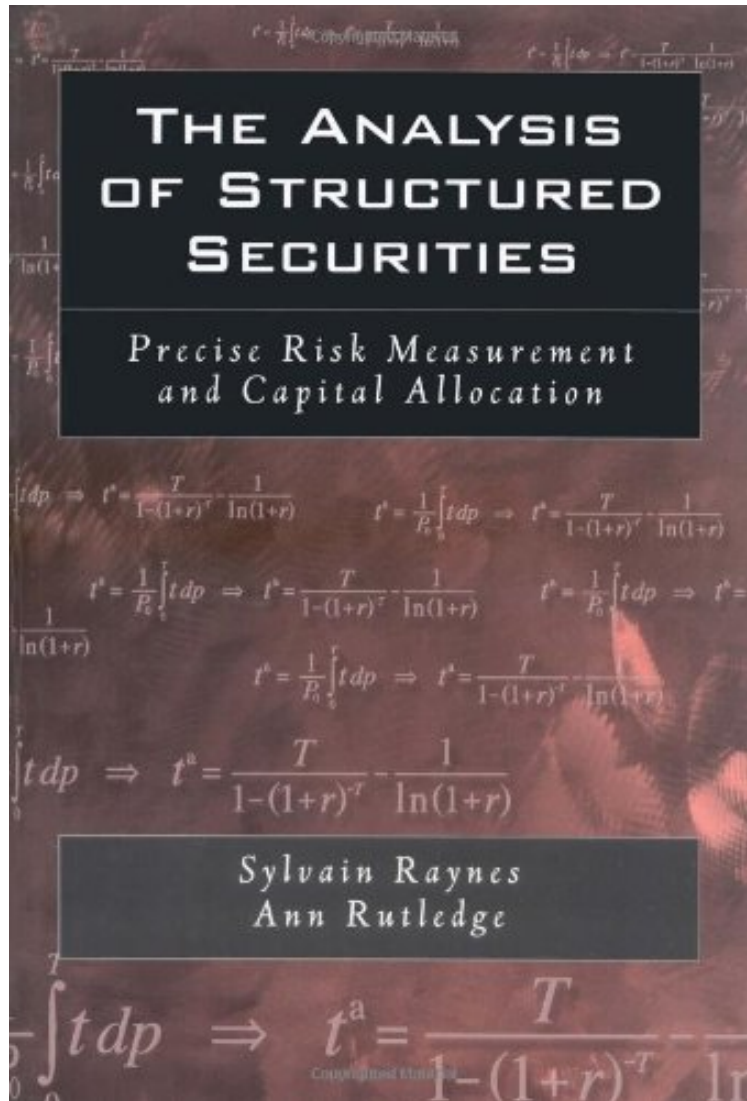


The Analysis of Structured Securities: Precise Risk Measurement and Capital Allocation

Sylvain Raynes, Ann Rutledge
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Sylvain Raynes, Ann Rutledge : The Analysis of Structured Securities: Precise Risk Measurement and Capital Allocation before purchasing it in order to gage whether or not it would be worth my time, and all praised The Analysis of Structured Securities: Precise Risk Measurement and Capital Allocation:

4 of 4 people found the following review helpful. A great way to learn what a structurer's work is like By N. Tuzov As a student of Quantitative Finance, I have to confess I didn't have much idea of what ABS, CDO, CBO, etc stood for. To me, they were just some useful buzzwords one might wish to include in the resume. After reading this book, my understanding of the Structured Finance area improved dramatically. The first two parts of the book provide a thought-

