

Fixed Income Securities: Valuation, Risk Management and Portfolio Strategies

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Book Review

I imagine that all fixed income market practitioners would, like myself, stress the importance of constantly staying at the leading edge of research and market development to ensure that, as bankers, fund managers, consultants, and so on, they continue to deliver quality and value to their clients. For instance, much of the innovation and product development in the markets originates from an ongoing discussion with a sophisticated client base, as investment bankers seek to meet customer requirements.

That is why this book, from three of the leading researchers on fixed income today, is such a welcome publication. As Kevin Rowland might have said in his later song-writing, this book is *fabulous*. Given the antecedents of its writers, we can take its exceptionally high quality practically as given! But it is the book's clarity of approach and focus that I am most excited about. The book is welcome because it is part of the continuing need to remain at the cutting edge. It contains insight into practical techniques and applications used in the global fixed income markets, with a hint at what one might expect in the future. It also indicates the scope and significance of these techniques in the world of finance. Readers will notice that the text is fairly technical at many points. This reflects the level of mathematical sophistication one encounters in the markets today.

If readers will indulge me, I would like to highlight those parts of the book I was particularly impressed with.

The treatment of yield curve analysis is first rate. For instance, I liked the comprehensive description of the Principal Components Analysis (PCA) technique to explain movements in the term structure (chapter 3). The authors rightly point out that empirical research has shown that over 90% of the variance in the yield curve is explained by the first three components modelled (see the expression on page 109); therefore portfolio managers using this technique will get a good understanding of recent movements in the yield curve as well as good interpretive information for the future. The graphical illustration of the sensitivity of the curve to these factors, in figure 3.17, is most apposite. Elsewhere we have a comprehensive treatment of the main single-factor and multi-factor yield curve models in use, with useful comment on the efficacies of using both. The possibility of negative interest rates allowed by say, the Vasicek model is not, at all times, a shortcoming I feel (except perhaps when one is pricing a bond with an embedded knock-out option - see page 512!). But the practical implications of using the different interest-rate models is well handled and chapter 12 will be of inestimable value to practitioners. I am also pleased to see a section on calibrating models in this chapter, something not often encountered in the financial mathematics literature.

I am very enthusiastic about chapters 5 and 6, on hedging interest-rate risk with duration. Despite its well known limitations, arising from the simplicity of its underlying assumptions, a duration-based analysis is commonly used by portfolio managers. The authors present a new look at this

venerable technique, using the PCA method to modify the basic approach. This has practical implications for fund managers and traders with regard to hedging methodology, with improved results when compared to the traditional technique. This is just one of many points of practical relevance for practitioners in this book.

There is also accessible coverage of the Heath-Jarrow-Morton interest-rate model, described and explained here in its single-factor and multi-factor forms. One could say that the presentation by Messrs Heath, Jarrow and Morton in 1992 is as seminal a work as that by Messrs Black and Scholes in 1973, but in the field of interest-rate modelling rather than option pricing. Just as Black and Scholes presented for the first time a closed-form analytical solution to the problem of valuing options, based on the assumption of lognormal distribution of asset prices, so Heath, Jarrow and Morton, tackling the stochastic properties of the term structure of interest rates, showed how the drift element of the stochastic differential equation is a deterministic function of its volatility. This, in its own way, is perhaps as fundamental a result as the earlier work. Financial institutions are able to continue meeting their clients' ever more complex requirements by incorporating such pioneering work into their product development.

It is a privilege to be asked to write this review. Mr Martellini and the Priaulet brothers, whom I have had the great pleasure to meet, have made a fantastic and most worthwhile contribution to the financial economics literature with this book – how I wish I had a copy when I began working as a trainee fixed income trader in 1989! I do hope that this exciting and interesting new book spurs readers on to their own research and investigation; if they follow the application and dedication evident in this work, they will not be going far wrong!

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