to the capital markets literature.

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