through introduction to the inner works of structured securities, along with the methods used to rate them. The way I see it now, a structured security is like a synthetic company. Unlike Microsoft or ATT, a synthetic company has no flashy office building or scores of employees. It exists on paper only, but, like a conventional company, it distributes the cash obtained from a certain kind of business to shareholders. For instance, the underlying asset can be receivables from credit card business. Another example is the cash flows obtained from the people who buy cars. As a result of securitization of these cash flows, we get so-called ABS. To benefit from diversification, different types of ABS's can be put together to form a CDO. Therefore, there is no surprise that setting up a structured security properly involves a great deal of legalese. This may be of little interest to a quant, but the authors make it perfectly clear that a single faulty clause in the papers (like using OR instead of AND or vice-versa) can break an otherwise good transaction. Before one can even start some sort of quantitative modeling, one has to have a deep understanding of exactly how various "moving parts" of the transaction work and what can possibly go wrong. Still, my favorite part is Part III where we get to see how quantitative methods can be helpful. A student taking Linear Algebra who wonders what this stuff is for (as I was many years ago) can find some answers here. The same applies to Markov Chains, Tchebychev Polynomials and even some elements of Number Theory. But again, knowing how structured transactions work from the inside is a must because it provides useful clues during the quantitative part of the process. Part IV illustrates the entire process with a few case studies. Although this book was published in 2003, I don't think it's much outdated. If you are looking for a great and inexpensive introduction, it's the way to go. Another, costlier option, would be a book by the same authors, *The Elements of Structured Finance*, scheduled for release in June 2010. 1 of 1 people found the following review helpful. Truly high caliber math but adding obscurity unnecessarily at times. Truly high caliber math - no question there. If you deal with this stuff every day, you should have this on your shelf. I would criticize it as adding obscurity unnecessarily at times. The over-use of legalese latin tipped me off. I have read other books that seemed to say "this topic is probably over your head, but we have a consultancy and a product package that can solve your problems." This book has a hint of that. Fair enough - if you want an expert, hire an expert. In any case, if you want to play with the "big kids", you should probably buy this one. 14 of 16 people found the following review helpful. An effective introduction. By Dr. Lee D. Carlson. Written for financial engineers, this book nevertheless can also be read profitably by anyone interested in mathematical modeling or mathematical finance. The authors discuss in fair detail the science of structured securities, which are financial products that are becoming more important as investors and financial firms continue to find more intricate ways of dealing with risk. For non-experts (such as this reviewer) in the field of structured finance, the book requires careful reading and attention to detail. Readers are expected to have an understanding of various mathematical topics such as Markov chains, linear algebra, Monte Carlo simulation, and probability and statistics. As an investment strategy, the authors describe structured securities as performing best in "controlled" environments. This involves the use of 'transaction documents', which are used to keep their performance within an expected range, and also 'macro-level' controls to assist in dealing with event shocks. The basic idea of a structured security is to assemble a credit or investment package from a variety of sources and allow them to be administered by third parties. This entails that the sources (the transferors) be completely decoupled from the transferee, the latter of which is called a 'special purpose entity' (SPE), and which has an extremely low likelihood of becoming insolvent by its own activities. The SPE is an analogue of the obligor, and is also shielded from the consequences of the insolvency of a related party. Its assets are thus 'perfected' against the claims of the transferor. Early in the book the authors describe what they consider to be the two types of structured securities. The first, called the 'long-term transaction model' applies to asset-backed, mortgage-backed, and collateralized debt issues with maturity at least one year. The second, called the 'short-term transaction model' applies to asset-backed commercial paper markets. If structured securities are to be used as an investment strategy, their value must be assessed in as fine a detail as possible. This assessment is of course the main goal behind the authors' book, and they therefore spend a fair amount of time in explaining why the usual credit rating strategies are inadequate for structured securities. One of those discussed is 'benchmark pool analysis' which does not require a large volume of data and uses a microeconomic model of the obligors in a collateral pool to simulate the financial impact of economic shocks. Others discussed include the actuarial method, used for asset-backed and mortgage-backed transactions, and the default method, which is used for collateralized debt obligations. The most interesting discussions take place when the authors attempt to formulate a more exact, analytical notion of rating for structured securities than what is available with the usual corporate rating model. Essentially the authors are advocating a "unification" of credit and market risk in structured finance in their attempt to replace the alphanumeric scale of the usual corporate credit rating by a numerical scale (they motivate this interestingly by discussion involving the 'continuum hypothesis' from set theory). Most important in their approach is to view the pricing of structured securities as a nonlinear problem: rating and pricing are entangled with each other, in that to obtain the rating the promised yield must be known; but to find the yield, the rating must be known. There is of course a paucity of exact solutions to nonlinear problems, and so numerical techniques must be used. The authors spend a fair amount of time discussing these techniques in the book, and in formulating the problem of structured pools as one involving (Markovian and non-stationary) stochastic processes. As a warm-up to the complications of asset behavior, the authors first discuss the modeling of liabilities. The

