

## *Preliminary Course Description*

PROVISIONAL!

*Acharya, Viral*

Sp09 B40.3305 20      TuTh 1:30-2:50 **Credit Risk**  
Sp09 B40.3305 30      Th 6:00-9:00 **Credit Risk**

### Aims and Objectives

Fuelled in part by burgeoning growth in the credit derivatives market, the market in credit has expanded dramatically in the last 10 years. These increased activity levels have led to a much greater research focus on credit and one of the features of this work has been the high degree of complementarity between the research carried out by academics and by practitioners, for example, the investment banks and rating agencies. This was well illustrated in a major conference in 2005 organised by London Business School in conjunction with Moody's that attracted an audience of around 300 practitioners and academics.

The objective of the course is to provide an introduction as well as an in-depth understanding of issues in credit risk, its modelling and analysis and credit related instruments such as default-prone debt and credit derivatives. The objective is to provide a balance between developing, on one hand, a sound conceptual framework and, on the other, market understanding and insight. We regard both as essential to the informed practitioner.

### Topics Covered

The topics covered in the course will include:

- Historical default experience
- Structural models of credit risk (Merton, Leland, Collin-Dufresne et. al.)
- Applications of structural models of credit risk to default prediction and hedging; the KMV model
- Historical recovery experience
- Default-intensity models (Iben-Litterman, Duffie-Singleton, etc.)
- Application of default intensity models to:
  - Credit default swaps (single-name corporate and sovereign)
  - Credit spread options
- Historical experience on correlated defaults
- Correlation modelling and applications
- Basket default products: index tranches and CDOs
- Institutional features and liquidity issues relevant to credit derivatives

## Format and Teaching Methods

The classes will include discussions around empirical facts about credit, guest speakers on market developments, lectures on models and their applications, and also some cases.

## Reading Materials

There are two quite recent and very good books that deal with the analysis of credit risk. While neither of them covers all the material we plan to discuss in the class, the following one has a very good treatment of the two main modelling frameworks (the structural and intensity approaches) and we suggest that you may wish to buy it:

Lando, David, *Credit Risk Modelling: Theory and Applications*, Princeton: Princeton University Press, 2004. [Lando]

The other book, also excellent, is:

Duffie, Darrell and Kenneth Singleton, *Credit Risk*, Princeton: Princeton University Press, 2003. [DS]

Additional recommended reading materials (especially for a brief summary of credit risk modelling):

Chacko, Sjoan, Motohashi and Dessain (2006): *Credit Derivatives – A Primer on Credit Risk, Modeling, and Instruments*. [Chacko et. Al]

Dominic O’Kane and Lutz Schogl, *Modelling Credit: Theory and Practice*, Lehman Brothers International (Europe), 2001. [Lehman]

*The Lehman Brothers Guide to Exotic Credit Derivatives*, Lehman Brothers and Risk Waters Group, 2003. [RISK]