



[PREE·mee·ah]



The Professional Risk Managers' International Association

# • CREDIT DERIVATIVES

A TWO DAY COURSE LED BY DR. IZZY NELKEN



THE NOTIONAL AMOUNT OF OUTSTANDING  
CREDIT DERIVATIVE CONTRACTS IS MORE THAN  
\$17 TRILLION AND RAPIDLY GROWING

This course is designed to introduce you to credit derivatives by covering the various products and explaining their pricing and hedging. In addition, many applications of credit derivatives will be discussed including: risk management, asset allocation, capital structure arbitrage and also trading of credit as an asset class.

Tuesday and Wednesday, November 8 – 9, 2006  
Toronto, Ontario, Canada

The Fields Institute  
222 College Street

*A certificate of attendance will be provided.*



PRMIA Institute is registered with CFA Institute as an Approved Provider of professional development programs. This program is eligible for 13 PD credit hours(s) as granted by CFA Institute.

# CREDIT DERIVATIVES

## WHAT YOU WILL LEARN

- Uses of Credit Derivatives
- The various products
- Pricing and hedging
- Practical, hands-on examples of the Copula method
- Where to get the relevant parameters
- New research by Professors John Hull and Alan White (University of Toronto) and Izzy Nelken (the instructor)
- Specific trading ideas for the current environment

## KEY OBJECTIVES AND LEARNING OUTCOMES

- Discover key concepts and characteristics: the mechanics, styles and techniques of Credit Derivatives
- Understand the major risks of the various instruments
- Learn pricing and hedging techniques
- Apply in-depth case studies – using detailed, worked out quantitative examples
- Formulate innovative and successful deals and strategies
- Determine which products and strategies work best under different scenarios
- Explore trends, opportunities and the future outlook for credit derivatives

## WHO SHOULD ATTEND

- Proprietary Trader / Hedge Fund Manager / Portfolio Manager
- Head of Trading Desk
- Fixed Income Trader
- Repo Specialist
- Risk Director and Manager
- Accountant / Auditor
- Derivative Brokers and Dealers
- Corporate Strategists, Developers and Planners
- Financial Analysts / Financial Brokers
- Exchange Officials
- Derivatives Lawyers
- Software Providers, System Professionals and Information Providers
- Regulators
- Treasury Executives, Directors and Managers

## COURSE DELEGATE EXTRAS

- To complement your learning process, a printed binder with several hundred pages, a CD with all the documentation, and example spreadsheets will be handed out.

# COURSE OUTLINE

## DAY ONE

### INTRODUCTION TO CREDIT DERIVATIVES: CONCEPTS AND STRUCTURES

*Evaluating the Credit Derivatives Market and the Rationale for its Development*

- Current and future potential of credit derivatives market
- Analysis and commentary on the most recent studies and reviews
- Assessing the size of the market in terms of capacity and liquidity
- The size of the market and the distribution among product lines and underlying instruments
- Hedge funds' use of the product
- Difficulties in developing a true "two way" market
- Evaluating the potential for a secondary market in credit derivatives
- Recent events and the implications on the market

*Different Structures and Assessing their Risks to Ensure Successful*

- Implementation
- Credit Default Swaps (CDS) – Is it a "roach motel"?
- Default Swaps & Options
- Total return swaps
- Credit linked notes
- Put credit spreads on asset swaps
- Credit spread notes
- Equity Default Swap (EDS) – is it really taking off?
- Demystifying the risks: cross, equity, term structure, settlement, legal and basis risk
- Downgrade options and their uses

### CDO

- Collateralized Debt Obligations CDO's: Collateralized Bond Obligations (CBOs) and collateralized loan obligations (CLOs)
- Arbitrage CLO vs. Balance Sheet CLO
- Asset Backed Securities (ABS) CDO
- Synthetic CDO
- Trust Preferred CDO
- CDO Squared
- The newest trends in the CDO markets

*Default Correlation and CDO*

- How does default correlation effect the various tranches
- Some "non-intuitive" results

*Examples of sample terms sheets*

- Examining specific terms sheets
- What is the use of each structure
- Why is someone purchasing the structure
- How is it created
- What are the benefits to the issuer
- The ISDA credit derivatives definitions booklet

*Convertibility products*

- Suitable for hedging cross border risks
- The currency repatriation hedge
- Is this a credit derivative or is it a foreign exchange structure?