collection and distribution of cash to various parties is contained in the 'pooling and servicing agreement' (PS), which is a legally binding document that contains a collection of payment instructions called a 'waterfall' or 'structure.' A waterfall codifies the payment prioritization taken from the funds that are available. Examples are given that illustrate their analysis. For those not familiar with Markov chains, the authors give a short review, and argue that they are important to structured finance due to their ability to eliminate long-term static pool data requirements. The Markov chains used in structured finance are finite-state Markov chains, where the states correspond to recognized delinquency states of an issuer in some asset class. The transition matrices of the associated asset pools represent the credit dynamics of structured securities. The authors give three very detailed examples of their formalism, the first one of these, dealing with automobile receivable securitizations, should be familiar to most readers. The last chapter of the book deals with 'triggers', which generalizes the earlier discussion on liability modeling. The authors describe triggers as being the most 'intricate' aspect of the analysis of structured securities. If one views them in terms of their physics analogy as control structures, they are fairly straightforward to understand. 'Cash flow triggers' which allow a reallocation of cash but it does so without being too disruptive or expensive, are the only types considered in this chapter. The cash reallocation is obtained through the use of a 'trigger index', which is usually dependent on transaction variables such as delinquencies or tranche principal balances. A trigger is 'breached' if its trigger index is higher than a pre-selected threshold on any determination date. The authors discuss four basic types of triggers, all of which are defined mathematically in terms of the proportion $P(x(t))$ of excess spread to be reallocated and some variable function $x(t)$ of the trigger index: 'binary', in which all excess cash is reallocated to the spread account when there is a breach at time t ; 'proportional', which allows a kind of "ramping up" of the triggering; 'differential', where the excess spread is proportional to the first derivative of $x(t)$; and 'integral', where $P(x(t))$ is proportional to the integral of $x(t)$ over a time interval with lower bound the breaching time and the upper bound the current time. Monte Carlo simulations are used to optimize trigger mechanisms.

The Analysis of Structured Securities presents the first intellectually defensible framework for systematic assessment of the credit quality of structured securities. It begins with a detailed description and critique of methods used to rate asset-backed securities, collateralized debt obligations and asset-backed commercial paper. The book then proposes a single replacement paradigm capable of granular, dynamic results. It offers extensive guidance on using numerical methods in cash flow modeling, as well as a groundbreaking section on trigger optimization. Casework on applying the method to automobile ABS, CDOs-of-ABS and aircraft-lease securitizations is also presented. This book is essential reading for practitioners who seek higher precision, efficiency and control in managing their structured exposures.

"The Analysis of Structured Securities is a much needed text book covering an important and growing segment of capital markets. The authors combine rich institutional knowledge with illustrative examples that make the topic especially accessible. For the more technically inclined there are chapters that address the modeling issues in greater detail. I recommend this text to serious students in fixed income markets." --Suresh M. Sundaresan, Chase Manhattan Bank Professor of Finance and Economics, Columbia University New York

"This is an extremely informative book. Each page is rich with institutional detail and analytical insights. The reader who masters this book will be well prepared to address the important issues in today's structured securities markets." --Perry D. Quick, Vice President, Charles River Associates

"Much has been written about structured finance and rating, but nothing compares to this truly unique book by Raynes and Rutledge. To my surprise, I could not put it down, as each chapter beckoned of more to come. The authors lay out solutions to the practical problem of rating debt securities in the structured finance context. This book is a "must read" for anyone involved in structured finance. In light of the recent market failure, securities rating is indeed of interest to many investors. In fact, this book offers fascinating reading to anyone interested in the ways we seek to predict the future." --Tamar Frankel, Professor of Law, Boston University Law School

About the Author Sylvain Raynes and Ann Rutledge are the Founding Principles of R R Consulting, a structured finance consultancy dedicated to advising issuers, investors, intermediaries, non-profit corporations, and regulatory bodies in credit risk management and structured financial techniques using fine-grained analytical methods. In July 2001, their paper "Measures of Credit Losses: A Precise Method for Calculating Risk-adjusted Return on capital" was selected for presentation by the IAFE.