

ADVANCED CREDIT RISK MEASURING AND MODELLING TECHNIQUES for effective portfolio management

Advanced-level investigations into the theoretical and practical aspects of credit risk measuring and modelling practices

Course highlights:

- An organically grown intensive training program delivered by an outstanding panel of expert practitioners
- In-depth examination of default modelling: structural vs. intensity-based vs. rating migration modelling
- Comprehensive investigation into correlation skews and base correlations
- Advanced analysis of dynamic credit correlation modelling
- Stress testing credit risk, including integrating stress testing interest rate risk and credit risk
- Examination of counterparty credit risk vs. lending risk
- Practical applications of Monte Carlo simulation

Course tutors:

- **Robert Selvaggio**, AMBAC FINANCIAL GROUP
- **Michael Pykhtin**, BANK OF AMERICA
- **Mathias Drehmann**, BANK OF ENGLAND
- **Jon Gregory**, BARCLAYS CAPITAL
- **Lorenzo Isla**, BARCLAYS CAPITAL
- **Jorge Sobehart**, CITIGROUP
- **Olivier Renault**, CITIGROUP
- **Philip Obazee**, DELAWARE INVESTMENTS
- **Birgitta Drwenski**, DRESDNER KLEINWORT WASSERSTEIN
- **Federico Galizia**, EUROPEAN INVESTMENT BANK
- **Ludger Overbeck**, HYPOVEREINSBANK
- **Claudio Albanese**, IMPERIAL COLLEGE, UNIVERSITY OF LONDON
- **Aaron Brown**, MORGAN STANLEY
- **Yang Pang**, ZAIS GROUP

Who should attend?

This advanced, highly practical course is designed for those interested in the latest developments in credit risk modelling and measurement. It is a valuable resource both for those who develop modelling and measuring techniques, and those who apply them.



**ADVANCED CREDIT RISK MEASURING
AND MODELLING TECHNIQUES
for effective portfolio management**

LONDON 23 & 24 March 2006
NEW YORK 30 & 31 March 2006

Dear Executive,

Following its considerable success in previous years, Risk Training is delighted to announce the return of the much valued training course, **Advanced credit risk measuring and modelling techniques for effective portfolio management**.

With so many 'hot' topics being discussed at the moment, such as risk capital, correlation modelling, and stress testing, there is no better time to attend a course that has been extensively researched with so many expert practitioners and leading academics.

Designed to present the most advanced material available, through key practical examples, this event will give you the opportunity to:

- Listen to world class speakers talk about all the important current issues
- Consolidate your knowledge of different default modelling methodologies
- Examine the implication of the PD/LGD link for credit risk modelling
- Find out about recent developments on the allocation measure
- Explore leveraged super senior tranches and options on tranches
- Review and analyse the 'correlation crisis' of spring 2005
- Investigate macro stress testing credit risk
- Study the impact of credit migration on the portfolio loss distribution
- See Monte Carlo used to calculate credit risk exposure to a counterparty

This course provides real investigation of real issues, and since credit risk measurement underpins credit risk mitigation strategies, and impacts on all aspects of credit risk management, **can you really afford to be left behind?**

Risk Training takes great pride in the informal and highly interactive style of these courses, a design which enables us to ensure that individual attention can be shown to each delegate, making it a valuable experience for all our attendees.

Please make sure that you book early to secure your place by calling the registration hotline on **+44 (0) 870 240 8859/+1 (212) 925 6990** or emailing **conf@incisivemedia.com**.

I look forward to welcoming you to this course.

Yours faithfully,

A handwritten signature in black ink that reads "Oliver Lowe". The signature is written in a cursive, flowing style.

