

Insurance professionals should feel at home in this book. Early in the book, the author explains AIS returns by analogizing to insurance operations. Later in the book, the author warns about the pitfalls of VaR analysis, arising from the skewed and long-tail results of certain Alternative investment strategies. The reader will even find reference to Expected Shortfall (Conditional VaR) measures, a measure popularized first in actuarial circles but now entering the investment portfolio lexicon.

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*Credit Risk. Pricing, Measurement, and Management.* Princeton University Press, 2003, Darrell Duffie and Kenneth J. Singleton.

From the Institute/Faculty of Actuaries' definition of an actuary, we learn that "Actuaries manage assets and liabilities by analysing past events, assessing the present risks involved and modelling what could happen in the future." Actuaries are no doubt risk-professionals. In their "Brief Zoology of Risks" facing financial (including insurance) institutions, the authors list market, credit, liquidity, operational and systemic risk. The current discussions around Basel II and Solvency 2 make these categories well-known to every actuary. Whereas market risk has been blessed with numerous textbooks at all levels of quantitative detail, the field of credit risk has been much more sparsely treated. And this despite its paramount importance for practice. One of the main reasons for this is the fairly recent history of "standard" models. From a more scientific point of view, models break down in so-called structural versus reduced ones. The prime example of the former class is the celebrated Merton firm-value model, where a stochastic model of the variation of assets to liabilities lies at the heart of a corporate finance oriented approach. In reduced models, an exogenously specified process for the migration of default probabilities, calibrated to historical or current market data gets the modeller's prime attention. Around these two approaches, specific industry models like Portfolio Manager (KMV), CreditMetrics, CreditPortfolioView and CreditRisk+ have been developed.

Both authors have been at the forefront of academic research related to credit risk. Their joint work on intensity based models is widely referred to as the Duffie-Singleton model. As a consequence, academia as well as practice have been eagerly awaiting the write-up of their views on the subject. The result is a fine book which will shape the field for many years to come. The book masterly straddles the academic and the more applied fields. Behind all mathematical formulations, there is a clarifying discussion on the underlying economics. Several examples illustrate the transition from model to data. The subtitle of the book is "Pricing, Measurement, Management"; these three cornerstones of modern finance are treated in a well-balanced way. The reader will find out how to price basic defaultable securities, how to calibrate credit risk models to market data and how to measure risk (e.g. VaR) for credit portfolios. For the latter, a detailed discussion of default correlation (definitions,

measurement) is presented. The literature on credit risk is growing very fast; no doubt, this book will become a classic. A credit risk practitioner should have it at the corner of his/her desk for its wide and in depth overview of the field. The academic researcher will gain through it an optimal access to current research.

Where do other books come in? Though Duffie-Singleton also do an excellent job on the regulatory framework surrounding credit risk, a more encompassing overview (taking the full zoology of risks into account) is Crouhy, Galai and Mark [2]. To complete my personal list of books to have on the subject, I would also include the very readable Blum, Overbeck and Wagner [1] and Schönbucher [3].

#### REFERENCES

- [1] Blum, C., Overbeck, L. and C. Wagner (2003) *An Introduction to Credit Risk Modeling*. Chapman & Hall/CRC, Boca Raton.
- [2] Crouhy, M., Galai, D. and R. Mark (2000) *Risk Management*. McGraw-Hill, New York.
- [3] Schönbucher, P.J. (2003) *Credit Derivatives Pricing Models*. Wiley, Chichester.

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