*CDS index*

- CDX, iTraxx etc.
- Their construction and their use

*New products*

- News from the field
- What are some of the most recent deals being done

*The credit spread*

- Comparison: credit spread vs. corporate spread
- The credit spread curve and its meaning
- Connecting the credit spread, the recovery value and the probability of default
- What is the "current spread" as opposed to the "forward spread"
- The credit rating agencies and their role
- The credit transition matrix and its implications

### *Connecting Between Credit Derivatives and the Repo Markets*

- Is it a credit derivative or is it a repo trade?
- Similarities and differences
- When to use each instrument

### *Where should the CD desk be placed within the bank*

- We examine several possibilities
- Possible solutions arrived by different banks
- Advantages and disadvantages of the various approaches

### *Issues related to foreign markets*

- Credit derivatives: experience in the US, Europe and the Far East
- The South African experience
- Other markets

## APPLICATIONS OF CREDIT DERIVATIVES

### *Exploiting the Potential: Understanding the Concept of Credit Derivatives*

- Defining credit derivatives
- Examining the advantages of credit derivatives for:
  - Addressing line constraints
  - Optimizing balance sheet use and portfolio diversification
  - Hedging credit exposure
  - Investment
- Role of the seller:
  - How to price credit derivatives
  - How to market them
  - How to hedge them
  - Managing a book

### *Designing Credit Derivatives for the Benefit of the Investor*

- The investor's role in structuring credit derivatives
- What are the structuring choices available?
- How does the issuance process work?
- Finding the correct risk/reward mix for each type of investor
- Determining the features that would appeal to the investor
- Addressing liquidity concerns
- Can the investor get out of the structure after they have purchased it?

### *Credit Risk Management Systems*

- CreditMetrics by JP Morgan
- CreditRisk+ by Credit Suisse Financial Products
- CreditPortfolioView by McKinsey and Co.
- PortfolioManager by KMV Corporation
- The Hull, Nelken and White approach
- Other models in development
- Advantages and disadvantages of the various models
- When is each model applicable?
- How do these models compare to each other and how are they accepted in the market

## DAY TWO

### *Understanding Credit Derivatives as a Successful Tool for Credit Risk*

- Management
- Using credit derivatives to manage and securitise credit risk
- Overcoming the problem of illiquid credit exposure
- Applying portfolio theory to credit risk management
- Successful use of credit derivatives to optimize bank loan portfolios
- Credit spread options as a commitment facility
- Mitigating cross-border risks with credit derivatives
- Comparing and contrasting credit swaps and securitisation

### *Practical Investment Applications for Credit Derivatives*

- Calculating relative value: how does credit risk compare with other instruments?
- Uses of credit derivatives in investment:
  - Yield enhancement
  - Taking advantage of discrepancies in credit pricing across asset class barriers
  - Modifying credit risk allocation
  - Improving liquidity of core portfolio
  - Synthetic loan trading

### *Capital Structure Arbitrage*

- Examination of the strategy
- Examples of deals
- Connection between credit, share prices and volatility
- How to use Credit Derivatives in this context

### *Evaluating the Possible Limitations when Implementing Credit Derivatives*

- What are the typical first few deals?
- How to get into more esoteric structures?
- What can you tell the risk manager in order to approve your deal?
- The concept of "fast track" in credit derivatives
- Diversification and managing a book
- Can special structures be booked "back to back"?