Oliver Lowe
Course Producer
Risk Management Division
Incisive Media

London, 23 & 24 March 2006

Day one – Thursday 23 March 2006

08.00 Registration and coffee

08.30 DEFAULT MODELLING

- Decomposing credit risk: default, spread and other risk exposures of defaultable securities
- Properties of default behavior of defaultable securities
- Structural vs. intensity-based vs. rating migration modelling
- Implementation of structural models – practical challenges
- The term structure of default risk – an application to the term structure of equity correlation

Lorenzo Isla, Head of European Structured Credit Research and Strategy,
BARCLAYS CAPITAL

10.00 Morning break

10.20 RISK CAPITAL ALLOCATION FOR CREDIT PORTFOLIOS WITH STRUCTURED CREDITS

- Recent development on the allocation measure
 - Expected shortfall and spectral capital allocation
 - Formulating your risk aversion
 - Taking the entire loss distribution into account
- Specific feature for structured credits
 - Traditional market based risk measures
 - Credit risk driven measures
 - Expected loss contribution
 - Risk capital contributions

Ludger Overbeck, Head of Portfolio Analytics & Pricing,
HYPOVEREINSBANK

11.50 Lunch

12.50 ESTIMATING AND MODELLING LOSS GIVEN DEFAULT

- Estimation of LGD – comparison of different modelling techniques
- The PD/LGD Link: implications for credit risk modelling
- Extracting LGD information from the market: recovery swaps and fixed-recovery CDS
- CASE STUDY: Delphi's default
- Impact of LGD on portfolio Value at Risk and CDO prices

Olivier Renault, Vice President, Quantitative Credit Strategy,
CITIGROUP

14.00 PRICING CREDIT DEFAULT SWAPS

- Pricing models and parameters
 - Single name and index defaults swaps
 - Options on default swaps
- CASE STUDY: Managing a portfolio of bonds, loans and credit default swaps
- Macroeconomic models for stress testing

Federico Galizia, Adviser to the President,
EUROPEAN INVESTMENT BANK

15.30 Afternoon break

16.00 COUNTERPARTY CREDIT RISK EXPOSURE

- Estimating credit exposure for derivatives: exposure simulation & alternatives
- Use of credit exposure in pricing and risk management
- Pricing of credit risk: – marginal risk – recognition of risk mitigants – managing sensitivities

Birgitta Drwenski, Director, Counterparty Portfolio Management,
DRESDNER KLEINWORT WASSERSTEIN

17.30 End of day one

Day two – Friday 24 March 2006

08.30 Registration and coffee

09.00 CREDIT RISK MODEL VALIDATION: STRESS TESTING

- General framework for macro stress testing credit risk
- Modelling non-linear impacts of macroeconomic shocks on credit risk
 - The importance of taking non-linearities into account
 - The importance of conditioning on current macro conditions
- Integrating and stress testing interest rate risk and credit risk on the banking book
 - Theoretical framework
 - A portfolio example

Mathias Drehmann, Research Manager,
BANK OF ENGLAND

10.30 Morning break

11.00 PORTFOLIO CREDIT PRICING

- Credit portfolio losses
- The Merton Approach and asset correlation
- Copula modelling
- Rating agency models
- Implementation: factor copulas and Monte Carlo simulation
- CSO² and more complex payoffs

Jon Gregory, Global Head of Credit Derivatives,
BARCLAYS CAPITAL

12.30 Lunch

13.30 CORRELATION SKEW MODELLING

- The correlation skew
- Base correlation
- Correlation skew models
- CASE STUDY: A simple skew model
- Leveraged super senior tranches and options on tranches

Jon Gregory, Global Head of Credit Derivatives,
BARCLAYS CAPITAL

15.00 Afternoon break

15.30 ADVANCED MODELLING OF CORRELATION PRODUCTS

- Dynamic credit correlation modelling
- Market models vs. Markov models
- Lattice models for CDOs
- CASE STUDY: calibration of CDX and iTraxx tranches from January to May 2005
- Gamma and vega risk and the dynamics of the loss distribution
- Modelling management constraints in cash flow CDOs
- Synthetic benchmark pricing of CLOs
- EXAMPLE: an SME portfolio from January to May 2005
- CDO tranche options
- Cancelable and mezzanine swaps

Claudio Albanese, Professor of Mathematical Finance,
Imperial College,
UNIVERSITY OF LONDON

