B40.3176 Credit Derivatives
Fall 2009
Monday 6:00 - 9:00 P.M.
KMEC 3-80

Website: http://sternclasses.nyu.edu/

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SYLLABUS

(as of Sept. 28, 2009)

Course description: This half-semester mini-course will introduce Finance MBA students to the theoretical and practical aspects of derivative securities based on credit risk. Credit Default Swaps (CDS), Collateralized Debt Obligations (CDOs) and other derivatives based on credit risk are a relatively recent innovation, but the risk they are designed to manage is fundamental and pervasive. It is no surprise that the market for credit derivatives has developed enormously fast. How important they have become in our financial system is apparent, especially during the current financial crisis, in which these new securities have played a major role.

The subject matter requires relatively greater use of quantitative methods and theoretical reasoning than many other courses The industry-standard valuation models for credit derivatives use concepts from probability theory that will not be entirely familiar, and most MBA students will find parts of it quite challenging. The concepts you need in order to understand credit derivatives models will be presented in class, with an emphasis on mastering the basics, and on understanding the more advanced technical details at an intuitive level.

***B01.2311 Foundations of Finance* is a prerequisite for this course.**
***B40.3335 Futures and Options* is recommended.**

Textbook:

A. Bomfim. Understanding Credit Derivatives and Related Instruments. Elsevier Academic Press, 2005.

Alternative textbook: (**CSMD**) Chacko, Sjoman, Motohashi, and Dessain. Credit Derivatives: A Primer on Credit Risk, Modeling, and Instruments. Wharton School Publishing, 2006.

This book is less comprehensive and at a lower level than Bomfim. It presents the basics of credit derivatives in a fairly simple way. If you choose this book, be sure to read all of the chapters including the Appendices.

Other Reading:
In addition to the textbook, there will be readings from other sources, including the Hull textbook on Futures and Options, articles from academic journals and the popular press, and practitioner-oriented materials from the securities industry.

Hull. Options, Futures, and Other Derivatives, 7th Edition, 2008.
The Hull textbook is a classic for derivatives. The two chapters on credit derivatives are excellent. Many students in this course will already own Hull, but perhaps not the 7th edition which has just been published. Here are the equivalent chapter numbers.

Hull 7th: 22 and 23.
Hull 6th: 20 and 21
Hull 5th: 26 and 27

Recommended
(**Douglas**) Douglas, editor. Credit Derivative Strategies. Bloomberg Press, 2007.
This book reviews a variety of trading and risk management strategies involving credit derivatives.

Articles

S. Ağca, D. Agrawal, and S. Islam (2008). "Implied Correlations: Smiles or Smirks?" Journal of Derivatives 15: 7:35.

R. C. Merton (1974). "On the Pricing of Corporate Debt: The Risk Structure of Interest Rates." Journal of Finance, 29: 449-70.
http://www.jstor.org/page/termsConfirm.jsp?redirectUri=/stable/pdfplus/2978814.pdf

E. Altman (2000). "Predicting Financial Distress of Companies: Revisiting the Z-Score and ZETA Models." Working paper, available on Altman's webpage:
URL: http://pages.stern.nyu.edu/~ealtman/Zscores.pdf

E. Altman (2006). "Default Recovery Rates and LGD in Credit Risk Modeling and Practice: An Updated Review of the Literature and Empirical Evidence." Working paper, available on Altman's webpage:
URL: http://pages.stern.nyu.edu/~ealtman/UpdatedReviewofLiterature.pdf

Hull, Predescu, and White. "The Relationship between Credit Default Swap Spreads, Bond Yields, and Credit Rating Announcements," Journal of Banking and Finance 28, 2004, 2789-2811.

Longstaff and Rajan. "An Empirical Analysis of the Pricing of Collateralized Debt Obligations." Journal of Finance 63, April 2008, 529-563. <link to .pdf>

To be distributed in class:

O'Kane and Livesey. "Base Correlation Explained." Lehman Brothers, Nov. 2004.

Crouhy, Jarrow, and Turnbull. "The Subprime Credit Crisis of 07." Journal of Derivatives 15, Fall 2008.

Computer:
A working knowledge of Excel or some other software package that you can use to do quantitative assignments is a requirement for the course. However, following Stern School standard policy, **no computers, Blackberries, smartphones, etc., in class**. They are too distractive, for the user and for others.

Grading:

- There will be one graded homework assignment during the course. (35%).
- The "final" will consist of a 1-hour in-class written exam on the last day of class (35%) and a take-home exercise (30%)

The typical grade distribution is: A, A- 25-35% ; B+, B, B- 55-65% ; C+ and below 5-10% This generally conforms to the Finance Department norm.

COURSE OUTLINE

Session / Date	Topics	Reading
1: Mon, Nov. 16	<u>Default Risk Overview</u> Measuring Credit risk Modeling Credit Risk Recoveries	Bomfim 1-5, 15, 17 Hull 7th, ch. 22 CSMD 1-4 Douglas ch.8 Altman 2 articles
2: Mon, Nov. 23	<u>Credit Default Swaps</u> CDS pricing model CDS indexes	Bomfim 6, 16, 24 Hull 7th, ch. 23 1st half CSMD 5 Douglas ch.9, 11
3. Mon, Nov. 30	<u>Collateralized Debt Obligations</u> CDO pricing models Other basket credit derivatives CDS index CDOs	Bomfim 19-21, 14 Hull 7th, ch. 23 2nd half CSMD 6 Douglas ch. 10, 5 O'Kane and Livesey
4. Mon, Dec 7	Empirical Research on Credit Derivatives	Ağca, Agrawal, and Islam Longstaff and Rajan Hull, Predescu, and White
5. Mon, Dec 14	Counterparty risk Regulating Credit Derivatives Trading Credit Derivatives	Douglas ch.1-4
6. Mon, Dec 21	The Subprime Mortgage Debacle FINAL EXAM	Crouhy, Jarrow and Turnbull