### *Investigating the Possible Uses of Credit Derivatives*

- Managing the capacities of credit "buckets"
- Credit derivatives for optimizing balance sheet use and portfolio diversification
- Credit derivatives as an alternative to the syndicated loan market
- Applications of credit derivatives for the end user

### *Implementing Successful Strategies for Profitable Trading, Hedging and Arbitraging of Credit Derivatives*

- Identifying the optimal dealing methods for credit derivatives:
  - Who are the key players?
  - Assessing the role of the inter-dealer broker
  - Monitoring the trends in the market
- Using credit derivatives for:
  - Hedging default risk
  - Hedging a loan portfolio
  - Hedging downgrade risk
  - Implementation of proprietary trading methods
  - Can you hedge interest rate risk with credit derivatives?
- Taking advantage of arbitrage and mis-pricing opportunities
- Managing the risks: liquidity, basis, residual and correlation risks

### *The Copula Method*

- What is the Copula method?
- Advantages and disadvantages
- Archimedean copulas
- Actual, worked out examples

## PRICING, HEDGING AND ANALYSIS WORKSHOP

*Working in small teams, delegates will be presented with term sheets of various deals using different products, such as credit derivatives, CBO's etc. We will analyze each deal in terms of the following:*

- Motivation - why would a someone sell the product and why would another party purchase it?
- What is the view expressed by entering into the deal?
- Assessing the major risks and rewards associated with each deal

- Pricing - how is this structure priced
- Sensitivity - how will the structure perform under various scenarios (parallel shifts, flattening or steepening of the yield curve etc.) Credit spread changes? What about volatility swings?
- Hedging - how can the parties entering the deal hedge their exposure?
- Alternatives - what other structures are there which offer similar behavior under various possible market conditions?

## SOME OF THE PRODUCTS COVERED

- Put Credit Spread
- Asset Swap Put Credit Spread
- Binary Credit Linked Note
- Credit Spread Collar
- Dual Currency Credit Spread Note
- Forward Spread Note
- Coupon Enhanced Credit Linked Note
- Basket Credit Linked Note
- Total Return Swap

## PRICING, VALUING AND HEDGING ISSUES

### *Pricing of Credit Derivatives*

- Developing a framework for accurately pricing credit derivatives
- Pricing total return swaps
- Pricing credit spread products:
  - Term structure of credit spreads
  - Pricing mathematics
  - Credit spread forwards
  - Credit spread options
  - Pricing default risk products
  - Pricing logic
  - Pricing default risk
  - Hedging models
  - Estimating the recovery value
  - Delta hedging

### *The Copula Method*

- Unraveling the mystery of the Copula method

### *Determining the Probability of Counterparty Default*

- A comparison of three approaches to default:
  - Flesaker et al
  - Black, Scholes & Merton
  - Longstaff & Schwartz
- Credit rating vs. the probability of default
- Credit enhancement strategies

### *Different Perspectives for Pricing Credit Derivatives*

- Assessing the difference between buyer versus seller
- Trader's perspective:
  - Evaluating market liquidity
  - Pricing specific structures as opposed to a portfolio
  - Identifying risk/reward ratios
  - Market pricing approach
  - End user's perspective

## COURSE ENDS

- Conclusions
- The future of the credit derivatives market

## CONTACT INFORMATION

To contact the PRMIA staff, visit the "Contact Us" link at [www.prmia.org](http://www.prmia.org) or send an e-mail to [jodi.lundell@prmia.org](mailto:jodi.lundell@prmia.org)



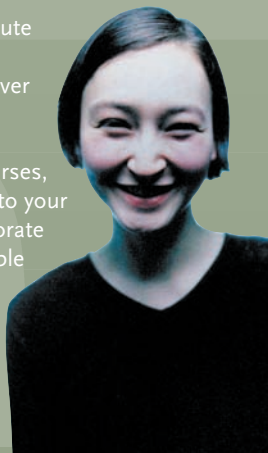
## PRMIA INSTITUTE

A GLOBAL PARTNERSHIP BETWEEN PRMIA  
AND LEADING ACADEMIC INSTITUTIONS

- PRMIA and leading universities around the world have come together to set the standards for risk management education:
  - Defining the best practice core curricula for graduate-level risk management, financial engineering, and financial mathematics programs
  - Providing classroom based training, using leading academic instructors, in developed and developing markets
  - Publishing books, journals and articles to the highest academic standards, serving the risk practice
  - Funding research grants and academic prizes and awarding scholarships to advance the study of risk management, financial engineering, and financial mathematics

### THE PREMIER LEARNING PLACE OF THE RISK PROFESSION

The PRMIA Institute offers classroom instruction and over 400 online professional development courses, all customizable to your personal or corporate needs and available anywhere in the world with an Internet connection.