17.00 End of course

New York, 30 & 31 March 2006

Day one – Thursday 30 March 2006

08.30 Registration and coffee

09.00 DEFAULT MODEL APPROACHES

- Introduction to different default modelling methodology
 - Structural credit risk modelling
 - Ratings migration modelling
 - Reduced form modelling
 - Hybrid modelling
 - Advantages and disadvantages of different methodologies
 - Relationship between modelling approaches
- Phillip Obazee**, Vice President and Head of Derivatives, Fixed Income,

DELAWARE INVESTMENTS

10.30 Morning break

11.00 CREDIT MIGRATION, PORTFOLIO LOSSES AND CREDIT RISK CAPITAL

- Modelling credit migration, default risk and credit spreads for multiple economies and sectors
- Impact of country and industry effects on default risk and correlation
- Consistent methodology for portfolio stress testing and what-if scenario analysis
- Impact of credit migration on the portfolio loss distribution and risk capital estimates

Jorge Sobehart, Director, Global Risk Architecture, CITIGROUP

12.30 Lunch

13.30 PRICING CREDIT DEFAULT SWAPS

- Pricing single name credit default swaps
- Pricing credit default swaps using balance of premium and protection legs
- Fixed recovery vs. floating recovery credit default swaps
- Index default swaps
- Options on index default swaps

Robert Selvaggio, Managing Director, Risk Analysis and Reporting, AMBAC FINANCIAL GROUP

15.00 Afternoon break

15.30 ESTIMATING LOSS GIVEN DEFAULT

- Definitions of default and loss
- LGD determinants
- Type of exposure
- Expected loss
- Risk of loss
- Conditioning
- Time horizon and discount rate
- Liquidity considerations
- Hedging LGD
- Mathematical models and credit derivatives

Aaron Brown, Head of Credit Risk Architecture, MORGAN STANLEY

17.00 End of day one

Day two – Friday 31 March 2006

08.30 Registration and coffee

09.00 PORTFOLIO CREDIT PRICING

- Credit portfolio losses
- The Merton Approach and asset correlation
- Copula modelling
- Rating agency models
- Implementation: factor copulas and Monte Carlo simulation
- CSO² and more complex payoffs

Jon Gregory, Global Head of Credit Derivatives, BARCLAYS CAPITAL

10.30 Morning break

11.00 CORRELATION SKEW MODELLING

- The correlation skew
- Base correlation
- Correlation skew models
- CASE STUDY: A simple skew model
- Leveraged super senior tranches and options on tranches

Jon Gregory, Global Head of Credit Derivatives, BARCLAYS CAPITAL

12.30 Lunch

13.30 CREDIT RISK MODEL VALIDATION: STRESS TESTING

- Stress tests using scenario analysis
- Stress tests using Monte Carlo simulation
- Model sensitivity and model risks
- Integrating default risks and market risks
- Consistency across the portfolio

Yang Pang, Head of Research and Development, Research & Development, ZAIS GROUP

15.00 Afternoon break

15.30 COUNTERPARTY CREDIT RISK

- Counterparty credit risk vs. lending risk
- Exposure models for derivatives
- Exposure at counterparty level
- Portfolio loss and economic capital
- Regulatory capital
- Pricing and hedging

Michael Pykhtin, Vice President, Credit Analytics, BANK OF AMERICA

17.00 End of course

IN-HOUSE TRAINING

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Biographies:

Robert Selvaggio, AMBAC FINANCIAL GROUP

(New York course)

Bob Selvaggio is a Managing Director of Ambac Financial Group, where he is responsible for portfolio credit and market risk management, the attribution of economic capital and structured credit risk analytics. Prior to joining Ambac, Dr. Selvaggio served as a Financial Economist at Thompson McKinnon Securities, and then held a number of positions at the Chase Manhattan Bank including Senior Asset/Liability Analyst, Head of Fixed Income and Mortgage Research and Managing Director of Treasury Analytics. Bob holds a PhD in Economics from Brown University.

Michael Pykhtin, BANK OF AMERICA (New York course)

Michael Pykhtin is a Vice President in the Credit Analytics group at Bank of America. He is responsible for developing new credit risk methodologies for the bank's portfolio of derivatives and other capital market products. Prior to joining Bank of America in 2005, Michael was a Vice President in the Capital Allocation & Quantitative Analysis group at KeyCorp. His main responsibility was developing models of credit risk and economic capital for the bank's portfolio of loans and other assets. Michael has edited "Counterparty Credit Risk Modeling", published by Risk Books. He is also a contributing author to two recent Risk Books titles. Michael has published several articles on portfolio credit risk in Risk magazine's Cutting Edge section. He holds a Ph.D. degree in physics from the University of Pennsylvania.

Mathias Drehmann, BANK OF ENGLAND (London course)

Mathias Drehmann is a research manager at the Bank of England. His team is in charge of developing a framework to measure and stress test the financial stability of the UK banking system with a special focus on modelling the impact of macroeconomic shocks on credit as well as market risk. Before joining the Bank in 2003, Mathias finished a PhD in economics at the University of Bonn as well as the London School of Economics as part of the European doctoral programme in quantitative economics. Mathias has published in leading academic journals such as the American Economic Review.

Jon Gregory, BARCLAYS CAPITAL

(London and New York course)

Jon Gregory has recently joined the Global Credit Derivatives group at Barclays Capital. Prior to this, he was global head of the Credit Derivatives Research at BNP Paribas, where he spent the previous nine years of his career. In addition to publishing papers on the pricing of credit risk and related topics, he is co-author of the best selling book Credit: The Complete Guide to Pricing, Hedging and Risk Management which was short-listed for the Kulp-Wright Book Award for the most significant text in the field of risk management and insurance. He has also edited the bestselling book Credit Derivatives: The Definitive Guide. Jon has a PhD from Cambridge University in 1996. He worked in the Fixed Income division of Salomon Brothers (now part of Citigroup) prior to joining Paribas in 1997.

Lorenzo Isla, BARCLAYS CAPITAL (London course)

Lorenzo Isla is responsible for the CDO/structured credit research and strategy efforts at Barclays Capital. Prior to this he held a similar position at Lehman Brothers Int., was a lecturer at Harvard University and worked for Panagora AM, the Boston based hedge fund. He holds a bachelor's degree in Economics from Universitat Pompeu Fabra and completed his M.A. and Ph.D. studies in Financial Economics at Harvard University.

Jorge Sobehart, CITIGROUP (New York course)

Jorge Sobehart is a Director at Citigroup Risk Architecture (Credit Risk Analytics). He currently leads the research and development of risk assessment tools for credit risk capital, credit correlation and default risk models, such as Citigroup's Hybrid Probability of Default Models. Previously, Dr. Sobehart was a member of Moody's Standing Committee on Quantitative Tools and Vice President and Senior Analyst in Moody's Risk Management Services, where he developed and validated two commercial credit risk models: RiskCalc for public firms and Winfast-RiskScore. During his career, he has worked and acted as a scientific consultant for several prestigious companies and institutions. He has contributed to many conferences in addition to publishing technical reports in many fields. Dr. Sobehart has advanced degrees in physics and has postdoctoral experience at the Los Alamos National Laboratory.

Olivier Renault, CITIGROUP (London course)

Olivier Renault is head of European structured credit strategy for Citigroup, based in London. He is a regular speaker at professional and academic conferences and is the author of a book and many published articles on credit risk. Prior to joining Citigroup, Olivier was responsible for portfolio modelling projects at Standard & Poor's Risk Solutions and was a lecturer in finance at the London School of Economics where he taught derivatives and risk. He was also a consultant for several fund management and financial services companies. He holds a PhD in financial economics from the University of Louvain (Belgium) and an MSc from Warwick University (UK).