COURSE FEE: \$1,995 (USD)

Register before September 30, 2006 and receive \$400 off the course fee.

REGISTRATION IS ONLINE: [http://www.prmia.org/events/view\\_events.php?eventID=2405](http://www.prmia.org/events/view_events.php?eventID=2405)  
OR REGISTER BY PHONE: +1-917-421-9651

LOCATION: The Fields Institute · 222 College Street  
Toronto, Ontario, Canada

ONLINE ACCESS: For an additional \$250 (USD), delegates will receive a 1-year license to the PRMIA Institute online Credit Derivatives course.



PRMIA Institute is registered with CFA Institute as an Approved Provider of professional development programs. This program is eligible for 13 PD credit hours(s) as granted by CFA Institute.

### ABOUT DR. NELKEN



Izzy is president of Super Computer Consulting, Inc. in Northbrook, Illinois. Super Computer Consulting Inc. specializes in complex derivatives including Exotic Options, Volatility Products and Credit Derivatives. Their areas of expertise include proprietary trading and risk management. Izzy's firm has many consulting clients, amongst them some of the leading Banks, Regulatory bodies and hedge funds. Izzy holds a Ph.D. in Computer Science from Rutgers University and was on the faculty at the University of Toronto. Izzy teaches numerous courses and seminars around the world

on a variety of topics. He is also a lecturer at the prestigious mathematics department at the University of Chicago. Izzy's seminars are known for being non mathematical. Instead they combine cutting edge analytics with real world applications and intuitive examples.

### EXPERIENCE WITH REGULATORS

Izzy has given in-house seminars at many a regulator including the FDIC in Washington DC as well as a large central bank in London.

### BOOK PUBLISHED

Izzy is editor and co-author of:

- "The Handbook of Exotic Options," Irwin, 1996, ISBN 1-55738-904-7
- "Option Embedded Bonds," Irwin, 1997, ISBN 0-7863-0818-4
- "Volatility in the Capital Markets," Glenlake, 1997, ISBN 1-884964-73-7
- "Handbook of Hybrid Securities," Wiley, 2000, ISBN 0-471-89114-2.

He is author of:

- "Implementing Credit Derivatives," McGraw Hill, 1999, ISBN 0-07-047237-8
- "Pricing, Hedging and Trading Exotic Options," McGraw Hill, 1999, ISBN 0-07-047236-X
- "Hedge Fund & Investment Management," Elsevier Finance, 2006, ISBN 0-7506-6007-4

### SOFTWARE PRODUCTS

Super Computer Consulting Inc. currently has three software products:

- ExoticOp! the exotic options portfolio manager
- ConvB++ the convertible bond and hybrid instrument software package
- WeatherBox for weather derivatives

### ACADEMIC INFORMATION

- B.Sc. in Mathematics and Computer Science, Tel Aviv University 1984
- M.Sc. in Computer Science, Rutgers University, 1986
- Ph.D. in Computer Science, Rutgers University, 1989
- Post Doctoral Fellowship at the University of Toronto, 1989-1991
- 1997 – Current: Lecturer, Graduate program on Mathematical Finance, Mathematics Department, University of Chicago.

Dr Izzy Nelken is an experienced and world-renowned expert in the field of quantitative finance, with a valuable knowledge base with Credit Derivatives. A few of his accomplishments include:

- Recently released a paper on the connection between Credit Derivatives and the Skew in the Implied Volatility of Equity Options (with John Hull and Alan White)
- Editor and co-author of "Implementing Credit Derivatives," ISBN 0-07-047237-8
- Been involved as an expert witness in a lawsuit related to volatility estimation
- Member of CBOE New Products Committee
- Gives detailed training courses on the topic both to financial institutions (e.g. Credit Suisse First Boston, Hypovereinsbank, Rabobank and others) as well as to regulators (e.g. FDIC)
- Currently editing a book on Volatility to be published by Incisive Media