Phillip Obazee, DELAWARE INVESTMENTS

(New York course)

Mr. Obazee is responsible for the management derivatives within Delaware. In addition to these responsibilities, he also maintains a risk management leadership role. He joined Delaware Investments from First Union Securities Inc., where he served as Vice President of Quantitative Research. Prior to that responsibility, Obazee was a Managing Director of Structured Derivative Products and Agency Debt Origination at CoreStates Securities Corp. and Vice President and Head of Financial Analytics and Structured Transactions at CoreStates Capital Markets. From 1993 to 1996, he served as Vice President of Trading and Hedging in the Interest Rate Group of Meridian Capital Markets (Division of Meridian Bank). He has also held academic positions in colleges and universities in the southern and north-eastern United States. Philip has contributed several chapters to professional books in fixed income as well as articles to professional journals. He holds BS and MBA degrees and did doctoral studies in mathematical finance at the University of Pennsylvania.

Birgitta Drwenski, DRESDNER KLEINWORT WASSERSTEIN (London course)

Birgitta is currently heading the pricing team of Dresdner's Counterparty Portfolio Management in London, which belongs to Credit Asset Management, Fixed Income- Capital Markets. Prior to joining Dresdner Bank, she worked as an interest rate option trader for WestLB and in their credit derivatives group.

Federico Galizia, EUROPEAN INVESTMENT BANK

(London course)

Federico Galizia is the Adviser to the President of the European Investment Bank. He previously held positions in Economic and Financial Studies, the Credit Risk Directorate and the Directorate for Lending Operations. He developed the Bank's credit portfolio model and an array of rating and pricing methodologies for long-term loans and project finance. He collaborated with the European Commission to design financial instruments in support of investments in infrastructure and in research. Formerly with McKinsey & Co., Inc., Mr. Galizia holds a Ph.D. in Economics from Yale University, a Masters in Economics and a Bachelor Degree in Economics and Business from the University of Turin. He is author of several academic papers in macroeconomics, banking, corporate finance and risk management; he lectures at Sacred Heart University in Luxembourg.

Ludger Overbeck, HYPOVEREINSBANK (London course)

Ludger Overbeck holds a Professorship of Mathematics at the University of Giessen in Germany. His main interests are Finance and Risk Management. Until June 2003 he was Head of Risk Research & Development in Deutsche Banks Credit Risk function. Ludger's main responsibilities included development and implementation of the internal group-wide Credit Portfolio model, the EC/RAROC-methodology for all risk types except Market Risk, and risk assessment of credit derivatives and portfolio transactions like CDO and ABS. Before that he was with the Banking Supervision Department of the Deutsche Bundesbank. He publishes in many academic and applied journals, including RISK. He co-authors a book on credit risk modelling.

Aaron Brown, MORGAN STANLEY (New York course)

Aaron Brown is head of Credit Risk Architecture at Morgan Stanley. He has worked in risk management for 15 years for Citigroup, Rabobank and JP Morgan, and also been a head of mortgage securities, trader, portfolio manager and finance professor. He holds an SB degree in Applied Mathematics from Harvard and an MBA in finance from the University of Chicago. He is a frequent conference speaker and writer in the professional literature, and the author of The Poker Face of Wall Street (Wiley, April 2006).

Claudio Albanese, Imperial College, UNIVERSITY OF LONDON (London course)

Claudio Albanese is Professor of Mathematical Finance Imperial College, where he manages programmes in executive education and the doctoral and postgraduate continuing education level. His research focus is on financial derivatives. Since the beginning of 2000 he has been working on credit derivatives and authored a number of papers dedicated to the creation of an efficient and detailed framework for dynamic credit correlation modelling.

Yang Pang, ZAIS GROUP (New York course)

Yang Pang is the Head of Research and Development at ZAIS Group. He oversees the firm-wide research efforts in credit and structured finance including ABS, CDO and credit derivatives. He is also responsible for the development of proprietary system platforms used in managing CDO collaterals and hedge funds. Before joining ZAIS Group, Yang Pang was an assistant professor of physics at Columbia University and also worked at RiskMetrics Group.

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